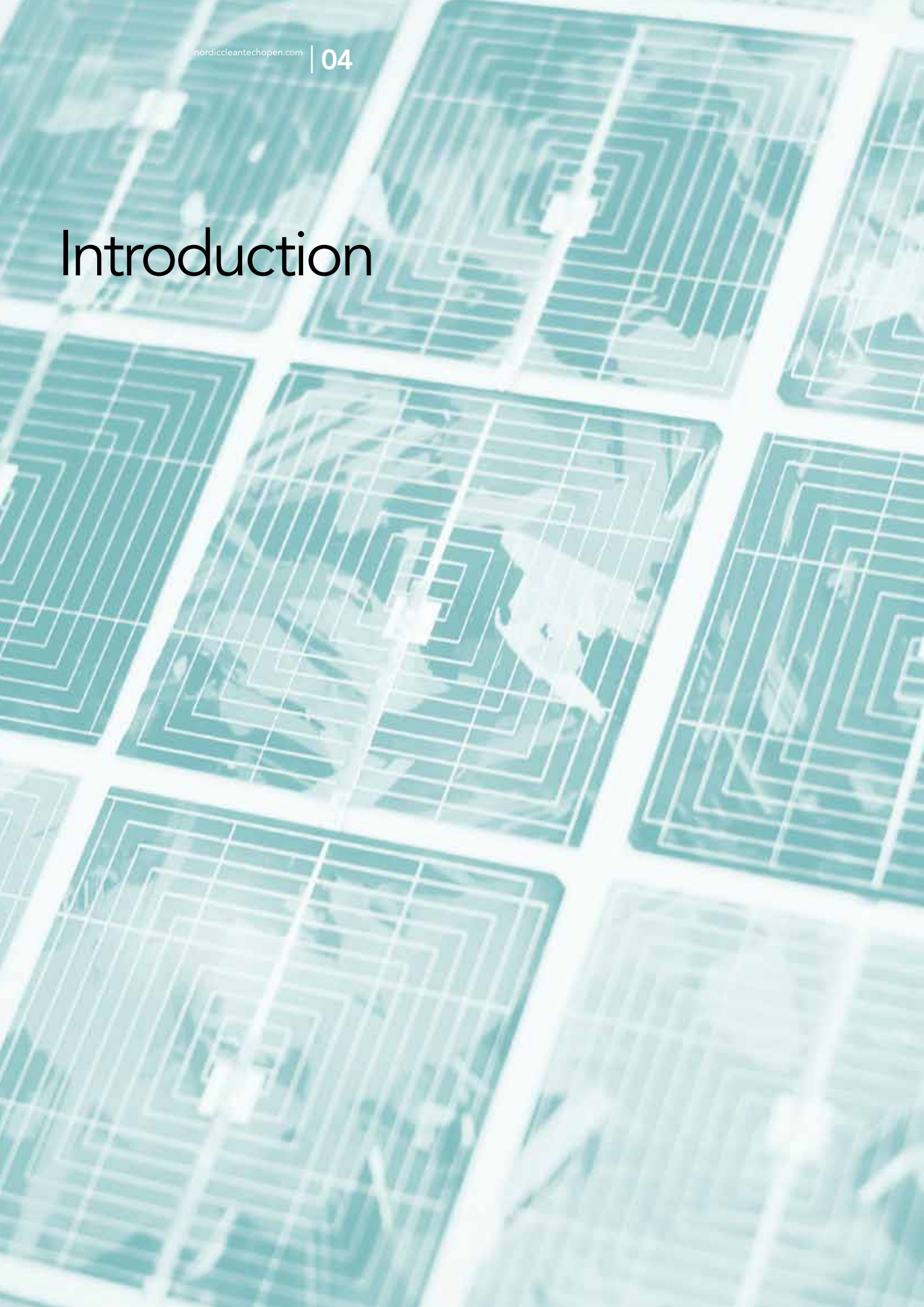




05	Introduction
	Interviews
10	Olivier Rieu
11	Hans Lindberg
11	Juha Lehtola
12	Harald Olderheim
13	Stefan Jakelius
14	Jörg "George" Sperling
	Companies
16	AquiloZ
16	Asema Electronics
16	Black Silicon Solar
17	Carbatt
17	Cellfab
17	CentriClean Systems
18	Danish Power Systems
18	Ekobalans Fenix
18	Ekolite
19	Enercomp
19	Enevo
19	Lunavation
20	MetGen
20	NeoZeo
20	Norsetek
21	Numcore
21	Orexplora
21	Pegasor
22	ReformTech
22	Re-Turn
22	Tomologic
23	Ultranat
23	Vasasensor
23	ZEG Power
24	Zemission
24	Finalist Sponsors
26	Thank you
27	About the founders

Introduction

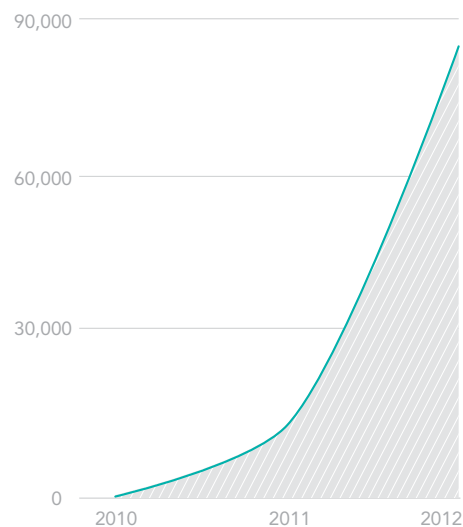


Lean, mean and green applicants to a bigger Nordic Cleantech Open...

