



InnoEnergy
Knowledge Innovation Community

InnoEnergy Annual Report 2018



InnoEnergy Annual Report 2018

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A SUSTAINABLE ENERGY FUTURE FOR EUROPE

EIT InnoEnergy is on a trajectory that isn't slowing down. In just a few years, we went from humble beginnings of five people with a big idea in a taxi, to a company whose shared value keeps growing and is expected to double from this year onto the next.

To demonstrate some of this value, in 2018 we released our inaugural impact report, where we found that since 2011 our supported start-ups have directly contributed to the creation of 1,741 jobs in Europe, generated €40M in sales, saved €809.5M in energy costs, brought energy access to 56,000 people in developing countries and much more.

Thanks to our growing network of partners across Europe, EIT InnoEnergy is making great strides towards accelerating Europe's energy transition. We have been a driving force behind several European initiatives, including the European Battery Alliance (EBA), where we were mandated by the Commission to lead the European strategy in battery supply, and ultimately generate 250B€ of annual new business from 2025 onwards.

We have also been involved in combatting one of the most critical public health concerns of the century – smog pollution. Working with Deloitte we have created a significant report titled the Clean Air Challenge which identifies the innovative smog-reduction technologies needed and investment opportunities available to tackle this problem. Following this, we will be providing our support and investment to businesses who plan to put a stop to smog. The exclusive launch to politicians and policymakers such as Jerzy Buzek, Chair of the European Parliament Industry, Research and Energy Committee and Maroš Šefčovič Vice-president of the European Commission in charge of the Energy Union.

In addition, in 2018 we hosted the most successful edition of The Business Booster yet with over 800 attendees who all together set up over 1,000 business transactions. Impressive results which will in themselves create future impact.



DIEGO PAVÍA
CEO, EIT InnoEnergy SE

We are very pleased to see our reach expanded across Europe via recent agreements with Altran – the global innovation and engineering consulting firm, with the Latvian Ministry of Economics and the National Bank of Greece. These cooperation's will greatly help the sharing of knowledge, resources and experience.

We are always looking for ways to further assist those already in the sustainable energy field and for anyone wishing to become part of it. We think that a great way to do this is through education, and which is why we are pleased to offer professional courses, with new ones coming out regularly.

As ever, we are heavily focused on driving forward innovation to meet Europe's energy targets. Finally, I would like to welcome all new members to our network and thank all partners for your continued support in helping us achieve a sustainable energy reality for Europe.



01 Meet EIT InnoEnergy

1.1 A SUSTAINABLE FUTURE FOR EUROPE'S ENERGY SECTOR

At EIT InnoEnergy, everything we do is about creating the right conditions for new ideas to flourish. We believe that Europe has the people and the ideas, resources and skills to build a fully sustainable energy industry. Our role is to bring all of these people and companies together to make a profound change in sustainable energy.

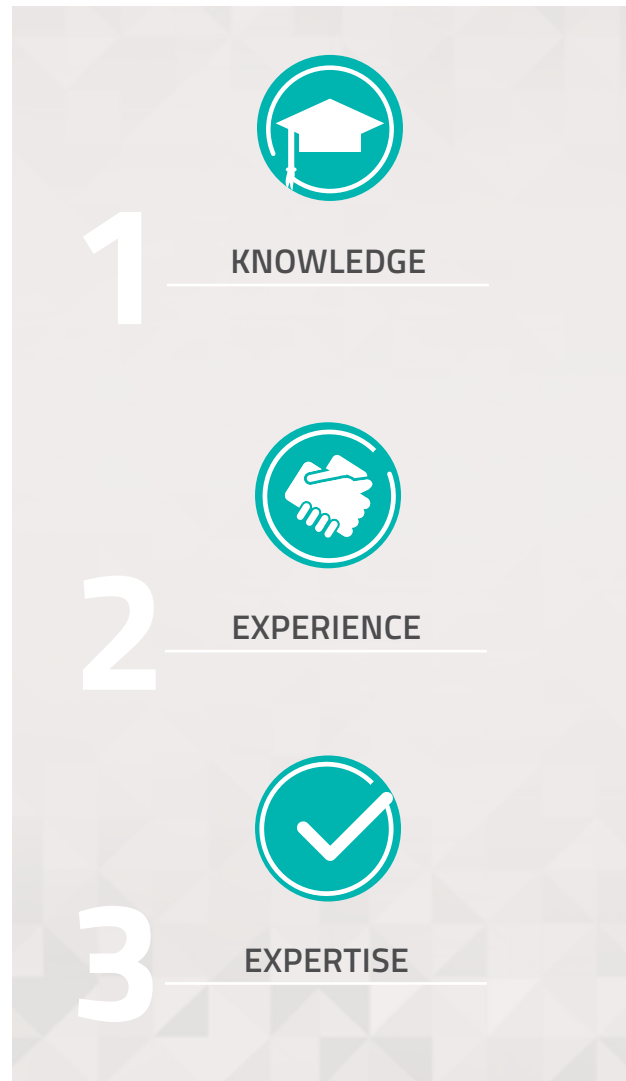
We connect people from across the continent to create new, commercially attractive technologies. We help open up markets and cross borders to find customers for innovative new businesses and the solutions they offer. We bring together knowledge, experience and expertise, no matter where in Europe it is located.

Change often doesn't come easily, and always requires new ways of thinking. With this in mind, our role is to challenge the status quo. Our focus is on de-risking innovation and investment, making it more attractive and encouraging more organisations to participate as a result. This helps bring about a wide array of new technologies, products and solutions which can then be sold to global customers.

We also know that big challenges cannot be solved in isolation, so harnessing the power of collaboration is essential to what we do. We help to develop formal and informal partnerships between innovators and industry, entrepreneurs and enablers, and research and commerce. We help to plug skills gaps and fill market niches to maximise the potential of every EIT InnoEnergy student, every start-up, and every one of our customers. Sustainability runs through every aspect of our business. The success of EIT InnoEnergy depends on the success of innovations we invest in and the technologies we help to develop, as well as the products and services we produce in-house. By developing commercially attractive solutions that have a real impact on the market, we add value to our customers, we ensure our own long-term success and, most importantly of all, we help to create a sustainable energy future.

EIT InnoEnergy is the innovation engine for sustainable energy across Europe supported by the European Institute of Innovation and Technology (EIT) and the European Union.

EIT INNOENERGY BRINGS TOGETHER KNOWLEDGE, EXPERIENCE AND EXPERTISE



1.2 MISSION, VISION AND VALUES

Our mission is to build a sustainable, long-lasting framework that binds together the three main elements crucial to the development of the energy sector: industry, research and higher education. We aim to ensure that integrating these three areas results in a greater overall impact on innovation (talent, technology and companies) than if the three worked independently of one another.

Our vision is to become the leading engine for innovation and entrepreneurship in sustainable energy.

ENGINE FOR INNOVATION AND ENTREPRENEURSHIP



OUR VALUES:



PAN-EUROPEAN

We cover and capitalise the fascinating diversity of Europe.



ENTREPRENEURIAL

It's in EIT InnoEnergy's DNA to be entrepreneurs for sustainability.



INTEGRATIVE

We ceaselessly co-operate, integrate, synthesise, melt, merge.



VISIONARY

We dare to be visionary, to think beyond boundaries, to scrutinise rules.



EXCELLENCE-DRIVEN

We thrive to be the best, work with and create the best ones.



PASSIONATE

We are bursting to develop cutting-edge-solutions & optimum results.



IMPACT-ORIENTED

Everything we do is directed to create the maximum impact.




SUSTAINABLE

We are here to stay. We care and work for the energy future of Europe.




1.3 KEY FACTS

430+
Project Partners



23
Shareholders



EIT INNOENERGY

IS THE INNOVATION
ENGINE FOR SUSTAINABLE
ENERGY ACROSS EUROPE

BUSINESS CREATION

289



Early start-ups supported

€160M

External investment raised



4,120

Applications received

277

Start-ups selling

INNOVATION PROJECTS

€4B

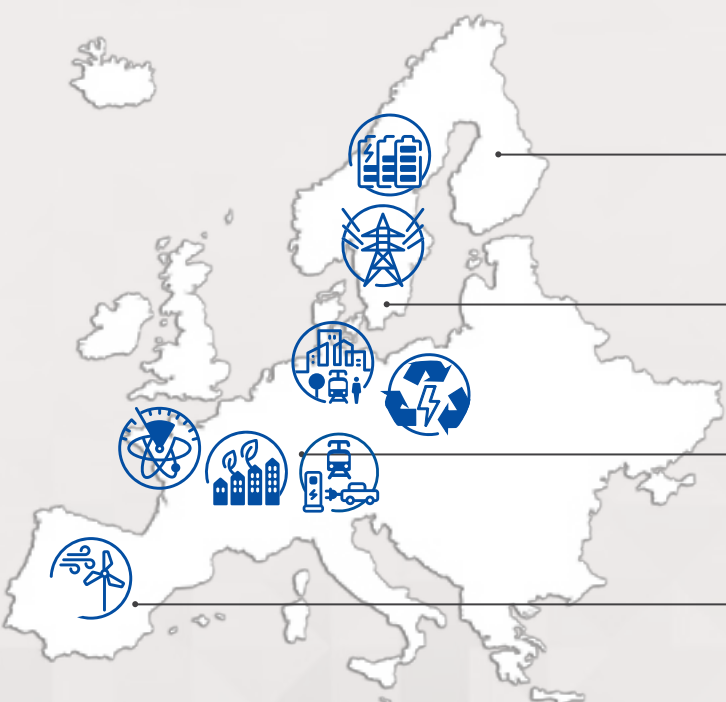
Forecasted sales

€1.7B

Total project costs

€222M

EIT InnoEnergy investment



- 3
Manufacturing facilities
- 98
Patents filled
- 430+
Project partners across Europe
- 120
Products and services supported

EDUCATION

13.3k

Applicants to the EIT InnoEnergy Master's School

9/10

Master's graduates who find a job within six months of graduating

€15%

Average annual salary earnings over graduates of similar programmes

12%

of our MSc graduates start their own business

260+ PhD students including

40+ nationalities represented

50+ partners engaged

90+ PhD graduates

11 start-ups created

97%

would recommend to their friends or colleagues

80%

think that the course was useful for their professional future

94%

think that their expectations from the course have been met, and added significant value

20 Digital Learning Courses

IMPACT REPORT

EIT InnoEnergy start-ups have created 1,741 jobs and have brought energy access to 56,000 people in developing countries.

Back in October, EIT InnoEnergy launched its inaugural impact report at The Business Booster (TBB) networking event in Copenhagen. The report revealed the positive impact that EIT InnoEnergy's work supporting energy start-ups is having on Europe's clean energy transition. Key findings included:

- » Our supported start-ups have created 1,741 jobs across Europe.
- » They have brought energy access to 56,000 people in developing countries since 2011.
- » EIT InnoEnergy's assets will generate 1,147 GWh of power from clean energy sources, saving €809.5 million in energy costs.
- » Carbon emissions will be reduced by 5.5 million tonnes over the next 25 years, equivalent to removing 47,000 cars from the road.

Recent start-up success stories mentioned in the report include Swedish wave power technology company CorPower Ocean, which has developed and tested a technology to generate electricity from sea waves with the aid of buoys.

Pro-Drone, a leading developer of automated drones for wind turbine blade inspections, is helping to reduce the costs for onshore wind turbine services by up to €1,000 per inspection.



Elena Bou,
Innovation Director, EIT InnoEnergy

It is amazing to see the impact we are achieving together and to cement our position as a trusted innovation partner as we guide businesses on their journeys. Our over 200 start-ups have brought innovative technologies to life that are meeting the energy challenges of our changing society. Whether it is by reducing greenhouse emissions or creating jobs, these companies are having a noticeable impact on the way Europe thinks about, develops and uses sustainable energy.

