

Creating the future of sustainable energy today
Amsterdam, 25-26 October 2017



*160 innovations
to enhance your company's
product portfolio*

Event programme and exhibitors catalogue

Platinum Partners



Silver Partners



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Welcome to TBB

Diego Pavia



The clean energy revolution is happening in Europe, but not fast enough. To meet our ambitious goals and limit climate change, we need to move faster – we need to fast-track clean energy innovation.

Each of you attending The Business Booster 2017, are here to help make this happen.

Therefore, it gives me great pride to welcome you to this international, sustainable energy marketplace – where we provide industry, investors and public-sector institutions with direct access to more clean energy technologies than any other event in the world.

In addition, because more and more technologies are gearing up for commercialisation, all event exhibitors are now organised by market segment. As you will see on page 16, we are looking to provide sustainable solutions to key players right across the energy value chain, from feedstock and fuels and electricity and heat production, to grid and infrastructure.

Fully aligning The Business Booster exhibitors with markets and customers, you will then be able to drill down a step further to discover a wealth of solutions specifically catering to your business needs and future challenges.

What's more, for the first time, TBB.2017 will include live product demonstrations. As a former engineer – and still one at heart – I am looking forward to witnessing first-hand, all of these technologies brought to life under one roof.

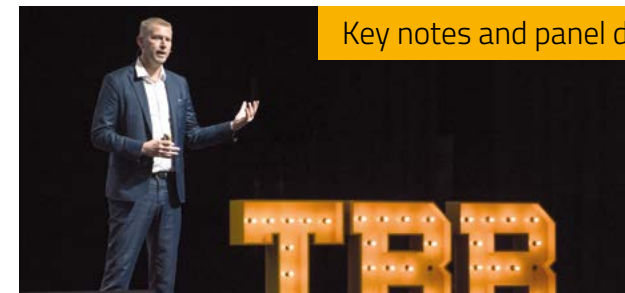
I trust, that as a key player within the energy transition, you are also eager to behold the 160+ sustainable energy solutions TBB.2017 has to offer, and make your mark on the clean energy revolution, by seeking out business partnerships and securing commercial transactions.

By joining forces, we will be able to ensure that all of these breakthrough technologies are taken to market and given the opportunity to play their part in the profound transformation of Europe's energy system.

Enjoy, and welcome to the best TBB. yet!

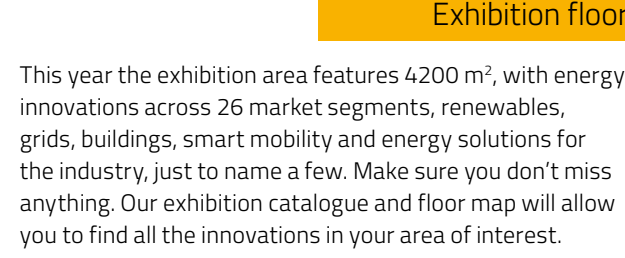
Diego Pavia. CEO, InnoEnergy

Europe's leading market place for sustainable energy innovations



Key notes and panel debates

TBB is a forum to learn about the energy sector's trends, with inspiring speakers, thought leaders, Expert discussions and interactive sessions. Learn with our 14+ speakers how we can accelerate clean energy innovations.



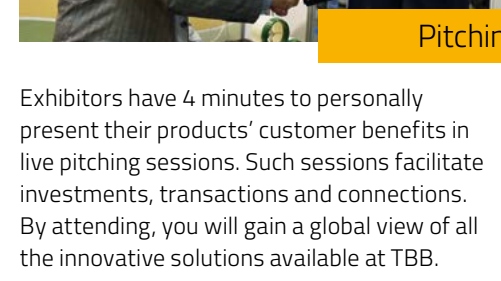
Exhibition floor

This year the exhibition area features 4200 m², with energy innovations across 26 market segments, renewables, grids, buildings, smart mobility and energy solutions for the industry, just to name a few. Make sure you don't miss anything. Our exhibition catalogue and floor map will allow you to find all the innovations in your area of interest.



B2B meetings

Prepare your meetings with the B2B matchmaking tool. You will be able to scan the exhibitor database to identify those with the most relevant innovations and arrange to meet each and every one of those companies or individuals that most interest you.



Pitching sessions

Exhibitors have 4 minutes to personally present their products' customer benefits in live pitching sessions. Such sessions facilitate investments, transactions and connections. By attending, you will gain a global view of all the innovative solutions available at TBB.



Demonstration area

New

For the first time ever, 16 exhibitors will perform live product demonstrations, allowing you to see first hand how their technology works. There will also be time for Q&A!

Agenda

25 October

-
- 08.00 - 09.00 **Registration.** *Showroom Area*
-
- 09.00 - 09.15 **Welcome speech.** *Auditorium*
Diego Pavía, *CEO of InnoEnergy*
-
- 09.15 - 09.45 **Key note.** *Auditorium*
Maroš Šefčovič, *Vice-president European Commission in charge of Energy Union*
-
- 09.45 - 10.30 **Key note.** *Auditorium*
Dr. Prof. Bertrand Piccard, *Explorer, Chairman of the Solar Impulse Foundation*
-
- 10.30 - 10.45 **Opening of TBB.2017.** *Auditorium*
Elena Bou, *Innovation Director, InnoEnergy*
-
- 10.45 - 11.15 **Networking coffee break.** *Showroom Area*
-
- 11.15 - 13.00 **Pitching Sessions.** *Break out rooms*
-
- 13.00 - 15.00 **Networking & Lunch.** *Showroom Area*
-
- 15.00 - 15.45 **Key note.** *Auditorium*
HRH Prince Constantijn of The Netherlands, *Special envoy for StartupDelta 2020*
-
- 15.45 - 16.45 **Panel debate.** *Auditorium. Financial Instruments.*
Moderated by Matias Torrellas, InnoEnergy portfolio manager
Candace Johnson, *Serial Entrepreneur and Investor, President EBAN*
Jean-David Malo, *Director, DG Research and Innovation, EC*
Benjamin Wainstain, *Innovation Partner, Demeter Partners*
Martin Edlund, *CEO, Minesto*
-
- 16.45 - 17.30 **Networking coffee break.** *Showroom Area*
-
- 17.30 - 18.30 **Pitching Sessions.** *Break out rooms*
-
- 18.30 **End of the day.** *Departure of the buses back to the hotels*
-
- 20.00 **Welcome cocktail & Social dinner.** *The Kromhouthal*
-

26 October

-
- 09.00 - 10.00 **Panel debate.** *Auditorium*
Public sector as early adopters of clean energy innovations
Moderated by Jacob Ruiters, CEO, InnoEnergy Benelux
Jean-Michel Amaré, *CEO, Ataway*
Ronald Hopman, *Business Development Director, Veolia, Netherlands*
Sabine Romon, *Head of "Smart and Sustainable City" mission, City of Paris*
Bernd Vogl, *Head of energy planning department, City of Vienna*
-
- 10.00 - 10.30 **Networking coffee break.** *Showroom Area*
-
- 10.30 - 12.30 **Pitching Sessions.** *Break out rooms*
-
- 12.30 - 13.30 **Panel debate.** *Auditorium*
Putting the citizen at the centre of the energy transition
Moderated by Jakub Miller, CEO, InnoEnergy Central Europe
Nuria Serrano, *Head of strategy, VCCP, Madrid*
Ines Bergmann-Nolting, *Investment director, E.On SE, Innovation scouting & Strategic co-investments*
Tanmoy Bari, *CEO, Greenely*
Jan Heijns, *Researcher and responsible for sustainability programmes, Pakhuis De Zwijger, Amsterdam*
-
- 13.30 - 15.00 **Networking lunch.** *Showroom Area*
-
- 15.00 - 15.30 **Pitching finals.** *Auditorium*
The audience will choose five finalists among the start-ups from the previous pitching sessions. Those start-ups will pitch again in front of the jury composed of experts from the industry and the venture capital firms. The jury will choose the winner and two finalists.
-
- 15.30 - 16.00 **Graduation ceremony.** *Showroom Area*
For the start-ups graduating this year from InnoEnergy Highway programme
-
- 16.00 - 17.00 **Pitching awards and closing.** *Auditorium*
-



Giving life to a new energy

With ENGIE, innovation
is now collaborative.

ENGIE works closely with entrepreneurs, startups and experts to innovate and co-create energy solutions of tomorrow in order to face the challenges of energy. ENGIE aims at nurturing every idea to reinvent the world of tomorrow.

engie.com



ENGIE, SA AU CAPITAL DE 2 435 285 011 € - RCS NANTERRE 542 107 651.

Welcome to TBB Elena Bou



Welcome to The Business Booster 2017, where start-ups, industry representatives, financial communities, policy makers and public organisations come together to initiate transactions and foster the adoption of sustainable energy solutions across Europe.

Last year, the Vice-President for the Energy Union, Maroš Šefčovič, opened The Business Booster 2016 with a message about the much-anticipated Clean Energy for All Europeans package. Leading the way to achieving a carbon neutral economy, the package emphasised clean innovation acceleration as a key enabler to achieving a carbon neutral Europe.

Strongly aligning with InnoEnergy's mission to facilitate the energy transition, **Accelerating Clean Energy Innovations** was chosen as the theme of this year's event.

During The Business Booster 2017, we will explore three critical elements needed to make acceleration a reality: public actors as key early adopters of innovations, bringing public and private finance together and putting the citizen at the centre.

Each of these elements play a vital role, and achieving their own energy targets in isolation will certainly help. But, acceleration will only truly be realised if all of them work in tandem. Ecosystems that foster collaboration between these diverse actors, to accelerate the energy transition, is what is needed to make this possible.

At The Business Booster, this is exactly what we do. By bringing together 160 innovative energy innovations alongside industry leaders, senior public-sector decision makers and investors – all the catalysts are in place to truly accelerate clean innovation.

With this in mind, I wish you a fruitful two days full of ideas and solutions, so that together we can create the future of sustainable energy today.

Elena Bou. *Innovation Director, InnoEnergy*

Key Note Speakers

Maroš Šefčovič

Vice-president European Commission in charge of Energy Union

Maroš Šefčovič is a Slovak diplomat and the Vice-President of the European Commission, in charge of Energy Union. He was European Commissioner for Interinstitutional Relations and Administration from 2010 to 2014. His area of responsibility includes the administration of the Commission, including management of some of the Commission's Internal Services; in particular consolidation of administrative reform, personnel and administration, European Schools and security.



Prof. Dr. Bertrand Piccard

Explorer, Chairman of the Solar Impulse Foundation

Bertrand Piccard is the initiator and visionary behind Solar Impulse, the very first airplane capable of flying perpetually without fuel. Taking turns at the controls with André Borschberg for the first flight around the world on solar power, his ambition is to leverage pioneering spirit for a useful contribution to the cause of renewable energies. This is why he spent the last 15 years bringing together the major partners providing technologies and funds for this adventure. Together with his wife Michèle, he conceived the Solar Impulse project as a now widely recognised platform to raise public awareness and encourage political actions in favour of clean technologies and energy efficiency, the next stage of which includes the establishment to this end of the World Alliance for Efficient Solutions under the aegis of the Solar Impulse Foundation. The inspiration he received from other explorers and pioneers during his childhood gave him the desire to inspire young generations in return.



Prince Constantijn of the Netherlands

Prince Constantijn is Special Envoy for StartupDelta2020, where he was appointed for 18 months, starting July 2016. Prince Constantijn is an independent adviser on corporate innovation and jointly initiated Startup Fest Europe, a five-day festival of events throughout the Netherlands. He is also Director of Digital Technology and Macro Strategy at Macro Advisory Partners in London. In January 2017 the Prince joined the 15-strong High Level Group of Innovators that advises the European Commission on improving Europe's performance in breakthrough, market-creating innovation.



Panel debates

Financial Instruments for the acceleration of clean energy innovations

25 October

3:45 pm - 4:45 pm – Auditorium

During this panel, experts from the public and private financing sectors, as well as start-ups will discuss how to create a shared environment where both public and private financiers can jointly come into contact with clean energy innovation businesses and build partnerships and funding consortia. By being mutually involved in a project from the start, more effective partnerships are possible, ultimately releasing additional capital to accelerate clean energy innovations.

Public sector as early adopters of clean energy innovations

26 October

9:00 am - 10:00 am – Auditorium

How can the public sector contribute to the acceleration of clean energy innovations by playing a key role as early adopters of clean energy innovation?

In this panel representatives from major European cities will discuss different ways in which they can boost the adoption of these innovations, whether through public procurement that facilitates access to innovators, by collaborating with start-ups or by any other type of innovative initiative that contributes to the acceleration of clean energy innovations.

The panel includes the point of view of cities and big companies, working with the public sector and collaborating with cities in their programmes to deploy innovative technologies, as well as start-ups that have the public sector as their main customer.

Putting the citizen at the centre of the energy transition

26 October

12:30 pm - 13:30 pm – Auditorium

It is vital that citizens take ownership of the energy transition, benefit from new technologies that reduce energy bills and contribute to reducing green-house gas emissions. But how can we influence societal behaviour when it comes to energy? For this panel debate, we will bring on stage an expert to present the latest research findings on the topic, a start-up with a consumer centric solution, a utility company that puts customers at the centre and an initiative from Amsterdam city to get proactive citizen engagement.



The Open Innovation Village



Open innovation offers opportunities to reduce research costs, share risks and bring innovations to market more quickly.

Open innovation is about enhancing your company's innovation capabilities through collaboration and exchange. The Open Innovation Village is a networking area at the heart of the exhibition.

You will find space to collaborate, do business and innovate to create the future of the energy today. Visit industry sponsors and strategic partners at their booth and listen to the industry pitches that will take place on the Open Innovation Village stage.

“
Innovation processes are changing within the energy sector. We see now ecosystems of start-ups and large companies and regulators, coming together to bring new possibilities to consumers. It is an exciting time to be looking into open innovation in the energy sector.

Henry Chesbrough. Professor at UC Berkeley.
Advisor to InnoEnergy in topics related to open innovation.



Enhance your company innovation capabilities

Engage Collaborate
Learn
Connect Collaborate
Engage Learn
Collaborate Connect

Open Innovation Village Exhibitors



Engie

Booth DL5

ENGIE is the world's first independent power producer. The Group develops its businesses (power, natural gas, energy services) around a model based on responsible growth to take on the major challenges of energy's transition to a low-carbon economy: access to sustainable energy, climate-change mitigation and adaptation and the rational use of resources.

ENGIE works closely with entrepreneurs, startups and experts to innovate and build together solutions designing the energy of tomorrow. Since 2014, ENGIE has launched 60 Calls for projects, receiving about 2 000 applications on its innovation platform (<http://innovation.engie.com/>) from startups and rewarding more than 50 winners.



European Investment Bank

Booth DL1

The EIB is the European Union's bank, the only bank owned by and representing the interests of the European Union. EIB is the world's largest multilateral borrower and lender: the bank provides finance and expertise for sustainable investment projects that contribute to EU objectives. More than 90% of its activity is in Europe, and EIB also is a big investor around the world.

Under Horizon 2020, the EU Research and Innovation programme for 2014-20, the European Commission and the European Investment Bank Group (EIB and EIF) have launched "InnovFin – EU Finance for Innovators", in 2014. InnovFin is a new generation of financial instruments and advisory services designed to help innovative firms, young to large, access finance more easily.



European Commission DG RTD

Booth DL2

The Directorate-General for Research and Innovation (DG RTD) of the European Commission defines and implements the European Research and Innovation (R&I) policy with the aim of improving Europe's competitiveness, boost growth, create jobs, and tackle the main current and future societal challenges. As much as €75 billion are available to fund excellent R&I over 7 years (2014 to 2020). This makes Horizon 2020, the current R&I framework programme, the biggest ever not only in the EU but also worldwide. Within Horizon 2020, more than €10 billion are expected to be spent on clean energy R&I, decisively contributing to develop new, more efficient, technologies and to achieve the 2030 emission reduction targets.



Iresen

Booth DL3

The Research Institute for Solar Energy and New Energies (IRESEN) is at the heart of the national energy strategy in the Kingdom of Morocco. By its position in the fields of applied research and innovation, IRESEN ensures a quick technology transfer and the transposition of research results into innovative products.

Created in 2011 under the initiative of the Ministry of Energy, Mines and Sustainable Development and several public and private players in the energy sector, IRESEN aims to support R&D and Innovation through its funding agency and to mutualize research infrastructures through the development of a network of research and training platforms.

US Landing Programme with Incubatenergy

Booth DL4

InnoEnergy supports our ventures in entering the US market via a 3-month tailored residency in a US clean energy incubator. We support the venture that has global ambitions by making the step faster, easier, more efficient and more effective. We use our US partners in the Incubatenergy Network as the launching point to provide services to our startups.

The Incubatenergy Network is the premier US consortium of clean energy-focused incubators and accelerators, their objective is to speed the transition to a sustainable economy in the United States. INetwork members collaborate to provide entrepreneurs around the country with the resources needed to scale and deploy, including access to lab and prototyping space, mentorship, funding opportunities, and potential customers and strategic corporate partners.

Gas & Steam Turbines

PAGE	EXHIBITOR	BOOTH
18	AMC Vibro (1)	A01
103	Ecotech Ceram	D21
107	GraphMaTech	D25
19	Inther Soft	A02
49	Phoenix BioPower	B03

Geothermal Electricity

20	enOware	A03
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Heating & Cooling

098	Alpinov X	D16
18	AMC Vibro	A01
121	Betterspace	D39
21	Ecotropy	A04
60	Ecovat	C01
22	Enetech	A05
23	Flue Gas Recovery Swd	A06
141	Gensoric	D57
19	IntherSoft	A12
78	IonSeed	C17
24	MetalERG	A07
50	Solaga	B04
131	Vilisto	D48

Hydropower

18	AMC Vibro	A01
25	Turbulent	A08

Nuclear

26	Ermes	A09
106	foreseeti	D24

Ocean

27	Corpower Ocean	A10
28	Minesto	A11
32	Pro-Drone	A14
94	Skeleton Technologies	D12

Offshore Wind

18	AMC Vibro (1)	A01
31	AMC Vibro (2)	A01
64	C2C New CAP	C05
30	Principle Power	A13
32	Pro-Drone	A14
29	Smartive	A12
130	Vertequip	D47

Onshore Wind

31	AMC Vibro (2)	A01
64	C2C New CAP	C05
53	Gasliner	B07
73	MorEnergy	C12
32	Pro-Drone	A14
94	Skeleton Technologies	D12
29	Smartive	A12
130	Vertequip	D47
33	Wind-Tuning-Syst.	A15

Solar PV

134	BeOn	D51
64	C2C New CAP	C05
34	Dracula Tech.	A16
35	EasySolar	A16
36	Ecoligo	A18
138	EnerBim	D55
37	EPC Solaire	A19
38	Quantom	A20
94	Skeleton Technologies	D12
39	SolAngel Energy	A21
69	Solaris Offgrid	C08
41	S'Tile	A23
40	Solelia Greentech	A22
42	Swedish Algae Fact.	A24

Electricity & Heat Production



Heating & Cooling
Hydropower
Offshore Wind

Onshore Wind
Industry

AMC Vibro · Poland

Product: AV SENSOR 2000R/4000R

Wireless sensors to increase the efficiency of power generation equipment.

THE NEED. An easy way to obtain critical data that can be transformed into significant information on the technical state of mechanical and structural equipment.

THE SOLUTION.

AV SENSOR 2000R/4000R is a system of machine element monitoring suitable for power plants and coalmines. The solution provides valuable information on the technical condition of remote or inaccessible assets. Wireless communication ensures reliable and secure transfer of information from sensors to the IT infrastructure.

KEY FEATURES.

- High performance and cost-effective meshed radio modules.
- Highly efficient data analysis algorithms.
- Efficient and robust vibration processing algorithms.
- Magnetic sensors for full diagnosis of tubes over their entire length without prior preparation of the surface.
- Unique contactless battery power system with a bidirectional energy transfer.

VALUE PROPOSITION.

- Automatic validation of acquired data to avoid false alarms.
- Contactless battery provides a simple and safe way to power the sensors.
- Ability to inspect pipes that were not affordable to inspect before to increase operational safety and availability.
- Connect external sensors to integrate functionalities of various devices into one universal sensor.
- Reliable wireless communication interface, which reduces cost of sensors installation.

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✓ COMMERCIALISED

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Deputy CEO

Heating & Cooling

InTherSoft · Poland

Product: Fast thermometer

Fast temperature measurement with low thermal inertia

THE NEED.