The second year of Nordic Cleantech Open saw a 23% increase in applications as 97 entrepreneurs put in their highly valued time to describe their team, technology and market in order to become one of the Nordic's top 25 start-ups.

Not only did we have more applicants, this year's selection was made by a jury double the size compared to last year. We are fortunate to have over 60 individuals from leading industrials and investors from across Europe, USA and Asia to evaluate and provide feedback on the applications. On average, each company has been evaluated and reviewed by 13 jury members. That means that in total 1124 evaluations (and in many cases that means connections) have been made! As the grades are in three categories, it also means an astonishing 3372 individual grades!

Netcycler user base since launch



What has happened to last year's finalists?

Here is a medley of some major developments made by the historical first top 25 of NCO (not claiming to be complete in any way, shape or form).

Applied Nano Surfaces, Svenska Aerogel, GridManager, Sorubin, SEEC, Ecospark, Rehact, ZenRobotics and Seaweed Energy Solutions have all attracted funding. Internet swapping company Netcycler's user base has sky-rocketed since they entered the competition, take a look at the graph below.

SEEC (SE) (geothermal power for buildings) has increased turn-over 2011 from 3 to approximately 15 million SEK. Sorubin (aeration of wastewater) have secured five orders from municipalities, marking somewhat a breakthrough on the Swedish market for the company and Cortus has successfully produced the first batch of green Syngas.

Rehact (local energy system) was chosen by multi-billionaire and Skype founder Niklas Zennström for his very own Zennström award and ZenRobotics (automated waste sorting) was announced as the winner of the Gold EEP Award, organised by 17 leading European environmental magazines in collaboration with Pollutec, the environmental trade show, selecting them as Europe's most innovative environmental company!

This year's applicants

It is not easy to describe 97 companies, yet that is exactly what we will try to do because we believe that this group of companies can tell us a lot about the pipeline of Nordic Cleantech solutions. Applicants to the Nordic Cleantech Open represent the entire span of the cleantech field. Since last year applications from each segment have increased. The largest increase was in the transport segment (up 80%). In total we would define a whole 19 companies to have solutions mainly applicable to the transport sector (the graph says differently because that is how the companies placed themselves). Those applications can be roughly divided into two categories:

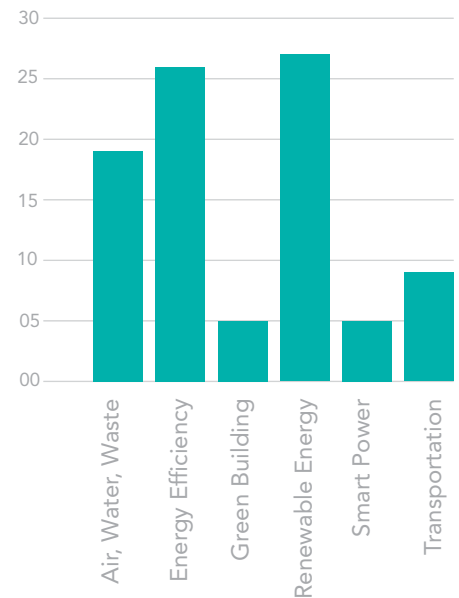
1. Innovative, new ways to transport people
2. Components meant to decrease environmental impact from the current transport industry

Out of the first group of solutions none of the 7 entrants made it to the top 25. One of the explanations is that it is simply seen as too high risk to challenge the current transport system with completely new ways of doing things. Not the most encouraging analysis, but hopefully the companies in the first category will succeed and prove the jury wrong. The second group of companies, offering improvements to current transport systems have been more favored by the jury. Out of this group 6 of the 12 entrants made it to the top 25.

The largest segment overall is renewable energy. In this segment there were 27 entrants. Out of those 5 made it to the top 25. Notable is that the largest sub-segment within renewable energy was wave and tidal power, with 7 entering companies but out of those none made it to the top 25. In the more established sub-segment of wind energy there was only 2 entrants but both got through to the top 25.

Energy efficiency remains big, just like last year and is the clearly most popular segment if we look at the companies who made it to the top 25 (9 out of the top 25). These solutions typically remove a pain for an existing industry. Perhaps a sign of the jury predicting the difficulties and capital needs if you are challenging an industry with your solutions.

Applicants per segment



Transport solutions on the rise, energy generation and efficiency remains big in terms of applicants...

Applications up across the Nordics

There was an increase in applicants from each of the Nordic countries except Iceland this year compared to last year.

A must have solution is good to have...

Most venture capitalists will know the terminology of categorising solutions according to if they are must have, need to have or simply good to have for their target group. For obvious reasons, a must have solution is what you look for. If you read the applications of the top 25 you would see that a majority of them are actually claiming to be must have solutions. The savings they promise are not marginal (as in saving 2-3% of energy costs in an industry where most costs are labour) but rather in the regions where, if you implement this and your competitor does not, you will be able to dominate the market. As an example a couple of these promise savings in the regions of 10-30% of total costs as well as better performance in key bottleneck areas. Obviously, these claims need to be verified as deliverable in a way that customers know and trust before any of this matters but still...

World leading and in need of money to fulfil their potential

Along the lines of the previous comment, quite a few of the top 25 claim to have world-leading solutions and/or be the first in the world at what they do. This type of game changing solutions is exactly what is needed in many cases, but also explains the capital needs that go along with developing them. A lot of this year's applicants are looking to raise funds over the coming year. A clear change in statements is however that a lot of companies now have alternative strategies if fundraising should fail (growing slower, alternative income models, partnership strategies etc.).