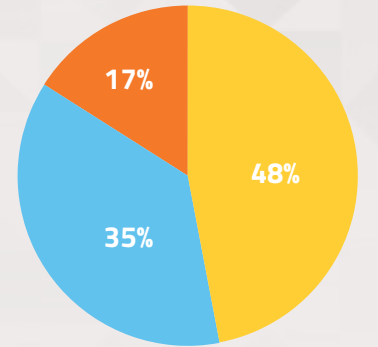


KEY IMPACT FIGURES

Economic, social and environmental impact

Percentage of our supported start-ups contributing to

- decreased energy cost
- lower GHG emissions
- operational security



Economic impact	Social impact	Environmental impact
<p>1,741 direct jobs created</p>	<p>25 female entrepreneurs</p>	<p>5.5M tons of CO₂ saved Equivalent to 47,000 cars out of the road</p>
<p>€40M of sales generated by supported start-ups*</p>	<p>459 students working in EIT InnoEnergy activities</p>	<p>€809.5M savings in energy costs</p>
<p>€117M of external funds raised by supported start-ups*</p>	<p>56,000 people with access to energy in developing countries</p>	<p>1,147GWh generated from clean energy sources Equivalent to reducing barrels of oil produced, by 675,000</p>

*Early-stage start-ups

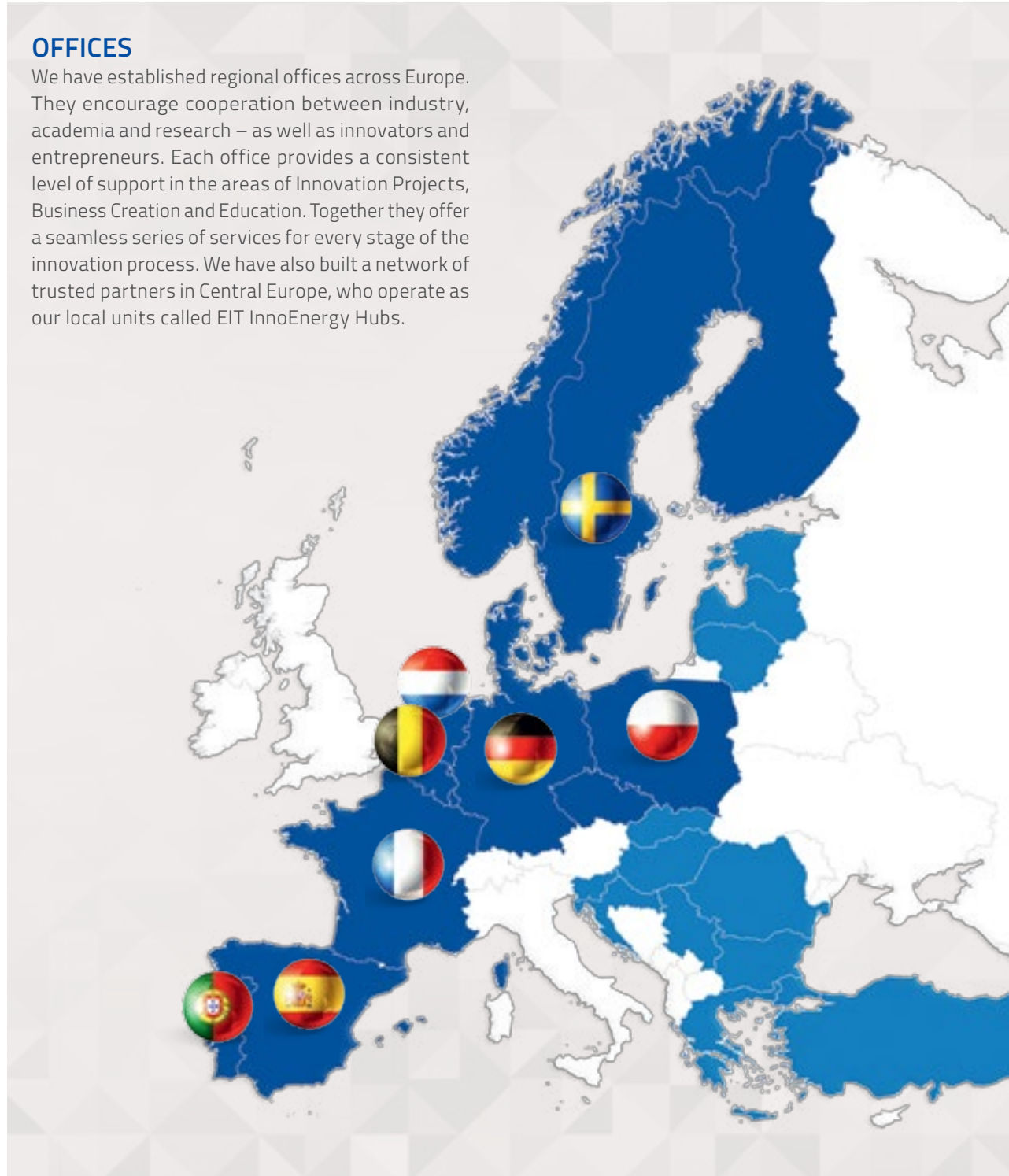
Reference: IRIS methodology of Global Impact Investing Network

1.4 OFFICES ACROSS EUROPE

As part of our pan-European philosophy, we have established regional offices across the continent, enabling greater cooperation and collaboration between those in industry, academia and research.

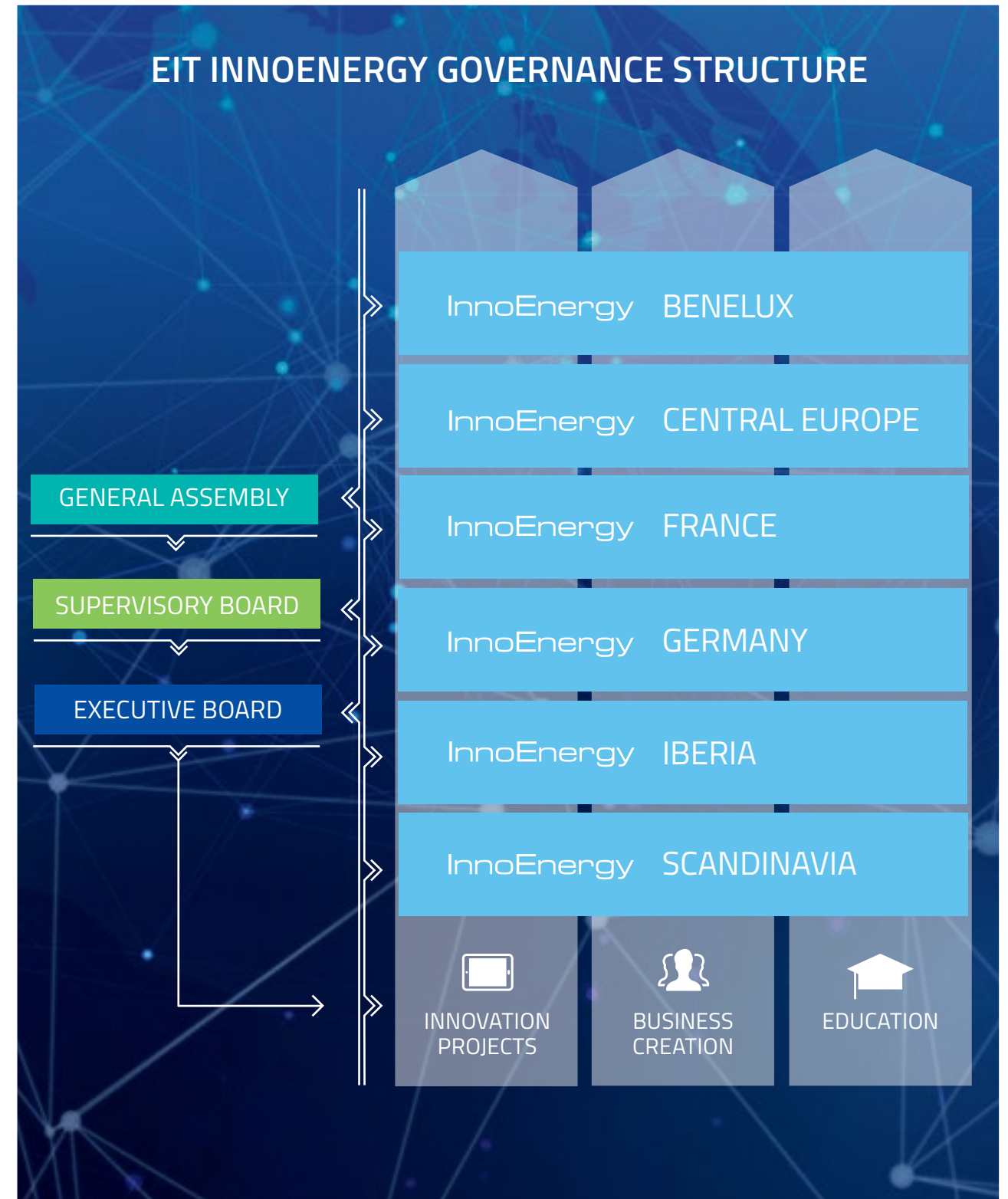
OFFICES

We have established regional offices across Europe. They encourage cooperation between industry, academia and research – as well as innovators and entrepreneurs. Each office provides a consistent level of support in the areas of Innovation Projects, Business Creation and Education. Together they offer a seamless series of services for every stage of the innovation process. We have also built a network of trusted partners in Central Europe, who operate as our local units called EIT InnoEnergy Hubs.



1.5 GOVERNANCE

Our overall governance and management structure is depicted in the below diagram.



EIT INNOENERGY EXECUTIVE BOARD



DIEGO PAVÍA
Chief
Executive Officer



CHRISTIAN MÜLLER
CEO
InnoEnergy Germany



BART DE BEER
Chief
Financial Officer



MIKEL LASA
CEO
InnoEnergy Iberia



ELENA BOU
Innovation
Director



JACOB RUITER
CEO
InnoEnergy Benelux



FRANK GIELEN
Education
Director



JAKUB MILER
CEO
InnoEnergy Central Europe



RICHARD BIAGIONI
CEO
InnoEnergy France



KENNETH JOHANSSON
CEO
InnoEnergy Scandinavia

1.6 THE POWER OF THE NETWORK: BUILDING CONNECTIONS THROUGHOUT EUROPE

EIT InnoEnergy's strength and togetherness comes from our Europe-wide network of partners. They are the experts that we rely on for knowledge and guidance, our service providers, the early adopters of innovative solutions, and the employers of our talented graduates.

Our network includes our 23 shareholders, as well as over 430 associates and project partners. Their role is to support our entrepreneurs with their invaluable experience and expertise. In return, they gain unparalleled opportunities to invest in new ideas and create commercial opportunities

for new products and solutions. Together, our partners represent the very best of industry, research and higher education in Europe, and all are key players within the energy sector.



ENGIE, a global energy and services group, has taken a stake in EIT InnoEnergy. This participation follows a collaboration that began more than six years ago with ENGIE's participation in 2013 in EIT InnoEnergy's Business Booster in Barcelona.

This collaboration then continued, notably with the participation of ENGIE in other events organized by EIT InnoEnergy ("Partners Days", competition during the "European Utility Week" in 2017, other editions of TBB). ENGIE S.A. has been a partner of InnoEnergy France since 2013 playing an active role in the selection of innovation projects supported by EIT InnoEnergy. This participation has contributed to strengthen the relationship with other key innovation partners, like VITO and EnergyVille in Belgium.



Hendrik Van Asbroeck,

Director of Innovation, ENGIE

This participation demonstrates the deepening of the links developed over time between ENGIE and EIT InnoEnergy. This participation in EIT InnoEnergy opens a new page in our partnership and should allow us to extend our innovation ecosystem to new players in order to develop new growth drivers for the Group and our partners.



In 2018 EIT InnoEnergy was delighted to officially welcome Enagás and Enel as new members of the EIT InnoEnergy networking community.

Enagás, S.A. is the largest natural gas and transport company in Spain, and is responsible for the technical management of the gas system throughout the country. It is also certified as an independent Transmission System Operator (TSO) by the European Union. Similarly, Enel is an Italian multinational manufacturer and distributor of electricity and gas. It was first established as a public body at the end of 1962, and became a limited company in 1992.

Alongside the main benefits of being an EIT InnoEnergy member, both Enagás and Enel are now part of the largest European sustainability ecosystem, gaining access to the top European energy start-up accelerator. They can also enjoy free participation in partner days, free invitations to networking events, priority access to new products and services, access to the master school graduation index, and free access to The Business Booster, our annual two-day international networking event that showcases more than 150 sustainable energy technologies under one roof.





EIT InnoEnergy and RAFAKO, one of Europe's largest boiler manufacturers, have reached an agreement for the leading Polish energy company to acquire shares in EIT InnoEnergy.

The move marks the latest stage in a successful collaboration between the two organisations. Last year, EIT InnoEnergy and RAFAKO worked together to deliver PowerUp! – the largest competition for energy sector start-ups in Central Europe.

Jakub Miler, CEO of InnoEnergy Central Europe, said: "Our partnership is proof of the positive evolution taking place within Polish companies. RAFAKO joins a group of leading companies, that have partnered with EIT InnoEnergy, including ABB, Schneider Electric.

This partnership means RAFAKO will have the opportunity to contribute to EIT InnoEnergy's future development. It will also gain priority access to technologies developed in leading universities and research centres within the InnoEnergy network, as well as participate in their commercialisation. The company will become an active participant in the EIT InnoEnergy community, gaining the opportunity to cooperate with innovators as well as global energy companies.

Thanks to this collaboration, EIT InnoEnergy will gain a new partner for the large-scale commercialisation of innovative energy-related products and services. A prime example of this is the joint investment in the polygeneration islands project, that started in 2016. For this project, Spanish and French EIT InnoEnergy partners provided technologies, which in turn enabled RAFAKO to build the appropriate product and to commercialise it.



Agnieszka Wasilewska-Semail,

Vice President of the Management Board, RAFAKO S.A.

EIT InnoEnergy's mission reflects our business philosophy – our work is not limited to the design and production of various types of installation. We have ambitious plans to be leaders in clean energy generation, and believe this partnership will go some way towards helping us to achieve this.

In late November, a long-term partnership agreement was signed between EIT InnoEnergy and Tungsram Group. Under the direction of a new owner, Tungsram was looking to expand its portfolio rapidly, in order to build its reputation as a European premium brand building on its Hungarian manufacturing capacities. This process fits well with the cooperation with EIT InnoEnergy, as EIT InnoEnergy will play a leading role in helping Tungsram to develop new solutions and bring new products to market, as well as facilitating active collaboration with the domestic start-up scene.

"Despite its long history, Tungsram still defines itself as a start-up", said Jörg Bauer, CEO of Tungsram Group. "In the midst of the Fourth Industrial Revolution in which we now live, we are committed to bringing the technologies of the future to market. Throughout the product development process, we are very much counting on our partners and all the other start-ups who are willing to join us, while the building of our Open Innovation Centre will provide the best conditions for the creation of new products that will encourage sustainable energy management".