A very significant reduction of dynamic temperature measurement error when compared to conventional thermometers used in the industry for high pressures and flow of fluid.

THE SOLUTION.

A dedicated temperature measuring sensor - thermocouple - built in the form of a cylinder cover and software with its own special algorithm for necessary calculations.

KEY FEATURES.

- Fast temperature measuring.
- Reduction of measuring thermal inertia.

VALUE PROPOSITION.

- Elimination of metal overheating (by 10-15%).
- Faster and safer start-ups, shut downs, and load changes of the power plant units by up to 12%.
- Lifetime extension of pressure elements in industrial installations.
- Optimisation of the heating and cooling processes.
- Superheated steam temperature control can be significantly improved (by up to 70%).

enOware · Germany

Product: GEOsniff and INDUSniff

Swimming wireless sensors for fluid applications

THE NEED.

The market doesn't offer efficient miniaturised measurement technology for new built, continuous operating and decommissioning of geothermal probes as also for pipes in industrial applications.

THE SOLUTION.

A swimming sensor which will be going through a pipe system like geothermal probes as also other pipe systems, measuring the data like temperature, pressure, ph and more and transferring the data wirelessly when passing a docking station to a monitoring portal.

KEY FEATURES.

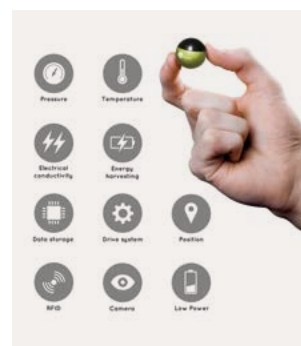
- Monitoring
- Only 20mm diameter
- Retrofitable
- Very precise measurement
- Wireless and App based

VALUE PROPOSITION.

- Cost efficient
- Flexible in comparison to fixed sensors
- Long term monitoring inside pipes
- Very precise measurement



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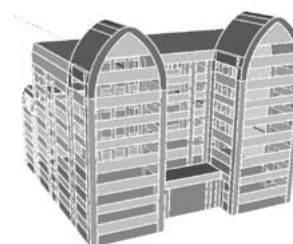
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Tadeusz Uhl
Chairman of the
supervisory board

Ecotropy · France

Product: BUILDSENSE

Simulation and measurements for better energy efficiency in buildings

THE NEED.

While billions of euros are spent every year on energy conservation measures in buildings, the energy gains obtained are on average 50% below target. This means inefficient investments and slower decisions made on ambitious energy conservation measures. Existing energy simulation solutions fail to reduce this gap because of their tricky implementation, leading to inaccurate output results.

THE SOLUTION.

Ecotropy provides a simple and accurate system to measure and analyse the energy performance of a building. The unique combination of energy simulation software and on-site instrumentation makes the measurement and verification process more accurate and with a higher repetition rate compared to today's practices. It goes even further by providing a way to detect construction or design defects and to optimise the installation tuning.

VALUE PROPOSITION.

- Wireless communication and charging enables in situ monitoring and measurements
- A compact size and geometry allows sensors to be installed at any accessible point of the system without costly partial demolition
- New installments possible without increased planning input
- Enables easy refits in existing probes that can inspect the state of the application and monitor its energy efficiency

Enetech · Poland

Heat storage, heat transport, PCM and wasted heat recovery

THE NEED.

About 60 TWh of heat energy is lost in the form of waste heat in the industry in Poland alone each year. Due to its nature (low-parameter energy) it is not possible to effectively manage this amount of energy.

THE SOLUTION.

Thanks to this system, the waste heat energy could be utilised - it could be transported to the places where it will be useful. Without need of expensive investments in the traditional heating network.

KEY FEATURES.

- Energy transfer (loading and unloading) at a constant temperature
- Useful for heating systems.
- Maximising of energy storage rate per volume due to the using of PCM material (up to 172 kWh/m³).
- Possibility to transport the energy storage tank at short distances of up to 30 km.

VALUE PROPOSITION.

- Gaining new customers for heat energy in small CHP and biogas plants
- Possibility to make heat production independent from electricity production in small CHP (maximising of electricity production volume during peak demand)
- Possibility to manage waste heat energy in industry and earn money on it instead of wasting it



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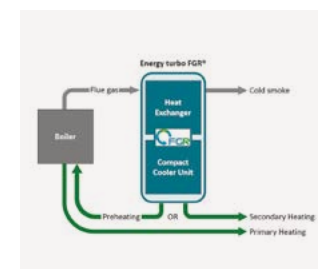
✓ COMMERCIALISED

Customer references:
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CEO

✓ COMMERCIALISED

Non Residential
Residential Building
Industry

Flue Gas Recovery Sweden · Sweden

Product: Energy turbo FGR®

The Energy Turbo FGR® makes your heating even more efficient

THE NEED.

The demand for heating solutions that meet new environmental requirements and legislation is constantly increasing. This need applies to all kinds of heating systems. In addition, the significant amount of unused energy currently lost through the exhaust pipes of today's heating systems needs to be utilised more effectively. The demand for reducing the costs of heat production is also ever present.

THE SOLUTION.

By recovering waste energy, Energy Turbo FGR® enables heat producers to achieve higher utilisation of their investment, reduce cost of fuel and mitigate the tougher requirements following the Paris climate conference agreements.

KEY FEATURES.

- Can be used on any heating system producing flue gases, regardless of fuel
- Creates usable exhaust gas
- Increases thermal efficiency by around 20%
- Optimised for 100-1000kW heating systems
- Patent pending solution
- Significantly reduces soot particles

VALUE PROPOSITION.

- Gives quick payback on investment
- Makes a combined heat and power unit (CHP) even more efficient
- Meets environmental requirements
- Reduces cost of fuel



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Sales Director

Paweł Denys
Production Director

✓ COMMERCIALISED

MetalERG · Poland

Product: BioEcoMatic

A fully automatic straw-powered batch boiler with an energy range of 200kW to 995kW

THE NEED. The challenge is to further enhance the usability and efficiency of straw-fired biomass boilers. For farmers, rural businesses and local communities looking for cost-effective heating systems, straw-fired biomass boilers offer significant advantages.

THE SOLUTION. Bio-Eco-Matic, is a fully automatic straw-powered batch boiler with an energy range of 200kW to 995kW. The boiler delivers significant cost savings by using a readily available, independent and low-cost fuel. It can use whole straw bales for combustion without additional manual intervention. It has a modular design that makes it suitable for heating a wide variety of agricultural, commercial and residential. The final configuration of the boiler is tailor-made for each customer, taking into account energy requirements, the type of straw, and space availability.

KEY FEATURES.

- Competitively priced fuel compared with other forms of biomass and fossil fuel-powered boilers.
- Minimum manual intervention in fuel loading, operation, maintenance and cleaning processes.
- Optional automatic ash-removal and heat-exchanger cleaning systems to minimise manual maintenance.

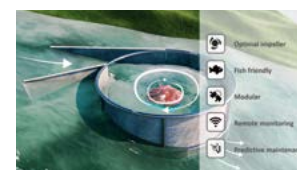
VALUE PROPOSITION.

- Low-cost, independent, convenient and efficient heating for a variety of commercial, agricultural or residential settings.
- Modular design featuring standard combustion and loading chambers, and an adaptable feeding table and heat exchangers to meet individual needs.



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THE TEAM

Jasper Verreydt
Co-founder and CEO

Geert Schlachmuylders
Co-founder and CTO

Luc Berben
Product Manager

✓ COMMERCIALISED

Turbulent · Belgium

Designs next-generation hydroelectric powerplants based on biomimicry

THE NEED.

About 1.3 billion people have no access to electricity and many more rely on diesel generators or other polluting sources of energy. Renewables such as wind or solar can be unstable, while large hydro projects cause significant environmental damage.

THE SOLUTION.

Turbulent has developed a smart, small-scale and decentralised hydropower plant. Unlike traditional plants, an easy to install turnkey product has been created to deliver affordable, reliable and clean electricity to even the most remote parts of the world.

VALUE PROPOSITION.

- Affordable and efficient
- Can be installed without large construction works
- Designed to work efficiently on sites with a low height difference
- Easier to install and more adaptable than most other Hydropower techniques
- Uses natural flow principles to convert the river's available energy into electricity

ERMES · France

Product: VIZA HD

Radiation-resistant high definition cameras

THE NEED.

There is a requirement for cameras to be able to detect small size phenomena while exposed to high levels of radiation. Electronic systems do not resist such levels. The challenge is to design the electronics of the camera in order to be resistant to radiation.

THE SOLUTION.

The ability to design high definition radiation resistant video cameras is thanks to the know-how and experience from various sources. The HD camera proposed for development allows for the detection of micro-cracks down to 0.1mm. Simultaneous use of high zoom (optical and digital) combined with wide angle optics allows for the continuous visual inspection of the global and detailed view, avoiding costly downtime.

KEY FEATURES.

- Coloured images.
- Image resolution > 1 megapixels.
- Non browning zoom lens.
- Radiation resistance > 50 kGy.

VALUE PROPOSITION.

- Better characterisation of the operated objects (fuel assembly...)
- Economical performance of operations: no costly downtime of operations, reduction of human intervention
- Increased safety through an automated and increased control of operations



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**THE TEAM**

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**THE TEAM**

Patrik Möller
CEO

Anders Jansson
Commercial Director

✓ **COMMERCIALISED**

Customer references:
Wave Energy Scotland

CorPower Ocean · Sweden

Product: CorPower S3

High efficiency wave power

THE NEED.

Competitive renewable energy production systems are urgently needed. Harvesting nature's vast resource of energy contained in ocean waves could sustainably and effectively produce 2000-4000TWh of electricity per year – covering 10-20% of worldwide electricity consumption.

THE SOLUTION.

CorPower's Wave Energy Converter (WEC) operates in resonance with incoming waves. It has a heaving buoy on the surface absorbing energy from the combined surge and heave motion of the waves. It is connected to the seabed using a taut mooring line and has a pneumatic pre-tension module between the mooring line and the buoy to enable a lightweight system with high natural frequency of oscillation.

KEY FEATURES.

- Detuned in storms, strongly reducing the loads providing good survivability up to 32m wave.
- Inherently resonant by WaveSpring control.
- Lightweight system with high natural frequency of oscillation.

VALUE PROPOSITION.

- Competitive: low capital and operations costs, high average output
- Efficiency and high power density: 5x energy output per ton of device
- Grid balancing: using the ocean as the most cost effective solar battery on the planet
- Survivability: naturally transparent to storm waves

Minesto · Sweden

Product: Deep Green

Revolutionary concept for producing electricity from the ocean

THE NEED. The global demand for renewable energy is constantly increasing. A growing human population, the need for energy supply security and climate change are all strong driving forces for the development of new technologies for low cost renewable energy.

THE SOLUTION. The product, Deep Green, consists of a wing and turbine which is attached by a tether to a fixed point on the seafloor. As water flows over the wing, the water current creates a lift force on the wing that pushes the kite forward. The key uniqueness of the product is the way that the water flow is increased into the turbine by flying the product and thus pushing the onboard turbine through the water. This solution can exploit slow streams.

KEY FEATURES.

- Availability: Deep Green sites are far more accessible than competing technologies
- High efficiency: unique technique of increasing relative water flow speed into the turbine. Low cost of energy: providing significantly lower long-term LCOE at approx. €60/MWh
- Low-cost offshore operations : using smaller boats and equipment
- Site characteristics monopoly: only technology operating cost-efficiently in slow currents
- Small in size and weight: weighs 10-25 times less per MW than competing technologies

VALUE PROPOSITION.

- Global resource
- Low cost renewable energy
- No land is required and no visual impact
- Provides reliable, predictable and sustainable renewable energy (baseload power)
- Unlocks an untapped renewable energy source

Booth n° A11



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Power DSO
Power TSO
Onshore Wind

Smartive · Spain

Product: SMART SCADA

Advanced IoT cloud solutions to monitor, diagnose and control wind turbines

THE NEED.

The high number of wind turbines breakdowns amount to global losses of over 2.9 billion annually.

THE SOLUTION.

Smartive IT platform is a solution to monitor wind turbines to enable real-time online monitoring and control.

KEY FEATURES.

- High technology design
- Intelligent sensor fusion

VALUE PROPOSITION.

- Competitive price
- Fast detection of system failure
- Innovative solution
- Optimised performance
- Reduced wind maintenance by 20%

Principle Power · *United States*

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 which have advantages, such as high quality wind resource, reduced visual and environmental impacts.

THE SOLUTION. The WindFloat is a semi-submersible floating wind turbine foundation. It is a 3-column structure linked by a truss, combining proven technologies from oil and gas and wind industry into an innovative solution that provides access to transitional and deep-water offshore wind sites. The relatively shallow draft of the platform enables installation of the turbine at quayside, and the complete structure to be towed to its final location.

KEY FEATURES.

- Patented floating platform for wind turbines
- Shallow draft, enabling commissioning of the system at port
- Simple, easily disconnectable mooring system
- Simplified logistics with low cost, widely available vessels
- Standard tubular components for simple fabrication
- 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



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

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Key Account Manager

✓ COMMERCIALISED**AMC Vibro** · *Poland*

Product: MONITOR 4000

A multichannel modular system for advanced diagnostics of rotating machinery

THE NEED. Mechanical failures are the cause of up to 50% of total wind turbine downtime. Gearbox damage for instance might stop a turbine for 6 months and cause 1 million EUR losses. AVM 4000 effectively detects symptoms of developing failures at an early stage.

THE SOLUTION. AVM 4000 is an intelligent platform for online condition monitoring, failure protection and vibration-based diagnostics of machinery. Due to its modular design the system easily adapts to functional needs and the financial capacities of the customer. Furthermore, the ease of expansion allows them to spread out the investment over time.

KEY FEATURES.

- Continuous real-time data processing.
- Built-in diagnostic analyses.
- Parallel data processing for each signal.
- Reduction of false alarms.
- Modular structure based on functional cards.
- Historical data recording 24bit measurement resolution, sampling up to 100kHz Integration with SCADA systems.
- Relay outputs for protection.
- Access from any place in the world (Ethernet).

VALUE PROPOSITION.

- Reduces the number of failures and downtime by up to 70%.
- Decreases maintenance costs by up to 20%.
- Increases lifetime of monitored machines by up to 30%.
- Significantly reduces the number of false alarms.

Industry
Ocean
Offshore Wind

Pro-Drone · Portugal

Aerial inspections of energy infrastructure, currently focusing on wind blade inspections

THE NEED.

The renewable energy field in general, and wind in particular, is looking for ways to lower OPEX. Inspections to date have remained essentially as expensive, complex and reliant on specialist intervention as before.

THE SOLUTION.

Pro-Drone has an integrated approach to aerial inspections, drawing on the best technologies available to provide high quality and robust reports with a customised process, including the UAV's, the sensors they carry and the whole post-processing of the data recovered in order to deliver unparalleled results.

KEY FEATURES.

- Customised hardware platform
- Flight algorithms
- Specific sensors
- Tailored post-processing software

VALUE PROPOSITION.

- Automation.
- Controlled process
- Different solution for the customers
- Gains in time, quality and robustness of the service provided
- Quality
- Reliability



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Wind-Tuning-Systems · Germany

Higher performance and reduced noise in wind power plants

THE NEED.

The payback of wind turbines is decreasing, but the technological developments required to increase efficiency are progressing in micro steps. Due to noise, suitable locations to run power plants that have a minimal impact both on humans and animals are limited.

THE SOLUTION.

Back flow flaps on the wings of wind turbines enhance the aerodynamic stream. The technology is based on a bionic principle: birds' feathers rising at a high attack angle of the wind increase ascending forces while reducing turbulence. WTS addresses operators of wind parks interested in enhancing efficiency and profit. First as retrofit solution for existing plants, later as add-on in cooperation with producers of wind turbines (e.g. licensing).

KEY FEATURES.

- Bionic principle of back-flow flaps
- Retrofitting
- Standard product (no individual consulting)

VALUE PROPOSITION.

- 3-6% increased efficiency
- Improved flow profile relieves wings and bearings
- Noise reduction (expected noise reduction of approx. 1-3 dB)
- Payback within 2 years

Dracula Technologies · France

Product: LAYER®

LAYER®, Light As Your Energetic Response

THE NEED.

More than 50 billion devices are expected to be connected by 2020.

THE SOLUTION.

In response to this dramatic increase, Dracula Technologies has developed LAYER®, Light As Your Energetic Response, technology that traps light as a means of converting it into energy. An OPV cell manufacturing technique uses digital printing to capture light both outdoors and indoors.

KEY FEATURES.

- Cost efficient
- Customisable & tailor-made
- Ecofriendly
- Extended operating conditions
- Flexible
- Light weight



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Head of Communication
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EasySolar · Poland

Product: EasySolar app

Photovoltaic software to design and sell solar panels

THE NEED.

The design and selling process of the rooftop PVI is comprised of several phases which involve the use of various types of software.

THE SOLUTION.

The system is a professional tool created to simplify, accelerate and streamline the PVI installation sales process.

KEY FEATURES.

- Financial analysis preparation.
- Preparation of a conceptual PV installation project.
- PV customer proposal generation.

VALUE PROPOSITION.

- "One-stop-shop" – all necessary functions integrated in one software
- Easy to use
- Time saving

Ecoligo · Germany

Product: Solar-as-a-service

Makes solar energy more affordable and accessible for commercial and industrial clients in developing countries

THE NEED.

Commercial and industrial (C&I) businesses in developing countries pay high prices for electricity. Solar solutions are available but financing is not.

THE SOLUTION.

Ecoligo combines solar-as-a-service with crowdfunding. This offers an attractive investment opportunity to private investors as well as low-cost energy to C&I clients. Ecoligo's solution reduces electricity costs for C&I enterprises by >40% with predictable escalation rates.

KEY FEATURES.

- Clean energy
- CO₂ reductions
- Low-cost electricity
- PV plant ownership after a fixed period

VALUE PROPOSITION.

- Energy cost hedging
- Reduction in electricity costs by >40%

ecoligo.

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Customer references:
Lidl, EDF, Bouygues, Armorgreen

Municipality
Non-Residential Building

EPC Solaire · France

Product: iNovaPV-T

Mounting structure for photovoltaic plant on flat roof that allows heat recovery

THE NEED.

The best photovoltaic module (PV) in the world can provide just 22% yield. That means 78% is lost, mainly in heat.

THE SOLUTION.

This solution allows for the recovery of heat dissipated by a conventional photovoltaic module, increasing overall energy efficiency by up to double that of conventional PVs.

The hot air collected can be used for:

- Heat the in winter
- Heat water in summer
- Drying Process (cereals, tiles, wood ...)

VALUE PROPOSITION.

- Good ROI

Quantom · France

Product: Solar Energy 3.0

Making solar plants more profitable and for much longer.

THE NEED.

PV plants suffer from growing production losses over time due to the degradation of solar panels. Monitoring solutions, when implemented, do not identify or anticipate problems at panel level, resulting in expensive and inefficient maintenance.

THE SOLUTION.

The proposal is a 3-step turnkey solution:

- a thorough performance audit to quantify production losses, identify root causes and define solutions
- an upgrade of the plant using optical and electronic technologies to increase energy production
- the implementation of a digital solution for performance monitoring at panel level, using algorithms to analyse electric signal and detect degradations, allowing efficient and predictive maintenance.

KEY FEATURES.

- Detection of 21 types of degradations
- Global expertise: panel, inverter and configuration
- Performance monitoring at panel level
- ROI-oriented, payback <7 years
- The most complete and accurate performance audit on the market
- Unprecedented, nanotechnology-based optical solution

VALUE PROPOSITION.

- Extension of the lifespan of solar plants
- Improvement of the value of solar assets
- Minimum 10% increase of energy production
- Optimal performance maintained over time

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**THE TEAM**

Harold Darras
President

Yan Baratte
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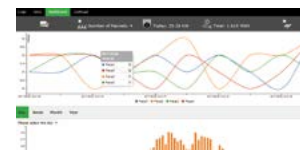
✓ COMMERCIALISED

Customer references:
249 kWp plant in Saint Etienne (France)
181 kWp plant in Arles (France)

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Business Development Manager

Municipality
Residential
Non-Residential Building

SolAngel Energy · Sweden

Increases the safety and security of PV panel installations

THE NEED.

The DC voltage in rooftop mounted PV panels can reach levels of up to 1000 V. In emergency situations, and in cases of faulty wiring, individuals, especially firefighters, can be exposed to dangerous levels of electricity. A further issue addressed is the widespread theft of rooftop PV panels.

