Benchmarking the
Global Cleantech Venture Industry

"New Patterns and Paradigms in Global Innovation Networks"

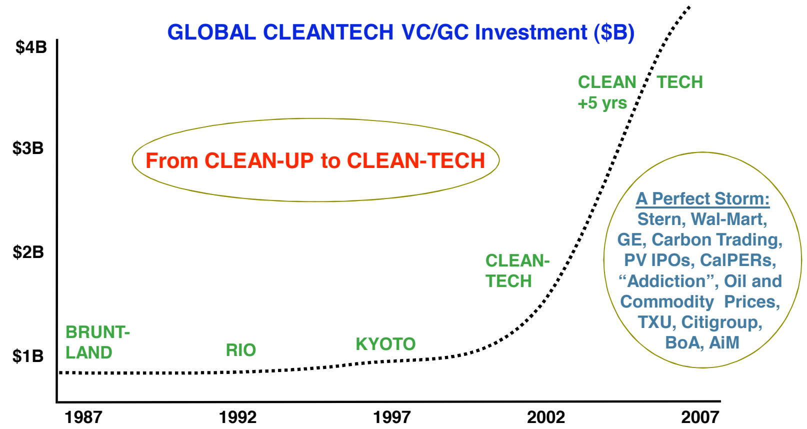
Martin Haemmig **Stanford, Jan. 17,2008**

Presentation – Martin Haemmig

"Benchmarking the Global Cleantech Venture Industry"

1. History, Drivers, Influencers
2. Global Cleantech Hotbeds
3. Cleantech Investments and Exits
4. Investment comparisons "(USA, Europe, Israel, China)
5. Performance Analysis
6. University & Corporate spinoffs
7. Summary & Outlook on Global Cleantech Venture Investments

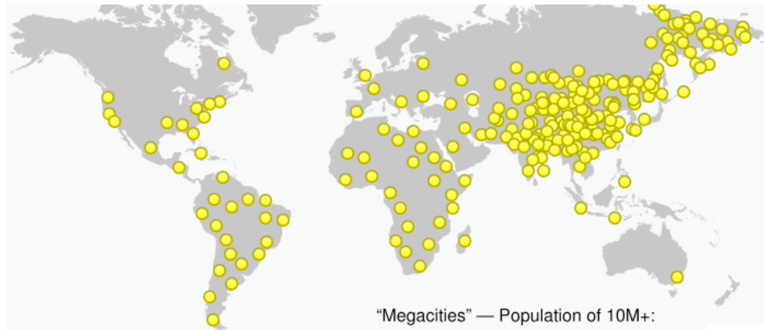
Cleantech – A 20 year Odyssey



Mega-City Growth by 2050 (Population 10M+)

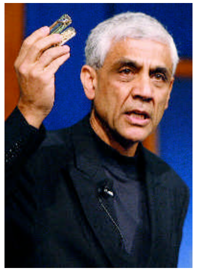
DRIVERS: Increased industrialization, living standards, population, 'greed', etc.

2 Megacities in 1950, 18 in 2007, over 400 in the World by 2050



Silicon Valley, Corporates, Politicians
… embracing Clean Technology

Vinod Khosla
(Koshla Ventures)



27 companies; 4 sectors: replacing oil, replacing coal, developing new materials & improving energy efficiency

Jeff Immelt
(CEO of GE)

"Green is Green" with EcoMagination. GE is among the first 10 firms to sign the 'U.S. Climate Action Partnership'

John Doerr
(Kleiner Perkins)

