European Cleantech Fundraising 2013-14:

Investors have their own chasm to cross

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About the Authors

Since 2002, the Cleantech Group has been providing Fortune 1000 global corporations, investors, entrepreneurs and policy-makers with the latest industry market intelligence through subscription-based research, global industry networking events, and world-class custom research services. By focusing entirely on the companies innovating in clean technology, Cleantech Group helps its clients make critical business decisions that foster growth, reduce cost, and meet consumer and government demands for improved environmental quality.

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Georgieff Capital provides high end financial advisory services to corporate and investor clients from offices in Frankfurt and London. Founded in 2005, the firm provides discreet, independent and objective strategic and financial advice on capital structure, capital markets perception, funding alternatives and individual financial transactions. We advise our clients on M&A related transactions and also on delicate ownership issues and defence situations. We provide capital markets advisory services for public companies, and fund raising advisory services to select private companies in the clean technology sector looking to raise capital to grow their businesses. We manage and tailor the fund raising process to ensure our clients successfully raise the capital they need. Georgieff Capital is also a limited partner in a number of venture capital funds around the world (with a clean technology focus), and selectively makes direct co-investments.

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Introduction

Times are tough for fundraising for young, private cleantech companies, wherever they are in the world. The traditional sources of capital are shrinking, as the venture capital asset class in general has been suffering, and the cleantech investment theme in particular continues to bear the brunt.

This much is commonly known. But it is too high-level and generalized to be useful and actionable for CEO's and CFO's of such companies. The world is a big place and all is not even, geographically, or sectorally. Fundraising prospects and potential sources of capital vary greatly depending on who you are, where you are, what you are doing, what stage of commercialization and profitability you are at, and how capital-intensive your company is.

Sentiment in the global market is shifting, investors are repositioning and it can be very difficult for companies to keep a track of what is really happening and to distinguish marketing and talk, from true changes in investment focus and capital availability.

All leading indicators suggest that that the challenges for fundraising companies are only going to increase in 2013-14, the focus of this research. Cleantech Group and Georgieff Capital have analyzed this issue and produced this report to help lift the veil on what is really going on and what we anticipate for the funding of new companies in the near-future (2013-14).

The report's primarily audience is cleantech companies in Europe and Israel, but clearly will interest investors and others too. It seeks to highlight which sources of capital for entrepreneurial cleantech companies in the Europe and Israel region are growing, and which are shrinking – right now. It seeks to provide much more granularity on what is really happening and why, and some guidance on where to look, where not to look, and why.

It does so by initially sketching out in section 1 how fundraising for cleantech companies in the Europe and Israel region (interchangeable henceforth in this report with Europe or European), has evolved, to provide insight into which trends have momentum going into 2013, be they positive or negative. We then examine a number of possible sources of capital, evaluating each on their potential in providing new money, distinct from insider rounds, to capital-raising cleantech companies in the 2013-14 period. In the final section, the insights provided from both these sections are then distilled into some high-level conclusions and guidance for fundraising companies to navigate the realities of this near-future. The executive summary (pages 6-7) provide the key findings and indicate, for ease of reference, the page numbers in the main body of the report where that finding is explained in more detail.

Our insights originate from a combination of the quantitative, primarily Cleantech Group's proprietary investment data, and the qualitative, based on Georgieff Capital's fund raising advisory experience and Cleantech Group's knowledge of and connections with the ecosystem. Structured interviews and informal conversations have also been conducted with a range of companies and investors, both on a one to one basis and in group settings. All of the viewpoints gained therefrom have allowed us to feel confident that we are faithfully representing the state of the market today and the outlook tomorrow.

We hope you find this report both insightful and actionable towards the goal of raising future capital. And that it adds up to a useful guide on the fundraising outlook for 2013 and 2014, and will save you some time and energy in the search process.

That said, much more detail and insight remains outside of the report than could ever be fit into it. Both our organizations are here to help clean technology companies succeed and so we invite companies to come talk to us, to learn more and to discuss your fundraising plans.

Finally, we would like to thank and congratulate the principal author, Vince Knowles, and the principal research analyst, Michele Parad, for their efforts in making this unique contribution to the research available to European cleantech companies.

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Executive Summary

The past will not prove a prologue to the near-future (2013-14). Companies are strongly advised to beware of the changing investment and investor landscape, and plan accordingly.

- 2013 looks more likely than not to be the third consecutive year of decline in amount invested by venture and growth capital investors into European & Israeli cleantech companies. 2010 saw a high of $1.8 billion deployed in 268 deals. That fell to $1.1 billion in 176 deals in 2012. **See page 9.**
- But aggregate numbers can mask change. One potential lead indicator of a changing landscape is the 2012 upswing in the percentage of investment activity into companies in the region represented by so-called "outsiders" (new money from investors not previously related to a company). **See pages 14-15.**
- By splitting out follow-on ("inside") investing from "outside" investing in our research, we can see venture capitalists (VC's), and growth equity fund managers, both pureplays and generalists, played a smaller role in 2012 – on both a relative and an absolute level - in funding new companies, and new rounds than they played in 2008. **See pages 18-19.**
- This is a reaction to the ongoing needs of "un-exited" portfolio companies and the slowness of their own fundraising cycles which have been long and protracted, and in some cases, unsuccessful. The coffers for cleantech have not been replenished and some harsh capital allocation decisions will be made.
- Somewhere in the 2013-14 period looks set to be the low-point for "dry powder" of venture and growth equity for cleantech companies from fund managers – given the number of leading players fundraising right now. **See pages 21-25.**
- The total quantum of dry powder available for new company investment (distinct from capital reserved for follow-on rounds) from pureplay cleantech funds within this region, we estimate, to have fallen by about 50% over the last 4-5 years, based on our sample analysis. **See page 22.**
- The fall in venture capital's dry powder (for earlier and therefore riskier investments) has seen an even bigger drop. It is estimated to be about one third of what it was in 2008 and less than 40% of the total capital available from pureplay fund managers today (compared to greater than 70% in 2008). **See page 22.**
- Corporates are picking up some of this slack. Indicators point to increasing dry powder from this investor category across the world, but European & Israeli companies are in a globally competitive

battle for this capital. In many cases, European multi-nationals have, to date, been favouring North American companies over Europeans ones, on a pro-rated basis. **See pages 26-29.**

- That said, 2012 has seen a significant jump in corporate activity in Europe, with the percent of cleantech deals in the region seeing corporate participation jumping from 13% in 2011 to 19% in 2012. **See page 28.**

- The long tail of 'Other' Cleantech investors, which aggregates many types, including public sector investors, institutional finance (that are not Venture Capital or Private Equity fund managers), regional development finance and private wealth sources, is the other investor category whose relative participation in funding new companies and new rounds is on the rise. **See pages 29-40.**

The past will not prove a prologue to the near-future (2013-14). Fundraising companies need to be smart and adjust their 2013-24 plans to fit their circumstances and the realities of the funding environment:

- First, be clear where you fit and what these overall findings mean to you. All is by no means even geographically, by stage, or by sub-sector. **See pages 41-43.**

- There are companies within the cleantech umbrella who report fitting the VC model well – they tend to be software businesses. Those innovating with capital light technology or service models will continue to find appetite in the pureplay and generalist VC communities.

- Nor do we see a real problem for later-stage companies. For quality teams, with stable revenue generation, the possible investor base is just widening, by type and by geography of the investor.

- The heat of the 2013-14 new funding problem is for the early-stage companies and for the capital intensive. There is no 'silver bullet' nor a "one fits all" solution for such companies. Tailored and specific advice and creative actions are needed in each case.

- Be realistic and be inventive. And be comprehensive in your search. Some companies report finding 'patient capital' in family wealth circles; some report successfully leveraging the many international governmental programs (research funds, grants, subsidies, etc.) as a means to fund their development through non-equity sources. It is clear that companies can also engage investors specific to their industry vertical, most notably corporates or family offices of industrial families most relevant to the problem you are solving.

All indicators on what the 2013-14 period will be like seem to us strong and pretty clear – plan accordingly.

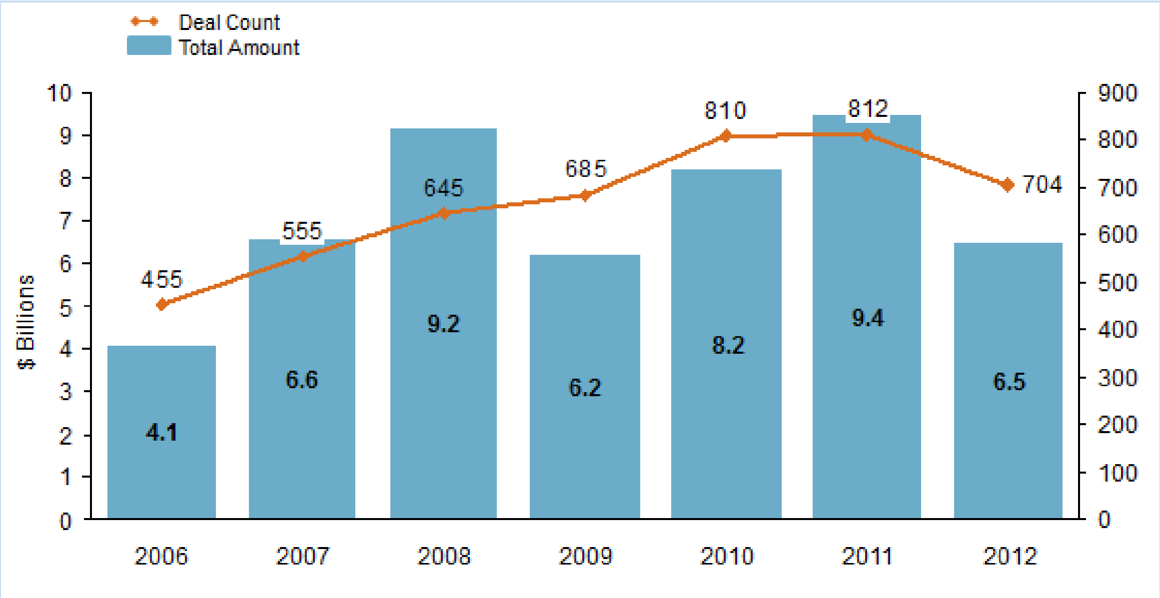
The Current State of Cleantech Investing in European and Israeli Companies

The Evolution of a Cleantech Revolution

Before exploring the specific dynamics relevant to a 2013-14 fundraising European cleantech company, it is important to set down the broader context of cleantech investing. The cleantech investment theme emerged in the early 2000's with a number of fund managers creating investment theses targeted at making significant investment returns from high-growth companies seizing opportunities created by the rise of renewable power, and the needs of consumers, companies and governments to 'do more with less' – less energy, less water, less land, fewer materials, and all with less negative impact on the environment.

Venture and growth equity investment into such companies grew dramatically year-on-year until 2008 when the financial crisis knocked funding levels for the first year since Cleantech Group started tracking cleantech investment numbers in 2002.