THE SOLUTION.

The SolAngel Energy product enables solar panels to be disconnected from each other in an emergency situation, automatically, or at the request of the owner or fire fighters. SolAngel Energy is a remote switch that switches off each solar PV panel individually. The high voltage cable running from the solar PV panels is simply disconnected at the panel rather than at the converter.

KEY FEATURES.

- Separate control cable and digital feedback information to the user of the switch status

VALUE PROPOSITION.

- Robust, reliable and economical remote switch for solar PV panels that meets possible future regulations on safe installations

Solelia Greentech · Sweden

Product: Solar parking

Drive on pure sun: EV charged with locally produced and certified solar energy

THE NEED.

Get more value out of electric vehicles and PV investments.

THE SOLUTION.

Connect PV and EV charging with a software system that keeps track of all production and consumption of solar electricity for a specific customer.

KEY FEATURES.

- A master solar power control unit makes it possible to control when and where consumption of electricity is taking place
- A Solar Bank for handling measured data and guarantees of origin for all solar power generated and consumed

VALUE PROPOSITION.

- Costs of purchased electricity and investment in charging points are reduced
- PV owner increases the value of electricity production by selling solar driven EV charging



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Energi&mijö, Bixia, Klöver



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**THE TEAM**

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CEO

✓ COMMERCIALISED

Customer references:
Energie du Sud (EDS), Sunna
Design, Photinus

S'Tile · France

Product: Specific Photovoltaic Solar Modules

PV panels with high conversion efficiency and high compactness at low cost

THE NEED.

Production costs of PV modules need to decrease in order to allow massive deployment. The challenge is to achieve same output power with lower costs.

THE SOLUTION.

S'Tile delivers PV panels that can be directly integrated in PV farms, roofs, street lighting, parkmeters, bus shelters.

KEY FEATURES.

- High efficiency
- High voltage
- i-Cell can use several types of wafers
- Low cost
- Low current

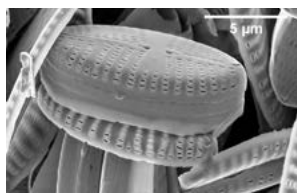
VALUE PROPOSITION.

- Adaptability to customer's needs (size, efficiency)
- Faster return on investment for customer



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Swedish Algae Factory · Sweden

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. Since the main cost of solar energy today is no longer related to the cost of the solar cell but rather its installation cost, one of the most reasonable ways to cut the cost of solar energy is by finding a way to enhance the efficiency of the solar cell.

THE SOLUTION.

The nanoporous silica shell that surrounds a specific strain of diatom, an algae species that thrive in the bottom of dark, cold Nordic seas, is a material naturally designed to trap light so efficiently that algae can survive on harnessed sunlight 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.

KEY FEATURES.

- Environmentally-friendly produced
- Light trapping
- Mechanically strong
- Natural

VALUE PROPOSITION.

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

THE TEAM

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Customer references:
Only for test purposes to researchers such as the chairman of the Nobel Prize committee in Physics.

“

I would recommend the industry to attend The Business Booster, they will find some very interesting ideas and people that they wouldn't meet otherwise.

Tomasz Jarmicki, Director Research and Innovation PGE

Biogenic & Synthetic Gaseous Fuels

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Feedstock and Fuels



Arol Energy · France

Product: Amine

Converting raw biogas into high purity biomethane

THE NEED.

Current biogas producers experience uncertainty in their expected return when investing in technical solutions aimed at transforming biomass into an energy resource.

THE SOLUTION.

Arol Energy's Amine product is a purification unit which transforms raw biogas into biomethane based on high-efficiency removal of CO₂ by heat-driven amine. The biomethane is then available for injection into the natural gas grid or use as vehicle fuel. Amine uses standardized modules which produce high purity biomethane (> 98% CH₄) causing limited methane losses of no more than 0.1% making off-gas treatment unnecessary. The product also recovers latent heat reducing energy costs thus improving the overall financial return and saving energy.

KEY FEATURES.

- Gas processing and renewable energy production
- On-site construction and installation
- Plant commissioning and maintenance
- Project management
- Turnkey engineering design (standardised design or design adapted to the customer's needs)

VALUE PROPOSITION.

- "Turnkey solutions" (the concept of the "black box"), addressing both the economic and technical issues of a customer
- Able to address the three "conversion" segments, (electricity + gas injection + biofuel)

Booth n° B01



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Customer references:
BIOVALIS, local municipality as
final customer.

Booth n° B01



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Arol Energy · France

Product: ACCOR

A system dedicated to siloxanes and VOC removal from biogas from urban waste

THE NEED.

A cost-effective solution to reduce biogas purification costs.

THE SOLUTION.

AE-SILOXANES is a system dedicated to siloxanes and VOC removal from biogas from urban wastes. AE-SILOXANES is an innovative siloxanes removal technology that offers higher purification performances, reduced total purification costs and lower environmental impacts. AE-SILOXANES product range is designed for biogas flow between 250 and 2000 Nm³/h.

KEY FEATURES.

- Product adapted to biogas flow between 250 and 2000 Nm³/h

VALUE PROPOSITION.

- Siloxanes and VOC removal cost reduced by 25% to 60%



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Hymeth · Denmark

Product: HYAEON

Synthetic natural gas from electricity and tap water

THE NEED.

Liquid petroleum gas (LPG) is a known health hazard, suffers supply shortages and is inefficient. A better alternative is clearly needed, especially in countries where LPG is commonly used for cooking.

THE SOLUTION.

HYAEON produces enough methane gas for a household or a professional kitchen. It can potentially replace cylinder gas and is more efficient than electric burners. Similar in size and user experience to a microwave oven, HYAEON is safer and more environmentally friendly than existing alternatives. The technology can also convert excess renewable electrical energy into hydrogen for easier storage or for refuelling fuel cell vehicles.

KEY FEATURES.

- Compact, stand-alone, on-demand system – no gas storage required
- Compatible with both grid and PV panels
- Compatible with existing gas ranges
- Easy, low-cost installation plus low raw material costs
- Gas can also be used for fuel cell vehicles and other applications, e.g. welding

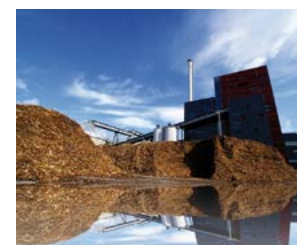
VALUE PROPOSITION.

- Convert electricity into usable heat more efficiently than an electric burner
- Cost-effective alternative to LPG: avoids inconvenient re-fill of LPG including transport, handling heavy cylinders + cost of re-filling; requires little to no maintenance
- Easy to install and use
- Prevents potential shortage and health hazards associated to LPG
- Produces a visible flame and allows for instant temperature control
- Supports the traditional way of cooking



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THE TEAM

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Phoenix BioPower · Sweden

Product: BTC- Biomass Fired TopCycle

Doubling the efficiency of power production from biomass

THE NEED.

The rapid move towards renewable energy has led to heavy investments in intermittent power, primarily wind. In addition, nuclear is being phased out in many markets. This will increase the demand for renewable and predictive power generation.

THE SOLUTION.

BTC technology offers renewable and profitable biopower that can be planned in advance. As the BTC concept doubles electrical efficiency and halves the levelised cost of production, it gives customers a superior return on investment. The plant can be ramped up to meet increased demand and capture value at high spreads. Waste products from the forest industry, such as slash and sawdust can be utilised, turning waste into a resource. BTC can also provide district heat.

KEY FEATURES.

- Plant cost under 3000 €/kW electricity
- Power efficiency of 50-60%
- Total efficiency of 110% (based on lower heating value)

VALUE PROPOSITION.

- Marginal cost <40€/MWh without subsidies
- Plannable power
- Positive NPV without subsidies
- Renewable power

Solaga · Germany

Product: ALGAEWALL

Microalgal facades for clean air and green energy

THE NEED.

With rapidly growing cities and increased living standards, consumption of resources is peaking in urban areas where production of such resources is not taking place. Also, greenhouse gas emissions, such as CO₂, are becoming an urgent problem.

THE SOLUTION.

Solaga develops and commercialises microalgal products and production processes. Access to the wide application set of nature has instigated projects ranging from architecture, decentralised energy production and decarbonisation to marketing novel foods. A key innovation is a patented technology for turning CO₂ into burnable methane using immobilised microalgae.

VALUE PROPOSITION.

- Air pollution monitoring.
- Carbon-dioxide removal from ambient air.
- Green beautiful facades.
- On-site energy production.
- Reducing urban pollution by improving the micro-climate.



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Industry
Municipality



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Fredrik Öhman
Co-founder

Fredrik Lundqvist
Co-founder

C-Green · Sweden

Product: HTC-reactor unit

Convert wet sludge into clean bio-coal

THE NEED.

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

THE SOLUTION.

A compact, robust and efficient process solution based on hydrothermal carbonisation that separates phosphorous (for further use in fertilising applications) and heavy metals from sludge, degenerates toxins, deactivates pharmaceuticals and transforms 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.

KEY FEATURES.

- Fast process converting natural material into bio-coal in 60 min
- Heat generation from process waste
- High-energy recovery capability
- Miniaturised to fit in a standard container
- Unique HTC process protected by patents

VALUE PROPOSITION.

- Cost-effective sludge management saving 10 to 30% vs traditional waste disposal costs
- Easy-to-use, small, scalable one-size-fits-all solution.
- Energy-efficient process
- Environmental-friendly: turns harmful sludge into homogenous biofuel with a high energy density for power production at CHP plants

Deltalys · France

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 gas processing solutions based on more than 10 years of academic research. They integrate a patented eco-efficient process, modular plug and play modules and advanced digital tools.

KEY FEATURES.

- Advanced software for process monitoring and control
- Bio-sourced filtration media
- Plug and play gas filters

VALUE PROPOSITION.

- Enhanced environmental performance.
- Makes industrial renewable gas production sites really competitive.
- Minimum operational risks.
- Optimal and secured profitability.



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Customer references:
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Biogenic & Synthetic Gaseous Fuels
Fossile Solid Fuels: Coal
Gas DSO

Onshore Wind
Residential Building

Gasliner · Latvia

Product: Multifunctional CNG refueling Module

Off-grid refuelling options for gas operated vehicles. Any type of gas. Anywhere. Anytime.

THE NEED.

GasLiner addresses a major obstacle in a rapidly growing gas-powered vehicle market: the cost and resulting availability of gas fuelling infrastructure.

THE SOLUTION.

GasLiner utilises its field proven, patented technology that significantly reduces the cost of vehicle fuelling infrastructure. Pipeline gas is replaced with a fleet of mobile GasLiner trailers to deliver a continuous gas supply to transportation customers. Gasliner's solution eliminates within the gas supply chain the need for both the compression and the booster (unloading) devices and their respective high CAPEX and recurring OPEX.

KEY FEATURES.

- 98% unloading efficiency
- Flexible modular solution
- Low capital cost
- No additional equipment
- Reliable liquid piston compression technology

VALUE PROPOSITION.

- Reduces CAPEX of virtual gas pipeline by 60% for gas companies and fuel retailers



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Managing Director

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GasQual · Sweden

Product: GasQMeter

Simple, reliable and cheap gas metering device as redundancy gas analyser for gas metering and mixing stations

THE NEED.

With gas market liberalisation, gas properties vary frequently due to mixing of gases and injections of biogases. This will effect domestic, commercial and industrial gas applications and creates a need for continuous measurement of gas qualities.

THE SOLUTION.

The GasQ-meter is a low-cost measuring instrument for realtime mesuring of quality characteristics of natural gas.

KEY FEATURES.

- Determination of exact content of major components CO₂ and hydrocarbons.
- Express real-time control in continuous mode
- Flexible instalation into existing mesuring cabinets/ sampling units
- Reliable measurement of key quality parameters of natural gases: calorific value and Wobbe index

VALUE PROPOSITION.

- Comparably simple technical implementation/ customisation/repairs.
- Low operation and maintenance costs.
- Lower price tag for backup/redundancy analyser.
- No need of specifically qualified personnel. Portable and customizable implementation



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Customer references:
Tauron Wytwarzanie

Boneffice System · Poland

Product: The BonEffice System

Real-time monitoring of a power unit's efficiency indicators

THE NEED. Fossil fuel-powered power units are currently delivering electricity in very unstable grid conditions. CO₂ emissions constraints and other environmental challenges require high efficiency operation. Operators should have the tools to retain high performance parameters in real time.

THE SOLUTION. A software that determines in real time the heat rate deviation in the components of the power unit to be used. A graph of losses and efficiency levels is built that provides an excellent means of controlling performance. The BonEffice System identifies necessary actions to be taken in order to improve the unit's performance, and quantifies the improvements possible owing to appropriate changes in the service, metering, fuel and other systemic modifications.

KEY FEATURES.

- Easy to install in every DCS and IT environment
- Highly accurate thermodynamic performance and efficiency control in real time
- Human-machine system
- Not expensive, no investment needed
- Proven, tested in many electricity plants
- Provides focus, evaluates, develops and executes working schemes in operations

VALUE PROPOSITION.

- A continuous efficiency improvement plan allowing for maximisation of savings
- Audits of real data from 13 power units have shown significant potential savings resultant from this system's implementation; the total benefit of coal consumption reduction and additional reduction of costs incurred for coal and carbon allowance is estimated to be around 3,5%
- Improvement of operating practices

HYGEN

PERSONAL CNG REFUELING SYSTEMS

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Hygen · Latvia

An innovative low-cost and convenient compressed natural gas home refuelling station

THE NEED.

The transportation industry has no real alternative to oil-based fuel in the private sector. Although natural gas offers a cleaner and cheaper option, the lack of convenient infrastructure means that it still is far from being the end-user's preferred choice.

THE SOLUTION.

HYGEN (HYdraulic GENerator) revolutionised gas compression with its patented multifunction liquid piston (MLP) technology; instead of mechanical compression, MLP technology is used with 95% of its parts mass produced and used for decades. This gives the home refuelling station (HRS) the unique values of a disruptive price point, reliability, and an under-10 min refuelling time.

KEY FEATURES.

- Household design
- Low electricity consumption
- Low noise level
- Speedy refuelling in around 7 min from the consumer's home

VALUE PROPOSITION.

- Decrease fuel costs and increased convenience for the driver
- Increase gas consumption and regulated asset base for gas companies
- Under 0,25 EUR gasoline litre equivalent total cost of ownership

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In one morning I can talk to 40 companies to understand what they are doing, and then select those that fit best with our own ambitions.

Luis Manuel, *Executive Board Member at EDP Inovação*

District Heating Grid

PAGE	EXHIBITOR	BOOTH
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Gas DSO

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106	foreseeti	D24
78	IonSeed	C17
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75	SEPIN	C14
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Grid and Infrastructure

Ecovat · *The Netherlands*

Thermal storage of renewable energy and its integration in a hybrid microgrid, with power-to-heat flexibility services that can be provided to the electric grid

THE NEED.

Renewable energy is not always available when needed and, just as often, when energy is available the quantities produced amount to more than is required. The system consists of a 1500m³ up to 60000m³ sub-terrestrial closed water barrel, that can store up to 3,5 million kWh thermal energy.

THE SOLUTION.

Ecovat is a thermal, seasonal storage system that enables heat storage of up to 90°C with minimal energy and exergy loss. Over a period of >6 months, less than 10% energy is lost, exergy losses are less than 7%. Ecovat's storage system is designed for net balancing with power-to-heat and integration in a hybrid smart microgrid.

KEY FEATURES.

- High temperature, over the season, district use

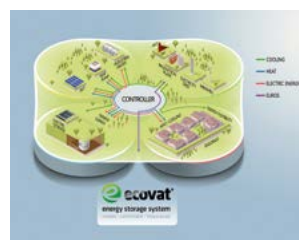
VALUE PROPOSITION.

- Construction costs are substantially lower than comparable systems.
- Ecovat is the first storage system that can store up to 90°C and retrieve the energy after a long period with less than 10% loss.
- Steering system enables power system balancing and flexible utilisation of energy markets.



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✓ COMMERCIALISED

Customer references:
One sold and erected plant so far.
Sold to utility Pite Energi. Serves also as test bed for Meva Energy.
Will be commissioned to customer in September 2017

Meva Energy · *Sweden*

Product: Meva Power plant

Decentralised biomass cogeneration with 2nd generation biomass

THE NEED.

Addressing the need of industrial sized 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, producing only heat. Meva Energy's proposition is to enable power and heat production in the range below commercial feasibility of steam turbine technology.

THE SOLUTION.

The power plant comprises of a feedstock management system, an entrained flow gasification reactor and systems for gas cooling and gas cleaning. The cooled and cleaned gas is injected into a gas engine which produces power via a power generator.

KEY FEATURES.

- 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 noncomplex system layout, low pressure and temperature

Sunridge · The Netherlands

Orientation-independent, building-integrated solar collector for hot tap water production

THE NEED. For solar heated tap water systems, orientation towards the south is key. Facing this direction, exposure to sunlight is maximized and yield is improved significantly. However, solar thermal implementation is hampered by the poor aesthetics of most common systems. Collection and storage solutions are often bulky and unattractive and most architects and homeowners would rather place them out of sight.

THE SOLUTION. SunRidge offers a solar domestic hot water system that can be mounted on the ridge of a roof in a modular way. It is independent of building orientation and has no moving parts. It is robust, suitable for both new and existing buildings, easy to install – even on sloping or tiled roofs – and offers outstanding energy performance. Housing associations, residential building owners and real estate developers now have an opportunity to introduce highly efficient water heating without compromising on building appearance. Over the past few years, the first generation has been successfully installed and commissioned and the SunRidge has not only demonstrated its efficiency, but also improved in terms of revenue and price.

KEY FEATURES.

- No moving parts
- Options for sloping roof and tiled roof
- Solarsystem is independent of the building's orientation

VALUE PROPOSITION.

- Cost saving
- Ease of installation
- Aesthetics: nearly not visible from street level



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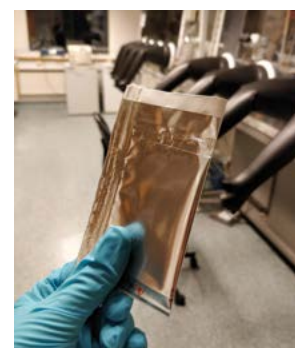
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Altris · Sweden

Product: Altris

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.

Patented solution for producing 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/environmental hazard. The production process is cost competitive since it runs at low temperatures and pressures. Unlike lithium batteries, it enables reliable sub-zero performance.

KEY FEATURES.

- Drop-in solution (in a Li battery factory)
- Favourable low-temperature battery performance
- High availability of raw materials and cost competitive manufacturing method
- No risk to store fully discharged
- Raw material is already in production in large scale
- Uses only abundant and non toxic raw materials

VALUE PROPOSITION.

- Can be transported and stored without risk of explosion
- Cheapest battery chemistry in the long run
- Good performance in below 0C environment
- High energy density
- Low investment needed to scale production
- The most eco friendly battery technology



C2C New Cap · Portugal

Product: C2C Supercapacitor

C2c Hybrid Supercapacitor: an alternative solution for the electric energy storage market

THE NEED.

Starting the engine in heavy trucks is the single most demanding task for batteries. Moreover, cold weather reduces battery performance. To avoid dead batteries and “no starts”, batteries need to be frequently replaced with a consequent cost increase.

THE SOLUTION.

C2C supercapacitor has the ability to provide quick bursts of power and to operate reliably up to millions of charge-discharge cycles even under extremely cold temperatures. By replacing one battery for a C2C supercapacitor exclusively dedicated to the starting function, trucks and buses can always start even in very cold temperatures or if batteries are seriously discharged.

KEY FEATURES.

- Easy to install
- Low production costs
- Safer to operate (non toxic or inflammable products)
- Very long operating lifetime (+ 10 years and up to 1 million cycles)
- Wide operating temperature range (- 50° C to 50°C)

VALUE PROPOSITION.

- Competitive purchasing price facing other supercapacitors
- Eliminate “no starts” from a “dead” battery under any temperature range
- High reliability
- Higher number of start attempts
- Lower operating and maintenance costs

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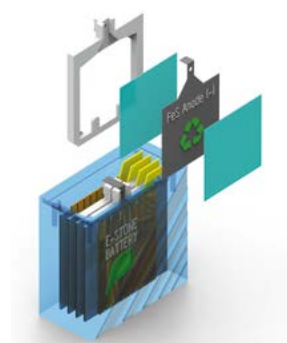
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Rui Silva
Executive Manager



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E-Stone Batteries · The Netherlands

Iron electrodes for low-cost recyclable batteries for ebikes and solar storage

THE NEED.

