

GP.Bullhound
Presents



CONNECT
Awards

The May Fair
9 November 2016



Welcome *to* Connect 2016

Welcome to Connect 2016. Since the first Connect Awards in 2009, we have seen the quality, scale and the number of companies increase. The journey has not been easy or steady. We have seen many failures along the way but in retrospect this is the nature of any growth industry. We have also witnessed the entry and exit of investor groups in this sector with a propensity for capital looking for later stage opportunities. While this starved earlier stage companies of capital, many players have adjusted their business models to survive and reflect the new reality and are showing tremendous and sustained growth.

This year, I am very pleased to welcome our new judges and new entrants in addition to two key sponsors: CleanPath China in partnership with the Lingang Group and KIC InnoEnergy. Many of the entries this year demonstrate the prioritisation of commercialisation and end customer adoption over pure technology and IP. We see this in business models shifting from product sales to services. We have recently seen large amounts of capital being allocated to service models making it easier for customers to adopt new technologies while generating recurring revenues and attracting capital that is seeking more predictability. It's often the business model rather than the technology which is faulty.

Growth rates at the top of the industry this year average an impressive 70+%. This is true for both the larger and smaller companies. Companies in the qualitative categories are broadening out to include IoT, Sustainability Reporting, Connected Car, EV and EV Charging, Distributed Generation, Energy Storage and Specialist Materials and AgTech to name a few.

We are still in the infrastructure roll out phase much like IT was in the 1990's. Solar and Wind are becoming mainstream with Solar receiving over \$1bn in investment each week. Solar and Wind infrastructures are helping create the market for new storage and grid balancing technologies. Similarly, the number of new and affordable models of EVs entering the market in the next two years will bring with it a host of opportunities for other technologies. Indeed, we are entering a new phase.

The low interest rate environment has given a significant boost to making solar grow as quickly as it has. Renewable generation today offers a significant destination for pension fund capital starved on current income. Interestingly, the returns in their solar portfolios are helping offset the lower share prices in many utility companies.

The scale of this industry could dwarf the IT boom as it touches so many large industries such as transportation, energy, food and water. As such, we believe this represents the most significant wealth creation opportunity of the next 100 years.



ANDRE SHORTELL
Partner,
GP Bullhound

Dealmakers *in* Technology

Dealmakers *in* Technology

LEO VEGAS
IPO
€111m at €343m
Market Capitalisation




ESSENCE
Sold to
WPP
Undisclosed



DESIGNIT
Sold to
WIPRO
€85 million



AVITO
Private placement
BARING VOSTOK, KINNEVIK
\$101 million



FIRST UTILITY
Secondary Placement
W CAPITAL
\$40 million



BLUEWATER BIO
Private Placement
OMBU, HERMES GPE
£23 million



NEWLISI
Private Placement
BMI CAPITAL, 360 CAPITAL
Undisclosed




XJET SOLAR
Private Placement
Undisclosed



PINGDOM
Sold to
SOLARWINDS
\$77 million



PRODIGY FINANCE
Expansion raise
BALDERTON, CREDIT SUISSE,
DEUTSCHE BANK
\$123 million



MULTIPOSTING
Sold to
SAP
Undisclosed



DELIVERY HERO
Private placement
US HEDGE FUND
\$85 million



CONCENTRIX SOLAR
Sold to
SOITEC
Undisclosed



VOLTEA
Private Placement
ETF, UNILEVER VENTURES,
ANTERRA VENTURES
Undisclosed



4 ENERGY
Private Placement
ETF
Undisclosed



HYDREXIA
Private Placement
AIR LIQUIDE, SOUTHERN
CROSS VENTURES
AUD \$9 million



KLARNA
Secondary sale to
UNDISCLOSED
\$72 million




INNOGAMES
Secondary Placement
MODERN TIMES GROUP
35% of €260 million EV



HELIATEK
Private placement
WELLINGTON, RWE INNOGY,
SIB INNOVATIONS, ECAPITAL
Undisclosed



SKYLINE SOLAR
Private placement
UNDISCLOSED
Undisclosed



No.1

Dealmakers in Technology

17

Years since inception

6

Offices

300+

Events, keynotes & Research reports

1,500+

Strategic buyer contacts

40

Dedicated tech bankers

1,000+

VC / PE contacts

230+

Successful transactions

8,500+

*In contact with
GP Bullhound team annually*

Programme

18.30 REGISTRATION, WELCOME DRINKS

19.30 WELCOME ADDRESS Andre Shortell, *Partner, GP Bullhound*

19.45 KEYNOTE SPEECH Jigar Shah, *Founder, SunEdison & Generate Capital*

20.00 DINNER

21.30 AWARDS CEREMONY Charlotte Hawkins, *ITV Good Morning Britain*

22.00 NETWORKING

Award

Categories

FASTEST GROWING COMPANY

Revenues below £10m in 2013

MOST INNOVATIVE

Solution or product demonstrating strong adoption

FASTEST GROWING LARGER COMPANY

Revenues over £10m in 2013

DEAL OF THE YEAR

Highly positive impact on shareholder value & sector

ONE TO WATCH

Revenues below £100,000 in 2013
Strong future growth potential

JUDGES' AWARD

Strongest overall performer

OUTSTANDING LEADERSHIP

Leadership excellence that has added value
(not just financial) to the business & industry

The GP.Bullhound Team

The GP.BULLHOUND TEAM



PER LINDTORP
Director



SEBASTIAN MARKOWSKY
Director



ALEXIS SCORER
Director



CARL WESSBERG
Director



ALESSANDRO CASARTELLI
Vice President



JOAKIM DAL
Vice President



RAVI GHEDIA
Vice President



MALCOM HORNER
Vice President



LENKA KOLAROVA
Vice President



JOY SIOUFI
Vice President



JAVED HUQ
Associate



MIKE KIM
Associate



MARVIN MAERZ
Associate



SIMON MIREMADI
Associate



CHRIS PARK
Associate



OLOF RUSTNER
Associate



JOHANNES ÅKERMARK
Associate



KARL BLOMSTERWALL
Analyst



ELENA BOCHAROVA
Analyst



KYLE BOOYSENS
Analyst



HUGH CAMPBELL
Managing Partner



MANISH MADHVANI
Managing Partner



PER ROMAN
Managing Partner



SIR MARTIN SMITH
Chairman



MATHIAS ACKERMANN
Non-Executive Director



STAFFAN INGEBORN
Non-Executive Director



MARK SEBBA
Non-Executive Director



GRAEME BAYLEY
Partner & Group CFO



ROBERT AHLDIN
Partner



GUILLAUME BONNETON
Partner



ALEC DAFFERNER
Partner



ANN GREVELIUS
Partner



SIMON NICHOLLS
Partner



SVEN RAEYMAEKERS
Partner



JULIAN RIEDLBAUER
Partner



ANDRE SHORTELL
Partner



CLAUDIO ALVAREZ
Director



CHRIS GRAVES
Director



OSKAR HERDLAND
Director, Equity Capital Markets



NICK HORROCKS
Director



IMAN CRISBY
Business Development Manager



HARRI NEEDHAM
Finance Manager



DAVE NISH
Technology Manager



LINDA NORDMARK
Finance Manager



LORD CLIVE HOLLICK
Senior Advisor



MATT ROGERS
Senior Advisor



CECILIA ROMAN
Senior Advisor

VIRTUAL POWER & IOT



ENERGY STORAGE & DISTRIBUTED GENERATION



WATER & WASTEWATER



AGTECH



INDEPENDENT UTILITIES & GRID



ADVANCED MATERIALS



SOLAR & WIND



GREEN INDUSTRY & WASTE



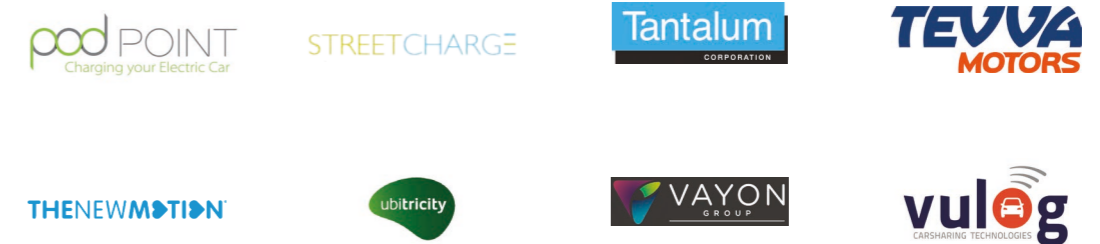
SUSTAINABILITY SOFTWARE



ROBOTICS



CONNECTED CAR & EV



Andre Shortell



Andre Shortell joined GP Bullhound as a Partner in 2010. Prior to joining, Andre was an independent advisor to companies and investment funds within the Cleantech sector. Andre also spent 26 years in a number of senior positions at the Citigroup, including MNC Corporate Banking

Head for CEEMEA, India Corporate Head, Global Autos Specialist and New Issues Head in London. Additionally, he ran Merchant Acquiring for Citibank and led the sale of that business in 2005. Andre has over 10 years of involvement in renewable energy as well as experience in Corporate Finance, M&A and Emerging Markets. Andre has broad international experience, having spent much of his career in Europe and Asia and has close personal ties to Brazil. Andre has a MA degree in International History from the London School of Economics.