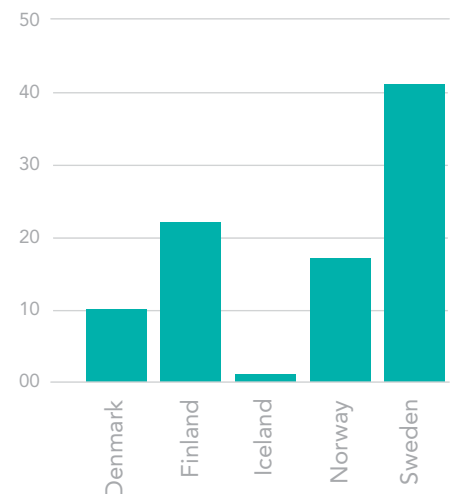
Fully patented or not at all

Applicants can typically be divided into one of two categories. The first utilise patents as a way to safeguard themselves against competition, and in these cases you typically see very active and high cost patent strategies. It is not uncommon to have over 50 different patents for some solutions. The other group takes the opposite road, instead of a high cost patent strategy they rely on customer relations, in house know how and staying ahead in technology development. Most likely the right strategy depends on both target market (and as a consequence exposure) and the type of solution you market.

Partnerships needed to grow

A clear change from last year is that a lot more companies now list the need for partnerships in order to reach their full market potential. Even in an early development stage a lot of applicants are targeting bigger industrial players for production, distribution and roll-out. This is most likely a sign of the rough economic times and also a response to the challenges that some cleantech companies have had in taking the final leap to commercialising and expanding their company on an international market.

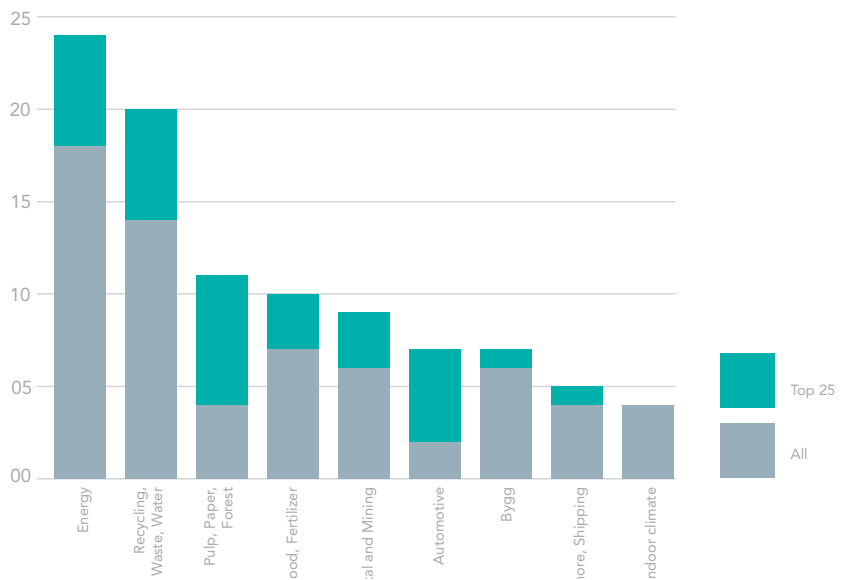
Applicants per country



Cleantech 2.0?

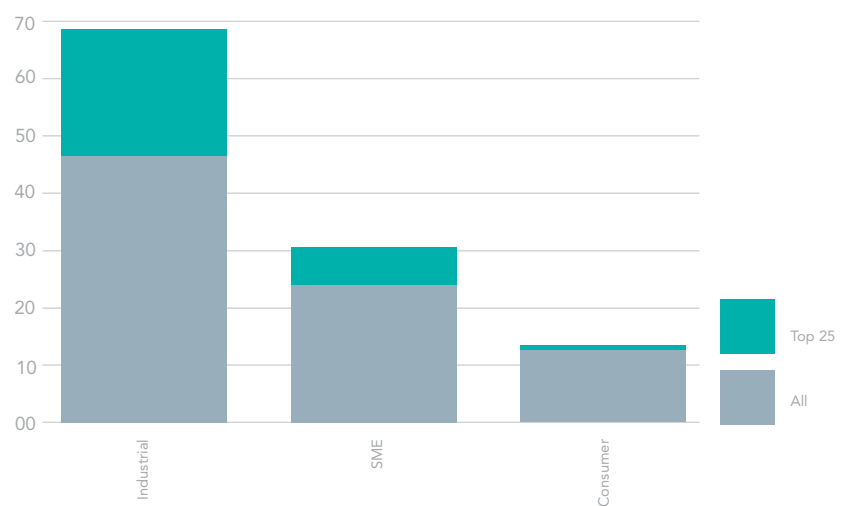
It is so obvious we almost forget to write it, but we are very, very happy with the quality of applicants this year! The amount of innovation and business opportunity that lies in these 25 start-ups is nothing but stunning. We also see an interesting trait among a clear majority of the top selected companies: Their solutions typically remove a pain for an existing industry and their growth journey can potentially be done with relatively low capital expenditures. There are fewer of the capital demanding ideas among this years applicants and even less in the top 25. This is exemplified well by the companies that made it to the top 25 and the ones that didn't among transport and energy solutions. We have also looked through all applications to see what type of industry customers the companies are targeting.