Rechargeable batteries based on NiCd and NiMH chemistry use expensive materials, most specifically cadmium, which is toxic and prohibited for use in certain applications and areas.

THE SOLUTION.

The use of an iron-based anode material offers customers the ability to develop fast-charging nickel-iron batteries at a low cost, incorporating non-toxic anode materials.

KEY FEATURES.

- 15-20 times less expensive than materials for li-ion electrodes
- Comparable lifetime to NiMH or NiCd
- Fast-charging potential
- Non-toxic material

VALUE PROPOSITION.

- Low-cost / non-toxic anode materials & design for cell/battery manufacturers

THE TEAM

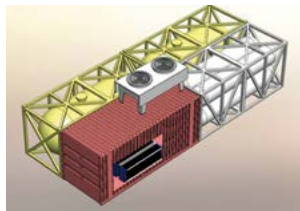
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✓ COMMERCIALISED

Customer references:
Actually sold for pilot test fields

Elestor · The Netherlands

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.

KEY FEATURES.

- Hydrogen bromine flow battery

VALUE PROPOSITION.

- Fast reaction kinetics, resulting in very short response times
- High accessibility, enabling easy maintenance and updates
- Independent configuration of storage power (kW) and capacity (kWh)
- Modularly scalable, from 50kW up to several MW
- No self-discharge when system is idle
- Storage costs per kWh 5-10 times lower than incumbent systems

“

It is a spectacular event where you will meet the innovation community, like-minded people, thought leaders, and hear inspiring sessions.

Maria Burpee, RVE Sol

Cysalis · France

Product: Smart Hybrid Power Unit

Innovative power solution for off-grid and bad-grid telecom sites

THE NEED.

In emerging countries where the commercial electricity network is not sufficiently developed or failing, mobile operators use fuel generators to power their sites. Operating costs are very high (fuel consumption, maintenance, network failures).

THE SOLUTION.

CYSALYS offers an independent power supply unit dedicated to mobile telecom sites in off-grid and bad-grid areas. The Smart Hybrid Power Unit is a modular solution (range from 1,6 to 9 kWatts) to fit with the exact needs of the customers. It is insured against theft and fraud phenomenas, and allows for a significant reduction of operating costs. It integrates patented technological innovations which improve the hybrid efficiency.

KEY FEATURES.

- All-in-one compact hybrid power unit (including PV panels)
- Easy to ship and to install on site
- Local embedded management and remote supervision
- Modular and evolutive conception
- Protected from theft and fraud

VALUE PROPOSITION.

- A cost effective solution (ROI < 1 year)
- An environment-friendly power unit
- Insures a reliable energy source on site
- Reduce significantly operating costs (diesel consumption and maintenance)



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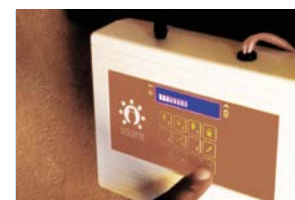
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Customer references:
1200 installations conducted
in Tanzania, 750 kits ordered/
delivered in 6 other African
countries.

Solaris Offgrid · Spain

The pay-as-you-go solar home solution that scales with the needs of the off-grid consumer

THE NEED.

More than 600 million people in Sub-Saharan Africa struggle to access modern energy services and must rely on unhealthy and dangerous energy solutions such as kerosene lighting.

THE SOLUTION.

Solar home systems provide an extremely promising technology for providing clean energy access, drastically improving livelihoods, education, and standards of living. The Solaris pay-as-you-go (PAYG) business model, combined with the innovations made in customer service, hardware, software, and deployment efficiency, enable the company to rapidly build momentum and scale.

KEY FEATURES.

- Back-end system enabling automated payments and customer care
- SMS encryption technology: collects valuable service data for predictive maintenance
- The system can be used without a data signal

VALUE PROPOSITION.

- Cutting-edge CRM software, inspired by grassroots experience
- Match-funding opportunities to reduce CAPEX
- Smart and modular hardware
- Strategic and technical expertise offered to partners

Wattsun · *The Netherlands*

Product: Wattsun Pop-Up Power

Wattsun provides green pop-up power for off-the-grid situations

THE NEED.

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

THE SOLUTION.

Wattsun provides a robust, easy-to-use and sustainable off-grid power supply called Pop-Up Power that can be charged with renewable energy. This means no emissions (CO₂ NO_x) no smell and no noise. Characteristics: power output, weight, dimensions. Use on events, festivals etc..

KEY FEATURES.

- Modular
- Portable and plug and play
- Sustainable / Low CO₂
- A stack of an inverter dock and 3 battery packs, each ~16kg and each module delivers ~1,5kWh

VALUE PROPOSITION.

- Cost-effective compared to 'traditional solutions' like generators
- Enable the use of green power
- User-friendly



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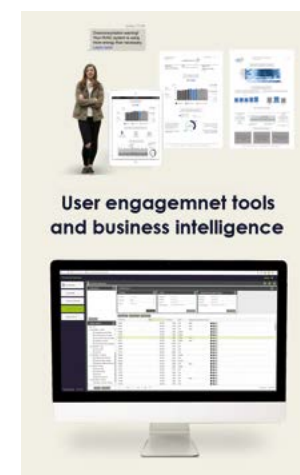
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Gas DSO
District Heating Grid

Beedata Analytics · *Spain*

Customer engagement and business intelligence tools for energy retail and distribution in SMEs

THE NEED. Energy retail companies need to offer end users added-value in their energy consumption. In addition, these companies need also to reduce internal costs.

THE SOLUTION. An open source platform that offers:

- Useful information for clients, through tips
- Analytic support to energy retail companies' smart call centres
- Business intelligence for reducing the costs of customer support services

KEY FEATURES.

- Able to work with all granularity and types of data, from monthly to real time data
- An open, cost effective, flexible and easy to integrate solution. Omnichannel integrated system
- Step-by-step implementation adapted to all types of small and medium companies
- Useful information at the right time.

VALUE PROPOSITION.

- Scalability
- Cost-effective solution as it can be cost inhibitive for customers to replicate big data analytics and digital user engagement strategies.
- High level of data analytics to cover both customer information needs, cross-selling and internal business intelligence needs.
- Integrated in all existing ERP, CRM and database systems.
- Integrated tool and support services for the whole process of user engagement (storytelling, multichannel, analytics, communication).

Biogenic & Synthetic Gaseous Fuels
Biogenic & Synthetic Liquid Fuels
Fossil Solid Fuels: Coal

Dak GPS · Poland

Green power solutions

THE NEED.

The world is based on the consumption of goods stored by nature and created by humans. As the world's population increases, consumption expands and more waste and more by-products are generated. The excessive emission of greenhouse gases – mainly CO₂ – has reached critical levels, with climate change a reality. Yet the development of technologies mitigating these negative effects continuously falls behind the rapid rate of consumption.

THE SOLUTION.

Biomass uses energy derived from chemical bonds formed during the absorption of CO₂ from the air and from photosynthesis. This process is conventionally adopted with no emission due to the closed circuit of CO₂. DAK GPS has developed a product that is a combination of both solutions and a new biofuel, providing a new solution for all.

KEY FEATURES.

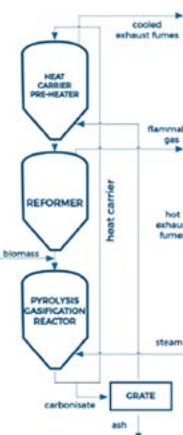
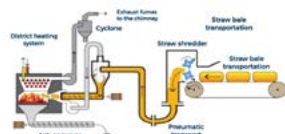
- Calorific value
- Easy to implement (low investment costs)
- Energetic and mechanical properties similar to wood pellets
- Hydrophobicity eliminates storage issues (a key to success for industry)
- Lower content of sulfur and chlorine

VALUE PROPOSITION.

- Closed cycle of matter in nature
- Compact, easy to use and store
- Fuel safe for low power boilers, and household heating purposes
- High calorific value



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Product: ONIS-600V

Measure the capacity of grid connection points of wind and solar energy converters as a means of technically and financially optimising their grid integration

THE NEED.

Measuring grid impedance can avoid technical problems and possibly outages and therefore save costs. The full capacity of grid connection points can be used to lead to more energy feed-in and more revenue. Costs for grid expansion can be cut down.

THE SOLUTION.

The measurement device offers an extended evaluation of grid connection points. It can be determined how many renewable energy plants/consumers can be connected to the grid and how the grid is influenced. This can enable large-area grid monitoring with automated analysis.

KEY FEATURES.

- Determination of asymmetries
- Device costs
- Frequency range
- Voltage range

VALUE PROPOSITION.

- Assessment of harmonic propagation
- Determination of grid capacity
- Measurement of grid impedance
- Measurement of power quality

Onshore Wind
Green Mobility

Ogarniamprad · Poland

E-commerce platform that allows energy customers to shop around for the best energy deals

THE NEED. There is broad customer mistrust of the electricity and gas retail markets. To build this trust, providing complete, comprehensive and clear information is essential. The low level of switching hinders the development of a well-functioning retail market.

THE SOLUTION. Our platform helps to make switching much easier, comfortable and reliable. It delivers a new deal for customers by informing them online and in real-time. Based on dynamic prices switching procedures, switching is made quick, simple and completely secure, including against unfair commercial practices. It provides consumers with the possibility to become active energy players and gain from their actions.

KEY FEATURES.

- Aggregated profiled packages of black or green energy
- Automatic effective and save transactions for both parties
- Distributed remote access
- Dynamic prices
- Full support in switching procedures and during the contract terms.
- Real time reverse auctions

VALUE PROPOSITION.

- Collective and profiled purchase of dual fuel
- Easy access to most competitive offers for black and green energy
- Online and in real time negotiations
- Savings - a European Commission study shows that EU consumers could save about 13 billion EUR a year
- Secure - full support in switching procedure and during contract term. Value added to retailers

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SEPIN · Poland

Product: SEPIN Utilities Platform

Simplifying energy & business processes by innovation

THE NEED.

A major challenge for energy providers is the lack of solutions to provide and analyse real-time energy consumption data, to provide and manage big data about the end customer, and the extremely complicated business processes in which the end customer is not engaged.

THE SOLUTION.

SEPIN Utilities Platform is providing real-time energy consumption with beacons and big data about customers. Customers can monitor their consumption on a web portal and mobile app, make contact with their energy provider, view their invoice, and participate in a gamification program. On the utility site, tools are provided to analyse all data and use it in all business processes, from the meter to payments.

KEY FEATURES.

- A mobile app and modern dashboard for utilities customers
- Billing and invoicing based on ERP/CRM
- Customer big data and analysis (includes social media monitoring)
- Energy data and energy portfolio management
- Gamification module for utilities customers
- Real-time energy consumption monitoring

VALUE PROPOSITION.

- Costs decrease by simplifying business processes
- Customer engagement increase
- One, end-to-end solution eliminating need to maintain expensive infrastructure from different niche vendors
- Sales increase thanks to new sales channel and ability to cross sell

ENEIDA.IO

Eneida · Portugal

Collaborative energy IoT platform for the optimisation of the electric grid

THE NEED.

The use of renewables, electric vehicles, growing energy demand, regulation and an ageing infrastructure is forcing distribution and transmission network operators to search for new optimisation solutions.

THE SOLUTION.

Eneida's highly efficient electric grid optimisation platform, based on an especially designed suite of wireless smart sensor networks, is integrated with specific machine learning algorithms and a collaborative software platform.

KEY FEATURES.

- Ease of installation and operation
- Intelligent recommendations
- Lower total cost of ownership
- Portfolio breadth

VALUE PROPOSITION.

- Allow higher penetration of renewables, electric vehicles, distributed energy resources
- DNOs and TNOs increase their quality of service
- Explicit learning mechanism for continuously improved recommendations
- Improve asset productivity: do more with less
- Increase efficiency, security and safety, reducing risk

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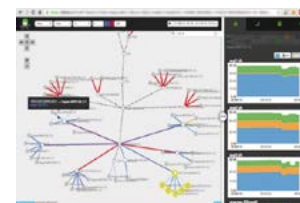
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District Heating Grid
Gas DSO
Gas TSO

Industry
Power DSO
Residential Building

DC Brain · France

Artificial Intelligence tool for complex networks managers (gas, electricity, water, logistics,...)

THE NEED.

Complex network managers face 3 main difficulties:

- The need to control and optimise flows and consumptions
- An increased pressure on maintenance costs
- The evolution from traditional to "smart" infrastructure and grid

THE SOLUTION. DCbrain is an artificial intelligence software (based on graph models and machine learning tools) that is able to visualise flows very easily, detect anomalies, predict incidents and model the evolution of networks (resilience test).

KEY FEATURES.

- Data reconciliation and visualisation through "a digital network" interface.
- Detection of anomalies in real time.
- Easy to perform networks simulation (flows evolution, integration of a new production point, ...)
- Easy to use / dynamic BI dashboard. Events prediction

VALUE PROPOSITION.

- Data reconciliation (optimisation of data mining processes)
- Increase of asset life expectancy
- Optimisation of engineering processes
- Optimisation of exploitation processes

Energy Storage
Heating & Cooling
Industry, Municipality

Off GRID
Residential
Green Mobility

IonSeed · Portugal

IOT network for distributed energy management and storage

THE NEED. New energy tariffs linked to SPOT market prices and the need to optimise energy acquisition costs by retailers open the door to new business models and optimisations based on time-of-use, storing energy for future use when it is cheapest.

THE SOLUTION. With IONSEED, end users reduce energy consumption and cost, and energy retailers decide when, where, how much and what energy type is used by the consumer. This is done by defining energy management rules targeting energy storage devices in an IOT platform that communicates with proprietary hardware embedded in several consumer products that store energy, such as water heaters and heat pumps, cold stores, chemical batteries, and electric vehicles.

KEY FEATURES.

- Demand response linked to SPOT market prices and secondary energy markets
- Distributed energy storage
- High performance Internet Of Things (IOT) infrastructure for distributed energy management and storage
- Proactive energy management. Virtual power plants

VALUE PROPOSITION.

- Enable service and energy providers to develop new products and add more value to clients
- Enable service and energy providers to reduce costs and increase revenues
- End users benefit from reduction of energy bills, more information, and better maintenance services
- Manufacturers transform a traditional passive device into a cutting-edge intelligent appliance



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Product: HiBreak

Ultra-fast electric circuit breakers for HVDC transmissions

THE NEED.

To allow for renewable penetration, power transmission capabilities must be radically extended, replacing alternating current (ac) with high voltage direct current (HVDC). HVDC requires stable protection equipment such as circuit breakers and is thus very costly.

THE SOLUTION.

SCiBreak's technology combines power electronics and mechanical interrupting elements and allows for safe and fault-tolerant operation of HVDC grids at a substantially lower cost compared to existing breaker solutions. This is particularly important in an HVDC grid since the fault currents are not limited and a fault, if not isolated, will rapidly lead to the collapse of the entire grid.

KEY FEATURES.

- Fast switching capabilities
- Fewer power electronics components (less than 20% vs hybrid breaker)
- Rapid reclosing capabilities
- Small size

VALUE PROPOSITION.

- Substantially less costly than alternative hybrid solution
- Allow for safe and fault-tolerant operation of HVDC grids
- Minimise the distortion caused by grid fault, interrupting fault current in milliseconds
- Minimise the distortion caused by grid fault by interrupting fault current in a few milliseconds

Green Mobility

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Energy consumption. End user



Atawey · France

Decentralised hydrogen recharging stations for small fleet of vehicles and bicycles

THE NEED.

Cities, rural and touristic areas, companies that want to initiate the hydrogen mobility on their territories or to further develop their hydrogen recharging stations grid in parallel to large hydrogen stations.

THE SOLUTION.

Recharging stations for hydrogen vehicles, with a fleet of 1 to 20 cars. Potential customers are public sector (local authorities), companies (last km deliveries) and car dealers (to initiate first sales of H2 vehicles). The products can be purchased or leased (minimum 3 years). Onsite hydrogen production integrated. Turnkey system. Low maintenance system. 350/700 bar, distribution pressure. CE certified.

KEY FEATURES.

- Compact
- Economic
- Low maintenance
- Robust
- Transportable

VALUE PROPOSITION.

- Decentralised and autonomous solution
- Legislation and administrative support
- Partnership with major industrial companies for system operation
- Turnkey solution

Booth n° D01



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Composite Dynamics · Germany

Product: Sea Carver

Innovative watercrafts equipped with a highly-efficient and active hydrofoil system, which saves up to 70% of energy

THE NEED.

The vessel industry has not seen any major technological advancements for decades. That being, vessels remain highly inefficient, using an excessive amount of fuel and contaminating the environment.

THE SOLUTION.

This product combines the advantages of two worlds, offering high efficiency while also benefiting from maximum manoeuvrability. Vessels are fitted with a patented electronically-controlled hydrofoil system which adjusts itself automatically leading to a reduction in power consumption of up to 70%. The company will design a broad range of vessels, starting from 2-seaters for private use to 12-seaters for commercial use and transportation purposes.

KEY FEATURES.

- Active hydrofoil system
- Energy savings
- High manoeuvrability
- Unique design

VALUE PROPOSITION.

- Large scale application of e-mobility on water
- Large-scale application of different business cases

Ebikelabs · France

Product: eBikeMaps controller

The best controller for ebikes

THE NEED.

Ebike users face two main issues: how to adapt the level of assistance to suit their specific needs, and how to ensure that they can complete a journey without running out of electric fuel.

THE SOLUTION.

The ebikemaps controller is the only one available that transforms the electrical assistance of an ebike into a real automatic gearbox. The user selects preferences on the application and the controller automatically adapts a level of assistance specifically suited to their trip, taking into account all the parameters required to ensure that a user will never lack electricity, and offering the exact level of assistance for their needs.

KEY FEATURES.

- Blue tooth connectivity with smartphones
- Controller settings through mobile application
- Recovery of the energy generated by braking
- Removal of the man-machine interface
- State of charge - guarantee of arrival at a destination
- State of health - predictive maintenance

VALUE PROPOSITION.

- Assistance fine tuning
- Cost saving for manufacturers
- Easy-to-use interface
- Ensures that customers will be able to make their trip without running out of fuel
- Increased electrical autonomy

Booth n° D03



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**Ebikelabs** · France

Product: Totem eBikeMaps

A tool that helps ebike dealers convert customers

THE NEED.

Ebike users face two main issues: how to adapt the level of assistance to suit their specific needs, and how to ensure that they can complete a journey without running out of electric fuel.

THE SOLUTION.

The product is the totem ebikemaps, which is available to rent to ebike vendors. It consists of a tablet with a specific application that allows vendors to advise customers on which ebike is ideal for them based on their personal data (male/female, size, bike type, distance, elevation...). Additionally, a simulation tool enables vendors to check the autonomy of a specific ebike on any given trip.

KEY FEATURES.

- Automatic marketing automation
- Ebike selection tool
- Trip planning tool

VALUE PROPOSITION.

- Allows customers to select the best ebike for them
- Data can be shared with community members
- Data collected by the customer through the totem is emailed to them
- Ensures that customers will be able to make any trip with sufficient electricity
- Helps customers plan their trip

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EP Tender · France

Range extending as a service for electric vehicles (EV)

THE NEED.

Electric vehicles are unable to satisfy occasional peak range requirements. This is proving a prominent limitation to user acceptance. The marginal cost of an additional range is very high, whereas the frequency of long distances is low. These dual constraints cannot be compromised!

THE SOLUTION.

The solution is to split the problem in two parts, and assemble them as modules when making occasional long distance trips. EVs with 20-40 kWh satisfy 98% of daily needs and will soon be lighter and more affordable. By renting EP Tender occasionally, the user gets unlimited range (refilling the tank) on a pay per use basis, with no impact on the vehicle's payload. EVs become highly competitive with ICE cars.

KEY FEATURES.

- Business model is very scalable
- Easy to attach (see video on www.eptender.com)
- Global market
- Light and compact, with a luggage rack for extra payload
- Pay per use (car sharing model)
- Self steering when backing (see video on www.eptender.com)

VALUE PROPOSITION.