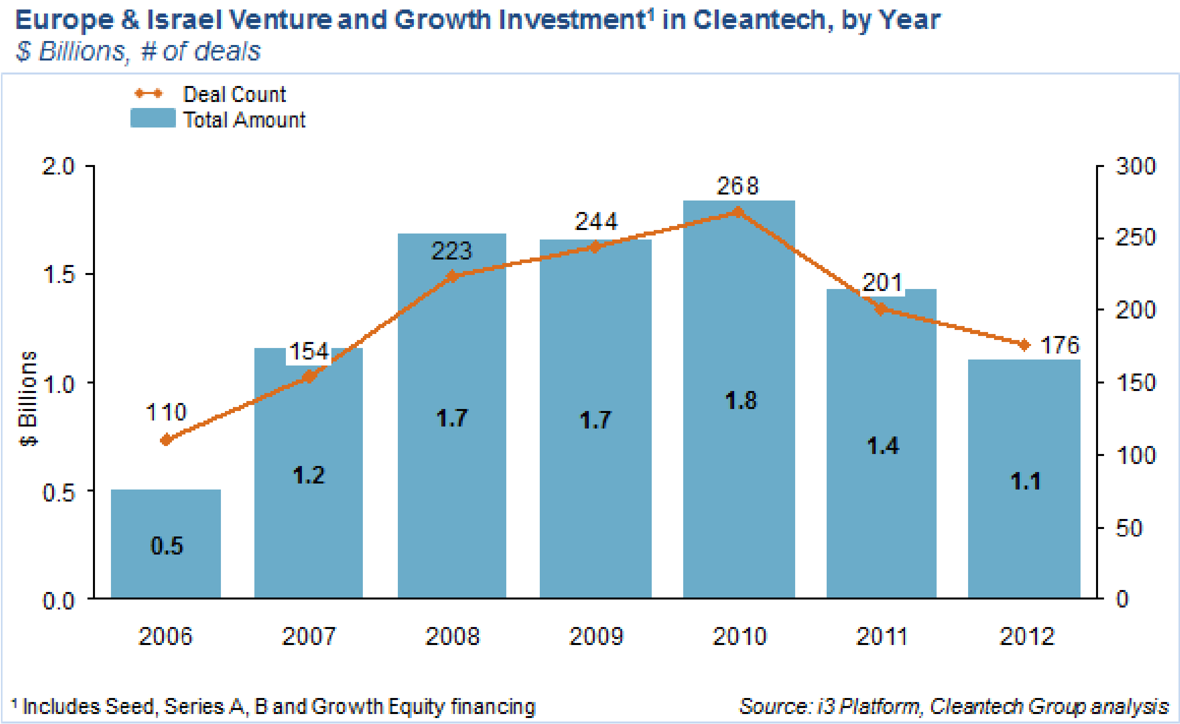
Global Venture & Growth Investment[1] in Cleantech, by Year
$ Billions, # of deals



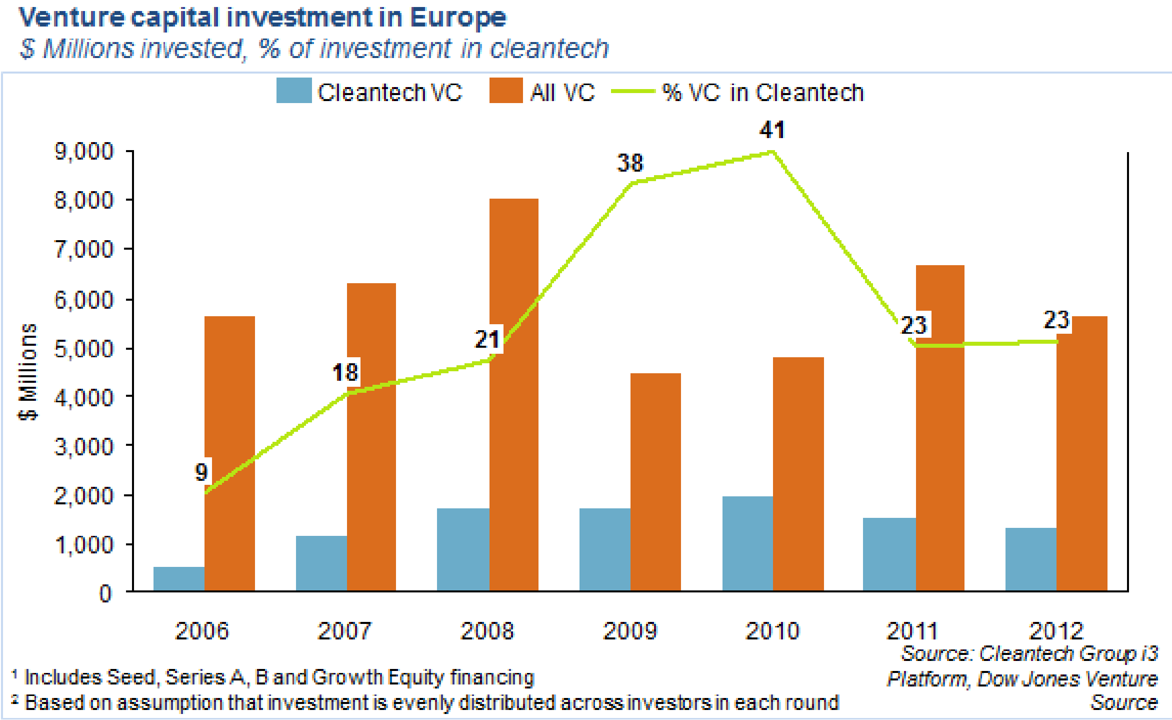
[1] Includes Seed, Series A, B and Growth Equity financing — *Source: i3 Platform, Cleantech Group analysis*

As the chart clearly illustrates, growth re-started after the 2008-09 knock-back and in many ways, it is only now that the effect of the economic malaise and the changed capital environment on cleantech is being fully felt. That is because the many funds raised to invest wholly or partially into cleantech, with 2006-08 vintages, have now reached the end of their investment periods and the harsh post-crisis fundraising environment has not allowed the fund managers' 'warchests' to be replenished – least not for some, and not at the same rates.

Distinct from the global picture above, which is dominated by North American numbers, the downward pressure on funding for European and Israeli cleantech companies is, in 2013, entering its third down year. This is illustrated below.



Across all investment themes, venture capital has struggled in recent years. The percent of venture capital going to cleantech companies in Europe & Israel has fallen back from the near-40% highs of 2009-10 to a more sustainable level, at 23% for both 2011 and 2012.



These peaks and troughs of activity have not been uniform in their nature; rather, cleantech investing has followed a number of distinct waves. The first wave, as we see it, was characterized by steady, but low levels of investment into sustainable technology companies, pre-dating cleantech's existence as a discrete and popular theme – "cleantech before cleantech", if you will. Time-wise it originates in the 1990's and ends around 2005. A number of strong and very public exits, most notably in Europe the IPO's of Q-Cells and REC in 2005 and 2006 respectively, changed all that and catalyzed the second wave – when clean energy very much dominated the broader cleantech theme. The shift from wave one to wave two is evident to us, in the significant rise in investment activity, 2006-08, seen in all the charts above.

Billions in cleantech funds were raised in North America and Europe between 2006 and 2009, the majority of which were put into clean energy big bets. A number of recent high profile failures in solar on both sides of the Atlantic (e.g. Miasole, Odersun, Soltecture, and Solyndra) and awful post-IPO stock performance from public stocks such as A123, Amyris, Codexis, and Gevo has made it hard for fund managers to realize investments and provide returns to their own investors. The poor returns and the paucity of good exits has inevitably created skepticism and made fundraising for follow-on cleantech funds very challenging for the majority.

As this second wave, propelled by the funds of 2006-08, starts to weaken, we believe a third wave is developing, somewhat under the radar and somewhat obscured by the ongoing bad news and high profile failures of the second wave. More companies are now being funded on the basis of relatively capital-light models, focusing on energy efficiency rather than generation, downstream services or leveraging IT to deliver greater efficiency in industries that can vary from transport to agriculture. It remains to be seen whether these companies can find funding from a market burned by the capital intensive, long development cycle and often subsidy-reliant companies of the second wave. This pattern has been playing out in Europe as much as in North America, with Soltecture and Better Place prominent examples in this region of heavily funded companies from the second wave that have to some degree overshadowed some of the success stories and some new models of cleantech emerging in the third wave.

When looking to the future of cleantech it is important to understand the evolution that has surrounded the theme. In its heyday, many investors and corporates flocked to the word ‘cleantech’. Now as the theme is somewhat tarnished many investors (especially in the US) are now shying away from the term, preferring to self-identify with closely related concepts such as ‘resource efficiency’. These semantic shifts are as much about marketing as changing investment theses, but they require fundraising cleantech companies to appreciate the nuanced shifts in what today makes an attractive investment for whom. The past will not prove a good guide to the (near-term) future.

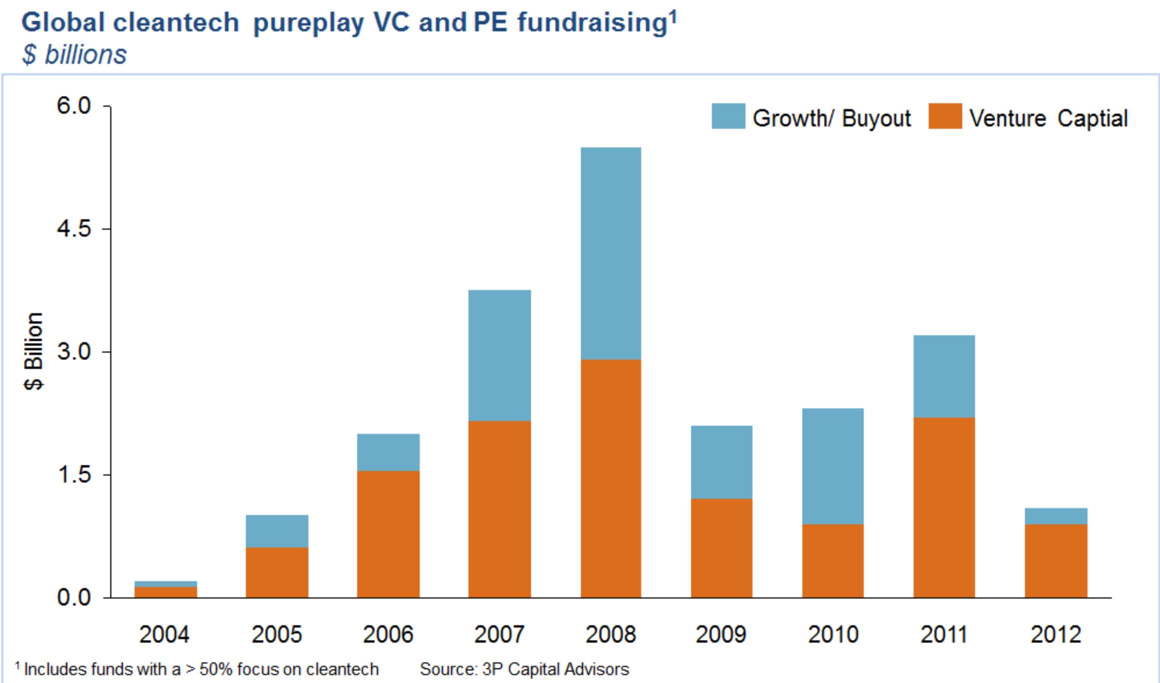
Many generalist investors are toning down their rhetoric around environment related technologies; however, their actual deals suggest they retain faith in the power of some of the drivers underlying the cleantech theme. Examples include Index Ventures and Draper Fisher Jurvetson, both of whom publicly announced a move away from cleantech early in 2012 but have made a number of deals since, which, by most definitions, would have been labelled as cleantech 2-3 years ago. Index Ventures made a first investment in French car sharing company drivy (formerly known as Voiturelib) and participated in follow on rounds with Lehigh Technologies, Redwood Systems and The Climate Corporation. Similarly DFJ followed on with a large number of their cleantech portfolio and made new cleantech deals including essess, a building efficiency data company.

A Funding Gap Has Emerged

As noted already, the general financial malaise of recent times has had a deep impact on the exit prospects of venture backed cleantech companies, and so the ability of their investors to raise further funds. 2012 saw only two IPOs from venture backed European cleantech companies and the story is little different in North America. The only active market for cleantech IPOs in recent years has been China. Of the few non-Chinese cleantech companies to make it out the door, mostly US advanced biofuels developers, the majority are currently underperforming. The M&A

market has been moderately more active, with 13 acquisitions of VC/PE-backed companies in the Europe & Israel region in 2010, increasing to 14 in 2011 and 15 in 2012. At one end of the spectrum, these have included a strong trade sale, such as the $2.3 Billion acquisition of Landis+Gyr by Toshiba in 2011, and at the other a number of more distressed sales (e.g. Novacem). A small number of Private Equity firms have picked up later stage cleantech companies from other financial investors, an example being Alinda's 2011 acquisition of Agri.capital from Frog Capital and Ludgate Investments. A more recent example would be Silverlake Kratfwerk and Kleiner Perkins acquiring the majority of Wheb Partners' investment into FriedolaTECH. But, instances of such deals are still quite rare.

This environment is a severe challenge to the traditional venture capital model. Poor returns for VC's mean relatively little capital has been recycled to their limited partners (LP's) in recent years. This performance makes LP's reluctant to fund their GP's next funds, ahead of clearer results on the first, and so stalls the venture investment cycle. Pure-play cleantech venture fundraising, as illustrated in the next chart, has never returned to 2007-2008 levels, with the average of 2009 to 2012 less than half the $2.9 Billion raised globally in 2008[1]. The fundraising record of cleantech investors in recent years is a very powerful lead indicator of the emerging funding gap.