Based on the agreement, Tungsram will become an active participant in the EIT InnoEnergy fields of education, innovative project management and business development services.

Tungsram, originally established in 1896, is a brainchild of the second industrial revolution – resulting in the electrification of the world. Tungsram was founded in the year of Hungary's Millenium celebration: Budapest was then the second most dynamically growing city after Chicago.

From its earliest beginnings through GE's aquisition of the brand in 1989 and to the present day, Tungsram has systematically built new solutions, primarily around its Lighting core and opportunities for electrification – telephone technology, medical and radio tubes and other applications, often leading to exponential sales growth.



Jörg Bauer,

CEO, Tungsram Group

This new partnership is a natural fit for us, as collaborations like this one have been pivotal to our progress and growth since we formed over a century ago.





On 26 November 2018, EIT InnoEnergy and MVM Group, the third largest group of companies in Hungary, signed a partnership agreement. Collaboration between the two companies focuses on supporting electrical energy start-ups and new businesses both in Hungary and the wider region, and increasing the efficiency of the use of clean and renewable energy through their marketable innovations, making these energy resources available to many by lowering the costs of production and transport.

Under the terms of the agreement, MVM Group will play an active role in the educational, project management and business development programmes delivered by EIT InnoEnergy's Hungarian arm, and participate in key domestic industry events as a partner of EIT InnoEnergy.

Jakub Miler, CEO of InnoEnergy Central Europe, said: "The start-ups and businesses we support will profit from the huge opportunity to build direct relationships with one of the biggest electric power companies in the region. For MVM, the partnership means being able to discover new investment opportunities in the clean energy industry, thereby further strengthening their position within the energy sector in Hungary and the Eastern European region".

Ákos Dervalics, head of EIT InnoEnergy's Hungarian representation, said: "The relationship between EIT InnoEnergy and MVM is not entirely new. When looking for possible synergies back in 2017, we opened our business development programmes to the innovative ventures that MVM supported: the Edison Programme run by MVM Zrt. and Smart Future Lab Zrt. and EIT InnoEnergy's PRIMER Programme have been



Zsolt Bertalan,

Chief Technology Innovation Officer,
MVM Hungarian Electricity Ltd.

We are constantly looking for opportunities to broaden our service portfolio and to explore new business prospects, trying to build strong relationships with emerging innovative Central and Eastern European start-ups through our network of partnerships. We believe that by cooperating with EIT InnoEnergy we can actively engage in the shaping of the energy industry of the future and can contribute to the creation of Europe's sustainable energy ecosystem.

implemented with a coordinated thematic programme in Hungary. This latest agreement widens our collaboration in the fields of technology, business and education".

The first joint programme of the two organisations was the PRIMER energy industry business development programme in the spring of 2019, which prepares entrepreneurs for breaking the international market, and was considerably larger than previous editions.

1.7 THINK GLOBAL, ACT GLOBAL

While EIT InnoEnergy is passionate about encouraging innovation and contributing towards a sustainable energy future in every local region in which we operate, we are equally passionate about ensuring that we think on a global scale, not just a regional one. This is the basis for our Think Global, Act Global philosophy.

We believe that the companies, academics and learners that we work with should not be limited purely to within the borders of their own country when it comes to driving initiatives. People should be encouraged to think well beyond this, and to think about how their ideas can make a positive difference internationally. This way of thinking should permeate everything that we do, whether it is writing an RFP, seeking new suppliers, meeting potential customers, or sharing successes on social media.

EUROPEAN BATTERY ALLIANCE

Over the past year, EIT InnoEnergy has led the industrial workstream of the European Battery Alliance (known as EBA250) in conjunction with more than 250 European and non-European stakeholders from across the entire value chain.

These stakeholders also participated in a number of plenary sessions organised by EIT InnoEnergy, and contributed to the design and content of 49 actions that have been identified as necessary by the European Battery Alliance if the EU is to become a key player in the rapidly expanding global battery market. The market is estimated to be worth €250 billion annually from 2025 onwards, underlining just how important it is for businesses to be ready.

These **49 actions** – 21 of which have been confirmed as high priority – were then presented at the Clean Energy Industrial Forum during the EU Industry Days on 23 February 2018, and were officially communicated to Vice-President Šefčovič by EIT InnoEnergy's CEO, Diego Pavía, in March 2018. On 16 May 2018 the Strategic Action Plan for Batteries was announced, which builds on the findings of the EBA250 workstreams.

On 15 October 2018, EBA250 formally presented its achievements for the year. These included the implementation of the Commission Action Plan, the construction of the first pilot production facilities, and further projects designed to establish the EU as a global leader in battery innovation and manufacturing.



Bo Normark,

Thematic Leader for Energy
Storage, EIT InnoEnergy

According to estimated data, the current value of the battery market is approximately €50 billion, but we expect to see dynamic growth in the coming years. We predict that by 2025, the European market will grow to €250 billion, which represents a significant acceleration in expansion.

There were a number of success stories from EBA250 stakeholders throughout the entire value chain last year, demonstrating that a high-functioning European battery market is developing. Some of these successes are explored below:

- » **Terrafame** has decided to invest €240 million in a battery chemicals plant;
- » **BASF** is also looking to expand in northern Europe, and has selected Finland as the first location for a battery materials production plant serving the European automotive market. The plant will be constructed next to the nickel and cobalt refinery owned by Norilsk Nickel (Nornickel);

- » **Volkswagen** is considering producing its own battery cells in Europe in conjunction with a Korean partner;
- » **Northvolt** has decided to establish a production facility for battery systems in Poland;
- » **Umicore**, together with Audi, is reporting progress in the development of closed loop battery recycling.

More than 250 industrial and innovation organisations play an active part in the Alliance, with each partner having collectively endorsed recommendations for action, which were then steered by EIT InnoEnergy in conjunction with active EU countries and the EIB. Each partner has made a steadfast commitment to investing in projects that



Matthias Machnig,

Head of Industrial Strategy,
EIT InnoEnergy

InnoEnergy's work spans strategic industrial and innovation fields across Europe. European business competitiveness relies on the net-working of companies, scientific and political institutions in this space, and my work for the company will support this approach.

will truly revolutionise the European battery industry, ranging from cell manufacturing, second-life batteries, ecolabel, carbon footprint reduction in manufacturing, clearing houses for battery recycling, vehicle-to-grid, and enhanced cooperation between universities and companies to set up relevant education and training programmes.

MATTHIAS MACHNIG JOINS EIT INNOENERGY

Matthias Machnig, Germany's former State Secretary for the Federal Ministry of Economic Affairs, has joined EIT InnoEnergy as Head of Industrial Strategy, with a key part of his remit focusing on driving the objectives of the EBA.

Machnig brings a wealth of experience in industrial innovation, transport and energy policy to the position, and will use this expertise to strengthen the EBA's relationships with industrial partners and stakeholders across the automotive, energy and political markets.

TOMAS KÅBERGER JOINS EIT INNOENERGY

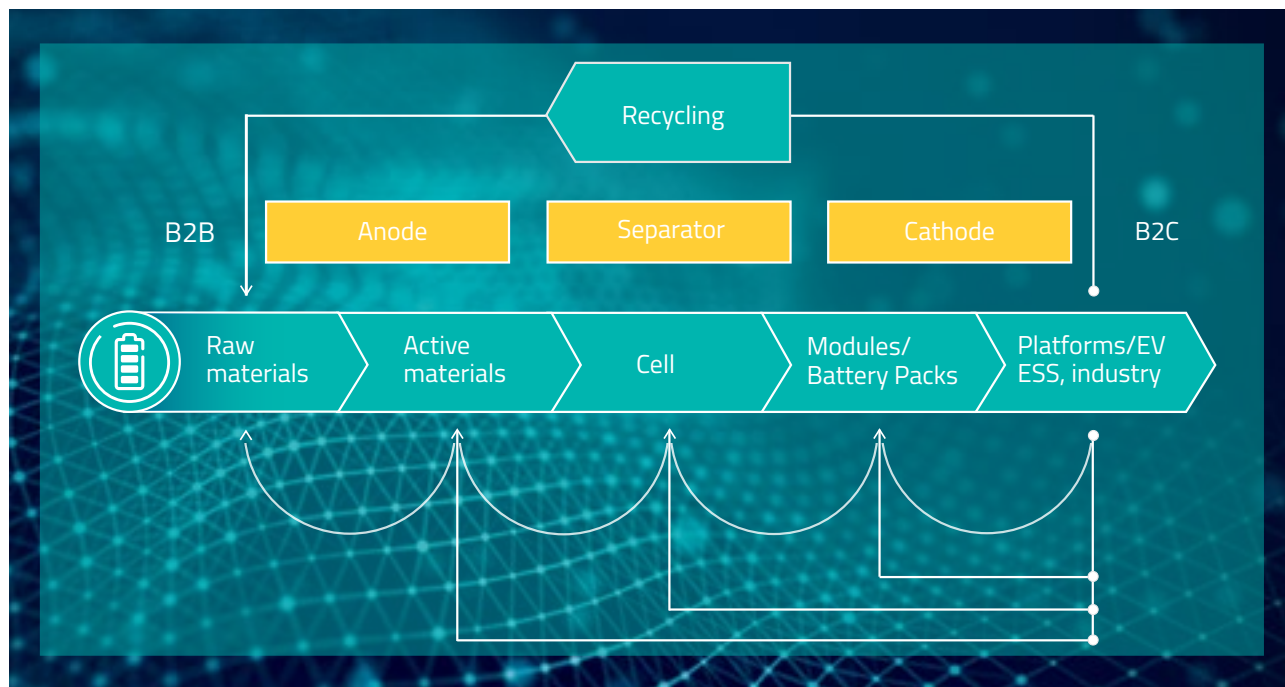
Tomas Kåberger, professor of industrial energy policy, joined EIT InnoEnergy as Industrial Growth Executive to increase the pace of energy conversion. EIT InnoEnergy is working on developing entrepreneurs and established companies that want to introduce new solutions and products in sustainable energy.

"Tomas has extensive experience of renewable energy solutions and their market, as well as of industrialization processes and financing mechanisms. He knows how



economic drivers can be used to accelerate the energy conversion and he is very well regarded in academia and business. We are now raising the level of ambition and scaling up the business and then having the opportunity to welcome Tomas is an important step to supplement and strengthen EIT InnoEnergy's team", says Kenneth Johansson, CEO of InnoEnergy Scandinavia, in a press release. He has been responsible for the recruitment process.

Tomas Kåberger has switched between the academy, the authorities and the business sector throughout his career, both nationally and internationally. He has been Director General of the Swedish Energy Agency and has held many leading positions in energy companies. Now he sits on Vattenfall's board. He also heads a part-time energy institute in Tokyo and advises GEIDCO in Beijing.



Tomas Kåberger,

Industrial Growth Executive, EIT InnoEnergy

The development of sustainable profitable energy technology is fast in Asia. I want to contribute to EIT InnoEnergy's work on organizing companies in Europe for the rapid industrialization of solutions in renewable energy and battery technology also here.

CLEAN AIR CHALLENGE

THE REPORT:

The objective of the Clean Air Challenge report is to study the various solutions that could assist in tackling the problem of smog pollution in Europe – particularly in cities, industrialised areas and transport hubs. The results of this analysis will help to guide EIT InnoEnergy in its role as an institutional investor which supports innovative projects, especially start-ups.

By building a better understanding of innovation when it comes to clean air initiatives, the report helps EIT InnoEnergy to evolve into an organisation driven largely by its socioeconomic impact, rather than just financial objectives. It also helps us to grow our network, expanding our reach to key stakeholders outside of the traditional business community, such as cities, local energy communities and NGOs.

Also crucial is the need to spur public debate on air quality issues, particularly the socioeconomic impact of current pollution levels. Due to a general lack of public awareness, the negative impact of smog pollution is generally not well understood, making further increases in air pollution likely. In addition, without any incentives to reduce smog levels, organisations and communities will be unlikely to take action.

With all of this in mind, we believe that tackling the issue of smog needs a three-pronged approach to be successful. This should include strong, informed strategic investment decisions made by those in positions of authority (especially when it comes to areas such as transport and heating); providing strong incentives and rewards for those willing to adopt innovative solutions; and a broad commitment to increasing awareness of air pollution and how to address it.

THE OUTCOME:

Smog reduction through the adoption of innovative solutions could save European citizens €183 billion by 2025, says report by EIT InnoEnergy and Deloitte. Clean Air Challenge report identifies innovative solutions to growing health and economic crisis.

The research reveals that EU citizens could save up to €183 billion by adopting innovative smog reduction technologies over the next seven years.

The report has been drafted in response to the European Commission's recent assertion that smog may account



Marcin Lewenstein,
Innovation Officer,
InnoEnergy Central Europe

It is shocking that in this day and age, smog should still pose such a risk to the health of our communities. Putting the huge economic cost to one side, there is no reason, with the technology that is becoming available to us, that citizens should not be able to breathe clean air.

At EIT InnoEnergy, we like to tackle problems head-on and this issue is no exception. Not only are we making further research available to help people and organisations better understand the issue and identify practical solutions, but we are also actively seeking opportunities to offer investment and wider support to ambitious businesses that are passionate about putting a stop to smog.

for as many as 1 in every 10 premature deaths in the world, and will cost the EU an astonishing €475 billion per year between 2018 and 2025. That represents 2.9 per cent of average annual GDP.