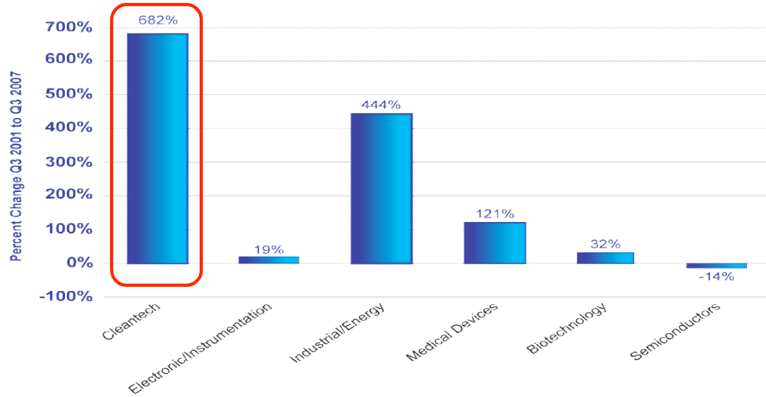
Pushes governments from Sacramento/CA to Washington/DC to China, to drive global 'Greentech' VC deals

Al Gore
(KPCB & Generation)

Leverages his film, books, political clout, and the Nobel Prize, for his cause on 'Climate Change'

Cleantech VC Scales Relatively

Top 6 U.S. Venture Capital Industries, Percent Change Q3-2001 to Q3-2007



Categorization of Cleantech Segments

Energy Generation
- Alternative Fuels
- Other Alternative Energy
- Solar
- Wind

Energy Storage
- Batteries
- Fuel Cells

Energy Efficiency
- Energy Efficiency Products
- Power & Efficiency Mgmt. Servs.
- Industrial Products

Industry-Spec. Products & Servs.
- Agriculture
- Construction
- Materials
- Transportation
- Consumer Products & Services
- Environmental Testing & Analysis.

Treatment and Reuse
- Air
- Recycling
- Waste
- Water

Top 10 Cleantech (VC/GC) Hotbeds in Q1–Q3/2007

1. US : West Coast ($1.3B)
2. US : Northeast ($526M)
3. Western Europe ($394M)
4. US : Southwest ($299M)
5. US : Northwest ($283M)
6. Southern Europe ($212M)
7. US : Southeast ($107M)
8. Western Canada ($104M)
9. Eastern China ($100M)
10. US : Midwest ($85M)

The top 10 Hotbeds account for 93% of Global Total VC/GC investments: 3.4B out of 3.7B for Q1–Q3/2007

Worldwide Cleantech VC/GC Investment 2006 ~2007H1

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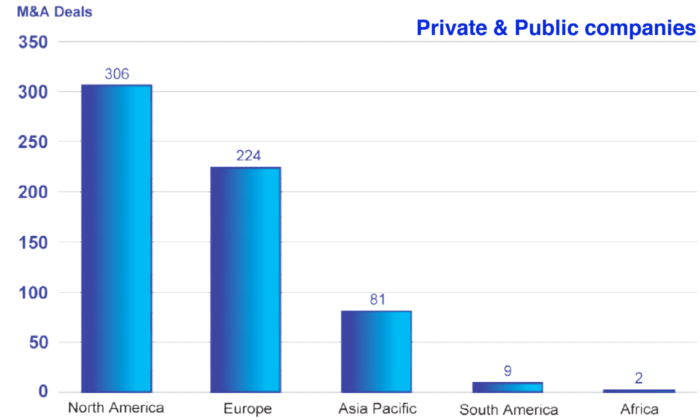
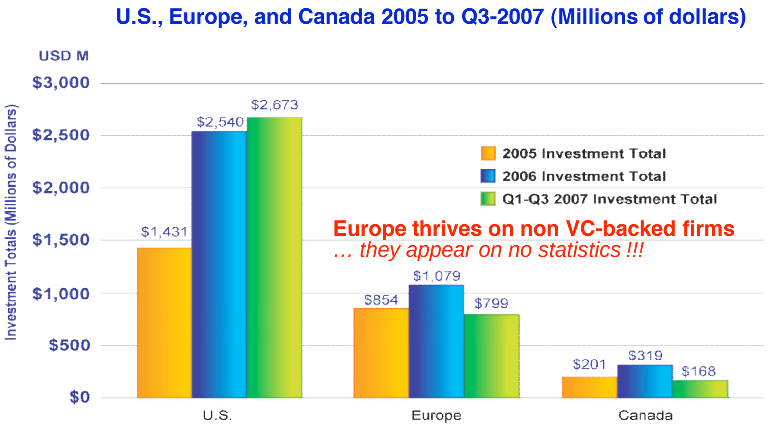
Global Cleantech M&A by Region (2005 – 1H-2007)