Given the lack of exits, a large number of growing companies are trapped in venture investors' portfolios - some for lack of a potential buyer but others held as investors wait for valuations to improve. These companies still require funding and so VC's are forced to keep participating in

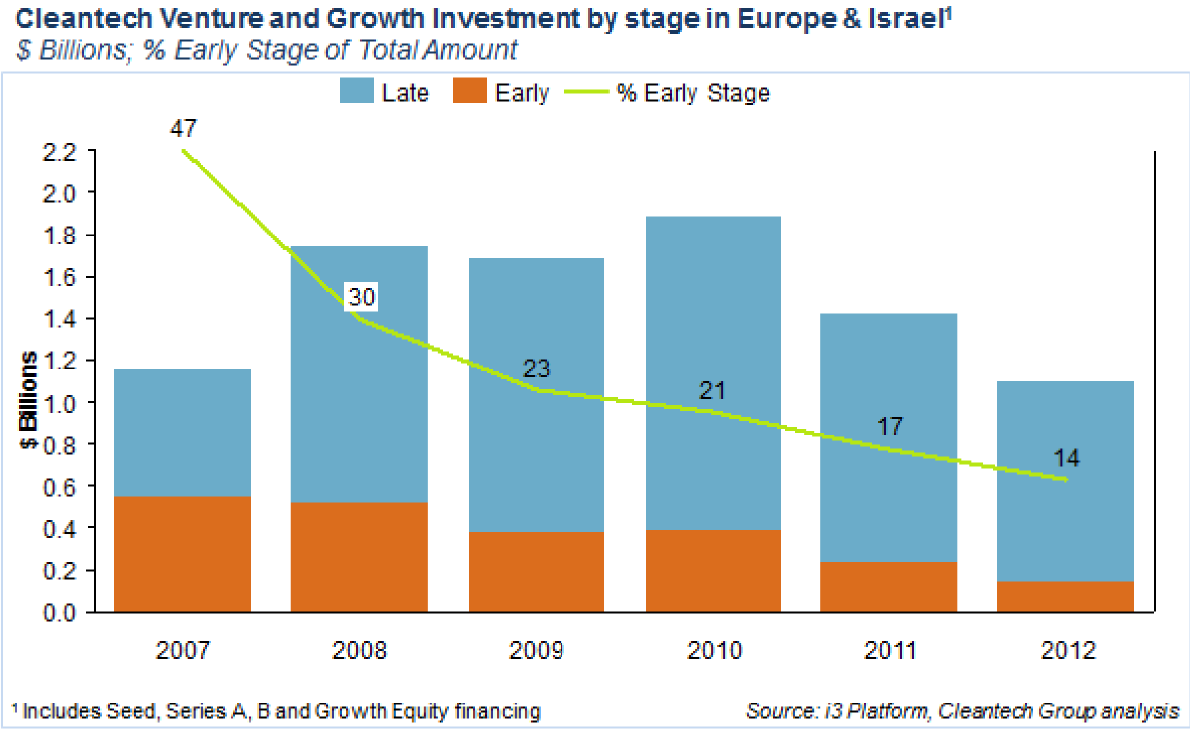
[1] Source: 3P Capital Advisors Clean Tech Fund Directory

follow-on rounds to avoid dilution and/or the companies running out of cash. This denies newer companies potential capital, as investors report having to outlay capital from their reserves at levels some 20-40% higher than originally expected.

The supply side (the availability of capital) is shrinking, but the demand side (companies looking for capital) is likely growing. The demand for equity capital from cleantech companies is not easy to measure meaningfully, but it seems reasonable to assert that the flow of companies, and the rate at which cleantech startups are being created is more likely to have increased than decreased, and that the overall size of the portfolio is more likely to have increased than decreased, given the lack of exits. Therefore, we would conclude, their aggregate capital needs (the demand) is more likely to have increased than decreased.

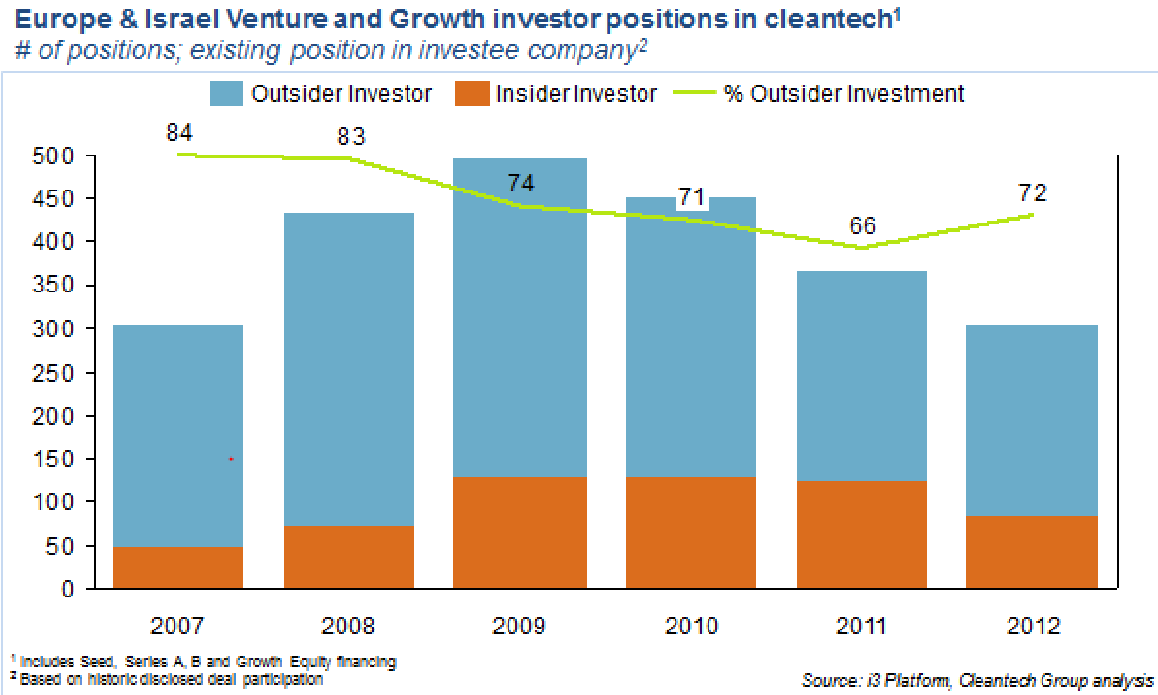
For companies looking for a first institutional round the funding scarcity is especially acute; the build-up of un-exited companies is pulling funds into follow-on rounds rather than funding 'new companies'.

This is evident in both of the next two charts. The first shows the overall decline in early-stage investing, defined for the purposes of this report to be Series A or earlier. Across European cleantech the percentage of capital going to early stage deals has dropped significantly since 2007, down from 47% to 14% in 2012. However, looked at by the absolute numbers of deals, the drop in early stage funding is less dramatic, more or less halving from 137 deals in 2007 to 73 in 2012.



This second chart shows the continual fall in the number of "outsider" positions taken, in the period up to 2011. An "outsider" position refers to when an organization is recorded as investing into a company for the first time, to the best of our knowledge. By contrast 'insider' positions refer to the situation where investors that already have a disclosed position in a company are making a follow on investment.

A potential lead indicator for us that wave two is dying out and that wave three is gaining momentum is evident in the 2012 upswing in the percentage of investment activity into companies in the region represented by so-called "outsider" investors, after a four year decline from 2007-11.

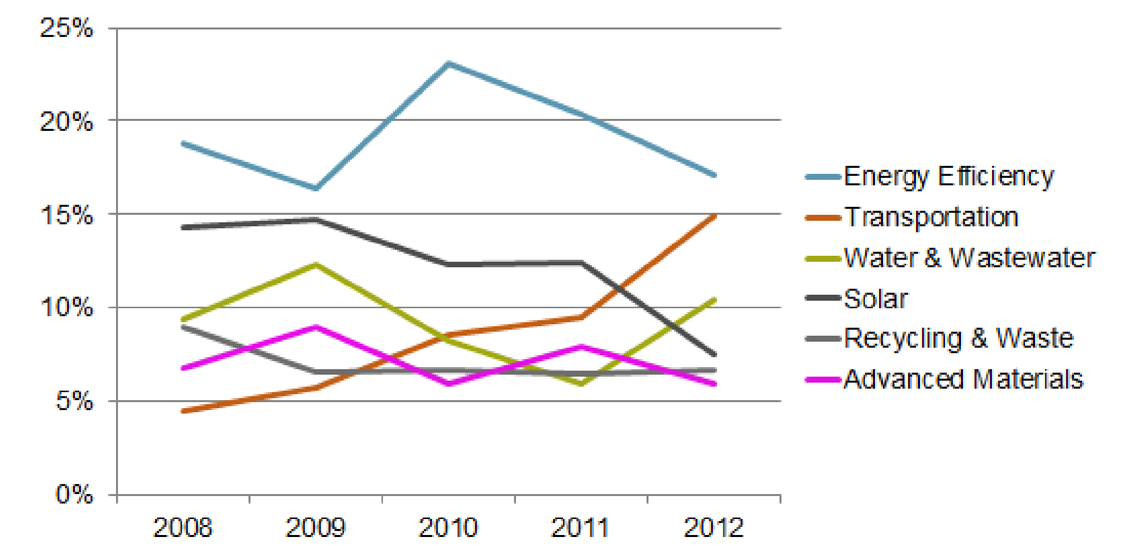


Profile of the Current European Cleantech Portfolio

While recent years have seen a decline in overall venture and growth investing going into European cleantech, this trend is far from uniform across company sector, stage and geography. There have been distinct winners and losers in the recent funding environment and the trends that have momentum going into 2013 are important to understand. Since 2007, the amount going into solar companies has been in consistent decline, with such companies making up less than 10% of deals in 2012. Energy efficiency has steadily led deal numbers over this period, though transportation companies have been increasing their share of the total to end up comparable with energy efficiency in 2012. Water & wastewater, recycling & waste and advanced materials make up the other sectors to see significant investment activity in Europe.

Filtering for companies receiving institutional funding for the first time a similar trend can be seen, with energy efficiency companies responsible for 20% of first institutional rounds in Europe and transportation at 11%, with water & wastewater, solar, recycling & waste, biomass generation and wind all at 7-8%.

Venture and Growth Investment in Europe & Israel[1]
% of total deals, by sector



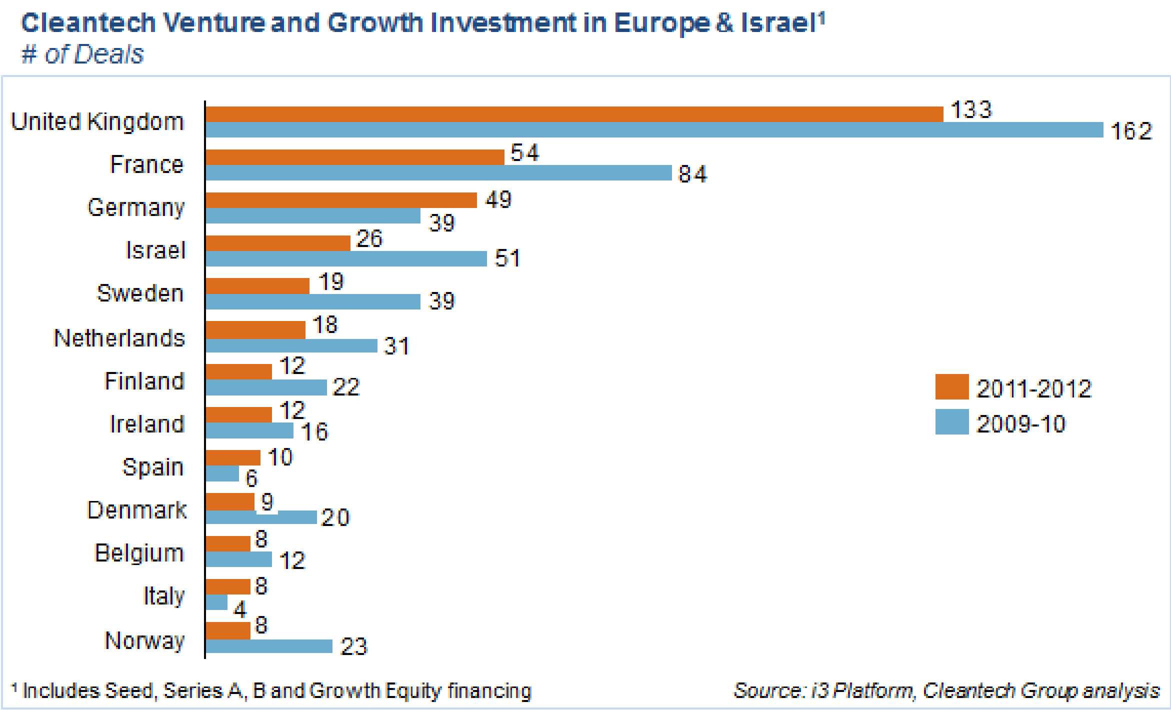
[1] Includes Seed, Series A, B and Growth Equity financing

Source: i3 Platform, Cleantech Group analysis

The nature of deals in today's cleantech investment category is indicative of a maturing investment approach, as deal sizes have dropped and investors look to back capital-lighter technologies. In North America the average series A round size has dropped from a peak of $9 million in 2008 to under $4 million in 2012. In Europe & Israel deals have always been smaller: the drop is from an average of $6 million in 2008 to under $4 million in 2012.