Jigar Shah



Jigar Shah is the Co-Founder of Generate Capital, a specialty finance company that builds, owns, operates and finances infrastructure assets involving the world's critical resources: energy, water, agriculture and basic materials. He was the Founder and first CEO of SunEdison (NASDAQ:SUNE), where he unlocked a multi-billion dollar solar market, creating the world's largest solar services

company. Jigar is also the Author of *Creating Climate Wealth: Unlocking the Impact Economy* (2013). After SunEdison, Jigar served as CEO and board member of the Carbon War Room, a global non-profit founded by Sir Richard Branson and Virgin Unite to help entrepreneurs address climate change. Jigar is committed to helping entrepreneurs and large companies to implement resource efficiency solutions using "no money down" project finance models. Jigar holds an MBA from The University of Maryland and BSc in Mechanical Engineering from the University of Illinois, Champaign-Urbana. He sits on the boards of sPower and the Rocky Mountain Institute.

Charlotte Hawkins



The host of ITV's Good Morning Britain, Charlotte Hawkins has been advocating change in breakfast television; injecting a shot of hard-hitting news into viewers' morning coffees. After graduating from Manchester University with a degree in English Language and Literature, Charlotte completed a postgraduate diploma in Broadcast Journalism. She went on to join ITN Radio, where she was one of the first journalists at the Paddington rail crash, reporting live from the scene. Moving onto ITV Meridian, Charlotte co-presented Meridian Tonight in the South East for several years, as well as

co-hosted the current affairs discussion series The Big Story. During a successful spell on Sky News's Sunrise from 2007 to 2014, she presented coverage of events including the Royal Wedding, the Diamond Jubilee and the London Olympics, as well as covering major breaking stories including the arrest of Oscar Pistorius and the trial of Anders Breivik. Moreover, she notably reported live for their 2010 General Election coverage. Charlotte is a keen travel writer for The Mail on Sunday, The Telegraph and The Independent as well as Conde Nast Traveller. Charlotte still finds time to carry out numerous charitable pursuits, such as her work with Motor Neurone Disease Association in her role as patron. Her personable manner and exhaustive experience presenting the news makes her one of the UK's most versatile and natural host and conference facilitator for corporate audiences.

JUDGING
Panel



JUDGING
Panel



DAVID AITKEN
Head of Incubation,
The Carbon Trust



ROBERT BAHNS
Director of Technology Ventures,
Imperial Innovations



MARK DAECHÉ
Co-Founder,
First Utility



ANDREA DAVI
CEO,
Envirogen



IAN JENKINS
Founder,
RUSTONjenkins



HANS MEHN
Co-Founder & Partner,
Generation Investment Management



PROFESSOR FERDINAND PANIK
Head of the Institute of Sustainable Energy
and Mobility, University of Applied
Science in Esslingen



MATTHEW PENCHARZ,
Board Member,
Offgrid Energy / MSP Strategies



PATRIK SCHUMACHER
Principal,
Zaha Hadid Architects



JIGAR SHAH
Co-Founder,
Generate Capital



PATRICK SHEEHAN
Founder & Partner,
Environmental
Technologies Fund



ANDRE SHORTELL
Partner,
GP Bullhound



MARK TAPSCOTT
Corporate Sales Manager,
Tesla Motors



MATIAS TORRELLAS
Portfolio Manager,
KIC InnoEnergy



BILL WEIL
Partner,
Greencoat Capital



RICHARD YOUNGMAN
CEO,
Cleantech Group



YUNWEI ZHAO
Deputy General Manager,
CleanPath China

Jigar Shah

What once seemed impossible now appears inevitable

“What once seemed impossible now appears inevitable,” said Ban Ki-moon, the United Nations secretary general. In total, 60 countries representing 48 percent of global planet-warming emissions have now legally bound themselves to the Paris accord. The deal goes into legal force when at least 55 countries representing 55 percent of global emissions sign on – which is expected to occur by the end of 2016.

If the Paris accord is approved, they can thank the optimism of solar, wind, LED lighting, and electric vehicles. According to Goldman Sachs, by 2020, LED lighting will make up 69 percent of lighting sales and close to 100 percent by 2025, up from nearly nothing in 2010. Between 2015 and 2020, solar and onshore wind will likely add more to the global energy supply than US shale oil production did from 2010 to 2015. In short, the shared sacrifice message of Copenhagen has given way to the shared prosperity message of Paris.

However the fly in the ointment is that solar, wind, LED lighting, and electric vehicles are simply not enough. They have been enough to convince capital providers to focus on small projects, but now we need building efficiency, energy storage, nuclear, carbon capture, and other technologies to find their footing. But banks and traditional capital sources are still set up to do big projects or small standardised projects that can be securitised.

This new custom distributed infrastructure doesn't have a natural capital partner. But this new distributed infrastructure still needs capital in order to get built. Just like very few people want to buy a car with all the cash up-front, very few people will want to acquire that distributed infrastructure with cash-up front. They want the services from that infrastructure, and they want to pay for those services like we pay for other services – over time. When you sign up for electricity service, do you own the generation capacity that serves you? No, you pay to share the generation capacity, and the service they provide, with a fraction of the overall capital, in the form of a monthly bill.

What you need is a new finance company set up from a clean sheet of paper to finance that distributed infrastructure, to enable monthly bills for a fraction of the cost of what you might spend to build the project that delivers the services you need. Infrastructure as a service. Developers looking for capital too small for the banks to bother and too specialised for other capital sources to understand need a partner. This involves standard structures, contracts, people, process, capital, and knowledge to be helpful around making these distributed, sustainable infrastructure projects happen. Part of the challenge is doing the hard work to characterise and derisk these technologies for investors.

The global energy economy is changing, and changing rapidly. Clean energy and energy efficiency is where the growth is happening. We can move millions of people from coal mining, low-tech manufacturing, and even oil and gas into good paying jobs that don't negatively impact the health of people and the planet.

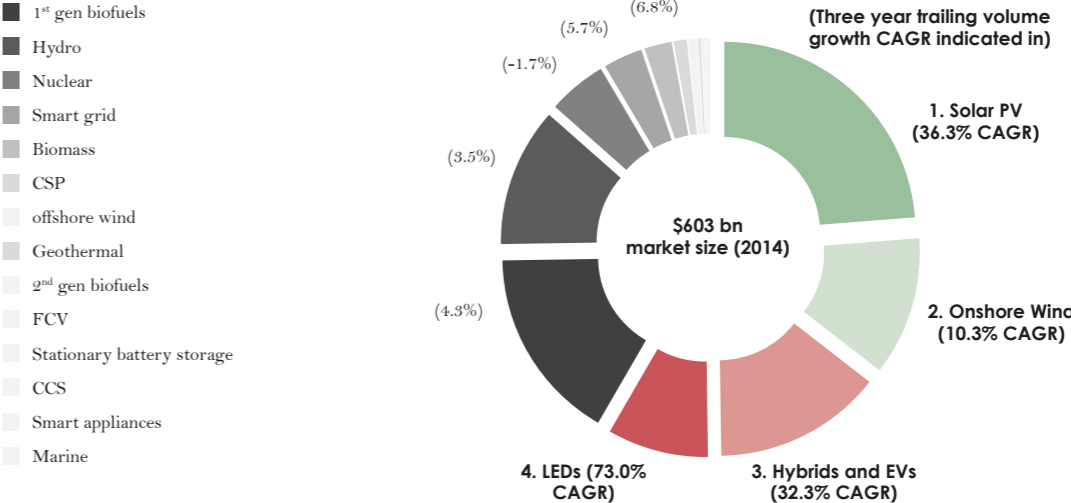
By unlocking clean energy, global capital can empower everyone to work together for a stronger future. It's time to get down and dirty.

Jigar Shah is the founder of Generate Capital.