- Affordable electric vehicles for daily usage
- Make long distance trips with peace of mind, even when recharging regularly
- Same range and convenience as a combustion engine vehicle

Booth n° D04

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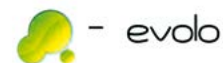
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Bubble post

Evolvo · Spain

Electric-assisted tricycles and bikes, and sustainable urban mobility solutions

THE NEED.

Demand in the urban delivery industry is growing, yet there are no efficient or even effective responses. It consumes too much money, time and fuel, and makes cities less habitable.

THE SOLUTION.

Evolvo proposes new and cost-effective solutions based on business models related to urban logistics: freight transport and reverse logistics.

KEY FEATURES.

- Able to circulate on all kinds of routes (pedestrian and urban roads)
- Combination of sustainable alternatives and its management
- High cargo capacity (250 kg)
- Maintenance for less than 1 euro per day
- Use and operation of cargo trikes and bikes

VALUE PROPOSITION.

- Cost-effective and sustainable solution
- Enables customers to save on availability (time ranges and accessibility)
- Enables customers to save on fuel cost
- Enables customers to save on vehicle cost (acquisition, maintenance, insurance)
- Improves existing urban logistic business models by between 25% and 40%

Impact Clean Power Tech · 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. Also, they prefer to work with one single supplier yet are normally linked to just one type of cell.

THE SOLUTION.

The modular battery system consists of several battery modules with a capacity of 30 to 60 kWh. Basic battery blocks come in 3 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.

KEY FEATURES.

- Competitive pricing
- Easy to integrate and configure
- Proprietary battery management system
- Standardised product in three different chemical compositions / performance versions

VALUE PROPOSITION.

- Allows for long term and broad collaboration with suppliers
- Decreases cost by offering a standardised product.
- Fulfils different tender requirements
- Provides flexibility to tailor the battery system to individual requirements

Booth n° D06



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PNEUMATICS

Nawa Technologies · France

An ultra-fast carbon battery

THE NEED.

Batteries are becoming increasingly outdated in terms of life cycle, reliability and environmental impact. The requirement for cleaner, safer, more reliable and longer life storage systems is critical.

THE SOLUTION.

Nawa Technologies' cells, modules and systems will help increase uninterrupted power supply reliability in data centres. This will make renewables short-term production better able to be predicted, and mean lower costs for short distance transportation electrical vehicles, such as e-buses, e-ferries and trams, in addition to those of any future smart mobile usage.

KEY FEATURES.

- Cost objective desirable in today's market (about 250-1000€ by W-h)

VALUE PROPOSITION.

- An ultra-fast storage system

Pamyra · Germany

Find, compare and instruct transport companies in minutes

THE NEED.

Four problems have been solved: a non-transparent market, high transport prices, the considerable effort required for booking transport, and the large number of empty trips.

THE SOLUTION.

An easy-to-use online platform has been created for the logistics industry that combines and applies the ingenious concepts of carpooling and web-comparison. Transportation companies digitise all their offers in minutes by uploading pricing tables, services and empty trips onto the platform. Shippers can directly compare the prices and the services of the companies for free, and decide for themselves with which to entrust their delivery.

KEY FEATURES.

- An automatic distribution channel for hauliers
- One contact point for each delivery
- Online booking
- Pay by invoice, cash on delivery, credit card, PayPal or even 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

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Non-Residential Building

Pasch · Spain

Product: COFAST

Combined heat and power EV fast charging station

THE NEED.

Availability of recharging stations is a prerequisite for the functioning of EV and critical for consumer acceptance. However, installation costs of fast charging stations can be very high in congested (urban) or weak (rural) networks.

THE SOLUTION.

Fast charging stations based on CHP technology reduce grid-dependence that also offer high energy efficient solutions. This technology provides CAPEX and OPEX reduction of fast charging stations in those places where the grid extension or the grid reinforcement is expensive and there is also an existing demand for thermal energy. Moreover, the solution improves the energy efficiency of a standard solution.

KEY FEATURES.

- Compact, plug & play solution.
- Decentralised generation / transmission loss reduction.
- EV fast charger station.No need for grid reinforcement.
- Optional electricity storage system to optimise the operation.

VALUE PROPOSITION.

- Decreases the autonomy concerns of EV drivers
- Delivers environmentally-friendly and energy efficient fast charging stations with low grid impact costs
- Guaranteed power supply, high availability station
- High energy efficiency, energy saving and CO₂ emissions reduction
- Increases power system reliability by reducing congestion on the distribution network Independence from electric grid

Place to Plug · Spain

Charging everywhere

THE NEED.

'Range anxiety' is a major concern among drivers of electric vehicles. A map indicating charging points may not be enough to reassure drivers who are running out of battery.

THE SOLUTION.

Place to Plug is a platform that enables electric vehicle drivers to know the status of specific charging points and book or activate them from their smartphone. EV drivers will pay a subscription of 12 € per year and will also pay 0.99 € per each charging point booking. Charging points' providers will pay 890€ per each charging point they may buy plus a subscription of 48 € per year.

KEY FEATURES.

- Allows businesses (hotels, restaurants) to offer smart charging points to their customers
- Connects with hosts (businesses, institutions or individuals) that have sockets available to charge their electric vehicle
- Locates and connects electric vehicle drivers with charging points
- Mobile app

VALUE PROPOSITION.

- Booking a charging point for a specific date and time
- Charge on thousands of charging points with a single app
- Charge with points from another user
- Smart charging points for hotels and restaurants
- Subscription service that will add users to an exclusive EV club

Booth n° D10



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Optimum CPV · Belgium

An innovative low weight hydrogen tank for the automotive industry

The product is a new composite hydrogen tank, high pressure and low weight, for fuel cell electric vehicles.

THE NEED.

Car manufacturers are looking for alternative hydrogen tanks with lower weight (higher ratio weight H2 / weight tank) for the same or lower price as existing tanks.

THE SOLUTION.

The product is a new composite hydrogen tank, high pressure and low weight, based on the strong background of Raigi, CEA, and Optimum CPV.

KEY FEATURES.

- High pressure (700 bar).
- Ratio kg H2 versus kg vessel: 6%.

VALUE PROPOSITION.

- Average saving of 30% on the global energy spent on water heating.
- Avoid the utilisation of recirculating circuits.
- Increase comfort and saving for users.
- Reduction of water and energy consumption.

Skeleton Technologies · Estonia

Product: UCGEN3

Next generation ultracapacitors for energy storage

THE NEED.

Transportation, heavy industrial equipment and power grid industries require lightweight, cost effective and powerful energy storage systems. The performance and price levels of ultracapacitor technology have not reached a point that is sufficient to meet widespread client demand. A breakthrough is needed for the ultracapacitor to carve itself the "promised" multi-billion euro market.

THE SOLUTION.

The is a next generation ultracapacitor, will meet the need for higher efficiency and a lower cost of ownership. The key innovation with this product line is a significant increase in energy and power density. The performance advantage comes from patented nanoporous carbon material (carbide-derived carbon, CDC). Unlike competitors, Skeleton Technologies is the only company to use an inorganic precursor to ultracapacitors.

KEY FEATURES.

- Patented nanoporous Carbide-Derived Carbon material
- 4x power density vs competition
- Charge and discharge very quickly
- Lifetime of over 1 million charge-discharge cycles
- Doesn't require the use of toxic liquids or metals

VALUE PROPOSITION.

- Higher energy density and power density
- Lower cost over lifetime
- Lower weight and volume



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Smart Charge Box · Lithuania

EV battery charger plus an e-mobility management system

THE NEED.

EV users lack the ability to charge an electrical vehicle anywhere and with minimum hassle. There should also be improvements in charging infrastructure maintenance and monitoring, and in charging infrastructure operator business modelling.

THE SOLUTION.

The solution focuses on upcoming technologies and standards, in addition to technologically advanced IOT with smart grid-ready communications. The company offers the following products: an EVSE with OCPP protocols and management software; an IOT EVSE charging controller for any existing charging infrastructure; and operator software with business management models.

KEY FEATURES.

- Business models integration
- Payment system
- Power load management
- Smart and real time charging stations management/monitoring.
- Smart data analysis, big data
- User queue management

VALUE PROPOSITION.

- Charging infrastructure usage predictions
- Easy, fast and convenient EVSE management
- Infrastructure business modeling system
- Infrastructure management system
- Optimized charging, dynamic overload protection
- Smart grid integration

Act&Sorb · Belgium

A sustainable recycling process to produce high value materials and electrical and thermal energy from specific organic waste streams

THE NEED. A step in the transition to a circular bio-economy is the development of recovery and recycling strategies of waste streams into resources and energy. Large amounts of waste streams end up on landfills or burned. Sustainable solutions are required.

THE SOLUTION. Act & Sorb has developed a turnkey self-sustaining recycling strategy for different non-recyclable waste and rest streams, with the production of high value resources of materials and surplus energy in the form of heat and/or electricity (project specific).

KEY FEATURES.

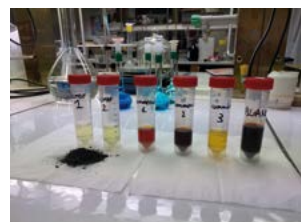
- Valorisation of problematic waste streams, such as problematic waste wood fractions.

VALUE PROPOSITION.

- Clean technology to shift waste towards resources with production of energy
- Constant R&D evaluation of new input materials for recycling technology
- High-end R&D evaluation of the end products
- Highly scalable and adaptable
- Production of high value raw materials such as Active Coal



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AEInnova · Spain

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.

KEY FEATURES.

- Energy generation and CO2 reduction from waste recovery
- Self-powered wireless sensor network system matching industry 4.0 requirements

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

Heating & Cooling
Residential Building
Municipality

Alpinov X · France

Product: SNOW FARM X

High efficiency cold power generation

THE NEED.

Climate change is forcing customers to rethink cold power generation in order to minimise energy consumption and its related CO₂ footprint. One of the axis of improvement is to significantly increase the efficiency of such thermal convertors.

THE SOLUTION.

SNOW FARM X, developed and produced by ALPINOV X, is an artificial snow maker with high efficiency and low weather dependence. The promise of such equipment is that it can allow ski resort operators to operate without concern for the weather and at a reasonable cost (CAPEX and OPEX).

KEY FEATURES.

- Decrease in operational expenses (OPEX).
- Decrease in water needs.
- Snow production with positive ambient temperature.

VALUE PROPOSITION.

- Decrease of CO₂ footprint of ski resort operations.
- Ski resort seasonal operations extended (opening days).
- Ski resort turnover consolidated."



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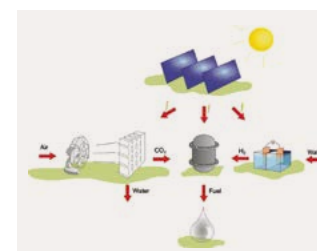
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Antecy · The Netherlands

Product: CAIR (Carbon from Air)

Capture and concentrate (ambient) CO₂ at low prices for direct use and production of fuels and chemicals, using solar or wind energy

THE NEED. CO₂ is an often-used commodity in horticulture for the production of chemicals and liquid fuels. Until now, the production of CO₂ consumed a large amount of energy, needing temperatures of over 80°C to extract it from the air.

THE SOLUTION. As CO₂ capture is a temperature swing process, much energy can be saved when the desorbing can be done at low heat. The crucial temperature being 80°C, Antecy has developed a solid sorbent that can extract CO₂ out of the air at 80°C max. The energy that remains necessary for the process can be supplied by renewable energy source

KEY FEATURES.

- Captures and absorbs CO₂ from air and from flue gas
- Desorbs CO₂ at temperatures < 80 C
- Energy efficient (low heat) process
- Sorbent is environmentally friendly (compared to amines, toxicity)
- Sorbent is stable and can be reused
- Valorisation of CO₂

VALUE PROPOSITION.

- Create CO₂ out of ambient air and flue gases.
- Produce CO₂ on-site and save costs on transport of CO₂
- Save money and energy on the production of CO₂

Beeyon · Ireland

Product: Papillon

Making business sense for data centres

THE NEED. Inefficient data centre energy management has led to some 40% over-investment in capital equipment worldwide, at a cost of \$30 billion, and a 30% annual waste of electricity that costs Europe alone some \$8 billion a year.

THE SOLUTION. Beeyon's Papillon technology automatically identifies where energy inefficiencies exist in the data centre IT infrastructure, proposing energy-saving actions and quantifying the benefits of these actions based on actual measured operating costs.

KEY FEATURES.

- A software solution to energy and productivity management
- Automatically identifies energy-saving action
- Does not rely on an existing metering infrastructure
- Installs in minutes with NO requirement for retro-fitting or downtime
- Measures/monitors energy consumption at server and rack level
- Measures/monitors energy consumption at virtual machine, process and service level

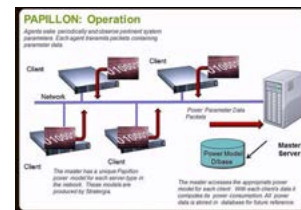
VALUE PROPOSITION.

- Automatic identification of energy saving actions at physical level
- Cloud Energy analysis at business object level for senior management and C-level execs
- Complete energy chain visibility from the rack to the business object levels
- Ease on integration with other DCIM tools
- Energy analysis for all data centre stakeholder in user-defined KPIs and metrics
- Rapid installation with no downtime or retrofitting



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Cascade Drives · Sweden

Linear drives to electrify linear motion in heavy machines

THE NEED.

To reduce energy consumption and emissions, an on-going 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.

KEY FEATURES.

- Heavy duty capacity
- High energy efficiency
- Revolutionary speed
- Shock loads compatibility

VALUE PROPOSITION.

- Combine both high load capacity and high speed
- Lower life cycle costs - less expensive motion control and reduced operational costs
- Maximises the productivity of customer equipment
- Reduces emissions, fuel cost and environmental threat



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Sensorfact · The Netherlands

Smart energy efficiency for medium-sized industrial companies

THE NEED.

Many medium-sized industrial companies lack the knowledge and investment capability to make the best use of new technologies in order to minimise their operating costs.

THE SOLUTION.

The solution is a product and a service. The product is a software tool, which helps the manager of a plant increase its efficiency by providing data-driven feedback. Data-drive process optimisations are also offered.

KEY FEATURES.

- Different sensor types
- Energy scans
- Market specific algorithms

VALUE PROPOSITION.

- A complete service
- No cure, no pay
- The combination of a product and a service
- The cooperation between a start-up and a large corporation



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Eco-Tech Ceram · France

Product: ECOSTOCK

Store heat to master your energy

THE NEED.

The main challenge is the reduction of CAPEX (€/kWh th installed) for a thermal energy storage technical solution for heat intensive industries.

THE SOLUTION.

The ETC SME has developed a new concept for waste heat recovery at very high temperatures, up to 1,000°C, with low CAPEX and OPEX. Mainly based on the implementation of ceramic materials inside a container (20 feet), this technology is well adapted to small and medium industries. With ECOSTOCK, waste heat can be captured, stored and delivered from 5 €/MWh th.

KEY FEATURES.

- 20 feet container (6*2,4*2,5=38m3), 30 tons
- Capacity from 1 to 3 MWh th per cycle
- Cycle from 30 min to 8 hours
- Power from 200 to 1000 kW
- Temperature from ambient to 1000°C
- Thermal loss from 5 to 8% per day

VALUE PROPOSITION.

- Constant outlet temperature
- Efficiency > 92% per cycle
- Low-cost energy (from 5€/MWh th)
- Mobil
- Plug & Play
- Robust

Industry

104

Municipality
Power DSOGreen Mobility
Non-Residential Building

Booth n° D22

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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, 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.

KEY FEATURES.

- Compact, lightweight architecture
- Three main functionalities: harmonics mitigation, reactive power compensation and phase current symmetrisation
- Flexible software architecture allowing future algorithm improvement
- Intuitive menu and broad set of measurements available for user
- OLED Display and WEB graphical user interface

VALUE PROPOSITION.

- Energy efficiency improvement and energy saving.
- Increasing lifespan of many electronics devices.
- Increasing safety due to lowering current (and temperature) in phase and neutral wires.
- Increasing the reliability of industrial processes.
- Simple operation and maintenance.

Industry

105

Municipality
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12 direct customers leaders in their markets (paper, agrifood, chemistry, nuclear, automotive).

Energiency · France

Cloud software start-up that develops disruptive energy big data analytics solutions for industry

THE NEED.

Industrial manufacturers lack energy competitiveness which increases their energy bill, and operational teams cannot easily manage this problem as they lack relevant KPI analytical means. However, data is all around them!

THE SOLUTION.

Energiency operates big data algorithms, machine learning and predictive analytics that continuously scan all the information systems in factories (production, maintenance, energy, etc.) and provide real time energy monitoring, assessment and action plans on web and mobile devices.

KEY FEATURES.

- Disruptive business model based on SaaS recurrent fees
- Financial independence from historic market players
- Integration of downstream value chain (audit, action plan) in a disruptive web software based on data-driven machine learning
- Interoperability and big data cross-analysis of energy, production and maintenance information systems
- Software functions aligned with ISO 50001 certification requirements
- Strict focus on industrial process optimisation with high barriers to entry

VALUE PROPOSITION.

- 20% energy savings without additional investments, and more competitively

Nuclear
Power DSO
Power TSO

foreseeti · Sweden

Product: securiCAD

State-of-the-art CAD tool for proactive cyber security management

THE NEED.

Cyber security is becoming increasingly important, for example smart grids that are becoming IT dependent. Attackers use increasingly sophisticated techniques to attack digitised infrastructures, costing millions of euros.

THE SOLUTION.

securiCAD® is the first CAD-based approach to protecting IT infrastructure, providing expert-validated threat modelling and enabling informed decision-making. It helps companies understand their current cyber security level across the IT network, prioritise areas to address and cyber security investments to pursue and proactively manage cyber security when or changing IT networks.

KEY FEATURES.

- A holistic assessment of IT architectures to ensure current and future cyber security
- A report system that delivers actionable business decision support
- An ability to provide actionable outputs even when data is incomplete
- An automated approach that offers objective, reliable and quantified results

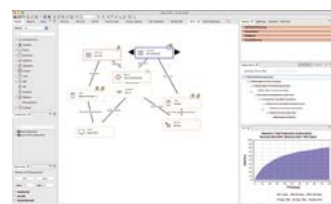
VALUE PROPOSITION.

- Enable to prioritise security investment
- Maintain operations
- Prevent financial loss and damage to reputation
- Protect critical infrastructure from cyber attacks



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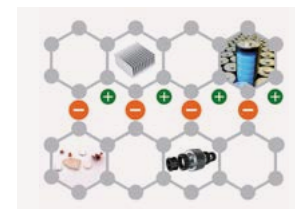
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Product: Aros graphene

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; approx. 33% of energy losses in cars are due to friction. Materials that combine high electrical/thermal conductivity with self-cooling and low friction are needed.

THE SOLUTION. GraphMaTech has developed graphene-based nanocomposites whose properties can be tailored to many different applications including thermal management, moving electrical contacts and tribology. The clever design of the nanocomposites makes it possible to combine different desired properties in one material. Products can be made entirely from GraphMaTech materials or, for example, reinforced or coated with them.

KEY FEATURES.

- Can be applied in different forms (powder, coating, additive to a matrix, 3D printing)
- High thermal and electrical conductivity
- High wear resistance
- Lightweight
- Self-cooling
- Self-lubricating

VALUE PROPOSITION.

- Can be tailored to fit different applications
- Combines different, sometime counteracting, desirable properties in one material
- Cost-effective and environmentally-friendly manufacturing
- Increase product lifetime and/or performance.Reduces maintenance costs

Gulplug · France

Product: E-Cube, E-Case and connected services

An integrated solution that enables a decrease of electricity consumption by 10%

THE NEED.

Provide energy managers with a simple solution with fast payback to decrease the electricity consumption in manufacturing plants.

THE SOLUTION.

The product offer consists of both hardware and software. The hardware is the "E-case" comprising 20 E-cube sensors, an access device and a data logger. E-cube sensors are wireless, self-powered and easily clamped individually on one phase of a machine. Electricity consumption data is retrieved, logged and sent to the software, a "Save-It-Yourself" platform that produces savings recommendations and offers connected services.

KEY FEATURES.

- A 10% decrease on electricity consumption
- Intuitive and fast installation
- Lossless data communication
- Non invasive solution
- Secured cloud

VALUE PROPOSITION.

- Connected services
- Fast payback (less than one year)
- Installation in one day
- No down time costs for the plant operator
- No need for specific training - do-it-yourself approach



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Heat Power · The Netherlands

Power: Rankine Compression Gasturbine (RCG)

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. Efficient and fast responsive co-generation systems are not yet available for small scale industries in the range of 250kW-2MW electric and 750kW-6MW thermal power.