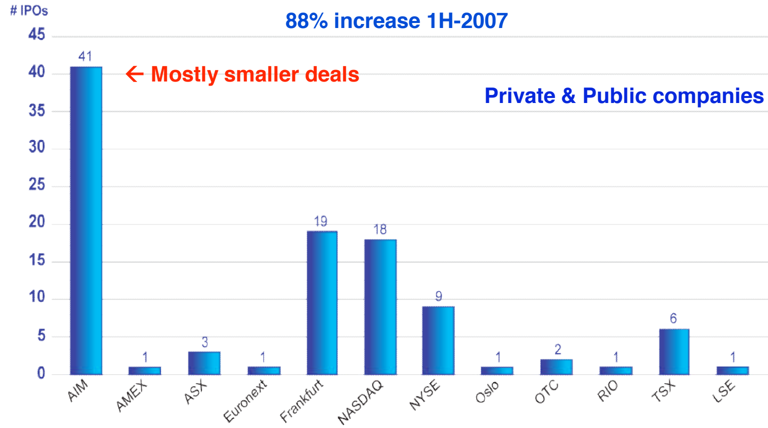
Source: Cleantech Group / www.cleantech.com (10-2007)

U.S. Pulls Ahead in Cleantech VC/GC Investments



Source: Cleantech Group (10-2007)

Cleantech IPO's 2005 to 06-2007 by Exchange



Source: Cleantech Group / www.cleantech.com (10-2007)

Promising Stock Performance – U.S. Cleantech Index

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Clean Technology as a % of All VC Capital Invested

From A Small Base, Share of Investment More Than Doubled Everywhere

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Global Growth in Clean Technology VC Investments

U.S. Investment On Track To Significantly Surpass '06

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Total Cumulative Capital Invested in C.-T. Companies

Significant Growth in Capital Invested Across The Board

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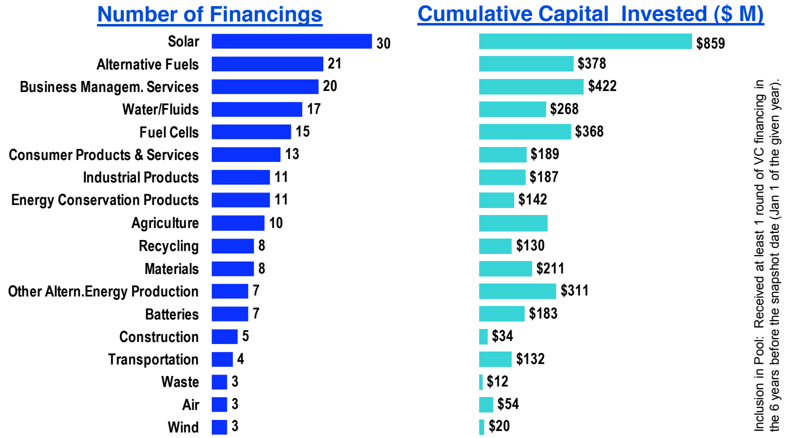
USA: 2007 Pool of "CT" Companies by Segment