Jigar Shah
Founder,
Generate Capital

LCE TECHNOLOGIES BY MARKET SIZE AND THREE-YEAR GROWTH CAGR

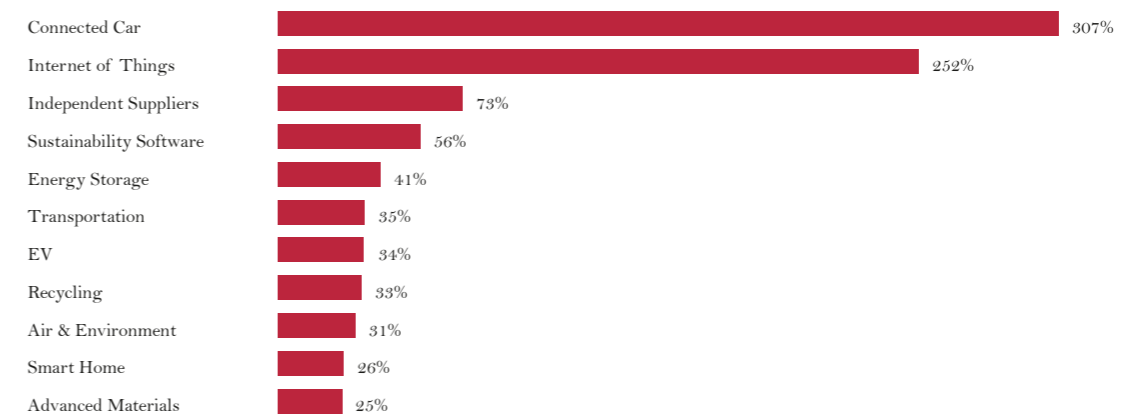


Source: BP, UNEP, OECD/FAO, IHS, Advanced Energy Economy, Goldman Sachs Global Investment Research.



League Tables

AVERAGE CAGR BY SECTOR 2013-2015



Eight years ago the fastest growing sectors were solar and wind. Having gained substantial scale, they are now providing the foundation and market for new areas whose growth rates are more akin to tech rather than infrastructure. Good news for investors!

Renewables continue to populate the grid and distributed generation is becoming a staple of new energy infrastructure, spawning companies that provide flexibility & storage through virtual power networks such as Next Kraftwerke. Moreover, energy storage options from micro CHP, batteries and fuel cells are starting to gain adoption, exemplified by the success of Sonnen and Elcomax.

The emergence of EV has prompted the need for smart, software-driven infrastructure, such as the charging networks deployed by The New Motion and POD Point. Crucially, EV growth is coinciding with the rapid development of the Connected Car, IoT and ride sharing technology – the overlap between these areas will accelerate innovation.

Consumers will also benefit from the shifting energy landscape. Customer-centric, independent utilities are challenging the incumbents in the UK and Germany by bundling utility services and moving into the “smart home” space.

Richard Youngman

Taking the Power of 'AND' into 2017 and beyond!

So much of business training – least the one I recall experiencing – focuses on teaching you how to build up different alternatives and options, and then to choose one. Put another way, the focus is put on OR. Decide between options or scenarios 1, 2 or 3, as though there is no possibility of there being some “AND” to have between them.

I believe that the one big lesson to take away from the last few years working in the world of sustainability, clean technology, resource efficiency, or whatever thematic label you choose to identify with, is that being cleaner or resource-efficient is insufficient on its own. Think AND!

For such companies to succeed, they need to be good on multiple fronts and need to be connecting multiple dots, working with multiple investor and partner types, maybe in multiple market segments, combining together things that were before seen as ORs or were certainly not seen as ANDs, and delivering both economic and environmental benefits.

This is what I think of as the power of the AND. Maybe this is best illustrated by a few companies, still small by the world of 20th century corporate giants, but emerging and growing in their influence through a different mindset.

- In the earlier years of renewable energy, the argument was almost set up as a combat and as though it was a choice between fossil fuels OR renewables. Of course, it will be a case for quite a while yet of fossil fuels AND renewables. **Glasspoint** exemplifies the AND approach by getting this, and becoming one of the more valuable solar companies in the world today, by being no 1 provider of solar energy for the oil and gas industry, driving EOR economic benefits through its solar-powered steam generators..
- **Sonnen** is delivering not energy independence or energy savings, but resilience and returns for its customers.
- **Enlighted's** product sales strategy, despite excellent LEDs developed by the founder team, was going nowhere fast, until it flipped its model to provide service, and to see control and connectivity, with lights as the beach-heads, as the key. Technology AND business model. Data AND Hardware.
- **M-Kopa**, and all the other emerging success stories in bringing energy to African villages, is based on the combination of solar AND mobile phone telephony (which provides the payment and control mechanisms).

- **Organica Water** takes a local AND global approach. Wastewater is a local problem, but by approaching it with a technology-enabled global approach that allows them to produce for customers 90% accurate preliminary designs for any wastewater treatment facility, anywhere in the world in a matter of hours, you can start to deliver clean water into densely-populated spaces, where space is scarce, and to create change in a deathly-slow industry.

All these stories have in common harnessing the power of abundance onto problems of scarcity. This in itself is an example of holding two thoughts in one's mind, which are entirely at odds with each other, and yet still continue to act and move forward. This is known as cognitive dissonance, and was the theme of my keynote at our April 2016 Cleantech Forum Europe.

Today, on an every week basis we experience the world of the 20th century industrial order, its mindset and its slow and conservative decision-making, and yet we can all see, the incumbents included, the disruptive signals of the fast-arriving future coming.

People continue to act in old ways and habits because it is easier to do that than change and because the new normal is not yet defined or clearly set. IBM still exists; and you still don't get fired for choosing it. This reality makes for hard days, and years ahead for any of us engaged in trying to accelerate, and invest in, solutions that are disruptive to the current industrial order.

But, headwinds are now more on our side than they have ever been.

All I have to offer as we head into 2017 is a strong belief that disruption is coming, for all industries, and for some faster than others. Consider what is going on in the world of automotive, one of the industries which defined the 20th century, two years after the Lyft CEO was slow hand-clapped at the LA Auto Show for daring to suggest that the era of car ownership was dying and was not worth fighting. Here are a few snippets just from the summer months to illustrate that change:

- Starting in September, Uber – a company that didn't even exist eight years ago – launched a pilot program with Volvo and its XC90 that will allow customers to summon self-driving cars from their phones. And with a delicious sense of history, where should this be happening but in Pittsburgh, Carnegie's Steel City? Talk about full circles.
- In August, Ford committed to 2021 as the year by which it would be making self-driving cars without steering wheels or pedals. “We see autonomous vehicles as having as significant an impact on society as Ford's moving assembly line did 100 years ago,” said CEO Mark Fields. Volvo, Tesla and Google will also have self-driving cars by around that time, but this felt particularly significant coming from the company that invented the assembly line and centralized mass production, core to the 20th century's industrial order.
- Nissan recently published a study that predicted that by 2020 EV charging points in the UK would outnumber fuel stations, based on current rates of growth and decline respectively. The report found that there were 8,472 traditional fuel stations in the UK at the end of 2015, compared to the 37,539 recorded in 1970.

Since returning to lead Cleantech Group into its second 15 years, I have come with such thoughts – the power of AND thinking, cognitive dissonance to rationalise a mixed signals world, and a belief that the future is arriving and innovators in sustainable and cleaner solutions will last the course.

Enjoy tonight, and then let's be back tomorrow to the hard but rewarding work we are engaged in.

Richard Youngman is CEO of Cleantech Group (CTG).



RICHARD YOUNGMAN
CEO,
Cleantech Group

Ian Jenkins

Science or Art: Hiring Great People

SCIENCE OR ART: HIRING GREAT PEOPLE

Over the last 12 years the cleantech sector has moved from proof of principle and concept, commercialisation and now industrialisation. Funding spanning seed, risk and growth capital. All of these events and changes will stress an organisation and requires constant vigilance around people capability and bandwidth. It is important to recognise that the team that launches the company is generally not the one in place at exit. This doesn't mean creating a hire and fire organisation; rather one that adapts its organisation to meet the business cycle. Here are some highlights that may help it building a successful organisation.

- Recognise that leadership and management are different but complementary. I am not referring to charisma or strong personality. Management is about coping with complexity. Leadership, by contrast, is about coping with change. Typically change pinch points occur during the transition from concept to commercialisation and then industrialisation. So, constantly overhaul the organisation and recognise when it is no longer fit for purpose.
- Challenge your recruitment/search partner to identify candidates that understand your current or proposed business model. Seek out talent from adjacent markets with transferable skills and avoid churning the obvious talent pool. Too often have I been asked to hire candidates that have experience of similar technology when experience of similar business models will enhance an organisation.
- Build a functional board containing seasoned Non-Executive Directors. Recognise that institutional investors are not always the most equipped to create value at the portfolio level. Strong independently minded boards win out and dysfunctional boards create dysfunctional executive teams. Undertake annual appraisal of board performance.
- Ensure that your business leader works on the business and not simply in the business. I have seen talented CEOs that have been too immersed in executional activities and insufficient time and energy focused on upgrading the talent capability and organisational design.
- Before instructing on a new hire process ruthlessly quantify the critical factors for success and avoid a large "shopping list" that encompasses all the senior requirements of the business. Hire the CEO to meet the critical factors for business success and then balance capability across the leadership team.
- Define the roadmap in the beginning and have this communicated to potential candidates. If it is a 7 or 3 step process it matters not as is the anticipated timescale. Importantly ensure there is clear communication at the onset and then adhere to it.
- Commit your search partners to operate at pace. Agility and speed of execution should not come at the expense of quality. Be clear and state when you want a short list as I can guarantee that this will focus time and commitment.