This capital-lightening trend is being played out in the types of companies being funded for the first time. Of the eight European transportation companies in this group in 2012, five are primarily software solutions, including names such as addFleet, AlertGasoil, and Eyefreight. Despite the overall drop in funding for solar, mainly a reflection of the flight from panel producers, there is still some money for capital lighter innovations, in the solar value chain; for example, process efficiency companies Nines PV and Utilight and downstream service providers Sophia Antipolis Energie Developpement (SAED) and Abakus Solar picked up first institutional rounds in 2012.

Geographically, the UK has consistently led investment with over 35% of European deals since 2007. Germany and France follow with around 15% of the deal count. Israel was in a similar position in 2007 but has since dropped to 6% of deals, over-taken for fourth position by the Netherlands in 2012. Other countries contributing more than 2% of deals are Norway, Belgium, Sweden, Ireland, Finland and Spain. Sweden and France stand out for early stage funding, with both countries seeing over 40% of the 2012 deals which were at seed or series A. Conversely Ireland stands out for having 80% of its deals at series B or later in the same period.



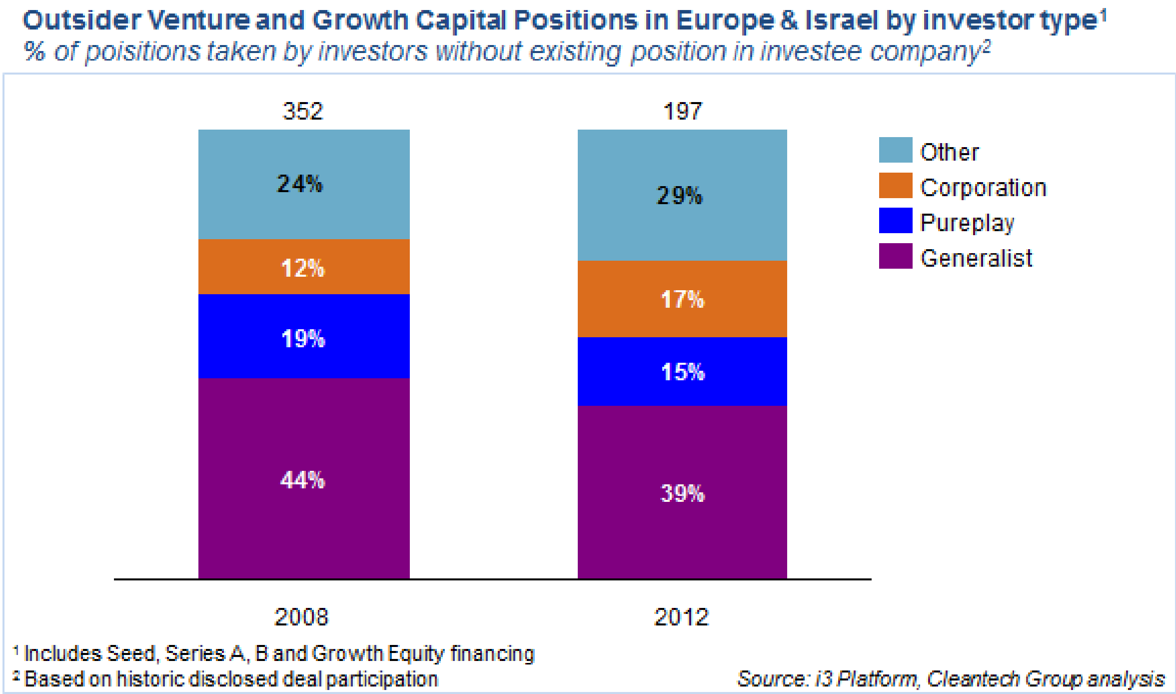
The Diversifying Investor Landscape for Cleantech Companies

As the second wave of cleantech investing recedes we are left with a very different capital landscape for cleantech companies to access. Those who were the most active investors in the 2007-10 period may not necessarily be so for the future years. Companies fundraising in 2013 and 2014 need to be aware that the rear-view mirror and past statistics are not necessarily an accurate guide to the future. This section seeks to explain.

The most visible change is a reduction in the numbers of “pureplay” cleantech venture and growth capital funds active, and with capital to invest, in the market today. This change is enhanced by a withdrawal from a number of generalist VC’s who have previously dabbled with the cleantech theme.

And, with weak fundraising of late by venture capital and private equity as an asset class generally and the requirement of existing portfolio companies for additional follow-on capital for insider rounds, the result is a reduction in the relative activity levels of VC’s in new investment for European cleantech companies.

The difference between 2008 and 2012 is illustrated below, expressed in terms of where new money ('outside' investing, as opposed to follow on from investors with an existing position) is coming from.

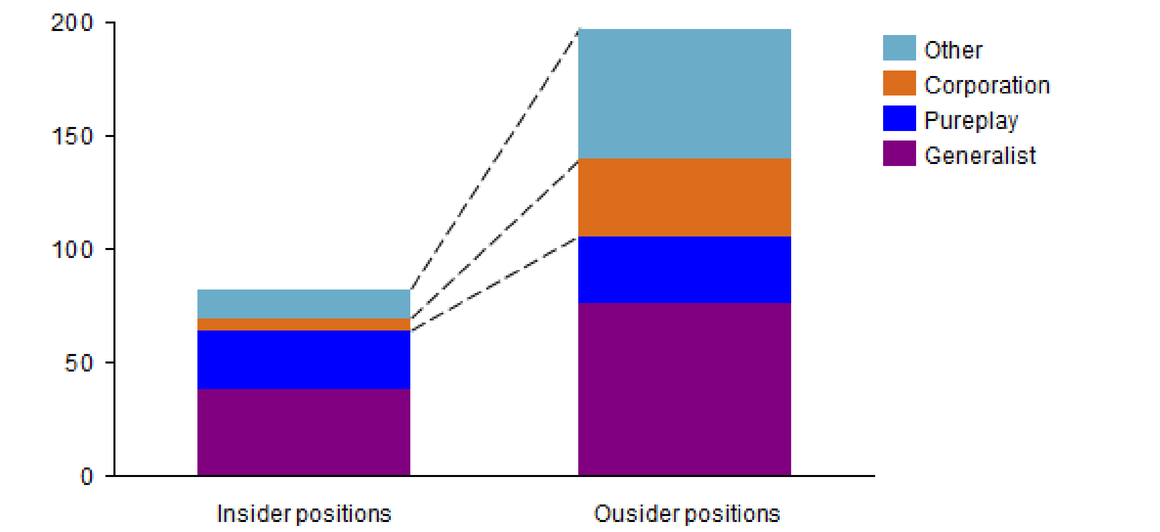


The importance of understanding and exploring in more depth the two investor categories on the increase, namely Corporates and Others, is well illustrated by the chart above. The 'Other' group includes investors such as public sector bodies, institutional finance (that are not venture capital or private equity fund managers), regional development finance and private wealth sources.

Interestingly, despite the clear rise in the number of teams and the new investment mandates which have appeared amongst the corporate population in the last 2-3 years, corporates are still a relatively minor player in the overall portfolio, measured by deals done. That said, for their involvement in new investment in 2012 they have overtaken "pureplay" fund investors, and the lead indicators would point to a gradual increase in activity from here, something we would see as signaled by their greater involvement in 'outside' investing, as opposed to inside.

The difference in 2012 between their relative contribution to deals in which they already have a stake (so-called inside deals) and those in which they do not (outsider deals) is significant, as illustrated below.

2012 - Venture and Growth Capital in Europe & Israel cleantech by investor type[1]
# of positions; existing position in investee company[2]



[1] Includes Seed, Series A, B and Growth Equity financing
[2] Based on historic disclosed deal participation

Source: i3 Platform, Cleantech Group analysis

It is also worth bearing in mind that, whereas our accounting for the involvement of corporates and funds will be pretty comprehensive, bar the odd non-disclosed deal, for "Other", it is certain we will not have access to all the deals done – as these kind of investors, especially for private wealth, are often not disclosed. This can only mean they are a greater part of the pie than we are able to represent in this research.

The analysis to date has all been about the past, albeit the purpose in doing so has been to inform the future. We have tried to reveal, in particular, the mood and momentum shifts which will both define and impact the 2013 and 2014 investment years.

The next section builds on this to look at all these investor types one by one, and make an assessment of who will be the active investors in new money fundraisings in 2013 and 2014, and why. The sub-section on each investor category ends with our view on the outlook for that category as investors into new cleantech companies in the Europe and Israel region in 2013-14.

Potential Capital Sources for 2013-14

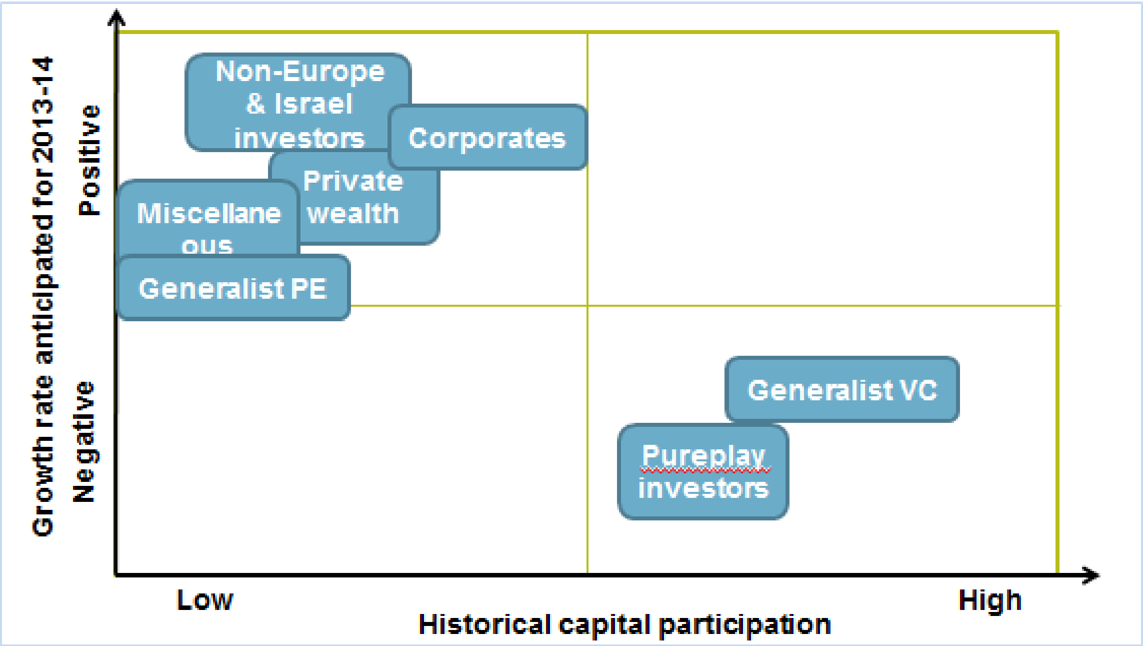
Overview

An understanding of the changing investor landscape is crucial for companies seeking to fundraise or investors seeking to build syndicates.

This section seeks to explain why we are expecting growth or decline in the participation of the different investor categories in funding for new companies in 2013-14 period, relative to their historic participation.

We have mapped these variables on the chart below, but given the varied nature of investors within each category these placements should be seen as broadly illustrative. There will be investors within each category who will buck the trends we have observed through our analysis of our own proprietary quantitative data and our qualitative interviews.

Assessment of potential capital sources for European cleantech companies



Capital source	Definition	Predicted capital participation in 2013-14
Pureplay venture and growth investors	Fund managers with a 50% or greater focus on cleantech	Shrinking in aggregate and relative terms but will remain a significant source and become more so, assuming good follow-on fund fundraising rates. Many have moved towards capital light, quick to market, and/or later stage plays
Generalist venture and growth investors	Fund managers with a 49% or less focus on cleantech	Shrinking in numbers, but will remain a large source in aggregate. Most likely to be found in more capital light, quick to market plays
Generalist private equity investors	PE fund managers defined by the search for good companies, not by sectoral type	Significant capital available but only for mature and stable revenue generators
Corporates	Corporations making VC or PE investments, either from business units or a distinct investment unit	Growing capital source but easy to overstate how much of their capital may come to European companies
Non-Europe & Israel investors	Investors based outside of the Europe & Israel region	Current activity primarily from the US but Asian investment is growing more quickly
Private wealth	Family offices or high net worth individuals or angels	Long term horizons suited to cleantech but lack capacity for complex technical diligence or in the cases of angels, enough capital
Miscellaneous sources (the 'long tail')	Various - see pages 34 onwards	See pages 34 onwards

Pureplay Cleantech Venture and Growth Investors

Billions were raised in cleantech specific funds, 2006-2008, and to a lesser rate since then, with a number of new pureplay cleantech fund managers established. These investors have been a key facilitator to the growth of cleantech as an investment theme.