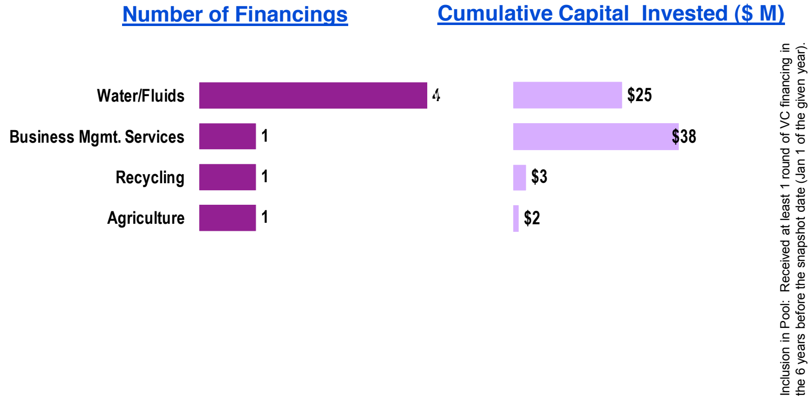
Focus on Solar, Alternative Fuels and Services



Dr. Martin Haemmig 2008 © Source: Dr. Martin Haemmig; E&Y and DowJones/VentureOne (Q2-Insights_09-2007) Stanford -- Cleantech (2008) 17

Israel: 2007 Pool of "CT" Companies by Segment

Small Clean Technology Pool Focused On Water/Fluids



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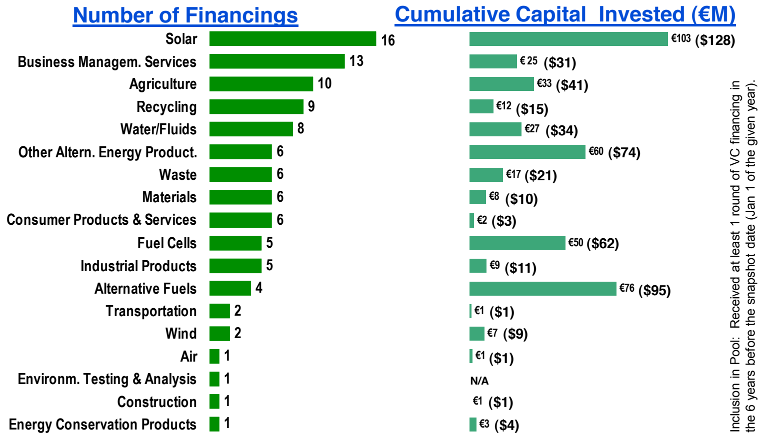
Europe: 2007 Pool of "CT" Companies by Segment

Focus On Solar, Services and Agriculture



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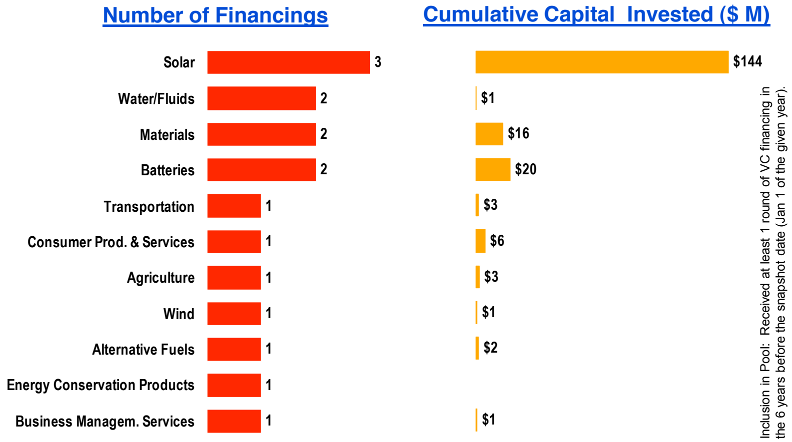
China: 2007 Pool of "CT" Companies by Segment

Capital Concentration in Solar followed by Material and Batteries



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USA: Destination "CT" Rounds by Hotbed-based Firm

Hotbed HQ Firms are Investing Broadly Across the USA: 2001-1H'2007

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Cleantech VCs Invest GLOBALLY (# of deals in 2006)