Launched at an exclusive event with leading politicians and policymakers in Brussels, the report takes an in-depth look at the issue of air quality across the continent,



and identifies innovative transport and heating solutions that could protect European citizens from the long-term impact of air pollution.

So far, municipalities and cities have been the driving forces for change. There is plenty that can be done on the local level that can have a significant impact on air quality in urban areas. These include restrictions on private motor vehicles, improving the quality and accessibility of low-emission public transport, investment in low-emission heating systems, as well as more effective urban planning and management. EIT InnoEnergy is committed to working with European cities and municipalities to help implement innovative solutions

and technologies that can limit air pollution and improve quality of life.

Alongside this, cooperation with the private sector is key. Public investment to boost private innovation can be hugely beneficial, as well as efforts to foster and facilitate partnerships between government, research centres and industry.

Nonetheless, it all starts with public awareness. If people are aware of the problem and the rewards attached to solving it, they will be much more likely to take action. This is one of the main aims of the Clean Air Challenge initiative.



Jerzy Buzek,
Chair of the European Parliament Industry, Research and Energy Committee and former President of the European Parliament

Smog is one of the most critical public health concerns of this century, accounting for as many as one in every ten premature deaths in the world, and over 400,000 premature deaths in Europe every year.

The Clean Air Challenge report offers practical solutions that could help improve our citizens' health and could benefit society more widely. It is important that we begin implementing its recommendations throughout the EU without any delay.

TOP 10 INNOVATORS

InnoEnergy provide comprehensive business intelligence for heat and transport technologies in new reports.

The Top 10 Innovators reports, 11 dashboards created in collaboration with Clarivate Analytics provide in-depth information for investors and innovators looking to make clear informed decisions into choosing successful investment options and choosing the right partner with whom to collaborate with within heat and transport industries. Thanks to that our partners can benefit from consolidated rankings and insight into patents, research

and development and financial health, along with analysis on quality, demographic trends and region outlooks for each of the 11 topics covered, including: electric vehicles, charging infrastructure and intelligent traffic management, alternative transport fuels including hydrogen, residential heat electrification, integrated heat systems, building management and materials, and waste heat.

These reports are a major piece in the puzzle for accelerating the clean energy transition and improving air quality. InnoEnergy is also offering one free report, Electric vehicle for mass transportation in urban areas.



Celine Jullien,

Head of Societal Appropriation, EIT InnoEnergy

The Top 10 Innovators is a key strategic exercise to help us identify and attract in our investment rounds the best global and European innovators in the priority domains of investment where we intend to make an impact – as new last year in the Clean Air domain.

The method to qualify the innovators as well as the quality of the data sources and analytics are essential. We defined the method and innovation priorities and partnered with the best in class company Clarivate Analytics to produce the 11 reports. It is a very powerful source of information to help us strengthen our Innovation Projects business line.



WHY BE?

BE, Better Energy by Europeans, has been created as a Societal Appropriation initiative whose goal is to disrupt the way we live and experience energy.

BE is meant to bring together ideas, resources and skills to create new energy lifestyles and relationships between people, businesses and organizations. It intends to help people move into actions, connecting with people's hearts and minds, making them aware of the real impact they can make.

BE is centred on people, because we believe they are the key to encourage change through sharing and togetherness. Our aim is to switch from resignation to trust and engagement in the energy transition.

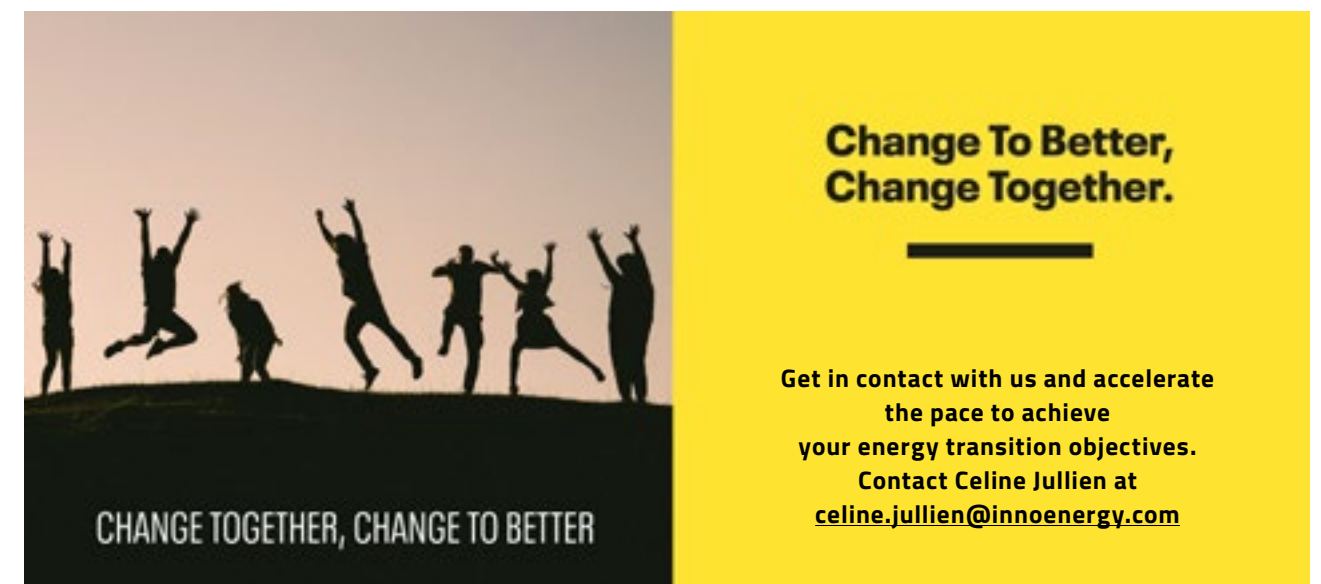
WHAT CAN BE DO FOR YOU?

We are all committed to make change happen. Yet it is an ambitious and complex journey. The BE team during the past three years investigated and researched several European markets in order to develop a unique set of solutions and services to help you achieve your energy transition objectives.

Our BE program is meant to accelerate change using our proprietary and multidimensional approach, integrating a customer centric strategy and creative applications. Our disruptive portfolio of BE assets helps to generate societal awareness and understanding. Additionally, activations can be powered by InnoEnergy's technological innovations and start-ups.

ENERGY TRANSITION, A COMMON GOAL

The energy transition is underway in Europe. We are on the road to achieve the Energy Union objectives 2050. The challenge is ambitious. It requires a multidimensional approach, taking into account not only technology, but also business models, value chain, human capital, regulation, and beyond all, our individual and societal engagement. We are 743 million Europeans. Almost all, energy users. Yet most of us don't think and act about energy or sustainability in our daily lives. Time to question how we think, feel and behave to better design solutions to engage sooner, faster and bigger in the energy transition. At InnoEnergy we build connections across Europe, bringing together inventors and industry, graduates and employers, researchers and entrepreneurs, innovators and regulators to accelerate innovation in sustainable energy. With BE, Better Energy by Europeans, InnoEnergy can connect you to Europeans.



1.8 SUPPORT EUROPEAN UNION ACTIONS

EIT INNOENERGY SUPPORTING “CLEAN PLANET FOR ALL”

In November 2018, the European Commission published a Communication titled “A Clean Planet for All: A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy”. This lays the foundation for the EU long-term strategy to be submitted by early 2020, which will anchor the continent on a certain decarbonisation trajectory.

In this document, the Commission set out a vision for 2050 based on 8 different scenarios characterised by different levels of ambition in terms of GHG reduction (from 80% to net-zero) and different sets of carbon-neutral solutions in areas such as electrification (renewables, smart networks and batteries), hydrogen and fuel cells, energy storage, or carbon-neutral transformation of energy intensive industries.

Regardless the scenario, the Commission emphasises the importance of the R&I agenda, in terms of amount and of strategic coherence to bring this climate neutrality to life. More specifically, the Communication highlights the prominent role to be played by existing and new instruments to make low and zero-carbon solutions economically viable and bring about new solutions not yet mature or even known to the market, mentioning specifically that “the European Institute of Innovation and Technology will also continue to support young innovators and start-ups across Europe”.

All in all, this clearly confirms the strong political momentum toward decarbonisation of the European economy unfolding along the three upcoming decades, and the undisputable lift it creates for EIT InnoEnergy and its partners.

STRATEGIC ACTION PLAN ON BATTERIES

The European Battery Alliance (EBA) was launched in October 2017 by Vice President Šefčovič. EBA is the combination of different initiatives aiming in a first step at making Europe the “fast follower” in the batteries sector and finally to capture a significant part of an estimated battery market of up to €250 billion a year from 2025 onwards.



Mandated by VP Šefčovič, InnoEnergy has gathered a European ecosystem of key stakeholders covering the whole battery value chain: EBA250. The first deliverable of that ecosystem, in March 2018, has been to identify very concrete recommendations to place the EU in the best position to become a major actor on the batteries market.

This set of recommendations has inspired the first strategic action plan for batteries issued by the European Commission in May 2018, where the European Commission adopted a comprehensive set of concrete measures to develop an innovative, sustainable and competitive battery “ecosystem” in Europe. The plan

aims in particular to:

- » secure access to raw materials for batteries,
- » support scaled European battery cell manufacturing and a full competitive value chain in Europe,
- » strengthen industrial leadership through accelerated research and innovation support,
- » develop and strengthen a highly skilled workforce along the whole value chain,
- » support the sustainability of EU battery cell manufacturing industry with the lowest environmental footprint possible,
- » ensure consistency with the broader EU regulatory and enabling framework (clean energy strategy and mobility packages, trade policy, etc.).

This strategic action plan has been the backbone of the European Battery Alliance, strongly supported by EBA250, the “industrial stream” of the EBA, led by InnoEnergy. In April 2019, the European Commission issued a report on the Implementation of the Strategic Action Plan on Batteries, taking stock of the progress made in the frame of EBA, in all the dimensions described above, that also acknowledges the contribution of the ecosystem set up by InnoEnergy, especially for building competitive, sustainable and innovative strategic value chains.

Commenting on the progress made in less than 18 months, Vice President Šefčovič said that “we already have a lot to be proud of. Because cross-border, large-scale integrated consortia are being established in our countries across all segments of the EU value chain (...). So the most visible achievement is undoubtedly the undisputable lead taken by our industry across the battery value chain”.

He also added that the “non-European competitors are getting worried. But at the same time, we cannot be naive, as we are catching up slowly. So we have agreed to act even faster”. Among the tools able to boost even more the European Battery Alliance, VP Šefčovič mentioned the IPCEI, an instrument that will help dedicating public funding for R&I in Batteries, the important role to be played by EIB, the need to get a robust regulatory framework, the investment in sustainable mining and refining of raw materials – both in EU and third countries.

Last but not least, he stressed that, “by June, our EU accelerator – the EIT InnoEnergy – is setting up together with the EIB support an Investment Platform. This match-making platform should create an additional flow of EUR 70 bn into EU-based projects”.



1.9 BOOSTING YOUR BUSINESS

TBB. The Business Booster by InnoEnergy

The Business Booster, our annual event that brings together sustainable energy innovators, established industry players, investors and public sector institutions, is one of the most exciting events in the EIT InnoEnergy calendar. The sixth edition, held on 17-18 October in Copenhagen, was the largest and most interactive we have held to date.



HIGHLIGHTS OF THE SHOW INCLUDED:

800

attendees from over 40 countries participating in exhibiting, pitching and networking

150

different exhibitors

440

minutes of pitching of innovative ideas and products

1ST

Pro-Drone won first prize in the pitching contest, with BeON finishing second and CorPower Ocean in third place

1,000

business transactions made using our new B2B tool



We also welcomed two excellent keynote speakers. These were Michael Sen, Member of the Siemens Managing Board, and Dr. Daniel Kammen, lead author for the Intergovernmental Panel on Climate Change and winner of the 2007 Nobel Peace Prize and a professor at UC Berkeley. A range of industry experts also hosted sessions, sharing inside knowledge on how their

companies have revolutionised the storage, transport, wind and smart city sectors.

During the event, we also launched our new inaugural impact report during a press conference and signed a Memorandum of Understanding with Altran, a world leader in engineering R&D services.



Giles Dickson,
CEO, WindEurope

This is a great event, because it brings together all these start-ups with the people providing the venture capital and other financing, plus the big energy companies.



CALL FOR STORAGE START-UPS

While great progress has been made towards switching to low-carbon electricity, we need innovative storage solutions in order to increase the integration of renewables. China has dominated the rise in global production; now it is time for Europe to put its own ingenuity and determination to good use, and take the lead on storage.

One particularly pressing challenge is how we can continue to match supply and demand as the energy system evolves. It is no secret that our electricity grid is under increasing pressure. Storage offers a solution to these challenges.

Storage, in its myriad forms, is key for integrating heat, transport and renewable electricity by reducing peaks in demand and providing a more flexible and efficient electricity grid. This reduces the need for large amounts of generation capacity which becomes largely redundant outside of times of high demand, thereby increasing overall efficiency.

Expert opinion agrees with this sentiment. Research by the International Renewable Energy Agency predicts that battery storage installations could experience 17-fold growth by 2030 due to the rapidly falling price of batteries. However, in Europe, we are simply not doing enough to make an impact in this exponentially growing market.

Current battery production in Europe accounts for just 4% of global demand. The European Commission attributes this slow development of energy storage in Europe to market, regulatory and administrative barriers, as well as limited access to grids and excessive fees and charges. But this is changing.