With relatively weak fundraising recently for such funds, their contribution to the sector, in both absolute and relative terms, has fallen and, we believe, is set to fall further in the 2013-14 time period.

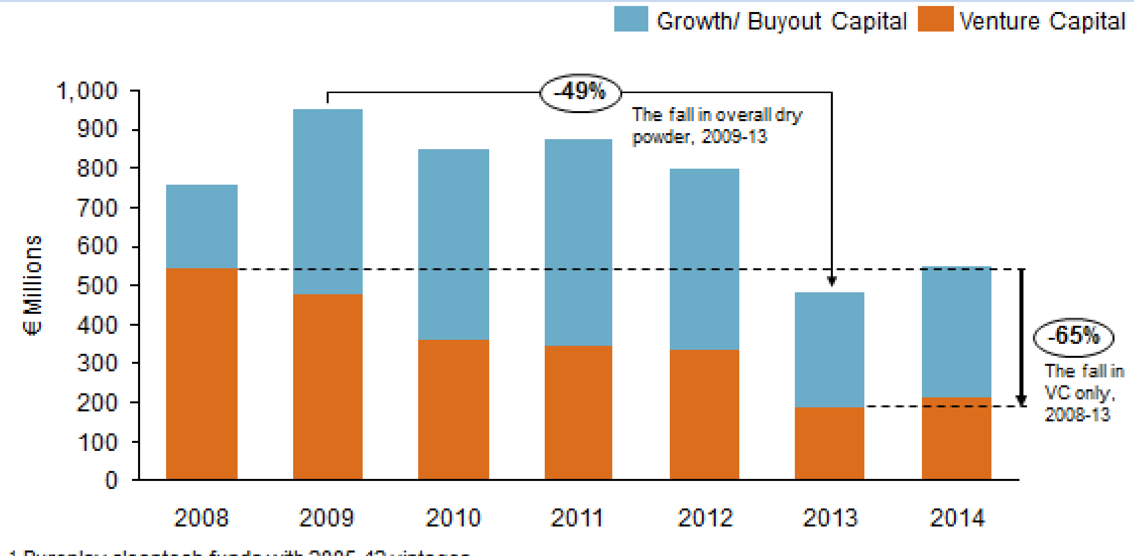
In our assessment, the 2013-14 period looks like it will represent the bottom in pureplays' "dry powder" (capital available to invest in new portfolio companies). That conclusion is drawn from our analysis of a sample set of 60 pureplay European & Israeli cleantech funds from more than 40 fund managers, with vintages from 2005, and applying assumptions across the whole sample set, as to their capital availability for new company investment.

The resultant figures for 2008-13 are all based on funds already raised. The 2014 figure includes an assumption across the portfolio of funds in the market that 50% of the funds they are collectively targeting will be raised and available for new companies. More detail on the approach used is provided in Appendix 2.

Essentially, this analysis, illustrated in the chart below, indicates that:

1. The total quantum of dry powder available for new company investment (distinct from capital reserved for follow-on rounds) from pureplay cleantech funds within this region has fallen by about 50% over the last 4-5 years.
2. The fall in venture capital's dry powder (for earlier and therefore riskier investments) has been the bigger drop. It is estimated to be about a third of what it was in 2008 and less than 40% of the total capital available today (compared to greater than 70% in 2008).

Estimation of 'Dry Powder' (for new companies) in 60 Europe & Israel funds[1]
€ Millions



[1] Pureplay cleantech funds with 2005-12 vintages
2014's number is based on 50% fundraising success rate in 2013 *Source: Cleantech Group analysis*

The numbers are reached by making a consistent set of assumptions across the data-set; the reality will be different, as funds will not have deployed their dry powder in such a straight-line fashion and some funds we know to have extended their investment periods, to give themselves longer to find the deals they are looking for.

Given the nature of the data and the assumptions that are made across the whole sample, we strongly encourage readers to concentrate less on the absolute numbers and more on the trend directions and quantums.

This analysis puts into sharp relief why the months across 2013 and 2014 look set to be the low-point of the dry powder cycle of the pureplay community, hopefully the bottom. It also speaks to the distinct migration of Limited Partner and institutional fund manager appetite in cleantech, away from the earlier stage to the later stage. A number of cleantech GPs have moved later stage in focus to raise funds in recent years, WHEB Partners and Zouk Capital being two of the most well-known cases in point, signaling both a maturing of the cleantech portfolio and a growing view from LP's that this is where they will see better returns in cleantech. At least for now.

Outlook for 2013-14. Pureplay VC's will remain active players but their dry powder for cleantech in 2013 and 2014 is significantly limited, relative to the past. Companies, take note.

Most active Pureplay investors in new companies 2012

Investor	Location	# Europe & Israel deals 2012[1]	# of which outsider deals[2]	Example 2012 investment
CT Investment Partners	United Kingdom	5	3	ecologicliving
Demeter Partners	France	4	2	Naldeo
Ludgate Investments	United Kingdom	3	2	micropelt
Aster Capital	France	2	2	lucibel
Emertec	France	2	2	ArchiWIZARD
Yellow & Blue - Clean Energy Investments	Netherlands	2	2	Topell Energy

[1] Includes Seed, Series A, B and Growth Equity financing
[2] Investor does not have existing position, based on historic disclosed deal participation

Generalist VC Investors

Over 80 generalist venture or growth capital funds made two or more cleantech deals over 2011 and 2012. Measured by total number of deals and investors, be they taking insider or outsider positions in companies, this investor category was the most active in European cleantech.

When it comes to making new investments, the following were the standout names of 2012:

Most active Generalist investors in new companies 2012

Investor	Location	# Europe & Israel deals 2012[1]	# of which outsider deals[2]	Example 2012 investment
North Star Ventures	United Kingdom	5	5	YASA
IP Group	United Kingdom	5	3	CatalySystems
High-Tech Gruenderfonds Management	Germany	4	3	enercast
Parkwalk Advisors	United Kingdom	3	3	arvia technology

[1] Includes Seed, Series A, B and Growth Equity financing
[2] Investor does not have existing position, bsed on historic disclosed deal participation

This category has had an on/off relationship with cleantech. Many generalists were active participants at the key cleantech conferences at the height of the second wave, and had a partner dedicated to the theme. Some have clearly backed off of late. And even those who have remain committed find market dynamics and LPs enforcing change on them.

All that said, we should not lose sight of the fact generalist VC's remain the most active investor category in deals we classify as cleantech. These investors largely remain open to cleantech deals, but will treat companies on a par with all others, demanding returns over a shorter period greater than most cleantech companies have delivered to date. This means generalist VC's will likely be more attracted to cleantech companies that are in effect conventional tech businesses that are targeting sustainability or energy applications.

Outlook for 2013-14. It is not possible to make defensible estimations of generalists' dry powder in exact numbers, because their cleantech allocations are not pre-defined. However, since fundraising in European VC has been weak across the whole asset class, not just in cleantech, we would suggest that it would not be unreasonable to believe that in absolute terms, at least, its capital allocation will remain on a downward trend and that its war chest in 2013-14 may mirror to a large degree that of the pureplays, who are, often times, their syndicate partners.

Generalist Private Equity Investors

The 2008 financial crisis and its aftermath have greatly reduced the availability of debt, which inhibits the ability of traditional Private Equity (PE) fund managers to execute leveraged buyouts in the way they used to. This opens up the potential for more of their capital to be deployed into smaller equity-only or majority-equity deals, which might be well-suited to the more mature cohorts of cleantech companies in Europe. Given some cleantech specialists have moved to focus more on later stage companies, in the belief that this is where better investment returns can be made for the time being, then it would not be illogical were we to see generalist private equity fund managers looking for dealflow here too.

Cleantech as an investment theme, encompassing a range of investment theses built on macro drivers around environment and resource scarcity issues, largely loses its relevance for private equity fund managers. Traditional private equity fund managers do not make thesis-driven deals, rather they evaluate companies on management teams and company fundamentals, in particular the financials. This means that they will be less affected by the peaks and troughs of hype around cleantech and evaluate each company in reference to the industry it plays in and its track record in producing revenue growth and improving profitability and cashflow.

To date very few PE fund managers have engaged with cleantech companies, a reflection of the immaturity of companies and the general operating environment. Notable exceptions to this would include Nordic Capital’s acquisition of SiC Processing in 2010, Alinda’s acquisition of agri.capital in 2011, and more recently, in 2012, Silver Lake Kraftwerk’s acquisition of much of WHEB Partner’s stake in FriedolaTECH, a premier recycled plastics processing company that produces environmentally-friendly products and components for the automotive and packaging industries.

Outlook for 2013-14. As more companies pierce the €20 million revenue threshold (a minimum that the smaller PE fund managers might typically apply as a minimum starting-point), we will undoubtedly see more deals. We know of a number of fund managers who are watching companies in the cleantech portfolio and we also know that a number have looked at transactions and indeed bid in some M&A auction processes. All that said, in the total quantum of activity, for the 2013 and 2014 period, we anticipate deals involving generalist PE will remain the exception, not the rule. The recent reported distress of SiC Processing GmbH will no doubt have a psychological impact on investment committees too.

Corporates

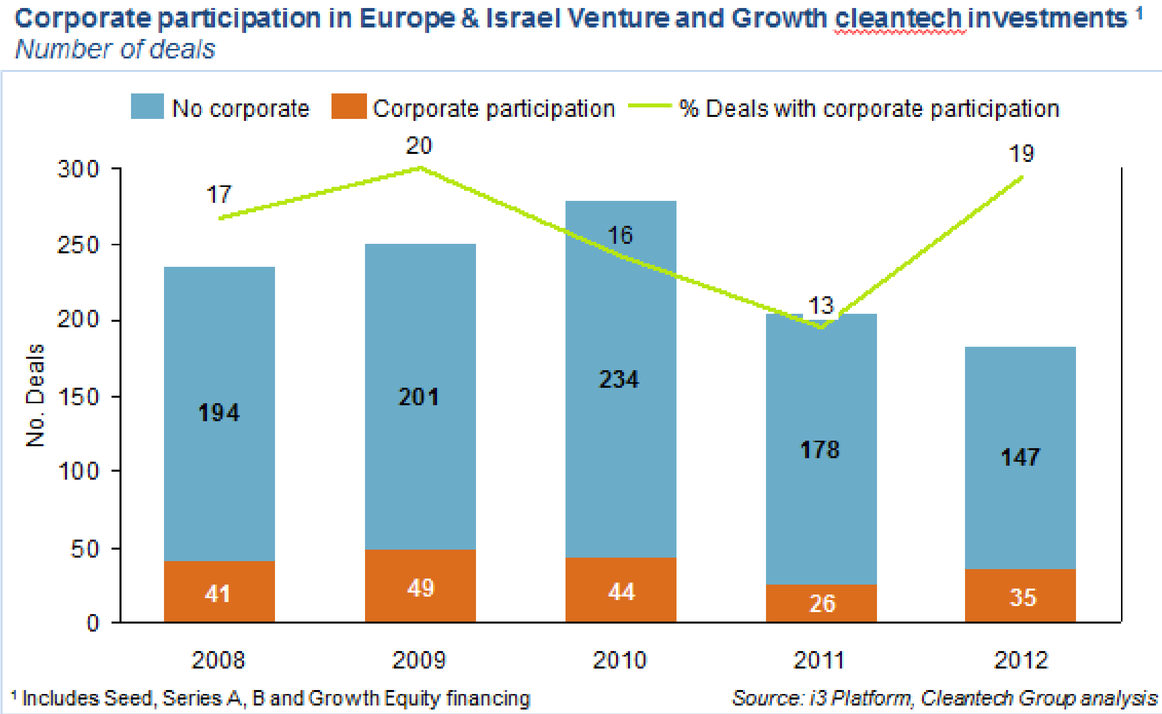
As the popularity of ‘open innovation’ has grown, large corporates have increasingly seen the external start-up ecosystem as a vital source of innovation, and part of their strategic portfolio for securing long term competitive advantage in a rapidly changing world. Taking minority equity positions is one key tool in accessing innovation developed by entrepreneurial companies, leading many corporates to set up corporate venture capital units (CVC’s).

Corporate venture investing once peaked and crashed along with the dotcom bubble as companies sought to emulate the returns being achieved at the time by 1990’s venture fund managers.

A new model is rising from the ashes of this group of failed corporate venture units with a fundamentally different strategic rationale. Technology access, market intelligence and customer ecosystem development are more common drivers for new corporate venture units than financial return, though the latter remains a metric of most CVC’s, and is the critical metric for a minority.