THE SOLUTION.

The novelty of the Rankine Compression Gas turbine (RCG) compared to existing steam cycles is that the steam turbine drives the compressor of the gas turbine cycle. This means that the combined cycle installation can provide electrical power at rapidly changing loads, perform peak shaving operations and give torque when the load is standing still. For a combined cycle, this is unique.

KEY FEATURES.

- Add-on to boiler and furnace systems
- Components with a track-record
- Electricity and steam
- Modular
- Rigid industrial

VALUE PROPOSITION.

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

THE TEAM

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Tom Huizer
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HySiLabs · France

On-demand and on-site hydrogen production from a stable, non-toxic, non-explosive, emission-free liquid fuel

THE NEED.

Hydrogen is a promising, clean alternative to fossil fuels. However, it is naturally a gas, making it difficult to transport and to store. It must be either pressurised or liquefied at very low temperatures, both methods are dangerous and expensive.

THE SOLUTION.

HySiLabs proposes a hydrogen-based liquid fuel that is stable, non-explosive, emission-free, and easy to transport and store, enabling logistics similar to existing liquid fuels. HySiLabs fuel is the only emission-free liquid hydrogen source that requires no energy to produce hydrogen. The know-how of HySiLabs is the Hydrogen Generation Unit where hydrogen is produced on-demand and instantly consumed, circumventing the need to store the gas.

KEY FEATURES.

- Liquid
- Non-explosive
- Non-toxic
- On-demand production
- On-site production
- Stable

VALUE PROPOSITION.

- Emission-free
- No energy input required
- Quick refuelling
- Safe transportation and storage
- Simple transportation logistics



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**Premium Hydraulics** · Germany

More muscles for hydraulic drives

THE NEED. Motor concepts to date usually have a narrow corridor in which the ratio of the power of motors (kW) and the torque (Nm) is ideal for the required application purpose. In the case of hydraulic drives, a wide range of applications is often required in which even at low and also high rotational speeds of motors, sufficient power and torque are stably controlled and available. Most applications have a stick-slip effect and a performance problem. Many applications need additional transmission, but no low cost editions in the mini- and micro-applications are available. As of today sales earnings are low and comparing technically all market products, the life time of drives are very specific and various.

THE SOLUTION. Hydromotor and hydropump in 1 unit by addressing the complete hydraulic market. Some main areas: construction, forestry, agriculture, railway, street vehicles, material handling machines, manufacturing machines, robotic - high-end to service-robotic, plastic area: chemical and medical engineering, home robotic, automotive esp. convertibles.

KEY FEATURES.

- 100% plastic versional
- 4 quadrantfunction - motor / pump / gear in one
- Extensive property rights
- Significant cost reduction
- Significant higher power density - start torque 85% no stick slip

VALUE PROPOSITION.

- Cost reduction - less parts, smaller, nearly maintenance free
- Hydraulic and mechanical break included
- Low cost versions especially plastic versions possible
- New usage possibilities for example much weight reduced and smaller axes drives for robots and convertibles
- No additional gears necessary
- Pump / motor / gear in one unit - modular design - full scalable

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Artur Willibald
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Industry

112

Residential
Non-residential
Municipality

Prime Design · Sweden

Product: Baselight 420X

The next generation of logistically smart and energy-efficient light equipment

THE NEED.

Lighting equipment is often not mobile enough or strong enough to handle demanding situations: most manufacturers have merely put LED-armatures on old designs without fundamentally rethinking them.

THE SOLUTION.

Baselight is a new-generation LED light tower built from the ground up with input from rescue and rental professionals. It uses the latest technologies to create a flexible solution superior to much heavier tower or tripod setups. As the only self-contained lighting system producing 50,000 Lumen from only 420W with a weight of 30 kg, it is ideal for construction sites, maintenance work, military and rescue ops, airports, media, film sets and other events.

KEY FEATURES.

- Compact, lightweight (30kg - 66lb) and robust equipment
- Consumes 75% less power than a 4x400W halogen system
- Deployed by a single person in 30 secs without the aid of machinery
- Produces 50,000 lumen with 420W power consumption
- Uses dimmable LED lamps. Works in every climate

VALUE PROPOSITION.

- Dimmable light
- Easy and safe to operate: no prior training or certification required
- Little or no maintenance. Low energy consumption
- Simple, cost-effective logistics: low weight plus high lumen output.
- Small storage space

Booth n° D30



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Industry

113

Green Mobility

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**THE TEAM**

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Johan Linder
Inventor, Founder
and Member of the Board

Simplex Motion · Sweden

Product: SM / SH / SC series

Half weight – double torque

THE NEED.

The industry is going through a transition with Industry 4.0 as a driving force. This is leading to increased automation and an increased demand for small servomotors.

THE SOLUTION.

Simplex Motion offers a patented motion control sensor for servomotors, providing a servomotor with a reduced size, weight and cost, and a longer life cycle. This is enabled by replacing the encoder (which is used in conventional servomotors) with a patented sensor solution. Furthermore, by combining the sensor solution with an outer rotor motor, Simplex Motion can offer an integrated servomotor with a high torque in relation to its weight and volume.

KEY FEATURES.

- Reduced energy consumption due to high efficiency motor type with lower weight
- Reduced energy consumption due to removed gearbox (if removed)
- The ability to use a smaller servomotor while maintaining the torque
- The need to use a gearbox to achieve a certain torque is reduced

VALUE PROPOSITION.

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



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Vane Compressor · Croatia

Making the world more efficient

THE NEED.

The annual world electricity consumption of compressed air systems in industrial applications alone is 764 TWh (4.2% of all electricity in the world). The cost of energy weighs in at between 70% and 82% of the cost of a compressor's life-cycle.

THE SOLUTION.

A vane compressor that comprises of a patented vane machine and a unique sliding valve. The vane machine has a cylinder and lateral plates that rotate together with the rotor and the vane. This technology reduces friction and volumetric losses and enables high energy efficiency and a long operational lifecycle. The sliding valve permits it to act upon the air output of the compressor and additionally improves the efficiency of the compressor.

KEY FEATURES.

- 20-25% more energy efficient than the best compressors available on the market
- Consistent working efficiency
- Doubles the operational life cycle

VALUE PROPOSITION.

- A superior efficiency than any compressor available today
- Enhanced compressor reliability
- Low maintenance costs
- Pay off investment on the compressor in 25 months



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Gradis · Poland

Product: PhoCa

Unique solutions for the outdoor lighting market designed to save energy

THE NEED.

There is a need to reduce energy spendings on outdoor lighting, as well as decreasing light pollution, increasing human outdoor security and user experience, reducing the impact of excessively high light intensity on human health, reducing CO₂ emissions and reducing energy waste on transmission.

THE SOLUTION.

PhoCa delivers 30% of energy savings, with 6h project time instead of the usual 5 weeks engineering works and a lower capex. Based on precise photometric calculations, the payback of investment in LED outdoor lighting system is made 34% shorter. It provides an essential tool for local authorities, road and highway authorities as well as private investors.

KEY FEATURES.

- Ability to calculate optimal parameters for (existing and new) lighting infrastructure
- Complete ecosystem for outdoor lighting installation (inventory, design and control)
- 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)

VALUE PROPOSITION.

- A better street and road lighting user experience.
- Dynamic management of street lights intensity Investment payback shortened by 34%.
- Multi-variants design project.
- Positive impact on environment and health.
- Speed of variants modification.

Greinon · Sweden

Product: Intelligent lighting system

Control systems that turn conventional infrastructure into smart city objects

THE NEED.

Infrastructure owners have both a legal obligation and a marketing need to attract investment, optimise urban energy use, decrease CO₂ footprint and enable easier, lower cost management.

THE SOLUTION.

This product fulfils that need as it is lightweight, easy-to-use technology, which enables energy savings of up to 85% on pre-existing infrastructure. This technology can also improve data collection and analysis, improve the predictability of maintenance and reduce operational and maintenance costs.

KEY FEATURES.

- Compact plug-and-play device integrated with and distributed together with LED luminaires.
- Graphical User Interface for monitoring/controlling key system parameters
- Machine learning algorithms
- Open source server software enabling efficient management of city infrastructure

VALUE PROPOSITION.

- Cost-efficient installation.
- Flexibility and inter-operability with third-party systems.
- Modularity and scalability (pick and combine features as required, add new ones in the future).
- On-demand development and customisation.
- Ultra-low power consumption (can operate on installations powered by renewable sources)



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Imecal · Spain

Product: PERSEO Bioethanol®

Turn waste into biofuel

THE NEED. The increasing demand for a sustainable and competitive waste treatment processes, as well as for sustainable biofuels, and bioproducts production and solutions that reduce GHG emissions.

THE SOLUTION.

PERSEO Bioethanol® is a biotechnological patented process that applies in the field of MSW (Municipal Solid Waste) management, and biofuels production. It impacts directly in the reduction of waste sent to landfill by the production of second generation bioethanol, bioenergy and bioproducts with an associate reduction of GHG emissions. The business model is based on the development of tailor made projects for each client: from design to building up steps. The technology is modular and totally compatible and adaptable to existing MSW treatment facilities.

KEY FEATURES.

- Second generation bioethanol with a purity up to 99.5% to be used as vehicles liquid biofuel or as a chemical building block
- High calorific value solid biofuel for heat and electricity production through a cogeneration process (Waste to Energy)
- Valuable feedstock (with high content of proteins and fats) for anaerobic digestion to produce biomethane and biofertiliser

VALUE PROPOSITION.

- PERSEO Bioethanol® is a feasible, replicable and profitable technology which:
- Has been proven at semi-industrial scale (pilot plant from 2007), guaranteeing a stable process
 - Is developed under the "Integrated Biorefinery" concept (Circular Economy Strategy)
 - Reduces the associated greenhouse gas emissions.
 - Offers a better economic balance than current MSW treatment technologies

SolidCity · *The Netherlands*

Product: FutUrLight

Smart sensor boxes for a smart city management platform

THE NEED. As global urbanisation continues at a vast rate, growing number of municipalities are challenged to work more efficiently, reduce costs and keep citizens' living environment healthy. This requires a new look at existing and new urban infrastructure.

THE SOLUTION.

New technologies are helping cities guarantee citizens and enterprises a comfortable, safe and secure environment to live and work in. SolidCity is supporting municipalities in becoming Smart Cities. Our Smart sensor boxes create a well-controlled sensing network that provides data for a unique smart city management platform. Public street lamps are equipped with smart sensor boxes. This makes adaptive lighting possible, resulting in energy cost savings, greater comfort for living and higher security. Data from the smart sensor boxes acts as input for the smart city management platform. The street lamps are, therefore, necessary for offering smart city functionality

KEY FEATURES.

- Access to data for other domains, e.g. smart mobility without additional investment.
- Enabling governments to reduce costs and offer a safer and more comfortable environment.
- Reduced installation, operating and maintenance of the lighting system and making it smart.
- This open system provides the freedom to chose sensors, actuators and other Smart City suppliers.

VALUE PROPOSITION.

- Reduced public lighting energy consumption
- Additional savings in other domains without additional investment
- Extended lifetime
- ROI of three years



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Vos, Domijn, Solar Nederland,
Friso, Jorritsma, Wonen Limburg,
Bouwbedrijf Jongen

Watch-E · *The Netherlands*

Product: MyEnergyBundle (Mijnenergiebundel)

Energy management on which you can build

THE NEED. In the 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 the house and the correct function of the 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.

KEY FEATURES.

- Extra encouragement by setting targets.
- Highest privacy and security standards applied.
- Independent, certified hardware.
- Separate platform for builders for alerts, reporting, benchmarking and analyses.
- User-friendly application for end-users.

VALUE PROPOSITION.

- Communication tools for end-users.
- Independent management system for housing corporations and builders to manage their housing portfolio and be able to collect compensation fees for their energy efficient investments.
- Opportunity for residents to get personalised insight in their energy household
- Reporting and alert features.

Agronergy · France

Heating produced from agrowaste. Ecological heating, in a simple and competitive way

THE NEED. Almost 85% of the energy consumed in France comes from non-renewable energy sources, which contributes to its expense. Three basic requirements appeared when confronting this situation: the better control and reduction of energy expenditure from heating, the reduction of CO2 emissions by using a renewable energy source, and the need for a technical solution that is easy to understand and failsafe.

THE SOLUTION. Agronergy sells 10-years heating contracts to buildings or districts (from 100 to 2 000 Kw power). Agronergy designs, builds and operates the boilers, and sources the biomass agropellets to deliver renewable heating.

KEY FEATURES.

- Cheap heat, -20% per KWh compared to classic wood pellets
- Heat as a service (the customer does not pay for the boiler, only the Kwh)
- Renewable heat

VALUE PROPOSITION.

- The delivery of ecological heating in a simple and competitive way



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Contracts in France:
Fontainebleau swimming pool,
residential building in Paris,
retirement residence in Orleans,
high-school and two gymnasium
in Ile de France, university campus
with sixteen buildings and 2 km
heat grid in Normandie.



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Hotel, Azimut Hotel, Ramada,
Golden Tulip
City Hotels: Parkhotel Plauen,
Lindemann Hotel, Blauer Block,
Sustainable Hotels: Biohotel Kassel,
Creative Hotel, Flair Hotel,
etc

Betterspace · Germany

Product: iQ Roomcontrol

The intelligent room control for your hotel

THE NEED.

In hotels, unoccupied rooms are often heated throughout the whole day. This leads to unnecessarily high levels of energy use, carbon emissions and heating costs.

THE SOLUTION.

A smart radiator control system specialised on the needs of the hotel industry. Intelligent control algorithms and the connection to the deployed hotel software ensure efficient and proactive heating results for each hotel room. Rooms are only heated when they are actually occupied. Using iQ-Roomcontrol, the energy consumption of radiators is reduced by up to 31%.

KEY FEATURES.

- Connection to hotel software
- Detection of open windows without window contacts
- Intelligent control algorithms
- Out of the box installation
- Overview of all integrated rooms via iQ Roomcontrol Manager (web portal)
- Wireless communication - no wiring needed

VALUE PROPOSITION.

- Increases guest comfort
- Lowers carbon emissions and protects the environment
- Reduces heating costs by up to 31%
- Reduces operating costs
- Specialised on hotel industry

Heating & Cooling
Municipality
Power DSO

Betterspace · Germany

Product: iQ Tab

More than a digital guest directory

THE NEED.

Hotels are facing strong competition nowadays. As a result, they are in need of opportunities for differentiation from their competitors in order to convince guests.

THE SOLUTION.

Betterspace offers a digital guest directory that provides guests with several opportunities for entertainment, information, service offers and a lot more. Hoteliers can easily contact guests via the iQ Tabs to present their services, inform guests about activities or special offers. Hotel owners profit from higher revenues thanks to the upselling potentials, increased guest satisfaction and reduced process costs.

KEY FEATURES.

- Control of room temperature, light etc. in connection with iQ Roomcontrol.
- Guest entertainment with newspapers, games, youtube, web browser etc.
- One-click booking of hotel services.
- Push-messaging feature.
- Theft protection.
- Travel guide and tips for guests.

VALUE PROPOSITION.

- Increases guest satisfaction.
- Increases revenues.
- Reduces process costs.



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Customer references:
Hotel Chains: Best Western, Dorint Hotel, Azimut Hotel, Ramada, Golden Tulip
City Hotels: Parkhotel Plauen, Lindemann Hotel, Blauer Block,
Sustainable Hotels: Biohotel Kassel, Creative Hotel, Flair Hotel, etc



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BINe · Poland

Smart waste bin

THE NEED.

People don't want to bother about segregating waste, there is no recycling infrastructure and waste segregation is time and space consuming, and waste costs are high.

THE SOLUTION.

Bin-e is an IoT-based waste management device, self-segregating, and automatically compressing with a data collection function and fill level control.

KEY FEATURES.

- Autosegregation mechanism
- Big data processing
- Communication and control by IOT platform
- Compression function
- Fill level control
- Object recognition system based on AI

VALUE PROPOSITION.

- Data analysis as a marketing tool
- Eco-friendly work space
- Possibility of resale segregating waste as raw materials
- Reduced costs for waste removal



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Cloud Energy Optimizer · The Netherlands

Provides energy forecasting and reduces energy consumption in buildings, while also improving comfort

THE NEED.

The CEO is a cloud based add-on to BEMS which, based on the weather forecast, predicts the energy needs of the (zones). This leads to energy savings and cost reduction and improved indoor comfort. Applicable for existing buildings.

THE SOLUTION.

All energy resources are gathered in the technical area: heat pumps, solar collectors, heat exchangers and boilers. They are controlled by a management system. The CEO uses an intelligent self-learning algorithm as an add-on to the BEMS to predict the energy demand of a 24 hours in advance, based on the weather forecast among other factors. This continuously ensures the optimal distribution of sustainable energy.

KEY FEATURES.

- Add-on to existing BEMS
- Cloud operated
- Easy to install
- Energy cost saving by 10-50%
- Improvement of indoor comfort
- No adaptations to HVAC system and building

VALUE PROPOSITION.

- Contribution to sustainability goals
- Enhanced comfort
- Extending 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

“

I am here to scan the market for innovations, to see what future business we want to invest in. I have found some interesting solutions for my company at The Business Booster, absolutely.

Bas van Beers, External Program Leader
Business Service Innovation, Eneco

Energy Floors · *The Netherlands*

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 reducing their carbon footprint.

THE SOLUTION.

Energy Floors offers a tool to produce local clean energy and educate at the same time: a Hybrid Energy Floor. This floor converts kinetic and solar power into electricity, which is used to power educational energy games, lighting and USB devices.

KEY FEATURES.

- Practical, aesthetic, educative and

VALUE PROPOSITION.

- Provides interactive learning about renewable energy production
- Helps meeting sustainability targets
- Places schools, companies and governments at the forefront of energy education and clean energy production



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THE TEAM

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Glowee · *France*

Enlightened by the sea

THE NEED.

There is a need to offer an alternative solution to reduce the 15% share of electricity used in the world for the purpose of lighting, which accounts for 5% of global greenhouse gas emissions. There is also a need to reduce light pollution.

THE SOLUTION.

Glowee has developed a bioreactor-based technology called "Pipelight" that is dedicated for use in the urban landscape, using optimised bioluminescent microbes. Target customers are the green building and urban furniture industries.

KEY FEATURES.

- Biological lighting
- Biomass creation
- CO2 capture
- Sewage depolluting

VALUE PROPOSITION.

- Highly aesthetic light
- Wide environmental benefits

Plactherm · Spain**Smart underfloor heating system****THE NEED.**

It has previously not been possible to create different comfort areas in a room (different zones with different temperatures). Up to now the most common systems warm from top to bottom when actually the ideal method would be the other way around.

THE SOLUTION.

A tile with a resistor element and embedded sensors, an isolation layer and a structure with electronics is the basis of an innovative heating system that can also be controlled remotely. It is highly efficient, has sensors, and is able to create thermal zones.

KEY FEATURES.

- Captures data from user behaviour.
- Each tile works independently.
- Easy / plug & play installation.
- Savings of up to 30% energy consumption.

VALUE PROPOSITION.

- Comfortable system
- Intelligent and efficient heating system
- Lowers costs
- Patent technology
- Software analysis for the highest efficiency and relevancy of information for the user



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Sit & Heat · The Netherlands**Energy efficient outdoor heating system integrated into seating****THE NEED.**

During a sports match, spectators may wish to enjoy live sport in a stadium in a warm and comfortable way. Currently, seating areas in stadiums are heated by extremely inefficient and costly gas heaters.

THE SOLUTION.

Sit & Heat Sports has developed (plastic) heated stadium seats that are 95% more energy efficient and much more comfortable than the conventional means of using gas-powered radiation heaters.

KEY FEATURES.

- Considerably reduced CO₂ emissions
- Operate at a considerably lower cost

VALUE PROPOSITION.

- 95% more energy efficient than traditional gas heaters.
- Considerably reduced CO₂ emissions when compared to traditional gas heating systems

Non-Residential Building

130

Municipality
Off Grid
Offshore Wind

Onshore Wind
Residential Building

Vertequip · Portugal

Product: S.T.E.P.

System of translation and elevation of people

THE NEED.

The risks of working at heights and its low productivity.

THE SOLUTION.