What lies ahead is a huge opportunity for businesses, entrepreneurs and innovators to bring innovative storage solutions to market to bridge the gap. In fact, our research suggests that a sustainable battery cell manufacturing supply chain in Europe could be worth as much as €250 billion a year by 2025.

As part of this bid to grow Europe's standing in the energy storage market, we invited global start-ups to apply for our competition last year, which offers invaluable funding to the 15 businesses offering the most innovative ideas and visionary philosophies, as well as access to new business partners, customers and facilities. Our call saw 214 start-



Cindi Choi,
Partner, TOTAL Energy Ventures

Europe needs innovative electric storage solutions to support the decarbonisation of transport and heat through electrification. It is our mission to find businesses with unique and innovative concepts, products and solutions that have the potential to be part of the sustainable battery cell manufacturing value chain.

-ups enter, of which the top ones were invited to attend the pitching event in Amsterdam in March 2019. 15 best start-ups took part and pitched during the Celebration Event, for €100,000. Successful applicants also received a place on one of EIT InnoEnergy's business creation programmes – the Highway® or Boostway®. The Highway® provides a hands-on approach to support early-stage start-ups in the go-to-market phase, while the Boostway® programme supports companies in growing their business.

In addition to this, applicants also gain access to a network of more than 385 partners, including business angels, EIT InnoEnergy's European VC community and public funding bodies. Start-ups also receive board-level advice and mentorship from experts, as well as a front-row seat at European energy events such as The Business Booster.



Calling the most innovative electrical storage start-ups

Let's make history together!

Apply until 15 November

15 WINNERS
€100,000



Alexander Goos,
Business Creation Officer, InnoEnergy Benelux

Acting as a trusted partner, we're here to give businesses the lift off they need to reach commercialisation. Through our unique ecosystem we offer start-ups unparalleled access to everything they need to make a resounding business success of their innovative ideas.





Our annual PowerUp! competition is one of the highlights of the EIT InnoEnergy calendar, and sees start-ups from across Central and Eastern Europe showcase their innovative ideas as part of their wider efforts to attract investment and bring their solutions to market. We are extremely proud of its status as the biggest competition for cleantech, energy, mobility and smart technology start-ups in the CEE region.

The 2018 event was the fourth edition of the competition, and was the most exciting to date. A total of 298 applicants from 24 countries entered the 2018 edition of the competition. In addition to the rapid increase in contestants, three new regions held country finals in 2018, meaning that businesses from a total of 15 states in the CEE region were represented.

PowerUp! has proven to be an extremely popular EIT InnoEnergy initiative, which is encapsulated in its consistent growth and evolution. It has become a real hotbed for the sharing of innovative ideas, with interest continuing to soar and some truly inspirational companies entering each year.

Estonian start-up Zubax Robotics was named the overall winner of the PowerUp! competition at the 2018 Grand Final, being rewarded with a cash prize of €30,000 and access to EIT InnoEnergy's Highway® programme, which transforms innovative business ideas into commercial reality.

Zubax's technology enables electric vehicles – particularly aircraft – to travel greater distances using less battery power, helping to alleviate one of the biggest barriers to the wider electrification of transport. The company is working on a Telega motor control solution that provides electric motor controllers that are 10% more energy-efficient than those currently available. Flagship products developed to date include the Myxa motor controller and the Mitochondriksensorless motor controller chip.

Zubax presented its solution alongside 15 other start-ups – which had been selected from the winners of the



Gül Erol,
CTO, Enerjisa

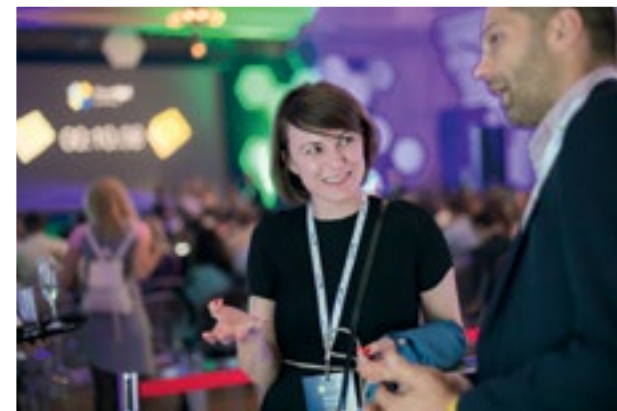
We know we can grow into the fast-changing future with sustainable solutions via innovative and agile startup partnerships. As Enerjisa we are proud to be a part of PowerUp! that unites us with the most striking ideas all around Europe.

individual country finals – at the grand final held in Prague. The panel of judges was composed of corporate partners including MOL Group, RAFAKO and Enerjisa.

Jakub Miler, CEO of InnoEnergy Central Europe said: “since we first started out, we have invested heavily in innovative technologies. To date, over 90 products and services have been supported and 120 start-ups have brought their products to market. But we’re not stopping here. The quality of the innovative projects we’re seeing in CEE and further afield is hugely exciting. Zubax Robotics is a prime example of the talent and ideas that will help move the world towards a clean energy future”.

Runners-up include WellParko from Lithuania, which was awarded a €10,000 prize, and Neuron Soundware from the Czech Republic, which received €5,000. Applicants to PowerUp! also participated in bootcamp workshops to hone their ideas and develop skills to accelerate their businesses towards commercialization – including professional mentoring during the competition.

The country finals took place in Hungary, Poland, Czech Republic, Slovakia, Slovenia, Lithuania, Latvia, Serbia, Turkey, Ukraine, Estonia, Romania, Bulgaria, Croatia and Greece.




Dawid Niedojadło,
Marketing and Communications Officer,
InnoEnergy Central Europe

In running the PowerUp! competition, we are trying to uncover solutions and open doors. As a leading cleantech accelerator, we are passionate about investing money, knowledge and contacts into growing innovation in this area. We are managing the largest innovation ecosystem in the world, which is comprised of more than 320 members. They include leading power companies in Europe, academic and research centres, and cities and regional government.

02 Achievements in 2018



2.1 ASPIRATIONAL INNOVATIONS



Northvolt is a Swedish company specialising in the production of lithium-ion batteries founded by two former Vice Presidents of Tesla Motors, Peter Carlsson and Paolo Cerruti. To assist its continued growth and to help place it at the forefront of innovation in its sector, EIT InnoEnergy invested €3.5 million to support the construction of Europe's first large-scale battery factory. The final facility will have a production capacity to rival that of Tesla's US gigafactory by 2024.

Construction of the factory is now well under way in the city of Skellefteå in Sweden, with plans also in place to open laboratories for further battery research in Västerås, near Stockholm. Alongside EIT InnoEnergy's investment, Northvolt has also been successful in securing funds from other organisations, including Siemens, ABB, Scania and the Swedish government. In recent months, Northvolt opened a battery-assembly factory in Gdansk, Poland.

Once completed, the new factories will enable Northvolt to form new international partnerships, and the link with EIT InnoEnergy will give the company access to a pan-European network to support Northvolt's efforts to attract further investment. The facility will also support thousands of jobs throughout Europe, on both a direct and indirect basis.

The battery factories will produce competitive battery cells for electric cars, energy storage and other electrical powered products and applications.

"The development of a European large-scale battery factory will be revolutionary, especially in terms of electrification of transport – which in itself could drastically reduce Europe's carbon footprint", adds Diego Pavía, CEO of EIT InnoEnergy. "The benefits can also go beyond supporting the transition to electrification. By considering the deployment of battery-based energy storage at all levels of the electricity network, we can also see that this battery factory will add value

to the grid while maximising the integration of renewable energy. This fits perfectly with EIT InnoEnergy's goal to achieve a sustainable energy future in Europe".



Peter Carlsson,
CEO, Northvolt

This marks a key moment for Europe that clearly shows that we are ready to compete in the coming wave of electrification, and that we will do so using battery cells which carry the lowest CO₂ footprint possible. EIT InnoEnergy has been a true partner in the creation of a European battery ecosystem. This has been further manifested in the role EIT InnoEnergy has taken in the European Battery Alliance.



Skeleton Technologies, a project partner of EIT InnoEnergy for the development of next-generation ultracapacitors and once declared as Europe's best and brightest young stars by Forbes, has been named in the Global Greentech top 100 for the third consecutive year.

The Global Cleantech 100 represents the most innovative and promising ideas impacting the future of a wide range of industries, according to the players in the market. Featuring companies that are best positioned to solve tomorrow's clean technology challenges, the Global Cleantech 100 is a comprehensive list of private companies with the highest potential today to make a significant market impact within a 5-10-year timeframe.

Skeleton Technologies is the global leader in graphene-based ultracapacitors and energy-storage systems. They deliver high power, high energy, reliable and long-life storage solutions across industry. Through the use of patented 'curved graphene', they have achieved global breakthroughs in ultracapacitor performance. Their ultracapacitors deliver twice the energy density and 4 times the power density offered by other manufacturers. Their current customer base ranges from leading Tier One automotive firms and industrial equipment OEMs to truck fleet operators and aerospace prime contractors.

The biggest socioeconomic impact of this achievement is the major exposure of this innovation to the world and boost for the envisaged product: a next generation ultracapacitor, which 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.

Skeleton Technologies has been partnering with EIT InnoEnergy since 2015 for the Innovation Project UCGEN3 and since 2018 in SCALEGRAPH. The company has worked closely with InnoEnergy's project management and technology specialists for bringing their innovations to the market.

By default, Innovation Projects require the representation of the knowledge triangle. In the case of Skeleton Technologies



Taavi Madiberk,
CEO, Skeleton Technologies

The investment that we were able to make in expanding our production line is indicative of the demand that we are seeing for ultracapacitors from a huge variety of industries, including the automotive sector, power grids, heavy transport and haulage. Our improved scale as a result of the new facility will enable more businesses to realise cost savings and energy efficiencies based on our technology.

and their participation in SCALEGRAPH this was expressed in the multidisciplinary composition of the consortium, use the PhD candidates and master students all focused towards commercialization.





Hardt Hyperloop expands in Europe through multi-million euro investment by EIT InnoEnergy.

Last year saw EIT InnoEnergy pledge up to €5 million to support the development of Dutch start-up Hardt Hyperloop. EIT InnoEnergy makes up part of a consortium formed to manage the standards and regulations needed to help bring hyperloop technology to fruition in Europe, with Deutsche Bahn, Engie Laborelec and Continental also joining over the course of last year.

Tim Houter, CEO Hardt Hyperloop, said: "We're delighted with this investment in Hardt Hyperloop. EIT InnoEnergy makes it clear through this investment that the development of the hyperloop has entered a new phase. It also highlights the importance and urgency of investing in the development of a cleaner and better alternative to long-haul transport. Hardt Hyperloop believes EIT InnoEnergy's pledge will encourage other investors to join this project".



Lucienne Krosse,

Thematic Leader for Energy Efficiency, EIT InnoEnergy

The hyperloop uses clean energy and is perfect for commuters travelling between the major European cities. With the exponential growth in air traffic and the related increase in CO₂ emissions, it is vitally important that the development of the hyperloop receives an extra boost to accelerate its growth and rollout across Europe.



2.2 HIGHWAY®

BEYOND ACCELERATION

We are co-creators, smart investors and industry catalysts for entrepreneurs who want global impact and a sustainable world. This is long-term business creation with global vision and purpose.

PROGRAMME OF TAILORED SUPPORT DRAWN FROM THE FOLLOWING:

Product

- » Analysis of your product's potential, competitors, and patent chances.
- » Support for intellectual property protection.
- » Enhancement, development, and pilots.
- » Access to R&D infrastructure.

People

- » Mapping your team's capabilities, competencies, and skills gaps.
- » Training, coaching and mentoring.
- » Bringing in people to take the company forward.
- » Expert board members.

Market

- » Evaluation of business case and market positioning.
- » Business plan and commercialisation strategies.
- » Finding your first customer.
- » Support from InnoEnergy sales team.

Finance

- » Introductions to pre-seed and seed funding opportunities, VCs, business angels, and public funding.
- » Physical office space.
- » Administrative and legal support.



Given the unpredictability of renewable energy, such as sun and wind, grid owners are looking for cost-effective means of storing electricity.

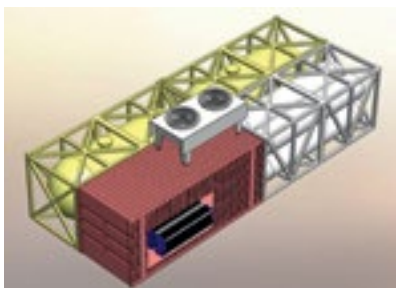
This is essential to solve issues such as instability and overload of the electricity grid caused by the intermittence of renewable energy sources.

Elestor electricity storage systems are based on hydrogen bromine flow battery technology. It means that during the charge cycle of the battery, as power flows into the stack, hydrogen is generated and stored in a separate tank. This is this hydrogen which will provide energy when needed later on.

Originally developed by NASA, the concept has been further engineered by Elestor to enable its use in a wide variety of grid and industrial applications.

The mission of Elestor is to reduce the cost of electricity storage to an absolute minimum. This is why low cost and abundant active materials (hydrogen & bromine) are used, in combination with a patented, simplified system design and easy to manufacture compact cells. This triple cost reduction strategy results in the lowest possible cost for storing electricity.

Elestor and Areva signed the formal agreement for the acquisition of the FlowBox project assets. This project, headed by Areva with the partners InnoEnergy France, EnStorage and Schneider Electronics, developed and built a prototype hydrogen bromine flow battery of 150 kW/900 kWh. This is the largest hydrogen bromine flow battery in the world.