Multi-national corporates are often touted as a potential ‘white knight’ for cleantech companies and indeed for financial investors. They have large balance sheets, which generally have been much repaired and de-leveraged in the last few years. And the strategic match with some of the cleantech portfolio is strong. There are more teams being formed, with investment mandates and agreed budgets. Their dry powder is not really calculable in the same way as it is for funds, but, given the number of new mandates which have come to the global table in the last two years, it seems wholly reasonable to assert that, in theory at least, dry powder from corporates for new companies has increased – a contrarian trend to what we see from the financial players.

All that said, European and Israeli companies are yet to experience a huge difference. The chart below shows that the percent of deals for European cleantech companies where a corporate has participated has kept within a similar range of the total activity for the last five years. The change 2011-12 is clearly a positive one, and adding that to the notable split we observed in the earlier chart showing how relatively active corporates have been in 2012 “outsider” deals (i.e. they are taking on new companies), we are hopeful that we are seeing signs of a positive trend – but it is too early to call it unequivocally.

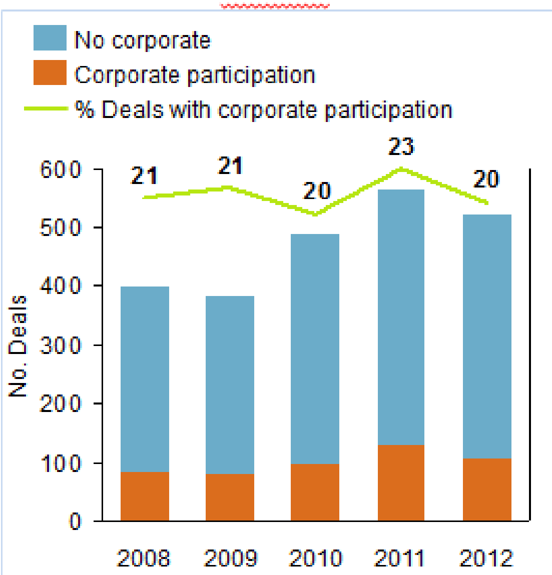


It has been striking how many of the new corporations with CVC's and new investment mandates with interest in the global cleantech portfolio have come from European corporations. And whilst that sounds like good news for fundraising European cleantech companies, it is not necessarily so. Multi-nationals are geographically agnostic in their search for innovation and investments, and arguably Europe, to date, has underperformed in attracting that corporate capital.

The chart below shows two things – it shows that, in North America, the proportion of deals in which corporates have participated has been consistently over 20% (whereas 20% has represented the very peak for European companies) and it shows that the most active European corporate investors in cleantech companies have been strongly favouring North America, especially the US. This is illustrated for 2011-12.[2]

[2] Please note that this is the observed activity of these companies' Corporate Venture units. Deals with European companies may have been done by other entities within these corporates, most likely specific business units. It is not always clear from disclosures where in an organization the actual deal was done

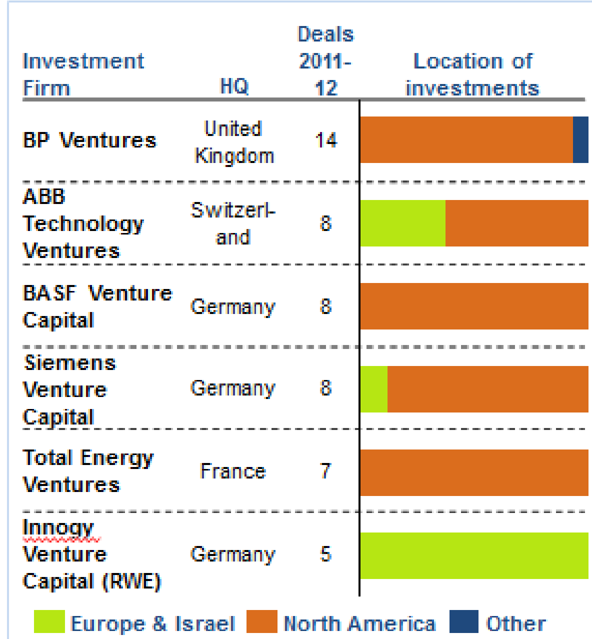
Corporate participation in North America Venture & Growth cleantech investments[1]



[1] Includes Seed, Series A, B and Growth Equity financing

Source: i3 Platform, Cleantech Group analysis

European corporates most active in cleantech



Of the top five corporate investors into Europe 2011-12, two are US based (GE, Intel Capital) and the rest are European (ABB Technology Ventures, Robert Bosch Venture Capital and Innogy Venture Capital). Of these only one, Innogy VC, the arm's length corporate venture fund founded by RWE, has made five or more European deals in the last two years.

Corporate investors have been biased towards later stage companies, with only 31% of deals in this period (2011-12) at seed or series A. Corporates are beginning to engage more with early stage innovation, more often through external incubators or funds. Surely the timing of the drop-off of financial investors able and active in early-stage investing is no coincidence. If corporates wish to see promising technologies, they cannot rely on financials alone to bring them through. Early evidence that this is understood and being acted on might arguably be seen in: Demeter Partners' new seed fund with many French corporate LPs, GE's seed fund managed by the Carbon Trust and Horizon Greentech Ventures, an Israeli incubator backed by Alstom. But more will need to be done to ensure the future pipeline is healthy and active.

Corporates are fundamentally driven to engage with cleantech innovation for competitive advantage and long term risk mitigation reasons. However, as would be consistent with the history of corporate venture capital generally, we should expect corporates to go through cycles and swings of change when it comes to cleantech. One such example of this has been the noticeable shift from the VC arms of oil and gas majors, away from clean energy as their primary focus and towards innovations that make their traditional oil and gas businesses more efficient and cleaner. “Greener, rather than Green” was how one such executive recently described their focus today.

Corporates bring much deeper knowledge and expertise into a specific industry than most VC’s can offer. The corporate balance sheet has also become much more willing to invest in pilots than in the past, which is important given that VC’s have become more reluctant to do so. Corporate deals often come with commercial partnerships, access to established markets and enhanced credibility. Yet such funding can come with several strings attached, such as exclusivity or preferential access to technology. Further, corporate decision making is much slower than start-ups, often causing friction in the relationship. It should also be noted that taking corporate venture money is not a quick route to a trade sale. Statistics show that corporates’ acquiring portfolio companies is more the exception than the rule.

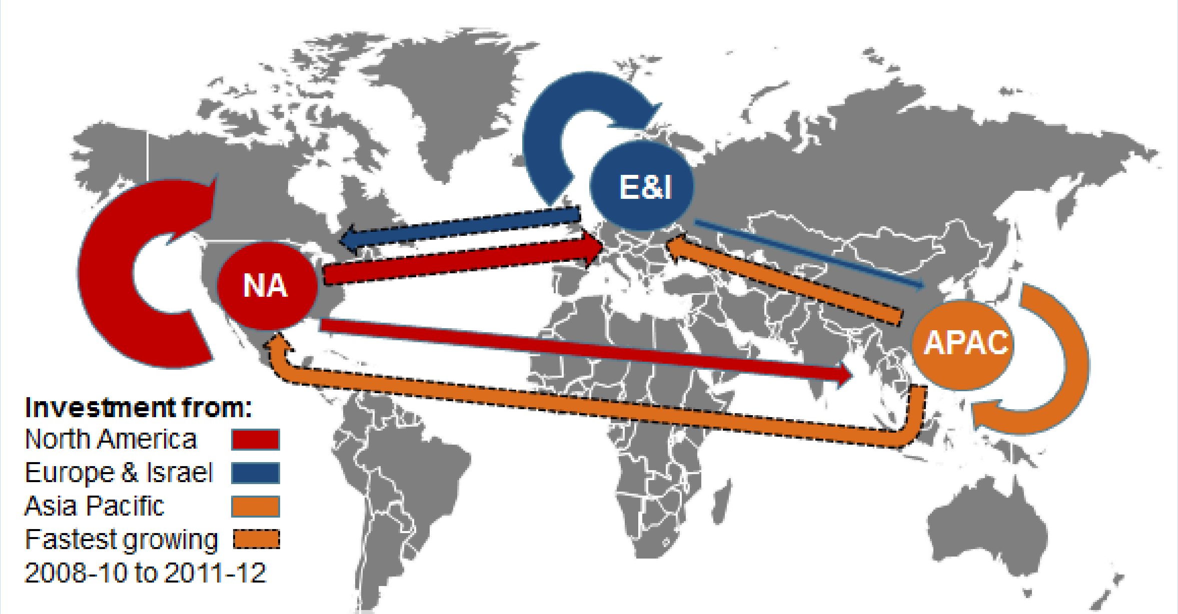
Outlook for 2013-14. Historically the corporates seem to have followed a path of successive stages of investment strategies, moving from LP, to co-investment and ultimately to make direct investments. However, more corporates are by-passing the LP stage and looking to make more direct investments. Given this cycle and given the number of new entrants in the last 12-24 months who have only recently got teams up and running (names here might include AirLiquide’s ALIAD, British Gas, E.ON, Evonik, Iberdrola’s Perseo, Lanxess and Repsol New Energy Ventures) we expect that, for 2013 and 2014, corporates to be a more active participant in company fundraisings in Europe – in relative terms. However, this upward trend should not be over stated. Corporates are global in their nature and so European cleantech companies are in competition with the rest of the world for their capital.

Non-Europe and Israel Investors

Cleantech investing is becoming increasingly intercontinental. A greater proportion of capital is being invested into companies in a different region to the investor, whether that capital is leaving North America, Europe, Asia, or elsewhere.

The chart below shows that the greatest capital flows, as represented by the thickness of any arrow, are inside continents. Whilst that will not change any time soon, the fastest growing in the 2011-12 period are trans-continental (for example, a China-based investor investing in a US or European company).

Regional capital flows in Cleantech 2010-12[1]
$ Billions (represented by width of arrows)



[1] Includes Seed, Series A, B and Growth Equity financing

Source: i3 Platform, Cleantech Group analysis

Given this observation and given our assessment of the dry powder in-continent right now, we would encourage European cleantech companies to expand their fundraising horizons, looking both east and west.

Home to the majority of the world's venture investors, the US is one direction to head. Of the non-European or Israeli investors making deals into European or Israeli companies over the last five years, the most active and prevalent are all US based. New York based I2BF tops this list, though this may not be surprising given the firm's London office and its connections to Russia. This is followed by large generalist VC's Draper Fisher Jurvetson, Kleiner Perkins and Accel Partners. The list also includes US corporate investors Intel Capital and GE.

While these investors have shown their willingness to do EU deals, with the exception of I2BF, each has only done two or three deals in Europe since 2011.

Most active Non-European investors in Europe & Israel 2012

Investor	Location	# Europe & Israel deals 2012[1]	# of which outsider deals[2]	Example 2012 investment
I2BF Global Ventures	United States	4	2	Utilight
Accel Partners	United States	2	2	Comuto
Draper Fisher Jurvetson (DFJ)	United States	2	1	Pentalum

[1] Includes Seed, Series A, B and Growth Equity financing
[2] Investor does not have existing position, based on historic disclosed deal participation

Outlook for 2013-14 (re US investors). The distance from their territory only increases the barriers to these investors making a deal and so only raises the bar of company quality required. For companies seeking funding in the next two years, US investors should not be ruled out but they would seem to be trending in the opposite direction. Take VantagePoint Capital Partners as an example. They invested in a number of European and Israeli companies in the thick of the second wave, 2005-09 (including AlertMe, Better Place, Chemrec, glo, and Solarcentury) but have not added a new company from this region to their portfolio since Swedish REAC Fuel in 2010.

While still a smaller number than investments from North America, deals from investors headquartered in other countries, especially from Asia, are growing faster. Here are some examples from 2012.

The emerging BRIC markets and Asia more widely, are home to both most of the world's projected economic growth in the coming years and some of the world's severest environmental challenges. These factors create significant and, even more importantly, urgent demand for sustainable technologies of every kind, yet the majority of the more advanced clean technology is still born in North America and Europe.

Examples of European cleantech investments from non-European & non-US investors

Investor	Location	2012 Investment	Sector	Company location
Asia Pacific Capital	India	OXITEC	Agriculture	UK
Bright Capital	Russia	Epuramat	Water	Luxembourg
Fajr Capital	United Arab Emirates	Tamar Energy	Biomass	UK
Huaxiang Group	China	3GSolar	Solar	Israel
Mitsubishi UFJ Capital	Japan	micropelt	Energy Efficiency	Germany

A recognition of this dynamic is responsible for a growing trend of emerging market based funds looking to invest in western technology companies who show strong potential for Asia. An example is the 2012 investment by Asia Pacific Capital in UK sustainable pesticide developer Oxitec. Asia Pacific Capital focuses on the emerging economies of China, India, Indonesia and Malaysia, four markets which account for more than a third of the world's population! However this deal is rare in that it was made by a financial investor, the majority of Asian investment into Europe has come from the continent's corporates; Samsung, Mitsubishi and Sumitomo Corporation have all made an investment in the last two years.