Ian Jenkins is the founder of RustonJenkins, an innovative solutions based search firm focusing on Energy & Sustainability, Clean technology, Med & Bio-tech, Social & Digital Media & TMT.



IAN JENKINS
Founder,
RUSTONjenkins

Anne McIvor & Andy Perry

Reflections on the Challenges for an Energy Sector Start-Up

Andy Perry's career has provided him with a unique perspective into the challenges facing start-up companies in the energy sector. In an interview with Anne McIvor of Cleantech Investor he provides some insights into the potential pitfalls for companies with innovative business models.

Andy Perry has worked as a strategy consultant in the private sector and in Government. He led DECC's smart grid policy back in 2009 just as the industry was starting to grapple with what 'smart grid' actually meant. After leaving Government he returned to energy consulting, at KEMA (which subsequently became part of DNV GL) and more recently became involved with Tempus Energy, an energy technology start-up. He has recently joined Oliver Wyman to help advise clients on how to adapt in a rapidly changing sector.

Back in 2009, Perry recalls, DECC understood smart grids to be about networks. The challenge for roll out was perceived to be understanding how a smart grid uses technology. Even then, he believed, this approach missed the point. Technology adoption wasn't the only challenge and networks were only one part of the opportunity. More important were issues relating to system balancing and the need for flexibility to complement the intermittency of power generated from renewables, which require the development of new business models and different market incentives. However,

policy at the time, he reflects, treated 1GW of nuclear power as equivalent to 1GW of wind power. At DECC, Perry made it his mission to broaden the system strategy discussion, setting up a team to focus on developing policy to proactively support the development of demand flexibility, storage and interconnection as system balancing solutions.

Despite his efforts, raising the profile of flexibility was slow work as DECC persisted in viewing system operation as primarily a technical issue and the responsibility of the grid. Somewhat frustrated, Perry left DECC and his team was subsequently disbanded. Ironically, some three years later, smart energy was recognised by Government as a key opportunity, with a new team established last year to address the challenges of developing business models and adapting the system to facilitate the introduction of storage, demand response and interconnection. Sadly, however, the change in regulatory focus has come too late for Tempus Energy, which earlier this year was forced to wind down its energy supply business in response to market and operational challenges.

Tempus was founded by Sara Bell who Perry had known since his time at DECC and had worked with on projects he managed while at DNV GL (when she was freelancing while developing the Tempus concept). It was in one of these projects that the central role of the electricity supplier in the future smart energy system became clear to

them. They realised that, as the system's trading hub, the supplier has the commercial incentives to tie together all of the different value streams that flexibility unlocks. From this basis Bell developed the Tempus business model, which was initially focused on supplying software to suppliers to optimise their trading through the use of flexibility. However, recognising that, as a first mover, the customer base for this software did not yet exist, this quickly developed into setting up a Tempus supply business so they could demonstrate how to do it themselves.

As Perry points out, most suppliers are risk averse and would rather not be exposed to the different prices at peak and off-peak times. Therefore, they have been very happy, in the absence of smart meters, to have the certainty associated with settling most customers on an assumed energy usage profile. The introduction of half hourly data monitoring ought to provide the means for flexible customers to benefit from off-peak costs. However, the supplier needs to be exposed to the shift from peak to off-peak through settling on the real usage rather than the assumed profile. Perry notes that the usage profile of a restaurant, for example, is likely to be very different from that of a bakery but that a traditional supplier assumes it is the same, despite the fact that they use energy at different times of the day.

The Tempus approach predicted and shifted their customer's usage, which it expected would provide it with an advantage. However, while they voluntarily moved their customers to half hourly metering and settlement, despite many years of discussion and preparation it has still not been mandated across the industry.

One of Tempus' biggest challenges, Perry reflects, was that it was beholden to regulatory and market change and their inherent inertia. The experience has provided Perry with insights. He observes that a company needs to be extremely careful building a business for the future in the energy sector as it is impossible to predict what the future regulatory environment will be or to escape its implications. A small business in this sector finds it extremely difficult to push the market.

The Tempus proposition was based on the idea of reducing cost from the supply business as smart meters were introduced to record shifts in usage – and on settling in the market on a half hourly

basis. It hoped to take advantage of the imminent introduction of smart meters, the mandating of half hourly settlement for SMEs, and plans to increase cost reflectivity in the wholesale electricity market to encourage time-of-use price signals. However, in reality all of these policy and regulatory driven changes have been delayed or limited in impact. For example, the mandated half-hourly settlement of SME customers (profile classes 5-8) was originally supposed to be introduced from 2014 but it still hasn't arrived and indeed looks unlikely – in Perry's opinion – to be introduced before 2018. This kind of inertia and uncertainty can kill the prospects of an ambitious start-up business, and Perry observes that there is no option for a small company in the energy sector but to be part of the regulatory framework in some way.

Tempus Energy was seed funded by high net worth investors and a crowd funding campaign. From a team of just seven when Perry joined, it grew rapidly, to around 25 in the final quarter of 2015 – and scaled up after a series A funding round to over 40 people earlier this year before it was recognised that they had over-stretched and that the business model was simply too premature for the market.

Having dealt with venture capital investors in a number of capacities, Perry concludes that they are mostly finance and transactional specialists who often struggle with the intricacies and complexities of the energy sector. While in some sectors general business principals can be applied, he believes that it's very difficult to apply them in the politicised energy sector with its uneasy amalgam of market and regulatory forces. Subsidised business models are relatively easy to understand, but Perry concludes that it has become very difficult for a start-up to secure venture capital funding for a future-looking business model with its inherent regulatory risk and uncertainty.

His advice to a start-up in the energy sector is either to have a big picture vision, but to ensure that your business model can still make money under the prevailing market conditions – or to take a slow, incremental approach, retain a lean cost base and wait for opportunity to strike. Sound advice from someone who has learnt from experience!

Anne McIvor is the founder of Cleantech Investor Ltd and editor of Cleantech magazine.

Company Profiles



ACCSYS TECHNOLOGIES PLC
LOCATION: LONDON, UK
INVESTORS: PUBLICLY LISTED
CEO: PAUL CLEGG
FOUNDED: 2003

Produce and license Accoya solid wood and Tricoya wood elements. These products are treated through a chemical acetylation process, resulting in superior dimensional stability and durability compared with other treated timber and wood elements.

ADVANCED MATERIALS



ADVANCED CYCLONE SYSTEMS
LOCATION: PORTO, PORTUGAL
INVESTORS: ESPIRITO SANTO VENTURES
CEO: PEDRO ARAÚJO
FOUNDED: 2008

Advanced Cyclone Systems is exclusively dedicated to the development and commercialization of high efficiency cyclone systems worldwide. Combining acquired process expertise with years of experience and continuous R&D, ACS solves critical gas-solid separation problems on a daily basis.


AIR



AM TECHNOLOGY (AIRLITE)
LOCATION: LONDON, UK
INVESTORS: N/A
CEO: ANTONIO CIANCI
FOUNDED: 2013

Airlite paint has the potential to disrupt the \$128 billion global paint industry. Airlite purifies air by reducing NOx levels by 80%, kills 99.9% of bacteria/mould and can save 15-50% of the energy costs associated with air conditioning due to its heat-reflective properties. One square meter of Airlite is equivalent to 1 mature tree and, in a year, 10,000 m2 of Airlite can eliminate the NOx produced by 1,800 cars.

ADVANCED MATERIALS



AMPARD
LOCATION: ZURICH, SWITZERLAND
INVESTORS: N/A
CEO: SIMON SUMMMERMATTER
FOUNDED: 2011

Ampard allows optimized control of renewable energy assets and storage systems, the creation of virtual power plants as well as the integration of other devices for demand response. Their existing solution is at the forefront of worldwide innovation in the space. Ampard is growing in Switzerland, Germany and other key markets.