Wiebrand Kout,
CTO, Elestor

This is world class knowledge and very relevant for us. Although we regret that AREVA Energy Storage and partners had to end their flow battery developments, we are satisfied that we managed to take over a large part of their hardware and expertise. There is large interest in Elestor's technology worldwide and this agreement gives us the opportunity to further accelerate our developments.



Three years ago, a team from Poznań began working on a smart device that would make life considerably easier for many workers: identifying, categorising, sorting and compressing waste. The idea quickly became a hot topic, leading to much discussion in start-up circles and recognition for the innovative nature of the device, but also a number of doubts as to whether the device could actually be made at all.

As Jakub Lubonski, CEO of Bin-e admits, "running a business that is based on a solution that doesn't exist yet means overcoming new challenges is a daily struggle. Mastering the relevant technology, finding the best professionals to work with, drumming up new partners and capital, the daily motivation to work and push oneself further – these are just some of the dozens of things we deal with every day".

The hard work that everyone at the company put in has paid off. Thanks to its innovative approach, Bin-e won the audience award in the third edition of InnoEnergy's PowerUp! competition.

This is how the tech behind Bin-e works in a nutshell:

1. Waste is placed in the bin.
2. Bin-e recognises the object, then compresses it and sends it to the relevant container.
3. At the same time, Bin-e collects relevant data and sends it to the external database.
4. The database collects data from multiple devices to improve the recognition process.
5. If one of the containers needs to be emptied, Bin-e automatically informs maintenance services.
6. Data is also directly shared with the waste management company, so the logistical process of collection is optimised.
7. Based on the data received, the company then decides when waste is to be collected.
8. Thanks to the previous segregation and compression of the waste, the collection process is simple, economic and clean.



Jakub Luboński,
CEO, BIN-e

When we were in the finals of the competition, we knew that this meeting would turn into something bigger for two reasons. Firstly, the contribution of InnoEnergy projects to the development of a sustainable energy future. Secondly, we have exactly the same goals - to deliver a product that will not only have a real impact on improving our quality of life, but will also bring financial benefits, such as waste segregation and compression. If you add to that the opportunity to work with experts from investment, sales, marketing or finance markets and the access to networks throughout Europe, it is clear that the support provided by InnoEnergy has been priceless.





Thanks to EIT InnoEnergy, the German start-up ecoligo managed to upgrade their solar-as-a-service, unlocking more than 1 million euro's to finance their solar projects in emerging markets. This will be done on their platform, the ecoligo.investment platform.

The million amount was reached by 327 private investors. The minimum investment amount on ecoligo platform was recently reduced from €500 to €100, giving a wider audience access to sustainable investment opportunities.

With a complete digital platform for financing and delivering solar projects, ecoligo removes the barriers that prevent such projects from going ahead. Supplying these businesses with affordable electricity enables them to grow and therefore boost the local economy. The solar projects are financed through the crowdinvesting platform www.ecoligo.investments, offering fixed and attractive returns to private investors. With these efforts, ecoligo addresses the issue that commercial and industrial (C&I) businesses in developing countries pay high prices for electricity and the unavailability of financing for solar solutions. In respond to this, the start-up combines solar-as-a-service with crowd investing. 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.

A total of 12 projects have already been financed through ecoligo.investments, which will save more than 19,000 tons of CO₂ emissions over the entire duration of the project. The projects with a total capacity of almost 900 kWp were financed in Ghana, Kenya, the Philippines and Chile.

Since receiving support from EIT InnoEnergy in 2016, ecoligo joined the Highway® programme for the industrialization of their products. Especially in the area of finding financiers, ecoligo are now celebrating their successes.

Through InnoEnergy's Highway® programme, ecoligo business model was developed against the background of connecting of entrepreneurs with markets and customers.



Martin Baart,

CEO, ecoligo

By supporting ecoligo from an early stage, InnoEnergy enabled us to gain traction in Ghana and Kenya; emerging markets that hold a huge amount of potential, but that many investors avoid. We are now a well-known actor in the commercial solar energy space in these markets and are pioneering the global energy transition with our solar-as-a-service solution.



The EIT InnoEnergy supported start-up Greenely has already reached its intended goal of 30,000 customers for its app to monitor and reduce their use of electricity. A growth of 6,000+ users a month is reported.

Greenely offers the next generation energy management tool and helps households to monitor and reduce their electricity consumption using a mobile application. This app also provides their energy behaviour, all with minimum effort and with no additional hardware installation. This is more than accomplishing a commercial milestone in reaching a broad customer audience that is willing to pay for an EIT supported innovation. The achievement also paid off the entrepreneurial respond from the co-founders after experiencing the lack of user focus and traditional pricing module in the energy industry.

The main purpose of the app is to manage energy behaviour and increase knowledge, by helping users understand how to efficiently use their energy as well as introducing the option of using renewable energy. One of the main evolutions, underlying this achievement includes an electricity agreement that enables customers to purchase the electricity at the price prevailing on the electricity exchange for each hour. In this way, consumers have the opportunity to capitalize on the fluctuation of the electricity price by consuming electricity for cheaper hours in order to get a lower average price, something that cannot be done through a traditional mobile electricity agreement that sets a fixed kWh price for the entire month.

As such, Greenely not only helps to manage energy consumption, it also makes it more affordable. An objective with close linkages to EIT InnoEnergy's thematic field of Energy Efficiency.

After being incubated via InnoEnergy's Highway® programme, Greenely tested its technology in a live trial in order to verify the benefits of a smart grid in the large scale for a roll-out in Sweden. Through InnoEnergy's Highway® programme, Greenely solution but also their business model was developed against the background of connecting of entrepreneurs with markets and customers. Testimony to this focus are the different awards granted



Tanmoy Bari,

CEO, Greenely

Greenely helps households decrease their energy consumption, resulting in up to 15% in electricity demand. Over the last year, we have been able to showcase a tremendous amount of growth both in terms of users, engagement and revenue. It has been an exciting journey and EIT InnoEnergy, as a partner and shareholder, has supported us in building our business and achieving our goals.

in previous years such as the "Smart Living Challenge", "The challenge of the year" at the Business Challenge and "The young business idea of the year".



vilisto

InnoEnergy's supported start-up vilisto was crowned the winner of the "Best of X Smart City" competition, which is presented by energy service provider ENTEGA. The start-up came out on top in a workshop contest, in which project ideas had to be presented and defended in a boxing ring. The competition is endowed with 25.000 € allowing their further growth in response to the increasing demand of their products.

Vilisto's solution includes a fully automated self-learning heating technology. Vilisto allows companies to effortlessly achieve the highest energy consumption savings available on the market without requiring a change in user behaviour or manual programming. This is achieved using an AI-based radiator thermostat with integrated presence, which:

- » Saves up to 40% heating energy with RoI < 3 years.
- » Demands low investment for hardware and software with fast and simple installation.
- » Brings an added value for energy and building management by digital services.

Since receiving support from EIT InnoEnergy, vilisto received personal assistance through the Highway Programme® on the industrialisation of their products and efforts in finding financiers, partners, employees, and accessing markets and access to investors.



Timo Lassak,

Business Creation Manager,
InnoEnergy Germany

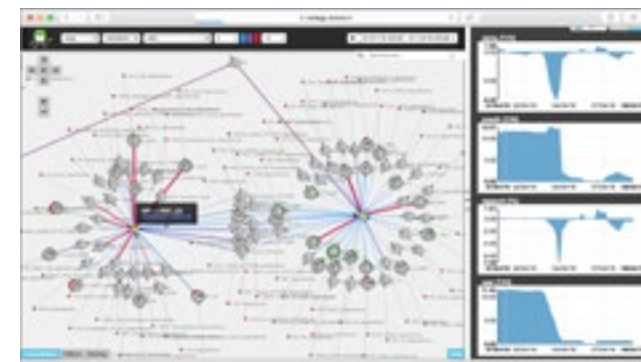
In the few last years, the market for smart thermostats has demonstrated a tremendous growth (trajectory). This development, however, has mostly been limited to the B2C sector. With a very strong team, a superior technology and above all a clear strategy to capture the market, I am more than confident that Vilisto will stir up the sector for self-learning thermostat in the B2B sector. They have successfully paved the way to become the next big household name for smart heating-control.



DCbrain is a French startup created in 2014 that has developed artificial intelligence software. This software allows one to visualise in real time what is happening in large and complex networks, including energy, logistics, gas, water, and electricity.

In doing so, they are able to identify the causes of the incidents, to predict them and to test their evolutions thanks to big data and deep learning. This solution aims to facilitate the management of physical networks by providing and analysing their data, to optimise their use while minimising both operating budgets and energy efficiency issues.

As winners of the ENEDIS competition in Smart Grids in 2015, DCbrain joined the InnoEnergy Highway Programme the same year. This also facilitated the company to create real connections with major corporations such as Total, joining their incubation programme Factory 4.0.



Olivier Muquet,

Business Creation Manager,
InnoEnergy France

DCbrain was selected in late 2015 for the InnoEnergy Highway® acceleration programme. It is a company typical of the increasingly pronounced digitisation of the energy sector: DCbrain wants to quickly make its solutions available to as many players as possible. This is entirely in sync with our identity as a European accelerator. In this way, DCbrain benefits fully from the support of our European business developers.



SMARTIVE.

EIT InnoEnergy's start-up Smartive has secured a major contract with Acciona, a global leader in renewable energy projects, to monitor 1,000 of its wind turbines. The initial engagement will run for a year, with the option to extend.

Smartive develops IT solutions for the energy market. It provides advanced services of real-time SCADA data processing to diagnose windmills and focus on the development of low-cost diagnosis systems based on cloud computing, smart devices and real-time data processing. Smartive provides access to IT platforms allowing the supervision, monitoring, diagnosis and prognosis of the performance of wind turbines. By means of smart devices (smartphones and tablets) it provides solutions to not only improve the performance of a wind turbine but also to plan maintenance operations, as well as obtain online information about the machine and the components.

Over the period Smartive will examine 15% of Acciona's global wind fleet to predict technical problems before they arise and tackle current maintenance issues. Its technology will provide Acciona with accurate data that will reveal where problems exist or could occur – improving the operation of turbines and reducing maintenance costs.

Smartive's technology enables to:

- » Reduce wind turbine maintenance costs by some 20%: €44 million annually in the Spanish market, €190 million per year in Europe and €440 million annually in the world market.
- » Reduce wind turbine operation costs and component replacement costs by 20%: a standard wind farm of 50 MW (16 turbines) installation power working 2,100 hours per year faces production losses of at least €378,000 annually. Our system enables 20% savings of €75,600 (€4,725 per turbine).

The closed contract and focus on 1.000 wind turbines bring Smartive closer to transforming the ways of monitoring and managing turbine fleets. According to the CEO, Jordi Cusido, Smartive's can predict failures one year before they occur with an accuracy rate of over 95% – leading to over 300K€ in savings a year per 100 turbines. As such, Acciona will not only be able to gain operational control, it will reap tangible financial benefits too.



Jordi Cusido,

Chief Executive Officer, Smartive

Our precise technology will transform the way Acciona monitors and manages its turbine fleet. In fact, we can predict failures one year before they occur with an accuracy rate of over 95% – leading to over 300K€ in savings a year per 100 turbines. So, Acciona will not only be able to gain operational control, it will reap tangible financial benefits too.



EIT InnoEnergy supported start-up RVE.SOL secured funding (M€ 2.5) from French engineering group Egis and South African project developer G7 Renewable Energies, allowing them to bring their patented, pay-as-you-go minigrad "KUDURA" to rural Busia, Western Kenya. This financing comes after the company received a patent pending status for its KUDURA Sustainable Rural Development solution. It has been reliably deployed in Sidonge, Kenya since 2011 with a clean operation and safety record.

RVE.SOL deploys a unique, innovative turnkey solution, KUDURA enables access to clean energy – for cooking, lighting and make water drinkable – and guarantee the lowest level cost of energy and water for a given location. They create better rural lives by improving health, decreasing deforestation and carbon emissions and creating job opportunities. Their solution, KUDURA, is offered in four variants for SME businesses, rural communities, healthcare centres and schools.

More than a financial injection, this funding is a validation that RVE.SOL's minigradbusiness model may be the least cost, most viable solution to electrify the over 600 million Sub-Saharan Africans without electricity.

RVE.SOL's solution the only holistic, integrated solution of its kind in the market. The start-up offers lower relative costs and deployment time coupled with increased scalability, usable life, ISO9000 quality and sustainability. RVE.SOL's and its partners' technical capabilities and access to the market enable them to quickly assess local needs and availability of usable raw material, and deploy a complete solution in weeks, rather than months.

Especially with this funding received, RVE.SOL will – in 2018/2019 – be able to bring high-quality, renewable grid power and potable water to 15,000 people and create over 20 new direct jobs in Kenya. RVE.SOL also plans to expand this life-changing impact to another 50,000 rural dwellers across East Africa by 2020.



Vivian Vendeirinho,

Managing Director & Founder, RVE.SOL

We are excited about the recent visibility and validation the minigrad business model has received as the least-cost option for rural electrification. The entry into this business of large-scale infrastructure and commercial grid-tied energy investors, developers and infrastructure operators demonstrates that the sector is starting to be seen as a viable infrastructure business akin to developing, financing and operating long term projects like railways and national grids.





