European Institute of Innovation and Technology (EIT)

“Shaping the Knowledge and Innovation Communities (KICs) - Climate Change Mitigation and Adaptation”

A Venture Capital Perspective

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Agenda

• Amadeus and Venture Capital Introduction
• Cleantech Investment Trends
• Engaging with Venture Capitalists
• Impact of the Financial Crisis
Amadeus Capital Partners, Ltd

- A leading European technology venture capital firm
  - Founded 1997, with offices in London and Cambridge, UK
- £460m under management
- Invest in UK, Europe, and Israel
- Have invested in ~70 companies in 11 years
- Focal sectors
  - Telecoms, ITC, Semiconductors, Med Tech, Cleantech
- Interesting ‘cleantech’ deals:
  - GreenRoad, Nujira, Power Paper, Power ID, Plastic Logic
What is Venture Capital? (1/2)

- VC firms raise funds from LPs (limited partners) and invest on their behalf
  - Charge a fee and share the profits

- Invest in technology-based, private start-up companies

- Varied focus: specialist vs generalist, “early” vs “late” stage, etc

- 10 year fund life typically = 3-7 year investment horizon

- High risk (technology, market, execution), but…

- High reward: potential for >10X cash returns on winners

- Significant portion of companies don’t return investment
What is Venture Capital? (2/2)

• Venture Capital is different than:
  – Project finance
  – corporate venturing, corporate M&A, and corporate R&D
  – angel investors
  – government or university R&D
  – hedge funds
  – buy-out

• The goal of VC is to help build big, profitable companies and sell them, not ‘flip’ businesses or make money purely through financial engineering

• Most cleantech VC investors are interested in the environment, but their first priority is to generate returns for their LPs
Traditional Technology Funding Cycle


Cleantech = More Cash

Takes Longer
Technology Commercialization Funnel (Schematic)

Research (government, university, corporate, other) (X000s)

Independently Commercialized
(Founders, angels, seed, university, grant) (500-1000?)

VC candidates (100)

VC invested (~1 in 100 for any 1 VC) (3)

Successful exit (1)
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Major Cleantech Categories

- Energy
- Water
- Pollution & Waste
- Industrial
- Consumer
Quarterly cleantech VC investment – North America

Source: Cleantech Group
Quarterly cleantech VC investment – Europe & Israel

Source: Cleantech Group
Europe & Israel - Sector Distribution - H2 2008

Europe & Israel: Sector Distribution by Amount

- Energy Generation: 59%
- Energy Efficiency: 9%
- Energy Storage: 8%
- Manufacturing/Industrial: 6%
- Transportation: 4%
- Recycling & Waste: 4%
- Materials: 4%
- Air & Environment: 2%
- Water & Wastewater: 2%
- Agriculture: 2%
- Energy Infrastructure: 1%

Europe & Israel: Sector Distribution by Number

- Energy Generation: 36%
- Energy Storage: 11%
- Energy Efficiency: 12%
- Air & Environment: 6%
- Agriculture: 4%
- Transportation: 8%
- Recycling & Waste: 8%
- Materials: 4%
- Manufacturing/Industrial: 4%
- Water & Wastewater: 3%
- Energy Infrastructure: 1%

Source: Cleantech Group
Europe & Israel - Energy Generation Distribution

Energy Generation Distribution by Amount - H2 2008

- Solar: $321 M
- Wind: $264 M
- Biofuels: $113 M
- Hydro/Marine: $9 M
- Geothermal: $0 M
- Other: $117 M

Source: Cleantech Group
VC Areas of Interest (currently)

- Renewable energy generation
  - Solar, but…
  - BOS and ancillary systems for solar and wind
- Energy efficiency
- Demand response/smart grid
- Energy storage
- Waste conversion
- Lighting
- Water
- Green Buildings

Lots of differing views on this…. Which is good!
Cost of CO$_2$ Abatement

Cost of abatement
EUR/tCO$_2$e

Abatement
GtCO$_2$e/year

Costs are compared for various abatement strategies, with costs ranging from -160 EUR/tCO$_2$e for insulation improvements to 40 EUR/tCO$_2$e for smart transit. The graph illustrates that the cost savings and abatement potential vary significantly depending on the strategy chosen.
GreenRoad Technologies

1. **Real time driver behavior analytics**
   - On-board sensors rate 120 driving maneuvers in real time and detect speed, time and mileage

2. **Automated driver and fleet risk assessment**
   - Driver and fleet risk scores continuously updated from maneuver data

3. **Performance specific feedback for drivers**
   - Real time in-vehicle safety feedback; SMS alerts and email reports generated from each driver profile

4. **Driving behavior management applications**
   - Web-based; Configurable business rules implement corp. policy

~50% reduction in crash incidence (and lower severity)

5%-10% improvement in fuel efficiency = significant carbon savings
Nujira Ltd.

- Wireless network base stations consume huge amounts of power
  - Mobile network operators are major electricity consumers (top 5 in UK)
  - ~80% of the load is in the network
- Transition to 3G networks results in much lower power amplifier efficiency (e.g., 15%)
  - Waste heat requires air conditioning equipment and bigger base station footprint
- Nujira has developed a power modulation technology to dramatically improve the efficiency of RF amplifiers and mobile handsets
  - ~50% reduction in base station power use
  - Yields major OPEX and carbon savings
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What VCs Want to See

- Big, growing, addressable markets - $1B+ per year ideally
- Unique and significantly advantaged technology or approach (multiples better, faster, cheaper than the competition)
- Proven or obvious customer value proposition
- Strong management team
  - Technical stars, and/or
  - Executives who have done this before
- Strong IP position
- A business model that can make money and scale up quickly
- Not too capital intensive, and 3-7 year investment period
How To Engage With VCs

• Don’t spam them! Get an introduction
• Target VC firms (and individuals) who have investments (or at least interest) in your field
• Target stage-appropriate and size-appropriate VCs
• Make sure you are ready
  – Form a company, build a team, secure the IP, etc.
  – Write a thorough business plan and get outside input
  – Know the competition and industry
  – Try to tick the boxes on the previous slide
• Keep in mind how VCs operate and what their goals are
• Be candid about your strengths and weaknesses
• Be persistent and follow up…
• But be patient – VCs look at hundreds of opportunities per year and are also managing their existing portfolios
• Start early - it will take at least 6 months to get financed
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Global Financial Crisis: Effects on Cleantech and VC-backed Companies

• **Systemic shock to cleantech finance ecosystem**
  – Debt (eg project finance) is scarcer, more risk averse, and more expensive
  – VCs having a harder time raising money
  – The ‘tourists’ have gone home – no more easy money

• **VCs ‘circling the wagons and counting the bullets’**
  – Supporting existing portfolio first – can’t assume external financeability
  – Portfolio culls and radical restructurings of companies
  – Rush to late stage
  – Some good companies will go bust

• **Commodities prices are down and may go down further**

• **Valuations depressed - and in some cases unknowable**
  – Public comparables are way down - translates to startups as well

• **Exit timing unknown**
  – IPO market is dead (for now)
  – M&A proceeding cautiously, taking longer, and at much reduced valuations
The Long View

Year 5 of a 40-80 year mega-trend

Source: A. Gruebler
Thank you

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