Customers targeted by applicants - Industry



The largest group of applicants target energy producers or recycling, waste and water businesses. However this was not the segments where companies were most successful in getting through to the top 25 (although a fair share of the companies especially targeting the recycling, waste and water business succeeded). The most successful groups were the companies targeting the Automotive and Pulp and Paper industries. These companies typically present solutions to isolated, well defined industry problems.

Customers targeted by applicants - Size/Type



We have also gone through all applicants to see what size-type of customers they are targeting and here the picture is very clear.

Most companies target industry actors and this seems to be a good strategy as many of them went through to the top 25. A smaller proportion of the companies aiming at Small and Medium sized Enterprises (SME) also succeeded to the top 25 something only one of the ones targeting consumer markets managed. It seems clear that the jury perceives the consumer markets as more challenging.

We believe they will say the same about many of the top 25 companies in a couple of years.

P.S.: A big thank you to the founding partners of Nordic Cleantech Open - you find them all in the end of this report, to the jury - who volunteer their valuable time, and to our sponsors - we hope you continue to do well!

They say some of the world's most successful companies were built during recessions.

Interviews





Olivier Rieu
Partner, Cleantech practice
Opera Capital Partners

With offices in Stockholm and Paris, Opera Capital provides mergers & acquisitions, private placement and other financial advisory services to small and mid cap businesses with a focus on technology-driven companies.

Q: The most obvious question due to the area of focus for this report and your line of work, what is the climate in investment landscape you are working with right now to get companies funded?

Olivier: Well, the traditional model of early stage financing through VCs crashed in 2008 and is basically under the weather since then. On the other hand, more mature companies with a proven model and some commercial activity have more options and attention than before as they offer lower risk for investors. What we call super angels (large business angels with industry background and/or previous exit), industrial investors and public financing have fortunately stepped up in activity. Our role in fund raising has evolved to offer innovative solutions, both in terms of investors and in conditions offered to these investors. On the other hand, a really good business idea with a good team can always get funding!

Q: What about the exit climate?

Olivier: Since financial markets are down for three years trade sales is the only viable exit alternative. A lot of companies still have cash (sometimes more and more cash) on the balance sheet and look to expand their top line by acquiring cutting

edge technologies, or suppliers or clients in order to integrate the value chain. We look for instance into Scandinavian cleantech opportunities in the insulation, filtering and new materials segments right now on behalf of leading French industrial client.

Q: How is the Nordic region viewed on the European scene?

Olivier: I think all agree that the ecosystem here is fairly strong and has shown to be resilient in the recent tough times. A number of large leading industrials and innovative R&D in both young companies, universities and big companies. And the mindset here remains positive, new projects keep getting started, at least in the Cleantech field. The industrial atmosphere in Europe in general is very sceptical, if not to say negative, so I would say the Nordics is a good place to be in right now... However Nordic companies are very dependant on the international scene for growing their businesses and on international sources of financing to finance this growth. We believe this trend to continue and increase in the coming years.



Hans Lindberg

Hans Lindberg
Chairman, Ecospark

LED-lighting company and winner of the first ever Nordic Cleantech Open

Q: Did anything come out of Nordic Cleantech Open?

Hans: Winning the NCO meant a lot to us. Both for ourselves, the mental effect of it, and as a quality guarantee of our business model towards other parties. And we have had a bunch of calls from venture capital companies because of it.

Q: What's the status development-wise?

Hans: We closed a funding round with Innovationsbron and current owners of 2 MSEK, and have secured a grant from Swedish Energy Agency on a little more than 3 MSEK. Additionally we have got our first patent granted in USA. What we need to do now is pass a few milestones in our product development to reach the level where we are convinced that venture capitalists are willing to enter the company. We are also fine-tuning our value proposition to be sure we meet the future lighting market demands.

Q: What is your outlook on the lighting and LED-market?

Hans: Market estimates made by McKinsey and others predict that the LED lighting market will start its real boom in 2014-2015 and key bottle-necks of this industry are still cost reductions and improving the quality of light. We have the potential to overcome these bottle-necks so we are well positioned to be a significant player in the next generation of lighting...



Juha Lehtola

Juha Lehtola
Investment Manager at government-owned investment company Finnish Industry Investment

Juha has been active in the Finnish and Nordic venture capital industry since 2003, completing various early and growth stage investments in different technology sectors, including cleantech

Q: How do you view the current Finnish dealflow?

Juha: Well, just out of the 15 Finnish applicants to Nordic Cleantech Open that I looked at, there was a handful clearly good investment opportunities if you are in early stage investing. In general right now in Finland there is a good spirit in the early stages. New companies with ground breaking potential are being founded all the time.

Q: Do you see any changes in the type of companies getting started now as opposed to a few years ago?

Juha: Traditionally we have been strong in heavy industry, things like power electronics and wind. Last year or two a lot has changed, there's a lot of start-up activity in areas such as energy efficiency, smart grids, and the intersection of IT and cleantech.

Q: Would you say that the old strongholds of Finland are being abandoned?

Juha: Maybe not abandoned, because these areas are still strong and we support some companies in those fields that develop very well but the cleantech field is now a more varied group, with deals in different subsectors and more deals with lower capital expenditure.



Harald Olderheim
Partner at Contango Kapital

Contango Kapital manages the investment activities of Energy Future Invest, a venture capital fund which specializes in growth companies within Clean Energy and Clean Technology in the Nordic region. The venture fund now consists of the combined portfolio and funds of Hafslund Venture and Energy Future Invest. The new combined portfolio has ownership interests in a total of 10 cleantech companies. They have a significant cash position and are at the moment actively looking for new companies where they can invest.