ENERGY EFFICIENCY



APATEQ
LOCATION: LUXEMBOURG
INVESTORS: MOSMART INT., EUROBÉTON
CEO: BOGDAN SERBAN
FOUNDED: 2013

Apateq engineers and manufactures innovative, turnkey and custom designed systems for the treatment of frac flowback, produced water and brine from oil and gas production, compact wastewater treatment plants for demanding applications and full-solution systems for industrial wastewater.

WATER & WASTEWATER



AQUA-4D SOLUTIONS
LOCATION: SIERRE, SWITZERLAND
INVESTORS: SWISS WATER PARTNERSHIPS
CEO: ERIC VALETTE
FOUNDED: 2004

Highly innovative and rapidly growing Swiss Cleantech company and global leader in electromagnetic water treatment technology. Their system cures and prevents scaling, corrosion and bacterial development with no maintenance and chemicals.

WATER & WASTEWATER



AUTHENTICATE INFORMATION SYSTEMS
LOCATION: YORKSHIRE, UK
INVESTORS: N/A
CEO: PAUL MARPLES
FOUNDED: 2013

Developer of a collaborative platform allowing food businesses throughout the entire supply chain to track, analyse and understand their food supply network from end to end. Since 2013, AIS have secured a diverse client portfolio of over 500 clients, including major, international suppliers, 6,000 food companies on the platform, tracking over 500,000 product lines.

SUSTAINABILITY SOFTWARE



AVENTRON
LOCATION: MÜNCHENSTEIN, SWITZERLAND
INVESTORS: PUBLICLY LISTED
CEO: ANTOINE MILLIOUD
FOUNDED: 2005

Independent renewable electricity producer, focusing on the acquisition and operation of small-scale wind, solar and hydro power generation assets in Switzerland, Norway, France, Germany and Italy.


RENEWABLE ENERGY



AZOTIC TECHNOLOGIES
LOCATION: EUXTON, UK
INVESTORS: N/A
CEO: PETER BLEZARD
FOUNDED: 2012

Developer of N-Fix, a patented technology that allows all crop types to access nitrogen directly from air by using beneficial bacteria. N-Fix can help plants to meet up to 50% of their nitrogen demand, reducing the need for fertiliser and thus, the risk of pollution. Azotic Technologies is the only company offering an intracellular strain of this bacteria in non-leguminous plants.

AGTECH



AZURI TECHNOLOGIES
LOCATION: CAMBRIDGE, UK
INVESTORS: IP GROUP
CEO: SIMON BRANSFIELD-GARTH
FOUNDED: 2012

Azuri Technologies is a pioneer in PayGo solar systems, supplying some of the poorest rural, off-grid communities in Africa. With the widest reach of any provider in sub Saharan Africa, the company is addressing the problem of energy access, which affects 1.3 billion people worldwide. Azuri Technologies aims to accelerate the rollout of its Indigo unit, which consists of a battery, a solar panel, LED lights and a mobile phone charger.

SOLAR



BLUE GOLD
LOCATION: MILAN, ITALY
INVESTORS: N/A
CEO: ANDREA DELOGU
FOUNDED: N/A

Blue Gold provides information services to water utility companies that can be used to reduce operational costs and optimise service performance. Blue Gold's solution integrates algorithms and advanced hydraulic models to analyse installed flow and pressure meter data from the water distribution network.

WATER & WASTEWATER



BLUETECTOR
LOCATION: SWITZERLAND
INVESTORS: N/A
CEO: DAVID DIN
FOUNDED: 2012

Treats difficult wastewater and sewage sludge using their patented, containerised treatment systems, BlueBox Ultra. The treatment by-product can be reused for equipment washing and flushwater or discharged directly into sewer systems.

WATER & WASTEWATER



BLUEWATER BIO

LOCATION: LONDON, UK
INVESTORS: OMBU, HERMES GPE
EXECUTIVE CHAIRMAN:
RICHARD HADDON
FOUNDED: 2007

Bluewater Bio is an award-winning specialist in the cost effective treatment of water and wastewater. It was founded in 2007 to develop HYBACS®, a patented 'HYbrid ACtivated Sludge' process.

WATER & WASTEWATER



CERES POWER

LOCATION: WEST SUSSEX, UK
INVESTORS: PUBLICLY LISTED
CEO: PHIL CALDWELL
FOUNDED: 2001

Fuel cell technology that provides cheaper, cleaner energy for the natural gas grid, leading to reduced energy costs, CO₂ emissions and improved energy security. The *Ceres SteelCell* is manufactured using conventional materials and standard processes developed for the solar industry, meaning it can be mass produced at a low cost.

FUEL CELLS & HYDROGEN



ELCOMAX

LOCATION: MUNICH, GERMANY
INVESTORS: EMERALD TECHNOLOGY VENTURES, KPCB
CEO: MANFRED STEFENER
FOUNDED: 2007

Develop and commercialise 'Elcore', highly efficient natural gas micro-CHP systems for domestic use. Elcomax's products are based on patented, high-temperature PEM fuel cells and can either be retrofitted or integrated into new builds.

FUEL CELLS & HYDROGEN



ELECTRO POWER SYSTEMS

LOCATION: MILAN, ITALY
INVESTORS: PUBLICLY LISTED
CEO: CARLALBERTO GUGLIELMINOTTI
FOUNDED: 2005

EPS is a pioneer of technology-neutral, integrated hybrid energy storage solutions for grid support in developed economies and off-grid power generation in emerging countries.

ENERGY STORAGE



CLIMEON

LOCATION: DANERYD, SWEDEN
INVESTORS: PRIVATE INVESTORS
CEO: THOMAS ÖSTRÖM
FOUNDED: 2011

Climeon has developed a technology that recycles and transforms waste heat into heat power, creating 100% clean electricity and clean profit. The Climeon Ocean™ solution is powered by Climeon's innovative C3 Technology, which makes it possible to produce clean electricity at a cost lower than any other source.

ENERGY EFFICIENCY



CLIMOTE

LOCATION: DUNDALK, IRELAND
INVESTORS: IAN MARCHANT, GENE MURTAGH
CEO: EAMON CONWAY
FOUNDED: 2011

A Home Energy Management Company who launched the climote remote heating control hub in 2012. The hub replaces the existing heating controller in the home and allows users to take control of their heating from their phone. Climeon partners with utilities (Scottish Power, SSE, ESB and Power NI) who have deployed the technology in thousands of homes across the UK and Ireland. Climeon technology is also being deployed in a residential demand response programme in a large project operated by EIRGRID, Ireland's national Grid.

SMART HOMES



ELESTOR

LOCATION: ARNHEM, THE NETHERLANDS
INVESTORS: KIC INNOENERGY
CEO: GUIDO DALESSI
FOUNDED: 2014

Develops an innovative, low cost Hydrogen-Bromine flow battery. Elestor greatly reduces costs by using abundant, low cost materials, a compact cell that is easily manufactured and a patented, simplified design. As a result, Elestor's batteries store energy at a fraction of the cost of traditional batteries, safely and with a long lifetime.

ENERGY STORAGE



ENESSERE

LOCATION: BRENDOLA, ITALY
INVESTORS: AUTOELECTRIC
CEO: ALBERTO TESSARO
FOUNDED: 2009

Designs and creates wind turbines that are both aesthetically pleasing and technologically sophisticated, using materials such as wood, carbon fibre and steel. Enessere's app allows clients to visualise models in situ using augmented reality, 3D models.

WIND



DYNAES

LOCATION: PARIS, FRANCE
INVESTORS: FOUNDERS & BUSINESS ANGELS
CEO: BRUNO DEBOIS
FOUNDED: 2007

Dynaes' technology can be installed in new and existing thermodynamic systems, to increase energy efficiency by an average of 30%. Applications include datacentres, HVAC systems, heat pumps, industrial refrigeration and refrigerated transport.

ENERGY EFFICIENCY



E-LEATHER

LOCATION: PETERBOROUGH, UK
INVESTORS: ENVIRONMENTAL TECHNOLOGIES FUND (ETF)
CEO: CHRIS MCBEAN
FOUNDED: 2006

E-Leather, a manufacturer and supplier of "composition leather", produces engineered leather from recycled leather cut-offs using a patented process called hydroentanglement. Product applications include the aviation, automotive, sports goods and footwear industries. The value proposition: the same price as leather, but it's 40% lighter, more durable, and above all much easier to work with.

ADVANCED MATERIALS



ENTRADE

LOCATION: DUSSELDORF, GERMANY
INVESTORS: FFG AUSTRIA, FEDERAL MINISTRY OF TECHNOLOGY
CEO: JULIEN UHLIG
FOUNDED: 2009

The ENTRADE group designs, manufactures, and operates innovative biomass energy power plants, generating electricity, heating, and cooling. Their products range from small turnkey solutions to complex industrial facilities. ENTRADE manages its own project construction, operation, and maintenance of equipment. Founded in 2006, the company has been named one of the fastest growing renewable energy companies in Germany.