PivotBuoy®, X1 Wind's novel, single point mooring system platform, which could significantly reduce the cost of floating offshore wind, received €4m of EU Commission Horizon 2020 funding. A consortium of nine partners, led by X1 Wind, will deploy a prototype of the PivotBuoy, at a test site at the Oceanic Platform of the Canary Islands (PLOCAN).

Once proven, the technology stands to reduce platform weight by as much as 80 per cent and costs by 50 per cent, turning floating wind competitive. The project aims to validate the benefits of the PivotBuoy system and other key innovations to reduce installation, operation and maintenance costs, paving the path to achieve 50€/MWh in commercial scale wind farms.

First backed by EITInnoEnergy, Europe's sustainable energy innovation engine, the platform can operate at an increased water depth, compared to other floating solutions, opening up hundreds of sites, which were previously technically or commercially inaccessible.

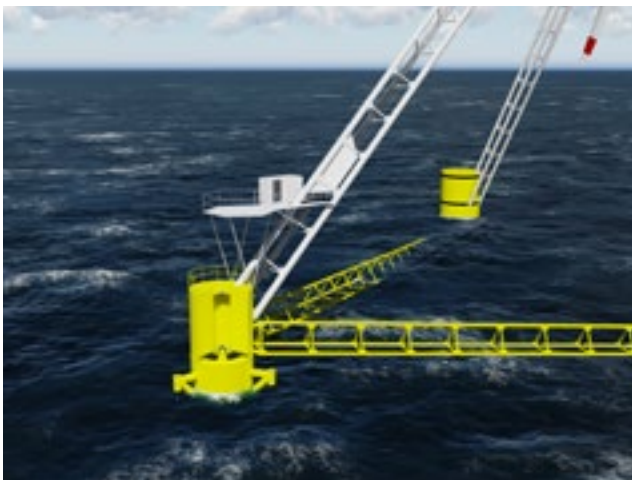
The system combines advantages of Single Point Mooring systems (SPM) with those of Tension-Leg Platform systems (TLP) and a more efficient downwind structural design, enabling a radical weight reduction in floating wind structures compared to current spar and semi-submersible systems.



Alex Raventos,

CEO & Co-founder, X1Wind

Our Mission is to develop disruptive and scalable solutions such as the PivotBuoy®, an innovative single point mooring system which allows floating wind platform to orientate passively with the wind. This allows eliminating the tower and the active "yaw" orientation system of current designs, resulting in a much more efficient integrated structural design.





The Swedish based start-up CorPower Ocean received an additional investment of EUR 8.2 million from the Swedish Energy Agency to commercialise their Wave Energy Converter after a successful demonstrating phase, confirming their technology can produce electricity at a competitive cost.

This achievement is significant for two reasons. It is the result of an extensive evaluation of a national authority in energy of which the outcome has confirmed CorPower's leading position from both a technology and customer orientation point of view. Aspects that are at the core of InnoEnergy's value proposition. The investment will allow CorPower to commercialize a technology of which the potential has been recognized in Europe. With CorPower's focus on the European market, this brings a great opportunity.

The CorPower's technology includes the sustainable and effective production of 2000–4000TWh of electricity per year. The company has made wave energy a realistic alternative to other energy sources, with comparable potentials as the wind energy industry, increasing the energy security in Europe and contributing to the competitiveness of Europe's energy industry. There is an opportunity to draw on wind industry development in Denmark, where the collaboration between private and public sector in the development phase has resulted in Denmark leading the way and generating thousands of jobs and large tax revenues. As stated by the Swedish Energy Agency, Marine energy has the potential to contribute to Sweden's and Europe's climate and environmental policy goals, but also drive economic growth and create new jobs in Sweden, making this a truly exciting investment from the Swedish Energy Agency.

InnoEnergy has provided Business Creation Services to CorPower, from the initial phases of the company in 2012 to the most recent achievement: the full-scale Wave Energy Converter Ocean Demonstration. This includes an impact driven service to start-ups with a focus on environmental, economic and social progress.

CorPower started as a start-up supported via Highway® program and continued to develop its idea via several



Patrik Möller,
CEO, CorPower

Wave energy presents a huge opportunity for Europe to establish a new industry, offering significant job creation and export business potential. In our recent deployment in Orkney, Scotland, we have demonstrated fundamental improvements in survivability and efficiency of the technology. CorPower is planning to build its first pilot arrays from 2021 to 2023 and pre-commercial farms from 2023.

innovation projects in which InnoEnergy has invested since 2015 (Hiwave). Throughout the years CorPower has provided several case studies for the MSc RENE and offered over 5 internships to MSc. RENE students.



2.3 BOOSTWAY®

POWERING GROWTH

As a growing business, your main objectives are to enter new markets and manage efficiently your supply chain. We offer you targeted support to meet your goals.

PROGRAMME OF TAILORED SUPPORT DRAWN FROM THE FOLLOWING:

People

- » Assessment of team skills and competence.
- » Coaching and mentoring.
- » Individualised training and workshops.

Technology

- » Due diligence of product, patent and other intellectual.
- » Property evaluation and protection.
- » Prototype enhancement.
- » Access to expertise and R&D infrastructure.

Market

- » Support for commercialisation.

Sales

- » Support for internationalisation, business development, and market expansion.
- » Brokering relationship with resellers and corporations.
- » Support from InnoEnergy sales team.



GRADIS AI is the most advanced software platform for design and management of street lighting available. It enables savings both in installation and operational costs (reduced energy consumption and better maintenance scheduling). Energy savings reach up to 81%, while CAPEX on new SRL installations is reduced by several percent (7–11%). That also provides faster Return of Investment.

Why their solution is innovative?

- » Replacing traditional lighting with LED lighting can achieve savings of nearly 40%. The use of these solutions will result in an additional 30% over LED lighting, and ongoing research to reduce energy consumption by another 10%.
- » Their projects in both Poland and Europe showed an average of 16% energy savings resulting from the design and an additional 15% gain from the implementation of the control system. Together, it is possible to achieve 70% savings while using LED technology and the solutions in relation to traditional lighting.

Energy savings not only have economical but also ecological benefits. Thanks to the implementation of this solution, the amount of CO₂ emitted into the atmosphere will be reduced. At the same time, the computer-optimized lighting design reduces light pollution which is also dangerous to health.

GRADIS AI is a product designed for progressive cities. It fulfills the Smart City concept by using technology for life quality improvement – energy savings, better infrastructure management, enhancing traffic security on one hand and reducing light pollution on the other.

The use of GRADIS software reduces the design time of lighting by up to 97%. The use of learning algorithms and artificial intelligence systems shortens the time, but also enables multivariate design, which is necessary for dynamic control. The start-up has already won numerous



competitions at international level, including The Business Booster 2015 (TBB.) and European Start-up Days 2017.



2.4 INNOVATION PROJECTS

For everyone at EIT InnoEnergy, our Innovation Projects business line represents a major opportunity to make an impact where it is currently most needed: in the energy innovation project lifecycle and in the commercialisation phase. We add value not only by providing financing when it is most difficult to obtain, but also through leveraging our pan-European network to facilitate access to customers, partners and business opportunities.

A sustainable energy sector needs new products, new solutions and new services if it is to be successful. However, transforming the spark of an idea into a tangible product can be a long and complex journey. To make this happen, technical expertise, commercial awareness and access to a variety of skills and resources are critical. Innovation Projects represent one of the key pillars of what we do at InnoEnergy. We focus on developing and investing in innovative and commercially viable products and solutions,

and we finance multi-skilled partnerships that significantly reduce the risks of product development.

We provide innovators in sustainable energy with access to a deep pool of complementary skills and resources, and connect them to markets and commercial opportunities across Europe and beyond. Our collaborative model encourages businesses of all sizes to participate in innovative partnerships, consider new ideas and support new research from across Europe.



Based on the Market Creator concept, InnoEnergy has partnered with five significant Swedish energy companies to operate Power2U. This is a new joint venture to design and operate local energy systems. The partners include Öresundskraft, Jämtkraft, TekniskaVerken, UmeåEnergi and Jönköping Energi.

This joint venture finds its origins in an innovation project that InnoEnergy initiated, titled Power2U is a new energy operator offering building optimisation services that enable all types of buildings to participate in digital energy transformation. Its future-proof energy management platform will enable both end users and energy companies to benefit from the integration of new sustainable energy technologies such as solar cells, EV chargers and batteries.

The project was built on a BOT model (Build, Operate, and Transfer) in which InnoEnergy builds the business

solution (not only technology); operates for a limited period of time (to prove that the business is sound); and transfers the business to a pre-agreed operator. Now the business has been established, the Building phase has come to an end bringing two successes: a first commercial contract a start-up created. Moreover, the 2018 launch of Power2U kicks off the Operating phase of the BOT model, focusing on driving the established technology and business development during the Building phase. The transfer will include moving full ownership of the joint venture to the Regional Energy Companies. This phase is foreseen for the next 2–3 years. Ultimately, Power2U is facilitating the integration of new sustainable energy technology while contributing to the stability, resilience and robustness of existing energy grids.

Power2U enables all types of buildings to participate in the energy transformation by optimizing their energy potential and offering services. This ambition will become a reality, with the launch of the joint venture. Besides the environmental advantages, the kick-off of the Operating



Kenneth Johansson,

CEO, InnoEnergy Scandinavia

The energy market is about to change fundamentally. Energy end users are growing larger and equipping themselves with their own power generation. We expect rapid growth of local storage capacity in the form of electric cars and stationary batteries. Our joint new model is an important puzzle piece in the new energy landscape, and we are aiming for a rapid market launch starting in Sweden. We already have more international inquiries than we can handle.

phase has also led to the creation of a number of jobs to enable the company fulfil its operational and strategic ambitions.

Power2U was one of InnoEnergy's Market Creator activities implemented by CC Scandinavia to create new player in the energy value chain, with a business model, associated set of commercial services and technology platform; providing

added value services to Consumers, Real-estate owners and electricity network operators. In the implementation of the Innovation Project, Power2U employed a great number of students and young graduates as well as research institutes (RISE), and industry partners (ÖrebroBostäder).

In the year prior to the launch of the company, a total of 13 students were employed.



SortAir technology allows for efficient separation of fractions with various density and aerodynamic resistance.

Mineral materials sorting is still a challenge for various industries, though technologies used today to process raw materials have serious disadvantages - i.e. high energy consumption, negative environmental impact, high initial and operating costs and lack of flexibility.

SortAir aims to tackle all of these challenges in a cost-effective manner providing high enrichment efficiency. Nominal throughput of the device is 50t/h but the solution is optimized to be set up in parallel/in series in order to increase the throughput or enrichment efficiency. The sorting process is fully automated and coupled with advanced self-learning algorithms, leading to significantly reduced TCO (Total-Cost-of-Ownership).

Customers are waste operators and mines where the technology allows for separation of marketable fractions in a fast and efficient manner.

Technology is also a perfect fit for the railway industry when it can be used to recycle broken stone from railway embankments thus significantly lowering the costs of railway track renovation.



Maciej Majchrowicz,

Business Development Manager, InnoEnergy Central Europe

Railway operators, mines and waste management companies need to enrich and process various feedstocks – efficiency and flexibility of such processes is crucial. Therefore we identify a growing market opportunity for technologies like SortAir.



Schneider Electric and InnoEnergy partner to develop a new wireless energy sensor.

New PowerTag wireless energy monitoring range benefits from industrial innovative design with InnoEnergy's support.

InnoEnergy and Schneider Electric, the leader in digital transformation of energy management and automation, announced the completion of a two-year collaboration to industrialize and commercialize PowerTag NSX. It is a new addition to the original PowerTag wireless energy sensor range, increasing the scope of applications up to 630A. The collaboration between the two partners helped accelerate the industrialization and commercialization of the technology by more than two years. PowerTag NSX is available in France, the UK, Australia, the Netherlands, Germany, Sweden and will be available worldwide in 2019.

PowerTag NSX cutting-edge technology features a compact, easy-to-install wireless energy sensor that simplifies the connectivity of individual breakers to a Building Management System (BMS). It can provide precise, real-time data to building owners and facility managers. Designed for any type of building, the wireless energy sensor monitors and measures energy use, currents, voltages, power and power factor and help reduce the electrical consumption of buildings and facilities by up to 30%. Crucially, it features limited components, which reduces installation costs.

The launch of PowerTag NSX is the culmination of a two-year collaboration between InnoEnergy and Schneider Electric. InnoEnergy's 2.1M€ investment has helped accelerate the industrialization of PowerTag NSX with an innovative industrial design, advancing PowerTag NSX's time to market by more than two years.

Schneider Electric has been an associate partner of InnoEnergy since its launch in 2010 and became a shareholder and formal partner in 2016. They are actively involved in its key area of activities: education, business creation and innovation.

As Richard Biagioni, CEO of InnoEnergy France, said: "PowerTag NSX offers building and facilities managers a



Sylvain Paineau,

EMEA Open Innovation and Business Incubation Director, Schneider Electric

Partnering with InnoEnergy on this project made commercialisation faster and more straightforward. Our customers are more attuned to the energy they are using and want to be more efficient, while at the same time reduce their costs. So, today it is great to introduce a solution that provides vital energy monitoring benefits to businesses.

way to significantly reduce their energy consumption, to staggering effect. We believe in supporting projects and ideas that will change the way we use and think about energy – PowerTag NSX does just that and it's been incredibly rewarding to play a role in its commercialisation".



HOME & SMART

Homeandsmart is the leading portal for smart home topics in Germany with an average of over 1.2 million page impressions per month. The multimedia information offering consists of product tests and comparisons, including assessments and analyses, which offer the end customer orientation and advice in this market segment.