Outlook for 2013-14. High profile Chinese funds such as GSR Ventures, Keytone Ventures, Qiming Venture Partners and Tsing Capital have all made recent deals in US companies, showing an appetite for western companies that have strong potential for growth acceleration in China (i.e. where they can add value and help out). A Swedish company by the name of Diamorph has taken capital from a Chinese investor and Diverso has been backing UK's TMO Renewables for three years now.

Experience from the China tours run by Cleantech Group in 2011 and 2012 indicate a strengthening in interest in this cross-border trend. All indicators suggest that this source of capital is a real prospect for European and Israeli companies who have products with strong fit to such markets as China where cleantech is not a dirty word, climate change is accepted as real, and where it is a strategic plank of core government policy. With scarcity of local capital available in Europe right now, presumably company valuations will come under pressure, thereby making it more attractive for Asian investors looking to bring mature technologies to meet the growing demand in their domestic markets.

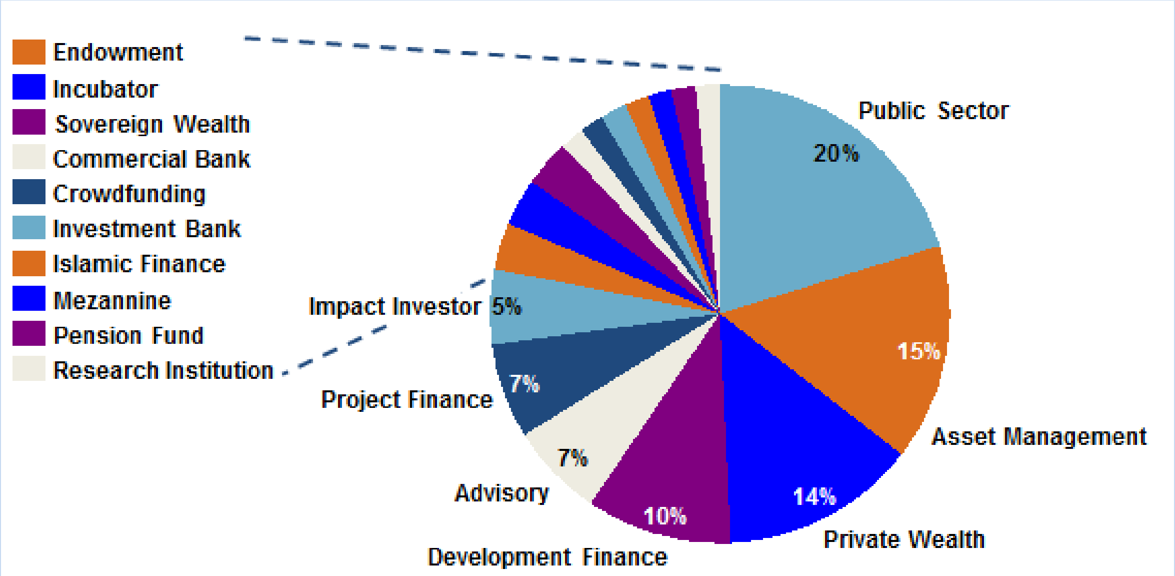
"Other" Investors

If you are the CEO or CFO of a cleantech company, likely to be fund-raising in 2013-14, we have a simple message: if you take away nothing else from this report, take away the increasing importance of 'other' investors, and the long tail of potential sources of capital they represent.

This represents two important points. It is in part a reflection of the fundraising cycle and dynamics facing fund managers right now. As one group's relative share of the new company investment pie recedes, another has to grow. At another level, it represents the difficulty that some business types and models have in attracting funding from traditional VC and growth investors; quite simply, the model that works well for the software industry does not work so well for the more hardware and capital-intensive parts of the cleantech spectrum. It is a mismatch of timing and risk.

The first point to note, as illustrated in the next chart, is that the 'Other' category is a very diversified group in itself, and is worthy of further exploration.

'Other' investors in Europe and Israel Cleantech 2012[1]
Number of investors



[1] Includes Seed, Series A, B and Growth Equity financing

Source: i3 Platform, Cleantech Group analysis

Here is a brief guide to some of the main sub-categories, all illustrated with examples.

Public sector. This category embraces the investment activities of funds that are directly-backed by tax-payer's money; they tend to come in the form of national or regional entities. Their aim is to promote economic growth and they generally invest in companies that will employ people in their own geography. Recent deals in Europe to illustrate this would include the following:

> ODENH (Ontwikkelingsfonds Duurzame Energie Provincie Noord-Holland) is a development fund owned and managed by the province of Noord-Holland in Netherlands. It recently invested in the company, Femtogrid Energy Solutions, a patented solution to optimize the performance of solar PV installations in the built environment by connecting modules together in a parallel network and optimizing each module individually
>
> Scottish Enterprise's role is to identify and exploit the opportunities for economic growth by "supporting Scottish companies to compete, helping to build globally competitive sectors, attracting new investment and creating a world-class business environment". A recent investment of their was in LUX Assure, which develops, sells, and licenses chemical monitoring technologies designed to help oil and gas companies ensure environmental compliance, asset integrity, and flow assurance.
>
> SITRA is Finland's Innovation Fund. They recently invested in Fixteri, a company with harvesting technology that diminishes the logistic bottlenecks of thinning forests and improves the energy delivery of the raw wood material.

Asset Management. This category embraces institutional investors' activities as direct investors into private companies. The best example of this is the recent $35 million round raised by Intelligent Energy, a maker of fuel cells for cars, businesses and homes, to finance expansion as demand for small-scale power generation boosts sales of the hydrogen-based devices in Asia. Intelligent Energy raised most of the funds from institutional investors in London. Investors included Artemis Global Energy, Altima Partners LLP and F&C Asset Management Plc.

Development Finance. This category can come in the form of supranationals, such as International Finance Corporation (IFC) and the European Bank for Reconstruction and Development (EBRD), both of whom are looking to back companies who can have a positive development impact in emerging economies. Development Finance can also come in the form of national/regional organizations; in Europe, this is especially a feature of the landscape in Germany.

KfW Bankengruppe, the government-owned development bank, whose origins stem from post-War Reconstruction and NRW.Bank, the regional development bank, both participated, for example, in the May 2012 €3.5m investment round for GreenPocket, Germany's leading developer of user-oriented energy management software

Advisory. This category refers to organizations whose primary activity and purpose is not to provide equity capital to young companies, but to provide advice. Perhaps as a sign of "needs must", there are occasions where these groups have been involved in making direct investments.

A 2012 example would be Turquoise International's participation in a January 2012 investment round for TeraView, the UK-based solar and semiconductor technology specialist.

Project Finance. This category refers to organizations whose primary activity and purpose is not to provide equity capital to young companies, but to provide project finance expertise (be that as an operator or a financier). There are examples of such organizations becoming principal investors in younger cleantech companies. This seems to us a similar dynamic to how advisory firms' investment activities and how corporates are sometimes drawn into funding rounds to fill the gap, where they are motivated sufficiently to see some technology progress. Two examples to illustrate this category:

Desalitech is an Israel-based provider of advanced water treatment solutions and technology. In May 2012, it secured an equity investment of $6.25 million led by Liberation Capital, a global Private Equity Fund specializing in project finance for distributed renewable energy, water and wastewater projects. Liberation, it should be noted in the deal disclosure, will also be supporting Desalitech with considerable project finance capital.

Scotrenewables, a Scottish provider of tidal turbine systems, received a $12m investment in March 2013, a financing round led by ABB Technology Ventures. In the deal also, alongside Total New Energies (a business unit, not the CVC), was Fred. Olsen Renewables, a Norwegian operator of renewable energy projects.

Private Wealth. This category aggregates family offices, high net worth individuals (HNWI's) and angels.

There are billions in private wealth throughout Europe. These investors are not bound by strict fund structures or obligations to LPs and often exist to maintain wealth for future generations and often have a desire to have impact and 'give something back'. And so, Private wealth is quite naturally drawn to look at cleantech because of their own social missions, even if they can generate a higher return elsewhere

Private wealth can be put to work over much longer periods and in alternative structures such as evergreen funds. While they may engage in private equity fund style investing, private wealth managers and family offices are not as strictly tied to the IRR expectations that LP's in private equity funds are. "Patient capital" is how a few entrepreneurs we have interviewed for this research have described the wealth backing their companies.

Corporates in the same value chain as an innovative company have shown appetite to invest for preferential technology access or to develop a customer ecosystem. Similarly, family offices of industrial families in the same industry hold much potential as capital sources. This can be seen, for example, in the retail display LED developer Nualight's investment from the Quinn family, founders of Irish supermarket chain SuperQuinn. Nualight provides specialised LED's for particular environments, food retail being a core market.

Our interaction with family offices suggests that they are both open to, and looking for new ways, to tap into innovation and to make investments in the cleantech arena. To date, private wealth has primarily taken an LP role in cleantech, while direct investing connections have often been made informally. This appears to be changing.

What we do know is that we do not have perfect visibility of family office investment activity in the cleantech theme and that it is greater than anyone can see or document in quantitative terms. Recent examples of deals we have seen where private wealth has played a disclosed role is shown below.

European cleantech investments by private wealth investors

Investor	Location	Investment	Sector	Company location
Duchy of Cornwall	UK	Tamar Energy	Biomass	UK
Korys	Belgium	zonzoo	Recycling	UK
The Quinn Family	Ireland	NUALIGHT	Energy Efficiency	Ireland
Skion	Germany	PAQUES	Water	Netherlands

A 2012 survey of private wealth across Europe, by Taylor Wessing, the law firm, concluded that conditions were ripe for family offices (more than angels and private wealth managers) to increase their interest in the clean energy world[3]. And, indeed, this was apparently explicitly linked in their thinking to the wider fundraising environment which we have been analyzing in this report. "Over 60% of surveyed private capital investors cited the dearth of traditional financing sources as a reason for ramping up their allocation to the sector", with Energy efficiency plays set to be the greatest beneficiary of private wealth investors.

Outlook for 2013-14. Listening to the interviews we have conducted in the research period with investors and companies alike, there is a very real sense that we should expect private and family wealth's direct investments into new cleantech companies to increase over time – certainly on a relative scale to other investor types. The win/win is most likely to come where the family or individual was involved in the same industry as a company, so their strong expertise and connections can be leveraged for maximum impact.

Angels. Affluent individuals or angel groups, investing their own funds, will typically show appetite for deals, of interest to them personally. This type of investor usually makes small investments (€100-300k) and often brings entrepreneurial experience to the table.

[3] *Private Capital and Clean Energy: Exploring a growing relationship* - http://www.taylorwessing.com/fileadmin/files/docs/Private-Capital-and-Clean-Energy-Report.pdf

While there is not the depth of angel community in Europe, as there is in the US, there are a few established networks particularly in the UK. Examples of angel groups investing in cleantech include the following:

Recent European cleantech investments by Angel investors

Investor	Location	2012 Investment	Sector	Company location
Archangel Informal Investments	United Kingdom	flexitricity Unlocking smart grid revenue	Smart Grid	UK
Cedre Participations	France	hop³	Energy Efficiency	France
London Business Angel Network	United Kingdom	SUSTAINABLE MARINE ENERGY LTD	Marine	UK
Minerva Business Angel Network	United Kingdom	Bactest	Water	UK
Success Europe	France	helveta	Agriculture	UK

Outlook for 2013-14. Companies report to us that they are finding it to be quite a task to raise critical mass capital from angel investors. Angel investors tend to be cautious, often only willing to commit very small investments at a time. This means that their investee companies constantly need to engage with their investors, which is time consuming and potentially costly to a business. "One of the problems that you often get (with angel investment) is that small companies can get diverted from actually growing the business as their focus is constantly on revisiting its funding cycle" remarked one interviewee.

Other Investor Types. In this final part we will touch on three other financing sources that merit a mention, even if we are unconvinced, for different reasons, by how large their impact will be in the nearer term in aggregate. However, for certain companies following our guidance to widen the lens of their fundraising strategies, one of these may be an answer.

Sovereign Wealth Funds. Typically large state owned funds, sovereign wealth funds (SWFs) are created when governments have budgetary surpluses and are common where nations are dependent on commodities exports (especially in the Middle East, Russia and Asia). SWF aggregate assets have jumped by over half a trillion dollars across 2011 to 2012 (up 15% in the last year), with assets under management now a collective $4.62 trillion.[4] Additionally, a number of SWFs from new geographies have launched this past year and are gearing towards putting capital to work (e.g. Angola – Africa's second largest oil producer, Ireland's pension reserve fund, and Azerbaijan's state oil fund.)