RENEWABLE ENERGY



ENVIROGEN

LOCATION: HEREFORDSHIRE, UK
INVESTORS: PROMETHEAN INVESTMENTS
CEO: ANDREA DAVI
FOUNDED: 2009

Envirogen is a leading provider of environmental technology and process solutions for the treatment of water, wastewater, vapour emissions and material recovery. It delivers total water solutions in the food & beverage, chemicals & refining, mining and power industries. Key clients include Heineken, Carlsberg and Bayer.

WATER & WASTEWATER



ECOVDIS

LOCATION: PARIS, FRANCE
INVESTORS: ANGEL INVESTORS
CEOs: FRÉDÉRIC TRINEL & PIERRE-FRANÇOIS THALER
FOUNDED: 2007

EcoVadis has built the only collaborative platform providing CSR ratings for companies and their suppliers. Benefits include reduced risk and heightened transparency on increasingly important CSR issues between trading partners. The system uses 21 criteria across four key themes: environment, social issues, business ethics and supply chain.

SUSTAINABILITY SOFTWARE



ELCOGEN

LOCATION: TALINN, ESTONIA
INVESTORS: POWERFUND II, ESTONIAN PRIVATE INVESTORS
CEO: ENN ÕUNPUU
FOUNDED: 2001

Elcogen is a manufacturer and developer of high-performance, anode-supported Intermediate Temperature Solid Oxide Fuel Cells (IT-SOFC) and SOFC stacks based on proprietary materials and technological solutions. Elcogen was established in 2001 and have offices in Tallinn, Estonia and Vantaa, Finland.

FUEL CELLS & HYDROGEN



EPIGAN

LOCATION: HASSELT, BELGIUM
INVESTORS: CAPRICORN VENTURE PARTNERS, LRM
CEO: MARIANNE GERMAIN
FOUNDED: 2010

Focuses on providing industry-leading III-nitride epitaxial material solutions for top-performance devices. The company offers device manufacturers early access to a unique and proven GaN/Si and GaN/SiC technology for key applications such as power supplies for consumer electronic goods, AC drives, UPS systems, hybrid electric vehicles, solar inverters, RF power systems and sensors.

ADVANCED MATERIALS



EXERGYN

LOCATION: DUBLIN, IRELAND
INVESTORS: KEIRETSU FORUM NORTHWEST
CEO: ALAN HEALY
FOUNDED: 2012

Exergyn Drive™ is an engine that produces electricity from waste heat generated by industrial processes. The solutions are cost-effective with a 3.5 year payback period, produce no emissions and are easy to install.

ENERGY EFFICIENCY



FIRST UTILITY

LOCATION: WARWICK, UK
INVESTORS: W CAPITAL, FOUNDERS
CEO: IAN MCCAIG
FOUNDED: 2008

First Utility, founded in 2008, is the largest and fastest growing energy supplier in the UK outside the "Big Six" with almost 1 million customers. It is having a transformational impact on the UK utility market by offering customer-centric service, lower and energy saving advice as well as campaigning for industry change.

INDEPENDENT ENERGY SUPPLIER



FLEXENCLOSURE

LOCATION: STOCKHOLM, SWEDEN
INVESTORS: IFC, EUROPEAN
INVESTMENT BANK
CEO: DAVID KING
FOUNDED: 1989

Flexenclosure is an emerging markets-focused designer and manufacturer of prefabricated modular data centres, "eCentres", and intelligent power management solutions, "eSites". They provide companies with the means to easily and cost effectively expand their data and telecom networks, improving operational efficiency and profitability.

ENERGY STORAGE



ISOTERA

LOCATION: ST. NEOTS, UK
INVESTORS: LONDON BUSINESS
ANGEL NETWORK, CAMBRIDGE
CAPITAL GROUP
CEO: PAUL HAMPTON
FOUNDED: 2010

Intelligent LED lighting controls for contractors, lighting designers, system integrators and installers. Isotera is based on 'Contactless Power' technology that removes the need for individual drivers and simplifies the LED fixture process, creating a more reliable and cost-effective system.

ENERGY EFFICIENCY



LOCAMATION

LOCATION: ENSCHEDE, THE
NETHERLANDS
INVESTORS: ALLIANDER,
YELLOW & BLUE
CEO: BASTIAN FISCHER
FOUNDED: 1983

Locamation has spearheaded the development of SASensor® CPC since the 1980s - the software defined centralized automation and control technology for substations. With SASensor, Locamation provides a future proof, upgradeable, innovative solution to improve efficiency, to increase asset performance and at the same time provided better insights and smarter information about the grid.

SMART GRID



FLYABILITY

LOCATION: LAUSANNE, SWITZERLAND
INVESTORS: ENVIRONMENTAL
TECHNOLOGIES FUND (ETF)
CEO: PATRICK THEVOZ
FOUNDED: 2014

Builds safe drones for inaccessible places. Flyability has designed the world's first collision tolerant drone for industrial inspection and emergency services professionals. Flyability's drones reduce the costs associated with inspections and downtime, and solve two of the most pressing issues associated with UAVs; collisions and injury risk.

ROBOTICS



GLOWEE

LOCATION: PARIS, FRANCHE
INVESTORS: KIC INNOENERGY
CEO: SANDRA REY
FOUNDED: 2014

A biolighting system that harnesses the natural light produced by chemical processes within bioluminescent bacteria. Glowee's technology can adopt any graphical form, such as shop windows, to give visibility to brands at night, requires no electricity input and avoids light pollution.

LIGHTING



METALYSIS

LOCATION: ROTHERHAM, UK
INVESTORS: ENVIRONMENTAL
TECHNOLOGIES FUND (ETF),
WOODFORD PATIENT CAPITAL TRUST
CEO: DION VAUGHAN
FOUNDED: 2001

Metalysis is commercialising the FCC Process, an electrochemical reduction process developed at the University of Cambridge, to produce specialty metals such as titanium with reduced capital and operating costs and a lower environmental footprint. From its South Yorkshire base, the company aims to manage a network of joint venture businesses and direct licences, each exploiting one metal, application, or alloy group.

ADVANCED MATERIALS



MOIXA

LOCATION: LONDON, UK
INVESTORS: DEPARTMENT OF ENERGY
AND CLIMATE CHANGE, INDIVIDUAL
INVESTORS
CEO: SIMON DANIEL
FOUNDED: 2010

Moixa Technology develops Moixa Smart Battery, an intelligent energy storage solution. It allows homes to both store power from renewable resources and use it to power DC lighting, computing & electronics, and benefit from revenue streams generated by trading energy through GridShare, a SaaS platform that aggregates energy from groups of Maslow energy storage systems.

ENERGY STORAGE



GREENELY

LOCATION: STOCKHOLM, SWEDEN
INVESTORS: KIC INNOENERGY
CEO: TANMOY BARI
FOUNDED: 2014

Greenely's mobile app enables homeowners to manage their energy consumption and obtain personalised feedback on their energy use. The tool uses self-learning algorithms to track and analyse energy consumption, and gamification and comparison with neighbours to incentivise improved energy consumption.

SMART HOMES

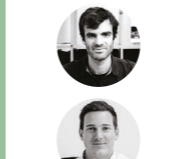


GREENPOCKET GMBH

LOCATION: COLOGNE, GERMANY
INVESTORS: N/A
CEO: DR. THOMAS GOETTE
FOUNDED: 2009

GreenPocket is a software provider for the interpretation and visualization of smart metering energy consumption data. Their customers are utility companies of all sizes - from small and medium-sized public utilities to large utility groups.

ENERGY EFFICIENCY



NAÏO TECHNOLOGIES

LOCATION: RAMONVILLE-SAINT-
AGNE, FRANCE
INVESTORS: CAPAGRO
CEOs: GAËTAN SÉVERAC &
AYMERIC BARTHES
FOUNDED: 2011

Developer of 'Oz', a robot that can autonomously and mechanically weed fields for agriculture and viticulture. Oz leads to improved technical efficiency, higher profitability and environmental benefits, including reduced soil water evaporation and use of herbicides.

AGTECH



NAKED ENERGY

LOCATION: GATWICK, UK
INVESTORS: CLIMATE KIC,
DEPARTMENT OF ENERGY AND
CLIMATE CHANGE
CEO: CHRISTOPHE WILLIAMS
FOUNDED: 2009

Developer of 'Virtu', a patented heat and power solar solution for commercial and industrial applications. Virtu delivers market leading thermal power for space heating, hot water and process heat, whilst uniformly cooling high efficiency PV cells. The technology is aimed at the built environment, which is responsible for half of the world's energy demand.