A unique system provides a simple and practical way to allow workers, including handicapped workers 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 by remote control. S.T.E.P is adequate for any type of structure, whether it is a , bridge, silo, wind tower or even an oil rig.

KEY FEATURES.

- Cheaper than equivalent technologies
- Lighter system than substitute methods
- Safer than absailing / rope access

VALUE PROPOSITION.

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

Booth n° D47



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Non-Residential Building

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Heating & Cooling
Residential Building

Vilisto · Germany

Product: ovis

Self-learning radiator thermostat with integrated presence detection for automated heating control in office spaces

THE NEED. 70% of energy consumption in office spaces is used for heating, yet offices and workspaces are not used for up to 80% of the time. Current smart thermostats are not efficient in such work environments.

THE SOLUTION.

- A self-learning thermostat with an integrated presence detection
- Ability to learn user habits for each individual room within a few days.
- A predictive heating control based on actual and learned user behaviour, learned parameters and weather data.

KEY FEATURES.

- Data-based services beyond heating control
- Detects open windows without the need for additional sensors
- Integrated presence detection
- Self-learning
- Takes weather data into account
- Works fully automated (no programming or app needed)

VALUE PROPOSITION.

- Additional data-based services beyond heating control
- Fully automated function from set up (no programming or app needed)
- RoI < 3 years
- Saves up to 35% heating energy



Active Insulation · The Netherlands

Active Insulation develops switchable and intelligent insulation to cool and heat buildings by natural processes

THE NEED.

Combined with internal heat sources such as heat generated by human beings, or by computers and other machinery, the ever thicker insulation often causes the to overheat, an undesirable effect that is mostly combatted by using more air-conditioning.

THE SOLUTION.

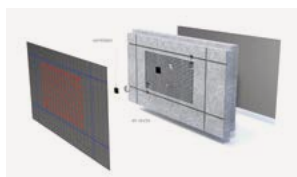
Active Insulations adds an 'on' and 'off' function to insulation. A forced ventilation switch is placed, allowing for heat or cold to flow from the outside to the inside, or vice versa. When an intelligent control system with temperature sensors drives the switch, the insulation becomes an active element of the building's heating and cooling system.

VALUE PROPOSITION.

- A completely closed loop, without external piping or air channels
- Avoid artificial cooling and heating
- Possibility to cool buildings during summer nights without opening doors or windows
- Substantial energy savings, up to 30%
- Use the natural temperature outside to heat and cool buildings

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AERSpire · The Netherlands

Product: AER

Aesthetic integrated solar energy roofing solution

THE NEED.

To meet the increasingly stringent energy label requirements for buildings, and the demands for aesthetic ways to do so.

THE SOLUTION.

AER is a roofing system that generates photovoltaic electricity and hot water (solar thermal heat), integrated in glass panels that fully replace conventional roofing materials and suit every type of tilted roof.

KEY FEATURES.

- Aesthetic and integrated PV-roofing system

VALUE PROPOSITION.

- Designed to be a component
- Equal life span compared to today's standard roofing materials
- Optimal water retaining surface, no additional materials needed

THE TEAM

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Product Development, Engineering
and Project Realisations

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Industry
Power DSOGreen Mobility
Solar PV
Non-Residential Building

Booth n° D51

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CEO**José Marçal**
CTO✓ **COMMERCIALISED**Customer references:
EDP (Energy of Portugal)**BeON · Portugal**

Product: BeON microinverter

**The european
microinverter****THE NEED.**

In addition to the need for low-cost PV panels, there is also a requirement to lower the costs of the distributed installed systems and the energy produced as a means of compensating for ever-increasing electricity prices.

THE SOLUTION.

The BeON microinverter has already proven itself a successful solution, rehabilitating the solar business in Portugal in 2015 with a self-consumption DIY model that allows people to assemble their own PV systems and use all the energy they produce.

KEY FEATURES.

- Complete off the box DIY PV kit
- Dual core control technology reducing failure sources
- IP68 Military grade testing operating deep under water
- It allows any PV panel to be connected directly to an ordinary wall socket, safely and easily
- Maximum isolation from corrosion and extreme weather -40~+85°

VALUE PROPOSITION.

- 25-year warranty: the most reliable piece of electronics commercially available
- High quality: record of zero unit failures in 10.000 units sold
- Lowers the cost of locally produced energy to less than half of what the electric grid operator offers
- The only microinverter focused on a DIY solution

135



Booth n° D52

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www.compactsolar.nl**THE TEAM****Floris Bruning**
Founder**Hans Keller****Rolf Huiberts****Peter Bakkum****Compact Solar · The Netherlands****A small modular system
that can harvest solar
energy from flat roofs****THE NEED.**

The existing built environment has limited space for solar panels and non-shaded areas are rare. For flat roofs, no solutions exist.

THE SOLUTION.

The Compact Solar system is composed of several small modules of a few solar cells each. These are connected to form a full energy production system. Thanks to the modular design, any roof surface can be used to its fullest extent.

KEY FEATURES.

- Small and lightweight modules

VALUE PROPOSITION.

- Easy to install and maintain
- Low height to make it invisible to passers-by
- Overlapping structure to create one single windproof system
- Quick and cheap manufacturing
- Suitable for every available flat roof surface, small or big, strong or weak



Dom'innov · France

Product: Blokiwood

The 3-in-1 block

THE NEED.

The BlokiWood® modular wall system is specifically designed for the needs of extension and elevation, especially on sites that have difficult access. There is a requirement to offer an ease-of-use and energy performance that only prefabricated envelope materials can provide.

THE SOLUTION.

Blokiwood® features 30 standard modules, 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.

KEY FEATURES.

- Airtight
- Bearing wall
- Ease of installation
- High performance thermal insulation
- Suitable for sites difficult to access

VALUE PROPOSITION.

- Answer to the construction industry's professional need for a high-performance, easy-to-use, 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

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THE TEAM

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CEO

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Endef · Spain

Product: ECOMESH

Hybrid technology to produce electricity and heat simultaneously in a single solar panel

THE NEED.

Reduction of the collector surface and energy savings.

THE SOLUTION.

The ECOMESH panel reduces the collector surface by 40 % thanks to the combined production of electricity and heat in a single panel. In addition, there is a 15% increase in electricity production.

KEY FEATURES.

- Combination of electricity and heat production
- Increased efficiency
- Reduction of collector surface

VALUE PROPOSITION.

- Contributes to the protection of the environment
- Energy savings
- Reduction of payback period
- Reduction of space needed for energy production in buildings

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THE TEAM

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Gonzalo Brun
COO

Municipality
Solar PV
Non-Residential Building

EnerBim · France

Product: BIMSOLAR eCatalogs

Smart virtual BIPV objects to deliver performance to the building industry

THE NEED. Digital innovation is required to boost the emerging Building Integrated PV industry. There is a need to connect with the supply chain, designers and builders, which provides BIMSOLAR with a challenge.

THE SOLUTION. BIMSOLAR works as a Software as a Service platform, providing 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 to start a direct relationship with commercial commitment.

KEY FEATURES.

- Connection to BIM (Building Information Modeling) processes
- Contextual prescription (adequacy with the project issues)
- Direct connection to supplier
- Expandable functionalities
- Technical and marketing features
- Virtual libraries of BIPV objects (3D)

VALUE PROPOSITION.

- Brand/Status: BIPV products showcasing + referencing
- Cost reduction: less marketing efforts, boosting the commercial process
- Customisation: each eCatalog is a unique part of BIMSOLAR
- Performance: BIM objects enables comprehensive simulations that lead to the best outcomes
- Price: flexible pricing related to complexity and marketing features
- Risk reduction: better adequacy product/project, direct feedback from designers



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THE TEAM

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Customer references:

Over 50 users of the freeware.

Big players, first strong references:

BOUYGUES Innovation

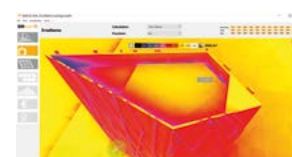
SUNSOAK design

EMIRATES Insolaires, SWISSINSOL.



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THE TEAM

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Product: BIMSOLAR eServices

Digital and expert services for solar simulation and energy modeling

THE NEED. Digital innovation is required to boost the emerging Building Integrated PV industry. There is a need to connect with the supply chain, designers and builders which provides a challenge. Software as a service is the answer to address several business cases.

THE SOLUTION. BIMSOLAR works as a "Software as a Service" platform, providing support to every stakeholder involved in a solar building design. Standards services, free to encourage dissemination, includes BIPV feasibility study within full 3D virtual workspace. Premium eServices, charged, embed expert features for BIPV calculation, virtual design facilities, products and projects showcasing: supply chain and designers will benefit from the direct relationship.

KEY FEATURES.

- 3D virtual workspaces.
- Business networking facilities.
- Connection to BIM (Information Modeling) processes.
- Expandable functionalities and models.
- Real-time simulation.
- SaaS, Webplatform.

VALUE PROPOSITION.

- Accessibility: Software as a Service is much more accessible than any software.
- Brand/Status: showcase customer's innovations (projects, products), helps referencing
- Convenience/Usability: instant results, intuitive, self learning. Cost reduction: save efforts, accelerate design and decision process
- Customisation: online personal workspace, versatile services delivery.
- Price: Freemium business strategy; flexible pricing.

Municipality
Solar PV
Non-Residential Building

ferroamp

Ferroamp · Sweden

Product: EnergyHub

Power control by integrated and future proof DC nanogrids

THE NEED. Solar cells, energy storage and electric vehicles that were exotic technologies a decade ago are now viewed as mainstream in many markets today. This rapid development calls for future proof systems that can easily adapt to fast changing requirements and integrates them in a cost effective way.

THE SOLUTION. Ferroamp has developed the EnergyHub system, a DC nanogrid integrating the three main components driving the future capacity demand - PV, storage and EV chargers - with the grid. The modular system, optimised for medium-sized residential and non-residential buildings, is available from 7 kW to MW scale and easily adapted to future needs. For prosumers, EnergyHub enables increased self-production and self-consumption of electricity as grid operators benefit from demand response and reactive grid support functionality.

KEY FEATURES.

- Adaptive Current Equalizer (ACE) - real-time reduction of phase unbalances.
- DC nanogrid with a seamless integration of PV, Storage and EV-charging connected through only one inverter.
- Demand response functionality and reactive grid support for aggregators and grid operators.
- High resolution data on electricity production and consumption.
- Modular scalability and future proof - from 7 kW to MW range.

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.
- Powerful DC charging of EVs.

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CEO**Björn Jernström**
Founder and CTO**✓ COMMERCIALISED**

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**THE TEAM****Lars Kueger**
CEO**Christoph Herz**
Electrochemist**Gensoric** · Germany

Product: t-energy™

Make your own fuel from CO₂ at home

THE NEED.

To meet targets of energy revolution, customers need more reliability in renewable energy production technologies. Part of the problem is fluctuation in energy cost and production. This affects private homeowners and commercial customers equally.

THE SOLUTION.

Our product adds stability and reliability to renewable energy generation technologies by making energy storage possible for long-term usage requirements. Methanol as a medium, produced using our technology, can be easily integrated into current infrastructure. Moreover, the whole process is energy efficient, cost efficient and CO₂ neutral.

KEY FEATURES.

- 100% degree of self-sufficiency for electricity & heating possible
- CO₂ neutral process allows all users to participate in CO₂ utilisation
- Integration with current infrastructure, which means that just bring the device to home and start using it
- Storage capacity of more than 140-160 days is possible
- Uses unlimited resources like renewable energy, CO₂ and water from environment

VALUE PROPOSITION.

- Actively contributes to fight against climate change
- Generates a single bill for all power consumptions for private consumers
- Low effort in installation
- Uses efficient technology in comparison to competitors

Greenely · Sweden

The digital platform for the new energy consumer

THE NEED. Utilities cannot meet customers expectations when it comes to an increase in digital services and comprehensive data. Utilities are failing to attain customer loyalty and have low margins. Solar panels, electric vehicles and storage are attracting considerable interest.

THE SOLUTION. Greenely is the energy interface for every household, using behavioural science to create engagement, insights and energy-efficiency action plans from individual data, collected without hardware. The key strategy is to bundle the Greenely service in offers with utilities and real-estate partners, while also selling the service directly to end users, i.e. households.

KEY FEATURES.

- Low-cost
- Requires no hardware
- Scalable
- Superior user experience
- Works for all homes

VALUE PROPOSITION.

- Energy and cost savings
- Increases customer loyalty (for utilities)
- Offers insights
- Safety and security from alerts
- Tailored plans for energy investments



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Heaboo · Portugal

Product: Hoterway

A passive device for the stagnation temperature correction of hot water distribution systems in buildings

THE NEED.

Hot water distribution systems in buildings have a problem related to the response time of the hot water in the distribution network, and conventional solutions limit energy and water efficiency significantly.

THE SOLUTION.

Hoterway is a standalone device that corrects the response time of the hot water distribution systems passively, saving the energy that would otherwise be wasted with recirculating circuits, or the water wasted while waiting for it to heat.

KEY FEATURES.

- Corrects the stagnation temperature of hot water distribution systems in buildings
- Fully passive device

VALUE PROPOSITION.

- Average saving of 30% on the global energy spent on water heating.
- Avoid the utilisation of recirculating circuits
- Increase comfort and saving for users
- Reduction of water and energy consumption

Power2U · Sweden

Product: Local system operator (LSO)

Designing, building and operating sustainable local energy systems

THE NEED.

Combining digital technologies with existing and new energy assets in buildings is complex. There is a need to reduce energy costs, increase efficiency and provide interfaces to energy markets for all types of buildings.

THE SOLUTION.

Aimed at all types of building owners, Power2U offers a partnership in unlocking the full potential of energy assets within buildings. Power2U activates local energy assets, such as HVAC, renewables, batteries and electric vehicles, by taking control of energy flows through building automation and digitalisation. By providing interfaces with energy markets, Power2U enables its customers to trade and share energy and flexibility services.

KEY FEATURES.

- Extensive application: heating, ventilation, data collection, etc
- Integration of local energy generation systems.
- Integration of local energy storage systems
- Interfaces to energy markets
- Transformation of data into actionable intelligence

VALUE PROPOSITION.

- Increased self-consumption of locally generated electricity
- Local energy generation from renewable sources
- Open for integration of wide range of hardware and software modules
- Opportunity to become a participant in flexible energy markets
- Simplified property management



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Arnaud Strappe
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Ogga · France

Product: ECO-TOUCH, Smart Energy Manager

The most viable solutions for the intelligent energy management of housing

THE NEED.

The cost of energy in homes is continually increasing and home automation solutions for the management of energy are too expensive for property developers.

THE SOLUTION.

ECO TOUCH optimises energy consumption automatically and in doing so saves energy by:

- Controlling a heating system based on the specific habits of residents.
- Switching off standbys and lighting during absences
- Monitoring and displaying the energy consumption of homes. Additionally, Eco Touch makes housing ready to service for additional services, such as smart and facility management

KEY FEATURES.

- Anticipating energy needs
- Automatic heating management
- Consumption monitoring and display
- Life habits learning
- Standby mode and lighting cut-off during absences

VALUE PROPOSITION.

- A connected solution (thermostat, energy meter and circuit breaker).
- Adopts a first level of home automation that is available to all.
- Easy to install (no configuration, no programming).
- Easy to use (self-learning, optimising heating in real time). ECO TOUCH allows developers to meet RT2012 standards while offering smart connected homes and respecting the requirement of cost control
- Saves energy (reduced rental charges).

SmartRoof · Belgium

Product: NeoSol and Cerasol suntiles

Solar roof tiles with integrated photovoltaic elements

THE NEED.

While a great deal of people are interested in solar energy, many are not keen on the aesthetics of standard solar panels. Smartroof Suntiles offer an alternative.

THE SOLUTION.

Smartroof Suntiles are completely integrated into the roof, making the photovoltaic elements look attractive and natural. They can be combined with several types of 'classic' tiles (Neopan/Renopan, ceramic). Integrated cooling channels result in an important increase in efficiency and lifespan.

KEY FEATURES.

- An aesthetic solar panel solution
- Smooth integration with 'classic' (ceramic) roof tiles

VALUE PROPOSITION.

- BIPV with internal cooling solution and heat recuperation
- Cost-effective: financial return in 10 years
- Easy to install and repair, no special chassis is needed
- High efficiency: 125 Wp/m²; full energy coverage is possible
- Modular solution: electrical circuit formed by clicking all tiles together
- Partly made from recycled materials: cradle-to-cradle



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Asset Owner

Raluca Vataseanu
Asset Owner Supporter

Solable · France

Product: La vie

Turn tap water into pure mineral water

THE NEED.

There is a need to purify the mineral water market, removing CO₂ and plastic. Pure water should be available to anyone connected to the water network.

THE SOLUTION.

The patented technology, in a compact natural bamboo case, enables advanced oxidation by homolytic fission, a process that removes chlorine, chloramine, pesticides, chemicals, odours and taste, but leaves minerals and trace elements untouched. The result is a better water quality than commercial mineral water.

KEY FEATURES.

- 10 wh / treated litre tap water, about 1€ energy cost for 500L.

VALUE PROPOSITION.

- Low energy.
- No replacements or servicing required, a lifetime more than 10 years.
- ROI of about one year.

Solar Energy Booster · Netherlands

Convert your photovoltaic system into a thermal hybrid solar collector with the Solar Energy Booster add-on

THE NEED.

Traditional Solar Energy Panels don't use all the energy that can be captured from the sun. A substantial amount of heat still needs to be ventilated from the panels. This 'wasted' heat can also be used as energy in the building.

THE SOLUTION.

Solar Energy Booster offers an add-on to already installed electrical PV systems. Their solution can be added to 85 % of the existing panels, at a reasonable cost.

KEY FEATURES.

- Simple retrofit technology with a short payback period

VALUE PROPOSITION.

- Can be added on the existing and installed PV installations.
- Easy to install.
- Financially attractive solutions in comparison to other photovoltaic thermal.
- Universally applicable - the system fits to up to 85% of the existing PV panels by a variety of manufacturers.
- Hybrid systems.



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Sunaitec · Portugal

Product: Multifunction Solar Structure - 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 intends to harmonize renewable energy, technology and surrounding spaces, Sunaitec has developed products that enable to capture solar energy and convert it into thermal energy and thermoelectricity, with full architectural integration, in various frameworks and with high levels of energy efficiency.

KEY FEATURES.

- Internet monitoring.
- Smart solar orientation.
- Temperature electronic control.
- Total architectural integration.

VALUE PROPOSITION.

- 19X solar concentration.
- Energy bill reduction.
- More longevity.
- Reduction of thermal charge.

Sylfen · France

Product: Smart Energy Hub

The one-stop shop for a local and secure energy supply

THE NEED.

Even though we are now capable of using buildings to produce energy, securing the origin of the energy we need is still uncertain. Batteries alone can't provide sufficient autonomy. To gain security, an additional technological solution is required.

THE SOLUTION.

Sylfen combines batteries with a reversible technology acting (i) as an electrolyser to store energy in the form of hydrogen, and (ii) as a fuel cell to produce heat and electricity from the stored hydrogen or from biogas.

KEY FEATURES.

- Creation of electricity from hydrogen previously stored (working as a fuel cell).
- Creation of electricity from methane (or bio-methane).
- Heat cogeneration: constant heat generation up to 120°C.
- Local creation of hydrogen by electrolysis of water with electricity (surplus from renewable source).
- Supply electricity and heat (from cogeneration).

VALUE PROPOSITION.

- Buying electricity when its cost is less to constitute local energy bank.
- Creation of mini smart grid thermal energy.
- Local high capacity energy storage (MWh of energy).
- Replacing electricity supply with gas when its cost is most advantageous.
- Self-effacement from the network when there is tension in supply.
- Using the stored hydrogen to create electricity when there is no more production.



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President and Co-founder

Caroline Rozain
*Product innovation
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Customer references:
Private industrial



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Niels Mathleener
CMO

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Customer references:
Coolblue, Bol.com, Fonq.nl,
Consumentenbond

ThermoSmart · The Netherlands

Pretty. Easy. ThermoSmart

THE NEED.

75% of Dutch/ European homeowners heat their houses when they are not at home. This is simply because they don't understand their thermostat and find it a hassle to program.

THE SOLUTION.

An easy to program, good-looking connected Thermostat. With hassle-free programming, consumers can easily save up to 20% on their heating bills. With the appeal of a gadget, people will use it more often and even find it fun.

KEY FEATURES.