EIT InnoEnergy has not only launched the initiative and actively built up the start-up within the framework of its market creator offering, but has also successfully established a sustainable business model within just two years in the fast-growing smart home sector. In 2018, InnoEnergy sold its shares to both the transfer partners which were part of the initial project.

The start-up was set up under the leadership of EIT InnoEnergy in cooperation with Badenova and Thüga. Now the two energy suppliers have taken over the successful start-up in equal shares. InnoEnergy has not only launched the initiative and actively built up the start-up within the framework of its Market Creator offering, but has also successfully established a sustainable business model on the market with the partners involved from the start. Within just two years, an idea had become a success, and together the project partners managed to create the market leader in the fast-growing smart home sector within a short space of time.



Dr. Christian Müller,

CEO, InnoEnergy Germany

We are proud to have turned an idea into a successful brand with our partners in such a short time – a cooperation that bears real fruit.



2.5 EDUCATION

FORBES 30 UNDER 30

Forbes recognises the impact of InnoEnergy graduates in their list 30 under 30.

InnoEnergy Master's School graduates are known for being driven, ambitious and eager to make a change in the energy sector. An extensive track record of international awards and recognitions support this. Over the years, the entrepreneurial drive of InnoEnergy graduates has landed several of them a position in the prestigious list Forbes 30 under 30.

Eirik Eide Pettersen, CEO and Co-founder of Seaborg Technologies, is the latest addition to the list in the category Manufacturing & Industry in the 2019 edition. Eirik has joined Govinda Upadhya, Allen Mohammadi and Tanmoy Bari who have all earned their spots in previous years. Eirik's contribution is Seaborg Technologies' exciting innovation in the nuclear energy field – a Compact Molten Salt Reactor for sustainable, safe, and inexpensive nuclear energy.

Achieving a spot on the Forbes 30 under 30 list for Europe is no small feat. For Eirik, this recognition means that such prestigious publication shares their vision and acknowledges the work that Seaborg is undertaking. He explains that "this acknowledgement from Forbes is a milestone for Seaborg, and will certainly give us attention and introduce us to some new circles. Hopefully, the momentum can help us accomplish the next milestones".

Eirik continues "I am extremely honoured, of course, both personally but also for Seaborg. In general, I am very

appreciative of the excellent team at Seaborg who is really the main reason this could become a reality. While it is my name there on Forbes, I think it should really be considered a team victory. Also, I can't help but feel quite humbled – it is not every day your name is featured together with the likes of Harry Potter!".

This is certainly the kind of accolade that opens doors and serves as a permanent record, usually the first major one in a series to come, of a person's career achievements.

HOW IT ALL STARTED

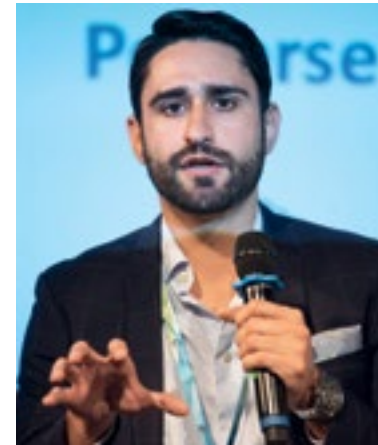
During his Master's in Nuclear Energy studies, Eirik was growing a start-up idea. Global warming and climate change were something that Al Gore was trying to get the world to take notice of. Now that these issues are something that everyone is worried about, a door has opened for advanced nuclear energy. And this Copenhagen-based start-up that he co-founded in 2014 is poised perfectly to usher in this new era.

Next to the recognition by Forbes, Eirik and his team have received support from the Innovation Fund Denmark (IFD). This is the first Danish investment in nuclear fission research since their 1985 nuclear power ban. And new funding from various other sources this year has allowed the company to hit significant milestones on the way to develop their molten salt reactor (MSR).

Seaborg has put their funding to good use: from expanding their team (from five to sixteen employees) to moving into new and larger offices in Copenhagen. To this, Eirik says "we now employ people from four continents and the official office language has changed from Danish to English. The nature of my job has also changed, from being mainly technical to organisational such as project management – and trying to ensure that the Seaborg Technologies transitions from a group of chaos experts to a structured, orchestrated effort towards developing new nuclear reactors".

INNOENERGY'S CONTRIBUTION

As an alumnus, Eirik knows the value of the InnoEnergy network – and is grateful for the support offered through the promotion of their efforts and by providing the much-needed



Allen Mohammadi,
Cofounder of
Hippogriff AB

expertise. He explains, "for example, there's a lot of knowledge about nuclear at InnoEnergy via some of the French partners. We would definitely be interested in getting to know them better." This summer, Seaborg hosted two first-year students from InnoEnergy which was a great experience for everyone involved. "We definitely welcome more talented and passionate students from InnoEnergy to get in touch and inquire. This includes students from Master's in Nuclear Energy, but also other specialisations such as chemistry and engineering. There is obviously a lot of superb talent in the InnoEnergy Master's and PhD school that we hope to attract".

A TRACK RECORD OF SUCCESSFUL ENTREPRENEURS

Eirik's success is not the only one recognised internationally, many more InnoEnergy graduates are making a positive contribution to the energy transition.

Allen Mohammadi, co-founder of Hippogriff AB was recognised by Forbes 30 under 30 Europe in 2017 in three categories: Top 30 under 30: Science & Healthcare, Top 30 under 30: Immigrants and Top 30 under 30: Dorm Room Founders. Besides Forbes 30 under 30, Allen has an excellent dossier of recognition for his work so far that includes the 2016 EIT CHANGE award and the first place at the 2017 Global Entrepreneurship Congress Startup Open in Istanbul.

His company focuses on a technology that can detect heart problems early. Their artificial intelligence based design uses a combination of demographic and patient medical data to screen for heart disease before it is too late. According to Allen: "effective and valuable education through the Master's in Energy Technologies broadened my horizons by enabling me to see the Big Picture while enhancing my innovative thinking".

Govinda Upadhya, Master's School graduate and multi-award winner (including Forbes 30 under 30, Asia21 Young leaders,

BITSAA's 30 under 30, and the recent Prestigious Ambassador Award from the Swiss government) is a primer example of how innovation and entrepreneurship skills can be applied to the energy sector. Govinda won the 2015 EIT Change Award for his design of a simple and affordable solar LED lamp, which then became a start-up when he founded his own ed-tech company, LEDsafari, in 2016. This smart concept of a lamp that can be assembled by anyone anywhere is now branching out into the world as his company grows. His idea now shines brightly in 40 countries!

A true believer in the importance of networking, Govinda shares how he was able to get the idea off the ground in the first place, "the InnoEnergy programme and network is what really helped me develop my idea and turn it into a business. And I'm still tapping into this network – and always will. Excellent contacts and support are vital to succeed in business".

CONNECTING ENTREPRENEURS WITH FUTURE GAME CHANGERS

InnoEnergy stimulates the interaction between graduates and current students. In 2019, InnoEnergy hosted the first Master's School Connect event. This event took place in Stockholm and it gathered students, graduates and industry for two days. During these days, all participants exchanged ideas and worked on solving some of the problems facing the energy industry.

Forbes 30 under 30 graduates Eirik, Allen and Govinda joined various sessions and shared their inspiring stories. For them, this was the perfect opportunity to inspire future entrepreneurs to follow their path and play a leading role in the energy transition. Their inspiring stories will serve as proof that making a change requires know-how but above all passion and determination.



Govinda Upadhya,
CEO of LEDsafari



Eirik Eide Pettersen,
CEO and Co-founder
of Seaborg
Technologies

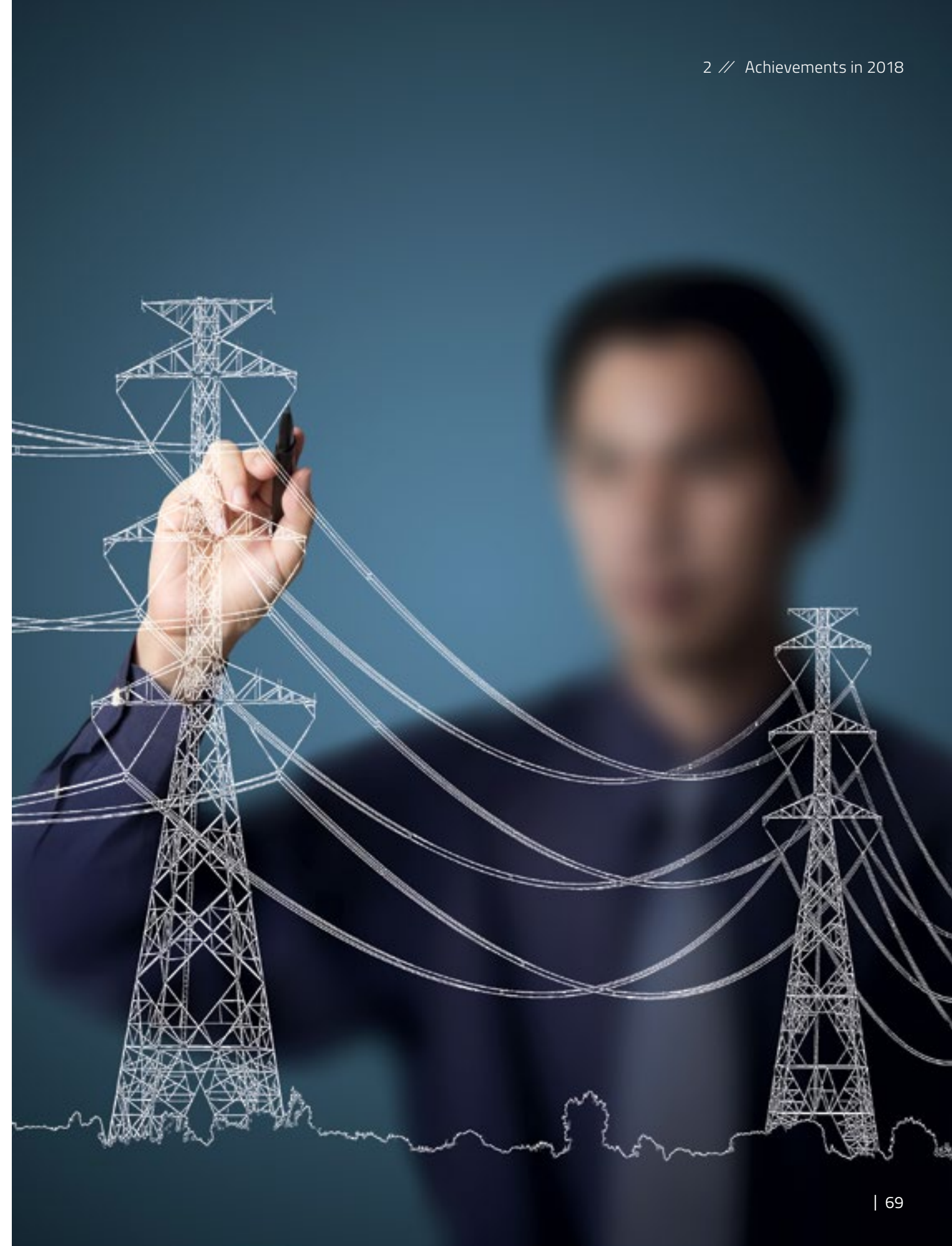
INNOENERGY GRADUATES MAKE BIG IMPACT

InnoEnergy proudly welcomes every year a vast number of Master's and PhD candidates who are eager to make an impact in society. Once graduated, they enter the energy market as skilled engineers with entrepreneurial capabilities or as entrepreneurs themselves. In fact, twelve percent of InnoEnergy Master's School graduates start their own company. Simone Accornero is amongst this group of game-changers. In fact, his company FlexiDAO was awarded with €20,000 as the winner of the EIT Change Awards 2018. FlexiDAO is a cleantech start-up based in Barcelona that has created a software that automates energy data processing and exchanges, while combining traceability and transparency for the first time. The technology controls, records, and validates data and electricity flows from small-scale devices such as batteries and electric vehicles to help grid operators balance the grid in the energy system of the future. After only one and a half years of activity, FlexiDAO has become one of the world's five leading companies applying blockchain in the energy sector.

The impact of InnoEnergy graduates spread across industries and geographies. A prime example is PhD School graduate Ivan Andrić. After completing his PhD, Ivan is now working on assessing climate change implications for Qatar's building

stock, and the development of adequate mitigation measures and strategies. According to Andric, "the programme helped me get a deeper insight into economics and social sciences that are not conventionally addressed during the engineering programmes, as well as into a wide variety of personal development strategies. With such a background, I can quickly analyse the problem from multiple standpoints, provide a comprehensive solution, and effectively negotiate its implementation".

Many of InnoEnergy graduates embark on impactful journeys within corporates, scale-ups and start-ups. Vast majority of graduates are currently working in countries like Germany, Sweden, the Netherlands, France, Belgium and Spain. Some of the top employers include companies like McKinsey & Company, ENEL, E.ON, CEA, ASML, ABB, Accenture, EDF and Tesla. Francesco Guzzi, Master's School Graduate and Account Manager Powerwall at TESLA, reflects on his InnoEnergy experience: "after my bachelor studies, I wanted to focus on sustainable energy and diversify my academic background with a more international and business oriented Master's programme. Thanks to the InnoEnergy programme, I got to learn, travel and meet many incredible people that have now become my friends and colleagues".





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Knowledge Innovation Community

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