Q: As an active jury member of Nordic Cleantech Open and with access to a lot of the Nordic cleantech dealflow, what is your view on the current quality of companies?

Harald: I was very impressed with the applications to Nordic Cleantech Open, perhaps mostly so with the amount and quality of Finnish applicants. In general I think there are a lot of potentially high growth cases coming out of Norway as well. We have a high level of technological skill and creativeness in Norway but sometimes cases lack a bit in sales and marketing focus. In Norway I would also like to see more cases that have cleared the commercialization stage.

Q: You came with us to California and was able to compare the Nordics to the Cleantech growth scene there. How do we stack up?

Harald: Clearly our level of technology innovation is high and Scandinavia has a good reputation among US investors. On the other hand the US companies focus more on sales and marketing and they do it well.

Q: What's your view of the conditions for cleantech in Norway?

Harald: There are several good governmental support schemes, however, they could be more transparent. The low energy prices are actually a bit tricky for some Cleantech companies, because it means they are not profitable here even though they might be in other places, and many benefit from testing themselves on the home market. The green certificate market introduced this year between Sweden and Norway is a good example of a transparent and predictable policy initiative that may help the Cleantech sector in my view.



Stefan Jakelius
Investment manager Industrifonden

Industrifonden invests in small and medium-sized Swedish companies with international growth potential. They invested in five cleantech companies during 2011 and successfully exited cleantech growth company Transic the same year.

Q: Among your investments during the year was last year's NCO finalist SEEC. Can you tell us why they caught your attention?

Stefan: They have developed a cost effective way to store energy in the ground and even though it is a technically complex solution, it is made easy for the customer. And as in all our investments, we have a belief in the team behind the solution.

Q: You have made a total of some 6 exits this year, whereof one in cleantech company Transic. What needs to be in place for a successful exit?

Stefan: The company needs to have a clear edge in what they do, that is one thing. Especially for less mature cases, it also helps if you can show that the company has successfully managed to reach pre-set milestones in their development. The right advisors are important, since a critical factor is finding and targeting the right buyer(s) (typically an actor where the solutions of your exit case has a very good strategic fit). Last but not least some luck and timing helps!

Q: Do you think we will see more exits during 2012?

Stefan: Let's put it like this - I really hope so but don't really believe so. I see quite a few colleagues struggling with some of their cleantech investments, mostly because their growth trajectories take longer than expected.

Q: Since you see a lot of the Swedish dealflow, what is your opinion on it?

Stefan: As you can tell from the high number of investments we made in 2011, the quality of companies approaching us was higher than previous years, and can even say that during last quarter quality is up even more. We have quite a few interesting cases we are looking at right now, so I would say prospects are fairly bright for 2012...



Jörg "George" Sperling
Partner at WHEB Partners

WHEB Partners invests in cleantech companies with high growth potential. George's own track record includes 28 investments with 17 board positions and successful exits via NASDAQ IPOs and LSE listings plus numerous trade sales.

Q: With an impressive European portfolio, what is your view on the Nordic cases you look at?

Jörg: We like the Nordics. After the German speaking markets, I would say it is the most attractive for us and we see a lot of deals coming out of it right now. It has to do with good engineering, both within software and hardware and of course it helps that you have a good base of aware green end-consumers to go with that.

Q: What about your European colleagues, how easy is it to find a co-investor these days?

Jörg: Unfortunately, the number of available co-investors is smaller now. When we do our investments, nowadays we always assume all capital might have to come from us. It may mean that we over-reserve but we do not want to be left with a good case but without money to keep growing it.

Q: What about this year's applications, you have looked at a good amount of this year's cases?

Jörg: Yes, and we like the quality and the diversified mix this year. A lot of them have big industrial customers and there also seems to be a lot of companies with less capital intensive cases, this I think is the type of companies that will make the cleantech segment successful.

Q: You recently wrote an article on successful environmental innovation environments, and mention the German chemical legislation as a successful driving factor for greening that industry. What is your view on the role of government policies in this field?

Jörg: There are a lot of different policy schemes across Europe, and it is in itself hard to keep track of how they change. But in general, subsidies tend to come and go, but when something gets banned it usually stays banned and, if anything, regulations on harmful substances typically get tightened over time rather than the opposite, so you can actually build a business on the market that emerges after something is banned.

Companies

Companies

aquiloZ

AquiloZ
Norway

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AquiloZ is developing the next generation of wind power prediction and trading information system for wind park owners, portfolio managers of wind parks and grid operators. The AquiloZ system will use state-of-the-art computational fluid dynamics - CFD models combined with both production forecasting, risk assessment and decision support tools. There is no system currently available in

today's market for the wind park owners and grid operators. AquiloZ is building a flexible platform that can easily adapt new methodology into the system. The system will also deploy plug-ins and adaptors in order to be integrated with the customer's existing systems like production-planning, scheduling and energy trading & risk management.

ASEMA

Asema Electronics
Finland

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Asema Electronics manufactures consumer terminals and wireless controllers for the Smart Grid. Asema E electricity saver is a touchscreen display that offers an integrated Home Area Network gateway, home automation, per appliance power measurement, tariff driven home appliance control, and smart meter integration in one device. The simple-to-use and fully wireless

system can be installed in both old and new homes with minimal effort. For end users, the device offers potential savings in the electricity bill in excess of 10% annually, resulting in a payback period of less than two years. For utilities, the system offers a platform for new interactive services in a manner none of the competitors can.