SWFs may be moving into new investment areas such as cleantech as a way to diversify portfolios into alternative assets that can deliver returns uncorrelated to traditional stocks and bonds, but also for strategic/political reasons – to secure their future resources. They tend to have longer-term investment horizons than other types of investors, with the advantage of not needing to meet liabilities that a pension fund would have to. SWFs do some direct investments (though it is unusual), and most of them work through asset managers because they are looking to deploy tens and hundreds of millions in one transaction.

For these reasons, we should expect SWF's greater involvement in cleantech to be in funding funds as LP's, not funding companies direct. SWF's are known to be LP's in the recent funds raised by both Braemar Energy Ventures and Zouk Capital, for example. In addition, asset management firm Wermuth Asset Management's Green Gateway Fund is corner-stoned by the Republic of Tatarstan and Rusnano, a Russian Government nanotechnology commercialization fund, is the big backer of Virgin Green Fund's $200 million Emerging Market Growth Fund.

Outlook for 2013-14. SWF's were cited as future sources of capital for European companies in a number of the interviews we conducted for this report. However, this happening in large numbers in the 2013-14 period, would be a surprise to us. SWF-flavoured transactions have occurred. For example, Rusnano has made direct investments into both Lilliputian Systems and Beneq in 2012; and Fajr Capital, backed by a number of SWF's, invested into Tamar Energy in the UK. The exceptions will tend to be where companies are raising enough capital; we certainly do not foresee SWF's being part of the solution to the early-stage cleantech company funding challenge.

Pension Funds. These could be a source of investment for cleantech as they have long-term horizons and are searching for sources of "alpha risk." In order to adequately manage risk away from short term profit exposure, pension funds are interested in long term investments that account for sustainability drivers. However, this is a deeply conservative industry and so, for the period under study, transactions like the one below will be surely the exception, but it is an interesting transaction nonetheless. One would expect to see more of their activity in longer-term, fixed-income instruments supporting the build out of cleaner and greener energy and other infrastructure, than we will for funding specific companies.

[4] The 2012 Preqin Sovereign Wealth Fund Review

In November 2012, Danish company BioGasol, a producer of bioethanol and biogas from ligno cellulose biomass feedstock, raised €5m in new equity financing, which was provided as a co-investment by the current majority shareholder, Fjord Capital Partners and Danish Pension Fund, Unipension. Unipension is a co-operation between the Architects' Pension Fund, the Pension Fund for Danish MAs, MSc's and PhD's and the Pension Fund for Agricultural Academics and Veterinary Surgeons, serving 100,000 members.

Crowdfunding is a new way of raising capital. The concept is simple: a large number of people (the crowd) fund small amounts of money to accumulate into an investment large enough to finance a project (or a start-up company). Crowdfunding aims at closing the gap between acquiring finance from friends, family and fools (FFF) and acquiring finance from informal investments.

It is perhaps too easy to dismiss because the amounts are small and it is young, unregulated and unproven through a full cycle. It has not been around for long enough for the effects of investments going wrong to be seen and felt.

We have not explored this area for this project in any depth, although we did recently interview Start Green Venture Capital in the Netherlands, who have recently started One Planet Crowd. "Yes, it is true that the amounts are quite small", said Coenraad de Vries, but "the amount of money raised is the wrong metric by which to measure the importance of crowdfunding". What is more, or just as, important, is the large numbers of advocates created, the potential customer base (depending on the product/project/company being funded) and the positive momentum it creates for the next financing round (which yes, may be through traditional off-line means) by alerting potential interested parties.

Successes reported from the Netherlands in 2012 include WakaWaka Power, an efficient personal solar power station to charge electric devices with excellent reading light, raised over € 200,000; and de Windcentrale, a campaign which raised €7 million in order to purchase two wind turbines.

Outlook for 2013-14. There are, of course, limitations on what crowdfunding can and will do for industrial-oriented and technology-complex cleantech companies in the period under study. However, for select segments of the market - especially consumer-facing product companies and community-type projects - this form of fundraising should not be summarily dismissed and is worthy of further exploration. One interviewee felt that private wealth investment was ripe for web based platforms, to improve visibility to dealflow for example.

Key Takeaways for Fundraising European Cleantech Companies

It has been clear from the interviews we have conducted, formally and informally, through the 4-month research period, that companies have different opinions and experiences to share of both fundraising and of the different investor categories.

With that in mind, and with the breadth of business types and models included under the thematic cleantech label, there is no "one size fits all" advice which would resonate with every company in the region reading this report.

However, we can provide some key takeaways that should, to our minds, influence how you think through the 2013-2014 period, and how you spend this time, and who you court for funds – if you choose to do so, at all.

At a high level, it is important for companies to appreciate that:

- **All will not be even over time**. Fund managers' own fundraising cycles have been long and protracted, and in some cases, unsuccessful. The coffers for cleantech have not been replenished and some harsh capital allocation decisions will be made. Certain company types will miss out and 2013-14 looks set to be the low-point of this cycle.

- **All is not even geographically**. And the experience of one European company, especially at the earlier stage, will not necessarily translate into a neighbouring country. For example, for seed funds, France, Sweden and Germany look like some of the better places to be. In each case there is government money, through different instruments and organizations, being made available to ensure the more promising companies get a start.

- **All is not even sectorally**. Capital-lighter companies are finding it easier and will likely continue to do so in 2013 and 2014. Solar continues on a downward trend and will only attract the contrarian who feels the clean-out has happened and who can find an investment type that benefits from the ever-falling cost of solar power. SolarCity has shown the way in the US on this.

- **All is not even by stage**. The fundraising challenge issue is especially acute for the earlier stage companies and for those trying to get their first significant funding round. LPs have more confidence in the later commercialization stage and so, what follow-on cleantech funds have been raised, have generally been for later stage growth companies – Zouk Capital and Wheb Partners' second funds are the best cases in point. Both fund managers dropped the reference 'Ventures' reference in their name to complete their shift in focus.

The more mature the company, the more the potential investor base is opening up, in a positive fashion. We do not see a problem at this end of the market, based on these findings:

- Fund managers in Europe are raising funds more strongly for growth equity than for Series A-B strategies.
- At a certain point of revenue and profitability, the more traditional European private equity managers, starved of leverage, will become a potential source.
- And investors from outside the region, especially from the big growth markets of the world, are increasing their appetite for more mature western technology companies.
- Beyond traditional financial managers, all other sources mentioned – corporates, institutional finance, and family wealth – are also in play, and not in obvious short supply.

No surprise to interviewees, but the acute pain is felt around the crux question: how to finance the journey to cross the chasm to become attractive to such growth equity? It is especially acute right now, as arguably the cleantech investment industry itself is going through its own crossing the chasm experience, making life for young, pre-revenue, fundraising cleantech companies, especially those looking to raise money for the first time, especially hard in Europe today.

What this demands of the CEO/CFO is entrepreneurism and planning within these realities of where we are:

- The dry powder available for investment in new companies from Venture Capitalists is during 2013-14 likely to reach a cyclical low-point. That said, be they pureplays or generalists, they will remain a key part of the portfolio, especially for the capital-lighter, software type businesses. Company CEO's and CFO's need an honest assessment of their match to such fund managers and will also need to understand who has capital in the coffers for new companies and who is unlikely to have so in the next year or two, due to their own fundraising cycle.

- The wider possible investor types need at least exploring, and in some cases active courting, be they corporates, private wealth or crowdfunding, depending on your own particular circumstances.

- Companies should look within their industry vertical for possible investment. Corporates in the same value chain as an innovative company have shown appetite to invest for preferential technology access or to develop a customer ecosystem. Similarly, family offices of industrial families in the same industry hold much potential as capital sources.

- Innovation is required to navigate this landscape. We heard impressive stories of start-ups staying alive by a number of different ways, which included:

    - Courting what they described as patient capital – families' time horizons are not defined like they are in a 10-year fund.

- Leveraging government programs around the world relevant to your technology – which can help fund salaries through the product development period.

- Cultivating links with the relevant strategics who have an interest in seeing a particular technology pull through the proof of concept stage

- Securing favourable terms from customers – advanced payments upfront, for example, can reduce current needs to raise expensive equity. Utilities, for example, were identified, for example, as finding capex easier to spend than opex by buying 5-10 years' worth of orders or service upfront.

- Moving the company to a location/region where a finance package is available for your company type – in the same way as capital is mobile, so can companies be (especially at the early- stages).

- Putting the company on ice for a period. Sometimes the time just isn't right for the plan you have.

While the last two may seem to be the more radical and desperate of the alternatives, it speaks to the need for the "you have to do, what you have to do" attitude required to navigate the realities of today's fundraising landscape.

Whilst we appreciate that none of the above provides your playbook, we hope all of the above report has helped sharpen your approach and stimulate your thinking for the road ahead.

And, as we said at the outset, our doors and phone lines are open for more granular discussion with companies looking for more specific advice, based on our findings, and our connections.

Thank you for reading!

Appendix 1 – Acknowledgements and Interviewees

On behalf of the Cleantech Group and Georgieff Capital, we wish to thank and acknowledge all those who kindly contributed time and expertise to this research. This includes both those explictly listed below and the many more who contributed on an anonymous basis.

We chose to conduct formal Interviews with a range of investors. They were deliberately chosen for the fact that they represent a range of investor types, and where we were looking for new and contrarian thinking.

- Bill Weil, Ludgate Investments
- Andrew Oldfield, Mercia Fund Management
- Isabelle de Cremoux, Natixis PE
- Annelies van Herwijnen, NPM Capital
- Simon King, Octopus Capital
- Pavel Eroshkin, RUSNANO
- Toby Coppell, Virgin Green Fund
- Rob Wylie, WHEB Partners

In addition to these and some anonymized contributions from family wealth and others, some aspects of the research were also discussed at a meeting of Cleantech Group's European Advisory Board meeting in January 2013. Members of that group are:

Aloe Private Equity, Aster Capital, Bright Capital, Capricorn Venture Partners, Clariant, Demeter Partners, Emerald Technology Ventures, Environmental Technologies Fund, Georgieff Capital, Idinvest Partners, Taylor Wessing, The Carbon Trust, Veolia, and Zouk

We have also been looking to in-source opinion and colour from fundraising companies, across different areas of the cleantech theme and at different stages, who have had different experiences of the fundraising process and who have interacted with different investor types.

Much of this colour has been taken from informal interaction with many European and Israeli companies over the last months as we have prepared for our annual European Cleantech Forum. Some was derived from a CEO dinner we held in London in March 2013, and more formal, structured interviews were conducted with the following:

- Moshe Kelner, Advanced Mem-Tech
- Chris Smith, G-Volution
- Christian Jebsen, Kebony
- Stuart Evans, Novacem
- Javier Garcia Sedano, Optimitive
- Per Bull Haugsoen, Owectower
- Priit Vimberg, Yoga Systems

Appendix 2 – Dry Powder Analysis

This appendix explains in more detail the dry powder analysis we conducted as part of this research and the findings of which appear within the body of this report.

The objective of the analysis was to make a reasonable estimate of the degree to which the capital available from pureplay cleantech funds in Europe & Israel in the period 2013-14 was greater or smaller, and different in its stage orientation, from the past.

What we did

We took a sampling approach by identifying 60 pureplay cleantech funds from more than 40 fund managers, with vintages ranging from 2005 onwards.

Based on our understanding of their vintages and the amounts, we applied the same assumptions of how the capital would be deployed into new companies across all 60 funds, as follows:

- For every €100, we assumed that 50% was available for investing in new companies, with the other 50% going to set-up costs, management fees and follow-ons/reserves.
- The 50% "dry powder" (capital available for new company investments) was assumed to invest straight-line across 5 years, starting 1 year beyond the vintage year.

This was confirmed by a few experienced fund managers to be a reasonable theoretical profile.

How this plays out in practice is illustrated below for "A Cleantech Fund" of €50m with 2007 as the vintage year.

Vintage Year (VY)	VY + 1	VY + 2	VY + 3	VY + 4	VY + 5	VY + 6
% applied to fund size to determine dry powder for new companies	50%	40%	30%	20%	10%	0%
Worked Example: A Cleantech Fund (VY 2007, EUR 50m)	2008	2009	2010	2011	2012	2013
Dry powder for new companies	25	20	15	10	5	0

Doing this to each of the 60 funds, who had also been classified by us either as a venture or growth capital fund gave us the aggregated totals shown in the chart on page 22.

Included within the 60 are funds from fund managers whose previous fund was in the sample set, where we know them to be currently fundraising. The final assumption we have had to make to create a number for 2014 was to estimate across all such funds which would raise in 2013 and how much. We applied a flat 50% achievement rate across these funds – that is to say, that in aggregate, our 2014 number assumes that 50% of the targeted amounts will be achieved in 2013. You may agree or disagree with that, thereby painting a better or worse picture accordingly. Under our model, were the achievement of fundraising in 2013 to fall below the 35% rate, then the 2014 'dry powder' would become lower than 2013.