SOLAR



HELIA TEK

LOCATION: DRESDEN, GERMANY
INVESTORS: HIGH-TECH
GRUNDERFONDS, BASF VENTURE
CAPITAL AND OTHERS
CEO: THIBAUD LE SEGUILLON
FOUNDED: 2006

Heliatek is engaged in the development and production of organic photovoltaic solar cells designed to improve the cost-efficiency characteristics of solar cells for large area applications. By utilising vacuum technology, the company is developing a new proprietary material that displays unprecedented power efficiency, transport and contact properties as well as extended life-time characteristics.

SOLAR



HYDROGENIOUS

LOCATION: ERLANGEN, GERMANY
INVESTORS: ANGLO AMERICAN
CEO: DANIEL TEICHMANN
FOUNDED: 2013

Global industry leader in hydrogen storage technology using Liquid Organic Hydrogen Carrier (LOHC) materials. LOHC can be stored and transported under ambient conditions using existing fuel infrastructure. One cubic metre of LOHC can store more than 600 cubic metres of hydrogen gas and, therefore, about 2 MWh of energy.

ENERGY STORAGE



NAWA TECHNOLOGIES

LOCATION: GARDANNE, FRANCE
INVESTORS: KIC INNOENERGY,
DEMETER PARTNERS
CEO: PASCAL BOULANGER
FOUNDED: 2013

Manufactures nanomaterials with outstanding electrical, optical, fluidic and biological properties for use in ultra-fast charging carbon batteries and high performance thermal interfaces.

ADVANCED MATERIALS



NEWLISI

LOCATION: MILAN, ITALY
INVESTORS: 360 CAPITAL PARTNERS,
BEAUTIFUL MIND CAPITAL
CEO: ANTONIO CAPRISTO
FOUNDED: 2011

Newlisi has developed a patented Chemical Sludge Reduction technology called Zero Sludge that reduces excess sludge for the biological wastewater treatment sector. The company is targeting municipal and industrial customers across Europe.

WATER & WASTEWATER



NEXT KRAFTWERKE

LOCATION: COLOGNE, GERMANY
INVESTORS: HIGH-TECH GRÜNDERFONDS, NEUHAUS PARTNERS
CEOs: HENDRIK SÄMISCH & JOCHEN SCHWILL
FOUNDED: 2009

Next Kraftwerke operates one of Europe's largest virtual power plants, which offers flexibility to the grid. They are a certified power trader on various European energy exchanges including EPEX and EEX. The VPP stabilises the grid by drawing on power from its network of 3,000 units in times of peak load.

VIRTUAL POWER



OFF GRID ENERGY

LOCATION: WARWICKSHIRE, UK
INVESTORS: HNWI
CEO: DANNY JONES
FOUNDED: 2012

Manufacturers of innovative energy storage technology; that is fuel saving, CO2 reducing, noise eliminating, hybrid systems for temporary power in construction, events and utility, as an energy storage solution for grid resilience and EV charging, de-centralised solar based mini-grid systems for telco and community remote power. UK based manufacturer, employer and exporter of carbon reducing, leading edge power technology.

ENERGY STORAGE



SALT X TECHNOLOGY

LOCATION: STOCKHOLM, SWEDEN
INVESTORS: NORTHZONE VENTURES, INDUSTRIFONDEN, SKRINER
CEO: KARL BOHMAN
FOUNDED: 2001

Developer of SaltX Technology, a system where salt crystals store chemical energy and convert it to heating and cooling without any electricity or moving parts. Clients include GE, Rheem and Caterpillar; the technology is currently applied in solar-powered heating and cooling in buildings, in heat-driven air-conditioning in heavy duty vehicles and gas-fired water heaters.

ENERGY EFFICIENCY



SCFI

LOCATION: CORK, IRELAND
INVESTORS: KC II
CEO: JOHN O'REGAN
FOUNDED: 2007

Safe, sustainable and cost-effective wet waste processing. SCFI's 'AquaCritox' technology uses advanced hydrothermal oxidation to remove organic material in sewage and drinking water sludge, and recover phosphorous from inorganic residue. SCFI's solution creates new opportunities for electricity generation and phosphorous recovery.

WATER & WASTEWATER



ORGANICA WATER

LOCATION: BUDAPEST, HUNGARY
INVESTORS: IFC, XPV, IDINVEST, HUANENG INVESCO
CEO: ARI RAIVETZ
FOUNDED: 1998

Energy-efficient, odorless structures with the appearance of botanical gardens, transforming the very concept of a wastewater treatment. With over 80 plants operating /under construction, Organica is the trendsetter allowing treatments plants to be placed in the middle of cities.

WATER & WASTEWATER



OXIS ENERGY

LOCATION: OXFORDSHIRE, UK
INVESTORS: SASOL TECHNOLOGY
CEO: HUW HAMPTON-JONES
FOUNDED: 2004

OXIS Energy is developing the next generation Lithium Sulfur battery chemistry that will revolutionise the rechargeable battery market. With a theoretical energy density 5 times greater than Li-ion, it is suitable for a wide range of sectors, including aerospace, space, automotive and energy storage.

ENERGY STORAGE



SIGFOX

LOCATION: LABÈGE, FRANCE
INVESTORS: ENGIE, IDINVEST
CEO: LUDOVIC LE MOAN
FOUNDED: 2009

SIGFOX is the world's leading provider of dedicated connectivity for the Internet of Things. The company's network complements existing high-bandwidth systems by providing simple, economical, energy-efficient two-way transmission of small quantities of data over long distances, thus lowering barriers to wide implementation of IoT solutions, and greatly extending the battery and service life of connected devices.

INTERNET OF THINGS



STREETCHARGE

LOCATION: LONDON, UK
INVESTORS: FOUNDERS
CEO: PETER SCHWABACH
FOUNDED: 2014

Privately funded residential EV charging infrastructure initiative designed to accelerate EV adoption across London. StreetCharge aims to facilitate the shift from petrol and diesel to electric vehicles in order to improve peoples' quality of life and health within cities.

EV CHARGING



PHOTANOL

LOCATION: AMSTERDAM, THE NETHERLANDS
INVESTORS: ICOS CAPITAL & UVA HOLDING
CEO: VERONIQUE DE BRUIJN
FOUNDED: 2008

Photanol develops a breakthrough technology that converts CO2 and sunlight into valuable organic compounds by using genetically engineered cyanobacteria. These compounds include biofuels, bioplastic building blocks, essential oils and sugars.

GREEN CHEMISTRY



POD POINT

LOCATION: LONDON, UK
INVESTORS: CROWDFUNDING, SEEDRS, QVENTURES
CEO: ERIK FAIRBAIRN
FOUNDED: 2009

POD Point is a leading provider of electric vehicle (EV) charging stations in the UK. The company has manufactured and sold over 28,000 EV charging points and developed one of the UK's largest public charging networks. Key clients include Lloyds Banking Group, Britvic and O2 Telefonica.

EV CHARGING



SUNFIRE

LOCATION: DRESDEN, GERMANY
INVESTORS: INVEN CAPITAL, IDINVEST PARTNERS, TOTAL ENERGY VENTURES
CEOs: CARL BERNINGHAUSEN & CHRISTIAN VON OLSHAUSEN
FOUNDED: 2010

Develops and produces high-temperature electrolysis cells (SOECs) and high-temperature solid oxide fuel cells (SOFCs). The firm's high-temperature fuel cells facilitate the highly efficient generation of electric power and heat according to the principle of cogeneration. This sees electric power and heat generated on-demand at the point of consumption.

FUEL CELLS & HYDROGEN



T-SOLAR GROUP

LOCATION: MADRID, SPAIN
INVESTORS: ISOLUX ENERGY INVESTMENTS
CEO: MARTA MARTINEZ QUEIMADELOS
FOUNDED: 2006

T-Solar engages in the development, production, and management of solar energy power plants in Spain, Italy, India, Peru, the United States, Puerto Rico, Mexico, and Japan. The company was founded in 2006 and is based in Madrid, Spain.

SOLAR



ROSS ROBOTICS

LOCATION: MARLOW, UK
INVESTORS: SEAN NOTLEY & DOMINIC CUSK
CEO: DOMINIC CUSK
FOUNDED: 2009

Robosynthesis™ is a modular robotic delivery platform that can be adapted to different tasks by incorporating new tools and sensors. Robots are largely designed for single-purpose use, relatively inflexible and require specialist technical support. Robosynthesis' modularity greatly reduces the time, cost and complexity associated with robotic solutions.

ROBOTICS



RETE RINNOVABILE / RTR CAPITAL S.R.L

LOCATION: ROME, ITALY
INVESTORS: TERRA FIRMA CAPITAL PARTNERS
CEO: PAOLO LUGIATO
FOUNDED: 2009

RTR is Europe's largest solar energy producer. Their growth strategy is based on acquiring high-quality assets from the industry's leading operators and export asset management.