BLACK SILICON SOLAR

Black Silicon Solar
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Black Silicon Solar develops a proprietary nanotechnology process for improving silicon solar cells in a cost-efficient way. By mainly focusing on reducing costs rather than improving the efficiency, Black Silicon Solar has been able to develop an alternative texturing process that makes the overall production of solar cells 10% cheaper, reduces production times, use of toxic chemicals, and the amount of

silicon used per cell. Black Silicon Solar is targeting the 50 billion dollar silicon solar market with the solar cell manufacturers as end-customers. These manufacturers are currently under severe financial pressure from Chinese competitors and cost-reducing technologies such as the Black Silicon Solar process will be crucial for their survival.



Carbatt
Norway

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Carbatt offers an infrastructure solution to power electric vehicles based on a new unique nano-cell solid-state battery. The battery delivers energy densities above 30 times that of Lithium batteries, with costs of less than 100 US\$ per Kwh. This makes the electric vehicle not just competitive but superior to any combustion engine driven vehicle both in performance, range and cost. Typical electric vehicles equipped with this technology can

achieve a more than 2000 Km range on a single charge. Currently densities are around 10 Kwh/kg compared to 0.2 Kwh/kg for Lithium batteries. The energy is stored using a solid-state nano-technology based silicon chip that is cheap to manufacture and possible to mass-produce in short time. It is made without the use of rare earth materials.



Cellfab
Sweden

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Cell-reinforcement is a new, unique reinforcement method for concrete, asphalt and other materials. Today's concrete reinforcements are processed and assembled on site. This is a very labour intensive process. The basic reinforcement steel bars used globally, account for more than 200 million tons of iron per year. It is essential for a more

effective reinforcement method to be introduced. The Cell-reinforcement produced by Cellfab uses 75% less steel compared to traditional reinforcement. Cell-reinforcement also strengthens the structure and has better pressure- and crack distribution. Cell-reinforcement does not need to be modified and assembled on site. Therefore, the method can reduce labour costs with more than 50%.



CentriClean Systems
Sweden

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CentriClean Systems offers solutions for industrial air cleaning. The flagship PowerSwirl® is based on traditional cyclonic separation principles but it is much more efficient than any other cyclone available on the market. By using computational fluid dynamics simulations, as well as through research and labs

testing CentriClean has come up with a whole new design that eliminates all the downfalls of traditional cyclones. The PowerSwirl® can be applied where traditional cyclones were not efficient enough. It can also compete with more expensive solutions, like bag filters or electrostatic precipitators.

Companies



Danish Power Systems

Danish Power Systems
Denmark

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The High Temperature Proton Exchange Membrane (HTPEM) fuel cells from Danish Power Systems (DPS) deliver efficient, clean and renewable energy run on bio fuels such as methanol and DME. DPS develops the critical component - the heart of the technology, the Membrane Electrode Assembly (MEA). The MEA facilitates the electrochemical reaction

between hydrogen and oxygen. The HTPEM also has potential for significant synergies with wind energy and grid applications. Lifetime, performance and cost of a fuel cell is highly linked to the MEA quality. DPS is able to control the very complicated parameters to achieve desired qualities as one of very few companies in the world.



EKOBALANS

Ekobalans Fenix
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Ekobalans offers sustainable solutions in the handling of nutrient rich residues such as sewage sludge, biogas digestate, manure and bio energy ashes. Sewage treatment plants biogas producers, food producers, and bio energy plants will pay Ekobalans for taking care of their residues because this solution is economically and environmentally sustainable compared to current methods. The nutrients in the

residues are extracted by Ekobalans in a patented process and refined into high quality recycled alternatives to artificial fertilizers that do not carry a ballast of heavy metals and harmful organic substances. A remaining organic fraction is sold as bio energy. The remaining ashes are used by Ekobalans in their forest fertilization or are further refined into fertilizer.



Ekolite
Finland

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Ekolite converts "Waste to Value" when making composite materials from biomass and industrial wastes by means of mechanical and/or chemical activation. Manufacturing technology is very resource efficient. Ekolite is targeting to commercialize new modified biofuel ash based geopolymers for infrastructures and new natural fibre composites for

thermal, acoustic and fire insulating materials. Primary areas of use are green buildings and infrastructures; secondarily the solutions can be used for transportation, energy production and forest industry renewal. New construction materials can improve energy efficiency, absorb noise and improve overall safety and comfort of living worldwide



Enercomp
Finland

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Enercomp's solution reduces the energy consumption of industrial pumping and fan systems. It is a complete solution using the latest know-how for reduction of electricity consumption in all motor driven applications. The information is gathered from the pumps by a wireless sensor system. Based on this a survey of the pump systems is established and the system can be optimised. Continuous

pump system efficiency information is also available. Enercomp's technology enables simultaneous optimisation of an entire factory. The system covers all motor applications and the savings are easy and immediate. In addition to optimisation savings the solution provides real time info system, which will make it easier to control energy usage in the future.



Enevo
Finland

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Enevo offers a solution that gives waste management companies 20-40% savings in waste collection costs by optimizing their collection intervals, routes and equipment utilization. The solution also improves the environmental efficiency of the collection process as less kilometers need to be driven to collect the same amount of waste. This is accomplished

by using proprietary smart wireless fill level sensors and powerful online analytics software. The business model is subscription based, thus eliminating upfront investments for customers. This allows customers to get the service up and running in a few days and start saving money immediately.