- Able to be personalised (first smart thermostat that can be customised <https://www.youtube.com/watch?v=2GVq8Tj62KI>)
- Best in class interaction
- Data processing in the cloud
- Privacy guaranteed
- Wi-Fi / "smart"

VALUE PROPOSITION.

- Attractive design.
- Connected.
- Easy to use
- Energy savings: up to 20% on heating costs
- Open innovation: public API, IFTTT channel, Alexa integration.



wohnwaggon

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THE TEAM

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24 Wohnwagons sold in Austria,
Germany, Switzerland and Belgium
for individual use as well as hotel
projects (eg. <http://kleine-heimat.de/>)

Wohnwaggon · Austria

Independent and sustainable living completely off the grid

THE NEED.

Customers are looking for innovative living solutions that fit into 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.

The tiny house, the WOHNWAGON has autarky systems that offer a high class solution for independent and natural living. It can be set up in places where a building would normally be prohibited.

KEY FEATURES.

- 100.000 - 180.000 Euros.
- 15 - 33 m2 natural space for outdoor living.
- Independent supply of water, heat and electricity.
- Mobile (can be uprooted and transported easily if necessary).
- Natural materials: wooden construction, sheep wool insulation, clay.

VALUE PROPOSITION.

- Can often be used as living space where normal buildings are prohibited.
- Independent supply with energy though PV and wind with big 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.

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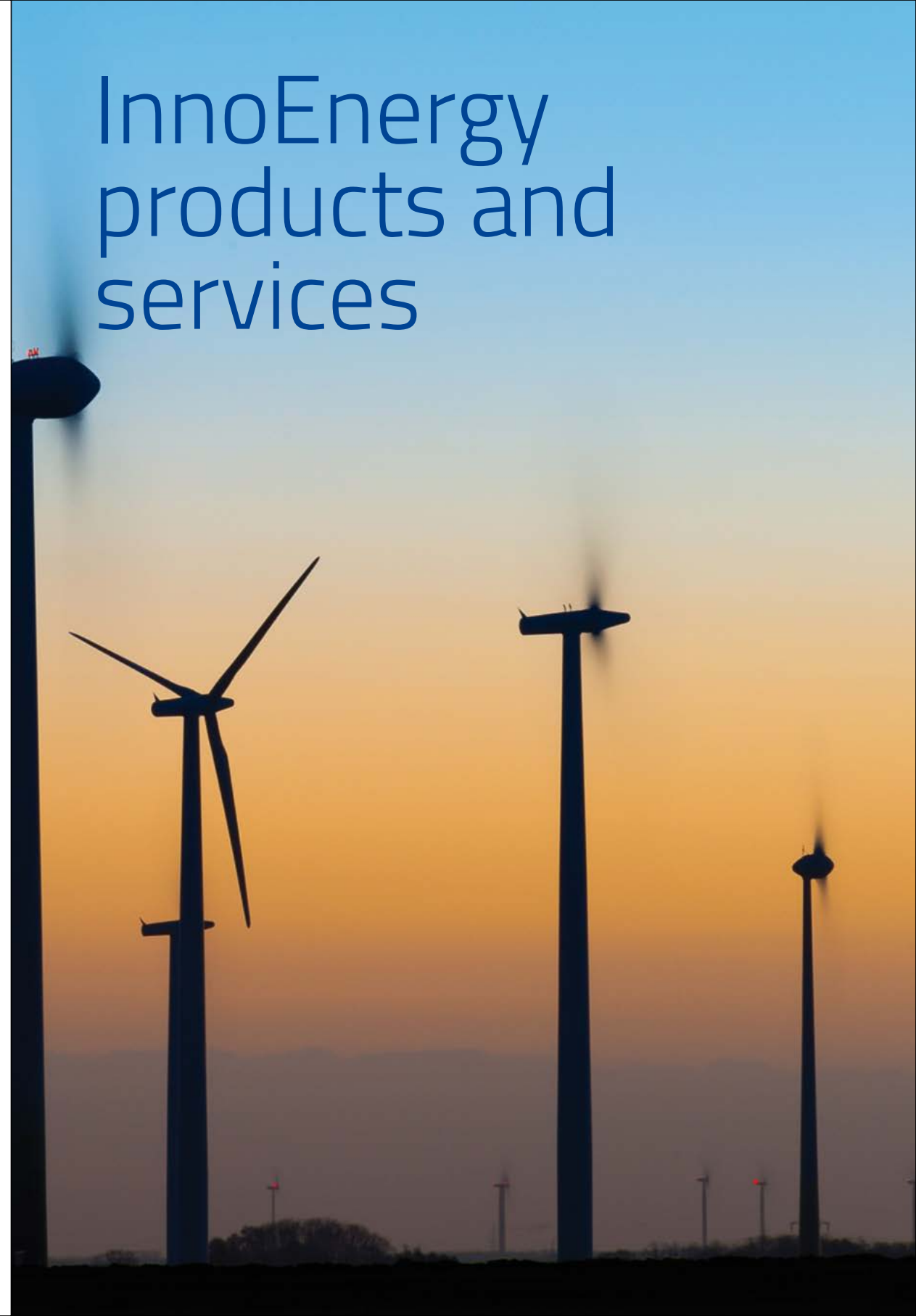
Industry needs to be here: innovation tends not to happen in large companies, the solutions will likely come from individuals outside of the main system and then be brought into by the industrial players.

David Arfin, CEO, First Energy Finance

InnoEnergy products and services

PAGE	PRODUCT	BOOTH
00	E2Talent® A new standard for human resources, due diligence for early start-ups	DL6
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InnoEnergy products and services



A new standard for human resources, due diligence for early start-ups

E2Talent measures the entrepreneurial skills of individuals and team dynamics within a start-up, evaluating their potential of success and ultimately supporting the decision-making process for VC companies and accelerators.

Lower the risk of investing

A start-up's success – or failure – depends on its people and their entrepreneurial skills. InnoEnergy and ESADE Business School's Leadership Development Research Centre have joined forces to bring you E2Talent, a tool that measures the individual and team competencies that have been identified in successful entrepreneurs and teams.

E2Talent proposes a set of tools to measure skills such as performance expectations, adaptability, and capacity, through a series of surveys and simulations. Eighteen distinct key skill sets can be identified, all of which have been proven to predict the success of a start-up.



In addition, E2Talent enables you to assess key aspects of team dynamics which are crucial to the development of a start-up, such as the leadership dynamics within the team, how they solve problems, complementarity of skills and missing competencies within the team. The results can then be used to build a competency improvement plan. E2Talent can also alert you about potentially incompatible team members or those who may struggle to be coached.

E2Talent is for

- Investors
- Business incubators and accelerators
- Government agencies and programmes to support entrepreneurship;
- Universities and research centres with acceleration programmes for student/researcher-founded start-ups
- HR consultants that assess entrepreneurs and entrepreneurial teams
- HR consultants that assess entrepreneurs and entrepreneurial teams

E2Talent can be used for

- Selection purposes: it supports decision making when selecting start-ups
- Competencies development: the tools can be used for building a competency improvement plan for entrepreneurs
- Continuous evaluation process: the tools can be used to track the improvement of entrepreneur competencies over time

Rigorous. E2Talent was developed using a rigorous research protocol to identify the characteristics of successful entrepreneurs and pinpoint how they are different from unsuccessful entrepreneurs and people who are not entrepreneurs.

Robust. E2Talent measurements are taken using three different instruments: biographical and personality questionnaires; an online in-basket job simulation; and a structured interview. The data are then cross-validated for particularly robust results.

For individuals and teams. E2Talent can be used to assess several aspects of team dynamics identified as crucial to the development of a start-up such as complementarity of skills or missing skills within a team, incompatible team members, etc.

Contact alberto.gonzalez@innoenergy.com

A holistic and tailor-made approach to progress innovation

Innovation in sustainable energy opens up new opportunities but also create immense challenges for businesses. To start your journey to innovation success, we listen to your story, your needs and your expectations.

We bring people together in the spirit of co-creation to find solutions to your particular challenge, unlock the creativity within your team, and map out a tailor-made approach to achieve your innovation goals.

And, to encourage fresh ways of thinking, students from InnoEnergy Master's programmes make a vital contribution to the Open Space Studio experience. They bring enthusiasm, open minds, multicultural experiences and proficiency in the co-creation process.

We can also invite relevant experts from our pan-European network of industrial, academic and entrepreneurial partners.



Inspire. Encourage. Explore.

We come together in locations outside the city, away from your normal business life.

We create a space of trust and awareness to inspire, encourage and explore new ways of working together.

We foster interaction between business, research and higher education.

Work with the Open Space Studio. Find answers to the questions posed by innovation. Apply fresh thinking, realise new ideas and develop insights into your business.

Are you curious?

To find out more about how Open Space Studio is working and can help your business please contact:

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“

During these two days at TBB, when you meet the people, when you hand-shake and transact, you can feel the energy of the InnoEnergy community.

Diego Pavia, CEO, InnoEnergy

CommUnity

Booth n° DL6

Uniting sustainable energy members from across the globe to make an impact

The InnoEnergy CommUnity seeks to accelerate the energy transition by fostering collaboration amongst sustainable energy innovators from across the globe. There are currently over 2,000 members from the InnoEnergy ecosystem active in the CommUnity, including entrepreneurs, alumni, employees, partners and students.

CommUnity activities are volunteer driven and include local events, annual events, programmes and the platform available at community.innoenergy.com.

Events are distributed across Europe, together with one flagship annual event. These include talks by inspiring senior professionals or entrepreneurs, case solving exercises, trainings, debates, field trips, social events and more. The flagship AlumniUnite is the culmination of the CommUnity calendar, bringing together 300 participants and forging powerful synergies.

The Mentoring Programme enables the nurturing of one-on-one interactions between experienced mentors and budding mentees. The Career Centre links the talent pool of CommUnity members to potential employers. The current affairs and achievements of the CommUnity are broadcasted through the work of the CommUnity Post, a group that acts as the bottom-up accelerator of CommUnity-related content and is its voice to the outside world. Innovation Challenges can be solved on the platform or during events.

Make the most out of the CommUnity

- Join the CommUnity platform, the social network for sustainable energy innovators. Develop your thought leadership, crowdsource solutions, contribute to discussions in the business section and connect with other members such as entrepreneurs.
- Take part in events as a participant, propose a case to solve, or share your experience as a speaker.
- Become a Mentor to aspiring entrepreneurs.
- Use the Career Centre to recruit top talent.



Career Centre

Welcome Employers

Booth n° DL6

InnoEnergy Career Centre can help you to connect with the talented InnoEnergy students and alumni through a wide range of effective services and resources. Our students and alumni of the Master School, PhD School and our executive education are highly-qualified in the energy sector.

Do you want to post a job or internship?

Here we can connect you with targeted and talented InnoEnergy students and alumni. Whether you're seeking a short-term, part-time, full-time, intern or volunteer, we can help you promoting your vacancy among our students and alumni. Your vacancy will be posted at our Career Centre job board at the CommUnity platform. Talent Partners could even have their own account on the platform and communicate directly with our students and alumni.

Become an InnoEnergy Talent Partner

Becoming an InnoEnergy Talent Partner is your chance to influence, shape and even sponsor the best young talent entering the energy industry from pioneering universities and business schools across Europe. InnoEnergy Career Centre offers different levels of involvement for Talent Partners.

Your organisation's growth and performance will be fueled by the InnoEnergy Game-Changing Impact Programme, which gives you the opportunity to support the development of students who have the capability and drive to change the way the world creates and uses energy.

Keen to find out more?

Then get in touch with our Human Capital Manager

Marloes Wichink Kruit
marloes.wichinkkruit@innoenergy.com



Reports

Booth n° DL6

Top 10 Energy Innovators in 100 Energy Priorities



Innovation in sustainable energy is key for the future of energy worldwide. According to the International Energy Agency, global energy demand is expected to grow by more than one-third by 2035. Where do we have to innovate to ensure sustainability? Who and where are the players driving innovation? Which energy priorities are transforming the future of the energy landscape? InnoEnergy's global study answers exactly these questions, providing in-depth insights on the energy innovation landscape and the future game changers who will have the greatest impact on the market.

The Top 10 Energy Innovators in 100 Energy Priorities report is the first to identify and rank the top industry and academic players worldwide at the same time according to their innovation competencies in 100 energy priorities – defined in InnoEnergy's Innovation Strategy for 2014-2019. This report covers 8 thematic fields: Wind Energy, Ocean Energy, Solar Photovoltaic System, Solar Thermal Electricity, Smart Buildings and Cities, Smart Grids and Electric Storage, Renewable Energy Convergence, Clean Coal and Gas Technologies.

Global results

The global results show that 80% of innovative industry leaders come from Japan, USA and European regions, while China leads the list of academic innovative players. However, Chinese industrial players are almost absent from the rankings.

The best positioned regions are Europe and the USA with a balanced presence of both industrial and academic players.

Methodology

The report has analysed close to 150,000 patents, 180,000 scientific publications, identified 1,890 R&D collaborations, 340 acquisitions and start-ups, 1,227 products, services and licenses and 2,000 industry and academic players, achieving strong and comprehensive conclusions.

The players are ranked according to both qualitative and quantitative KPIs, such as measures of patents, scientific publications, strategic involvement in each topic, collaboration in R&D and R&D commercialisation.

Sources of information

- Professional databases: Orbit®, Thomson Innovation®, Web of Knowledge®, OneSource®.
- Public information: players' press releases, technology transfer offices' websites, financing institutions' websites (Cordis, enGrant Scientific), thematic fields' websites (news, associations), and players' annual reports.
- InnoEnergy survey: to partners and to 850 top industry and academic players worldwide.
- The report has analysed close to 150,000 patents, 180,000 scientific publications, identified 1,890 R&D collaborations, 340 acquisitions and start-ups, 1,227 products, services and licenses and 2,000 industry and academic players, achieving strong and comprehensive conclusions.
- The players are ranked according to both qualitative and quantitative KPIs, such as measures of patents, scientific publications, strategic involvement in each topic, collaboration in R&D and R&D commercialisation.

Offshore Wind

The purpose of this report is to document the cost of energy for offshore wind projects reaching financial investment decision (FID) up to 2030, by modelling the impact of a range of technical innovations and other effects including financing and supply chain impacts. More than 50 technology innovations were identified as having the potential to cause a substantial reduction in LCOE through a change in the design of hardware, software or process. In this report, InnoEnergy extends the temporal horizon of the previous offshore wind study to 2030 and increases the turbine capacity to 10MW to look at longer-term trends in the innovation pathways.



Onshore Wind

This second report in the series examines how technology innovation is anticipated to reduce the cost of energy from European onshore wind farms over the next 12-15 years. For this report, input data is based partly on Future renewable energy costs: offshore wind, published in June 2014. For this report, the many offshore-specific innovations have been replaced by a series of onshore-specific innovations, and the impact of those relevant to both markets have been revised to ensure its applicability to the European onshore wind market. Fresh industry engagement supported this process.



Solar-Thermal Electricity

This third report examines how technology innovation is anticipated to reduce the Levelised Cost of Energy from European solar-thermal electricity (STE) plants over the next 12 to 15 years. For this STE report, input data is closely based on the InnoEnergy technology strategy and roadmap work stream published in October 2014. The output of that work was an exhaustive and comprehensive set of discrete innovations and groups of innovations together with their potential impact on known reference plants, built on expert vision and knowledge.



Solar-Photovoltaic

This fourth report examines how technology innovation is anticipated to reduce the Levelised Cost of Energy from European photovoltaic installations over the next 12 to 15 years. For this report, input data is closely based on the InnoEnergy technology strategy and roadmap work stream published in October 2014. The output of that work was an exhaustive and comprehensive set of discrete innovations and groups of innovations together with their potential impact on known reference plants, built on expert vision and knowledge.



Future Energy Costs: Coal and Gas Technologies

The purpose of "Future Energy Costs: Coal and Gas Technologies" report is to document the anticipated future cost of energy from two Technology Types – coal plants with upgrades and new gas combined heat and power (CHP) plants – reaching their financial investment decisions (FIDs) in 2020 and 2025, by reference to robust modelling of the impact of a range of technical innovations and Other Effects on baseline cases at the start of 2016. The focus is on the EU market and the report also outlines major energy policy trends in the EU.



Economic analysis of the impact of electricity regulation

The objective of this study is to develop and implement three econometric models in order to identify the impact of electricity regulations (1) on the retail price of electricity; (2) on income transfers between producers and consumers; and (3) on economic growth.

In this context, the aim of these models is to assess the impact of the regulation of the electricity sector and the changes introduced in this regulation on the economy throughout the period under consideration.



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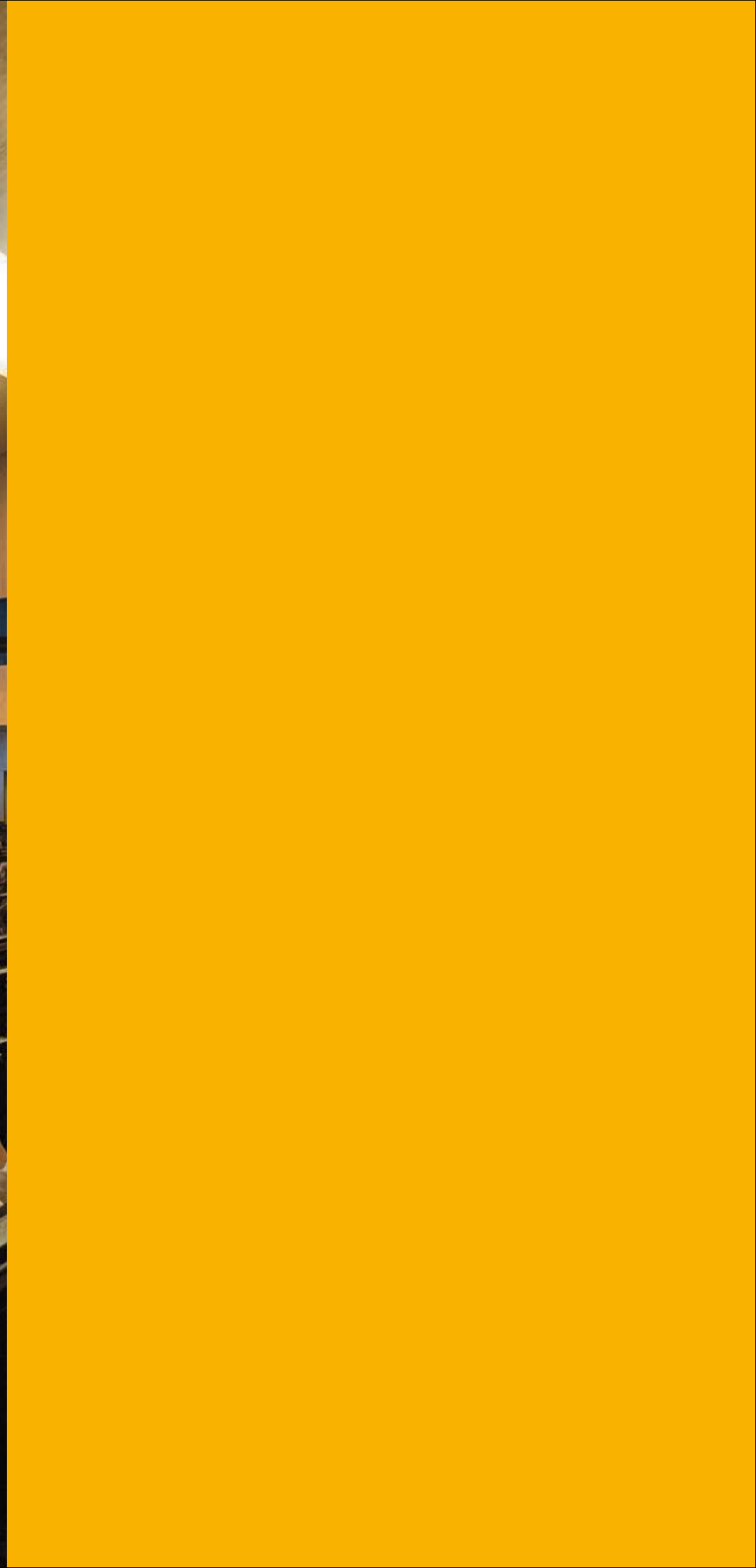


Project Foundations

- Large Scale: 4x80Wh blocks of capacity
- Deep vertical integration
- Standardization of Product
- Energy Cost and Carbon footprint
- Access to skilled and loyal workforce
- Limit or eliminate dependence on politically instable countries

SGF

TBB.





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