SOLAR



TANTALUM CORPORATION

LOCATION: LONDON, UK
INVESTORS: DISRUPTIVE CAPITAL
CEO: CÉDRIANE DE BOUCAUD
FOUNDED: 2014

Tantalum is a fast growing, best-in-class innovator in the connected vehicle market, ranked 14th in 2016 and 2015 in the Sunday Times Hiscox Tech Track 100. As one of Europe's top IoT companies, it has connected over 1 million vehicles across insurance, fleet and high value customers and is currently launching its software and services on a global basis with its partners Samsung, Worldline and TomTom.

CONNECTED CAR



TEVVA MOTORS

LOCATION: CHELMSFORD, UK
INVESTORS: ANGEL COFUND, DEPARTMENT OF ENERGY AND CLIMATE CHANGE
CEO: ASHER BENNETT
FOUNDED: 2013

Develops and produces electric, range-extended drivetrains for 7.5t – 18.5t trucks, primarily for the back-to-base urban delivery market. Tevva's solutions offer reduced emissions and a much lower total cost of ownership for fleet managers over a vehicle's lifetime. Tevva's launch customer is UPS.

EV



THE NEW MOTION

LOCATION: AMSTERDAM, THE NETHERLANDS
INVESTORS: ENTREPRENEURS FUND, TENDRIS HOLDINGS, ALLIANDER, DOEN FOUNDATION, AUTOBINCK, EGIS
CEO: SYTSE ZUIDEMA
FOUNDED: 2009

The New Motion offers advanced charging solutions for drivers of electric vehicles (EV) and EV-charge locations. The New Motion's charging network has over 25,000 intelligent charge points and is one of the largest and fastest growing charging networks in Europe. 2/3 of electric car owners in The Netherlands use The New Motion's products and services.

EV CHARGING



TOTEM ENERGY

LOCATION: TURIN, ITALY
INVESTORS: N/A
CEO: ALESSANDRO CASALE
FOUNDED: N/A

Totem Energy operates in the field of energy efficiency and energy savings through the designing, production and marketing of the micro-cogenerator TOTEM, which can simultaneously generate power and heat.

ENERGY EFFICIENCY



VULOG

LOCATION: NICE, FRANCE
INVESTORS: ETF, BPI FRANCE
CEO: GREGORY DUCONGE
FOUNDED: 2006

International leaders in free-floating car sharing technology for public and corporate use. Vulog offers an end-to-end software and hardware platform, allowing users to pick up and drop off cars from any location without advanced registration.

TRANSPORTATION



WATERLEAU

LOCATION: HERENT-LEUVEN, BELGIUM
INVESTORS: FOURWINDS CAPITAL MANAGEMENT
CEO: BART GOEDSEELS
FOUNDED: 2000

Waterleau provides technological packages, turn-key plants and BOOT solutions for the treatment of wastewater, sludge and polluted air. The company works with municipalities and industrial clients, such as the beverage and food, chemical, petro-chemical and pharmaceutical industries.

WATER & WASTEWATER



UBITRICITY

LOCATION: BERLIN, GERMANY
INVESTORS: EDF, EARLYBIRD VENTURE CAPITAL
CEO: FRANK PAWLITSCHKE
FOUNDED: 2008

Ubitricity's innovative and sustainable mobility concept rethinks infrastructure solutions for electric vehicles. Rather than installing metering and communication technology inside every single charging point, they equip EV users with their own portable charging device at which the electricity is measured and billed. Charging points are reduced to simple and highly cost-efficient system sockets.

EV CHARGING



UPSIDE ENERGY

LOCATION: LONDON, UK
INVESTORS: N/A
CEO: GRAHAM OAKES
FOUNDED: 2014

Upside pays people to not use energy during peak demand, a time when the grid is forced to use some of the most polluting, expensive power sources. Upside Energy's cloud-based service aggregates existing domestic and commercial sources of energy, which act as a Virtual Energy Store. This energy can be sold back to the grid at peak times, creating financial rewards for users while reducing the environmental impact of the grid.

SMART GRID



WATTSUP POWER

LOCATION: HVIDORE, DENMARK
INVESTORS: N/A
CEO: MARTIN SPEIERMANN
FOUNDED: 2014

Develop flywheel energy storage solutions for domestic and commercial use, with onshore and offshore applications. WattsUp Power's solution does not require any dangerous or flammable chemicals and is 100% clean.

ENERGY STORAGE



WESUSTAIN

LOCATION: BUXTEHUDE, GERMANY
INVESTORS: HIGH-TECH GRÜNDERFONDS, VNT MANAGEMENT
CEO: MANFRED HEIL
FOUNDED: 2010

WeSustain Enterprise Sustainability Management (ESM) is a cloud-based software solution that allows companies to quickly and accurately build and manage their sustainability reports, improving CSR and environmental performance.

SUSTAINABILITY SOFTWARE



VAYON GROUP

LOCATION: NORTHAMPTONSHIRE, UK
INVESTORS: N/A
CEO: SHANE HUSSAIN
FOUNDED: 2013

A fast-growing, low-carbon technology company, which focuses on energy storage solutions, dual-fuel combustion technology for heavy-duty diesel engines, electric vehicle technology and advanced service solutions for electric vehicles.

EV



VERT ROTORS

LOCATION: EDINBURGH, UK
INVESTORS: EQUITY GAP, PAR EQUITY
CEO: OLLY DMITRIEV
FOUNDED: 2013

Produce uniquely compact low-vibration compressors from composites, which provide the highest pressure-to-mass ratio. The compressors are designed for aerospace, medical and other similar applications where vibration and noise are not acceptable, and dimensions and weight are mission-critical.

ENGINEERING



WHITEFOX

LOCATION: LONDON, UK
INVESTORS: PRIVATE / HNWS
CEO: GILLIAN HARRISON
FOUNDED: 2000

Provide membrane-based solutions that reduce energy and water consumption in industrial processes. Whitefox's solutions are focused on the biofuel, pharmaceutical, portable ethanol and petro-chemical industries.

BIOFUELS & BIOCHEMICALS



WQC SOLUTIONS/ WATERNED

LOCATION: SCHAGEN & JOURE, THE NETHERLANDS
INVESTORS: N/A
CEO: ARJAN SNEEKES
FOUNDED: N/A

WQC Solutions offers an innovative solution for desalination plants through its pre-treatment process which reduces membrane fouling and can double the amount of water production.

WATER & WASTEWATER



VIRTUAL POWER SOLUTIONS

LOCATION: LONDON, UK
INVESTORS: N/A
CEO: JAMES NAPIER
FOUNDED: 2012

VPS provides ESaaS (Energy Savings as a Service) solutions to consumers, businesses and utilities. VPS' solutions allow real-time, remote energy management so users can improve their energy efficiency, optimise their energy tariffs and reduce energy costs.

VIRTUAL POWER



VOLTEA

LOCATION: SASSENHEIM, THE NETHERLANDS
INVESTORS: UNILEVER VENTURES, ENVIRONMENTAL TECHNOLOGIES FUND
CEO: BRYAN BRISTER
FOUNDED: 2006

Voltea's water desalination process uses membrane capacitive deionization technology to remove dissolved salt (25-95%) from a range of water sources with low energy and environmental costs. Voltea is active in the fields of residential water softening, water desalination for cooling towers and wastewater re-use.

WATER & WASTEWATER



ZAAK TECHNOLOGIES

LOCATION: BERLIN, GERMANY
INVESTORS: KIC INNOENERGY
CEO: ABBAS KHAN
FOUNDED: 2012

Transforms fly ash, a waste product from coal-fired power plants, into value-added 'Smart Sand' for use in the construction industry. ZaaK Technologies' solution prevents the depletion of natural sand resources and avoids the environmental impacts associated with fly ash disposal.

ADVANCED MATERIALS

A Gift of Light

The GP Bullhound Connect Judges have donated three Azuri solar home systems to a rural orphanage in the Mwea district of Kenya. Each solar system will provide eight hours of clean lighting via four LED lamps, mobile phone charging and a rechargeable radio daily. On Thursday 20th October, two Quad solar home systems were installed in the main building and the third was installed at the end of October.

Pastor Danson Sila Kimeu said: "because of a lack of even kerosene light, for the last two weeks the school-age children have been unable to revise at night and yet they have still been taking exams. These boys have the potential to perform much better at school but are hindered by the limited kerosene that the church can provide each month. With the new solar power, we expect the children will be able to study well into the evening."

Azuri's research has shown that children study for an average of two hours more per evening with access to the lighting from the solar home system.

www.azuri-technologies.com



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