Lunavation
Sweden

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With the use of the new super material graphene, Lunaviation have succeeded in producing a new type of lighting component. This component has proven to work satisfactory and as it can be printed in a roll-roll process over large surfaces it will be inexpensive to produce. It can also be fully recycled. Lunaviations light emitting component will among other applications be an alternative to OLEDs, most often found in low-voltage

and energy efficient lighting devices, for example screens in mobile phones. This is a gigantic market that is growing steadily every year. OLEDs are, in contrast to Lunaviations alternative, extremely expensive and difficult to manufacture. In collaboration with internationally recognized lighting companies, Lunavation intend to commercialize a broad range of lighting products.

Companies



MetGen
Finland

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MetGen is developing and producing oxidase enzymes called Laccases. MetGens Laccases can be used in a number of industrial processes. An example of use are wood pre-treatment in pulp and paper mills where Laccases give a 15%-20% reduction of the energy consumption in the refining step, this is the highest OPEX spending after wood.

Another use is cellulosic biofuels where a reduction of chemical and energy consumption plus improvements in production yields can be achieved. In Industrial wastewaters Laccases can degrade toxic phenols and therefore decrease "hard COD's". MetGens Laccase is a truly unique product: One enzyme - several industrial applications!



NeoZeo
Sweden

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NeoZeo AB emerges from materials chemistry research at Stockholm University, the host of the strongest research environment on porous materials in Sweden. Based on inventions in the preparation of volume-efficient and durable adsorbents for gas separation, NeoZeo is offering novel solutions to tap the largest unexplored potential for producing raw biogas; the farms.

The business idea of NeoZeo is to build biogas upgrading modules suitable for small and mid-sized flows of raw biogas produced at farms, the oil wells of the future! The modules will reduce transport cost and will help to expand the biogas fuel station network. NeoZeo will sell and/or license modules to farmers and energy companies in Sweden and in the near future in EU and China.



Norsetek
Norway

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The Light Rotor is an innovative technology developed by Norsetek from Norway. The important wind turbine rotors can be built significantly lighter and larger so that wind turbines become better and more cost efficient. The conventional three-bladed and cantilevered blade design was originally made for blade lengths of 8-10 meters. This design is

today scaled up to above 73 meters. The weight of the rotor blades then increases more than the energy extracted. The Norsetek Light Rotor can save up to 40% of the rotor weight, and lower the fabrication costs significantly. The rotor blades are also sectioned near the middle! This enables easy transport of even larger wind turbines on small roads and by sea!



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Numcore has developed a solution that increases the recovery in the froth flotation process. The solution is called Flotation Watch and it enables automatic control of froth properties leading to a significant increase in recovery. The solution operates on the principle of Electrical Impedance Tomography (EIT). It creates a 3D-image of the flotation cell and accurately measures stiffness and thickness of the

froth via conductivity measurements. With this information the froth flotation process is stabilized so that the best possible recovery and grade are achieved. Stabilisation is done by automatic adjustment of chemical and frother dosages.

In addition, air injection can be controlled to avoid over frothing situations.



Orexplore
Sweden

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Orexplore is developing a portable, easy-to-use and extremely accurate equipment for analysing the composition of non-organic materials. The equipment may be used to detect hazardous heavy metals such as mercury, cadmium, lead etc. The capability of quick and in situ analysis for environmentally hazardous materials is important to both governmental agencies and companies. Orexplore's products can

identify and measure hazardous materials in soil samples, paint, filters, and almost any other material. The measurement is non-destructive and non-invasive, and based on a unique innovative method combining two x-ray detection principles, fluorescence (XRF) and transmission detection. The detection accuracy is unprecedented for an instrument in this category.



Pegasor
Finland

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Pegasor has realized a breakthrough sensor technology for continuous fine particle concentration monitoring. With unique features and affordable sensor price it is possible to manufacture the world's first on-board diagnostics particulate matter sensor for diesel vehicles. No similar technology with respective performance exists. European and US legislation will require this type of

sensor from 2014, opening a market for 10-15 million sensors annually. Pegasor already has a strong market presence in automotive testing markets through its PPS-M product. Also other markets for sensor based air quality monitoring will grow rapidly in the next few years and Pegasor will commercialize solutions for indoor air, outdoor air and stack emission monitoring.

ReformTech

ReformTech
Sweden

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The flame free catalytic combustion in ReformTech's unique catalytic heaters provides several advantages such as high fuel efficiency without any dangerous emissions. Among other advantages with this exciting technology is the possibility to use different fuels, a directionally controllable heat radiation, low costs

and robust performance. The catalytic heaters from ReformTech can be utilized for example in automotive applications for engine and compartment heating, battery pre-heating, heating in mobile homes as well as for other applications where efficiency, signature and environmental impacts are vital to the user.



Re-Turn
Norway

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Re-Turn produces solvent-free coatings and gel coats in PUR and epoxy, reinforced with carbon nano tubes (CNT). Solvent emissions are avoided, and the absence of VOC increases the strength of the coatings against abrasion/wear. Longer lifetime and less waste generation are some benefits. Typical applications are in offshore, ship building and wind energy. The CNT also add extra strength and provide a lower surface roughness.

This translates to easier cleaning, less use of chemicals and especially lowering the friction in water and air – lower friction means less energy consumption. Recently, Re-Turn started a major project on chemical modification and metallization of CNT, with a focus on high-tech products such as de-icing surfaces and raw materials for electrical products.

TOMologic

Tomologic
Sweden

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Tomologic offers a scalable optimization service online that benefits customers through cost savings without the need of any user interaction and initial investments. Tomologic has developed a technology that optimize sheet metal cutting. The process reduces scrap from raw material in this energy intensive industry up to 50%. The patented

cutting technology combines extensive experience in the cutting industry with advanced optimization algorithm design. It is remotely controlled through a database, which has been programmed to adapt the process according to the material being cut, the thickness of the material and the machine model.



Ultranat Finland

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Ultranat has developed and protected a unique method for processing ash. The method enables ash from biomass-originated power plants to be processed into valuable products. In the Ultranat process, the ash is divided into different ingredients. The micronutrients and ultra-micronutrients, useful as enablers of cell metabolic functions, are separated

and used as raw material for fertilizers and animal feed. The remaining parts, i.e. the body part of ash, consists of purified silicate fractions, which have several application areas in technical construction and special industrial applications. After the Ultranat End-of-Waste process, waste taxes on the ash are no more applicable.



Vasasensor Sweden

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Vasasensor offers a wireless sensor system for challenging applications. Vasasensor's thin sensor units enable optimization of the production process during full speed. The system provides real-time feedback on adjustments and creates new knowledge.

The innovation arose from a need in the paper industry to control the dewatering process in the press section of the paper machine.

Paper machines produce paper out of pulp consisting of 95% water. After 10 to 100 seconds, depending on paper quality, the paper is formed to a sheet that will be wound onto a reel. 200 litre of water needs to be removed to produce 1 kg paper. Only 1% more efficient dewatering in the press leads to 4 % increased production or 4% less steam consumption in a paper machine.



ZEG Power Norway

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State of the art gas fired power plants today have efficiencies of about 60%. Adding CO₂ capture, the overall efficiency is reduced to 50% or less. With a total efficiency of about 80-90% and integrated CO₂ capture the ZEG-technology represents a truly revolutionary energy technology concept. Feasibility studies of a 400MW ZEG Power plant have estimated an electricity production cost

of € 0.043/kWh, including CO₂ capture. The ZEG-technology is the only concept with the potential to produce both electricity and hydrogen with integrated CO₂ capture less expensive than today. In addition there are no other emissions from a ZEG Power plant, and the technology is very flexible with respect to fuels, all types of hydrocarbons can be used; natural gas, biogas, gasified coal, tar or oil.

Companies

**zemission****Zemission**
Sweden

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Zemission manufactures a multi-fuel, zero emission burner systems for heating systems in Electric and Hybrid vehicles, RV's and boats. The system has substantial new features like silence, fuel flexibility and emissions below ambient levels. Due to the absence of heat from a combustion engine, heating the interior of electric and hybrid vehicles is becoming an increasing problem. Electrical heating is inefficient,

and reduces the driving range of up to 50%. The Zemission burner technology is outstanding for this application, as it does not reduce the range. Zemission has passed the phase of research and development, our patents are granted and we are now carrying on with on-road testing. Serial production of the first product will commence during 2012.

Finalist Sponsors

The Autodesk logo, consisting of the word "Autodesk" in white sans-serif font on a black rectangular background.

The SODENA logo, featuring the word "SODENA" in a bold, grey, sans-serif font. The letter "N" is stylized with red horizontal bars. Below it, the text "Sociedad de Desarrollo de Navarra" is written in a smaller, grey, sans-serif font.



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About the founders

Cleantech Scandinavia

Cleantech Scandinavia is an internationally renowned resource for Nordic cleantech dealflow, business intelligence and networking. Since 2007, we supply cleantech market intelligence, events and investment opportunities to a majority of the international actors investing in Nordic cleantech.



We cover annually all investments, mergers&aquisitions and fund establishments in the Nordic cleantech sector, both public and private, analyzing well over 600 deals since we started our operations. To provide further insights into the sector we have made reports on pipeline cleantech companies in all Nordic business incubators, cleantech patents in the Nordic countries as well as overviews of expansion companies in the Nordic countries.

We have hosted 11 events bringing together more than 150 companies with investors and bringing in leading experts and desicionmakers.

Innovit Iceland

Innovit is a nonprofit initiative which purpose is to encourage entrepreneurship amongst university students and young professionals in Iceland. This is accomplished through various projects which include the largest startup competition in Iceland, Global Entrepreneurship Week, and Nordic Cleantech Open.



Venture Cup

Venture Cup works to inspire university students and researchers to develop their ideas into successful companies. Venture Cups purpose is two-fold; to inspire and motivate entrepreneurship among students, and to turn academic knowledge into viable high-growth businesses.



Venture Cup focus on entrepreneurship as a practical discipline and we expose our participants to a great network of experienced entrepreneurs and business people, who provide valuable advice on a volunteer basis because they share our interest in finding and supporting Denmark's leading start-ups.

Through our entrepreneurship competitions, a total of 650,000 kr. in cash prizes is awarded to the best ideas every year.

Venture Cup is supported by the Danish universities, and we partner with a broad range of companies; among them some of Denmark's most successful, such as Novo, Grundfos. Ernst & Young and Awapatent.

Venture Cup was originally started by McKinsey & Company, and exists today as non-profit entities in Denmark, Norway, Finland and Sweden. It is the largest business plan competition in the world.

Founding partners



Thank You



Thank You

We would like to thank Sodena for hosting and sponsoring the Nordic Cleantech Showcase in Pamplona for all the 25 finalists. As well as being VC actor, Sodena is the official business development organisation to the Navarra region in Spain. The Navarra region is positioning itself as the prime location for Cleantech growth. Cleantech is a main focus area for Sodena and a majority of the invested capital today is employed in the energy and environment sector.

We are very proud to have them as a partner to the Nordic Cleantech Open.

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