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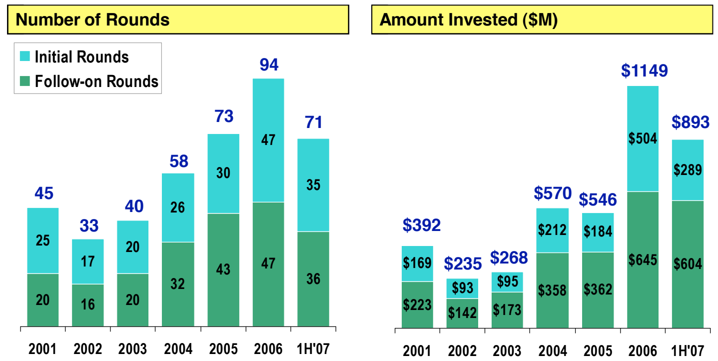
USA: "CT" Investment: Initial & Follow-On Rounds

New Financings Account for Half of Activity



Source: Dr. Martin Haemmig; E&Y and DowJones/VentureOne (Q2-Insights_09-2007)

USA: Initial "CT" Financings by Stage of Development

Greatest Activity and Dollars Focused on Product Development

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USA VC-backed Clean Technology University/Lab Spin-offs 2001 – 1H'2007

Spunoff from Univesities & Labs	Company Name	Total Equity Raised ($M)	Cleantech Segment
California Institute of Technology	Superprotonic	$20.20	Fuel Cells
Cornell University	Ecovation	$24.50	Water/Fluids
Iowa State University & Ames Laboratory	Catilin	$3.00	Alternative Fuels
Louisiana State University	International Mezzo Technologies	$1.00	Fuel Cells
Massachusetts Institute of Technology	Lilliputian Systems	$39.60	Fuel Cells
Massachusetts Institute of Technology	GreenFuel Technologies	$19.84	Other Alternative Energy Production
Massachusetts Institute of Technology	A123Systems	$102.60	Batteries
Midwest Optoelectronics & Univ of Toledo	MWOE Solar	$7.00	Solar
Mississippi State University	SemiSouth Laboratories	$7.40	Industrial Products
Sandia National Laboratories	Advent Solar	$111.70	Solar
Shell Technology Ventures/Univ. of Texas	TerraTherm	$2.00	Waste
St. Louis University	Akermin	$7.50	Fuel Cells
Stevens Institute of Technology	HydroGlobe	$1.10	Water/Fluids
University of Illinois	INI Power Systems	$7.00	Fuel Cells
University of Pennsylvania	Franklin Fuel Cells	$9.99	Fuel Cells
University of Washington	Infinia	$9.50	Energy Conservation Products
University of Wisconsin-Madison	Virent Energy Systems	$9.14	Alternative Fuels

VC Portfolio Company Outcomes & IRRs

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USA VC-backed Clean Technology Company Spin-offs 2001 – 1H'2007 (rel. small $)

Spunoff from Companies	Company Name	Total Equity Raised ($M)	Cleantech Segment
Predation	Entomos	$6.00	Agriculture
Imperium Renewables, Inc.	Seattle Biodiesel	$9.50	Alternative Fuels
Caterpillar	Firefly Energy	$17.00	Batteries
Boeing	AVChem	$4.40	Business Management Services
Conectiv	Enerwise Global Technologies	$21.33	Business Management Services
Data Systems & Software	Comverge	$37.70	Business Management Services
MEECO	Tiger Optics		Business Management Services
RTI International	Nextreme Thermal Solutions	$14.00	Business Management Services
Broadview Technologies	Hycrete Technologies	$9.00	Construction
Sarnoff	Lamina Ceramics	$52.00	Energy Conservation Products
Avista	ReliOn	$57.50	Fuel Cells
Louisiana State University	International Mezzo Technologies	$1.00	Fuel Cells
Lynntech, Inc.	Fideris	$5.50	Fuel Cells
MesoSystems Technology	MesoFuel	$0.50	Fuel Cells
SRI International	PolyFuel	$40.06	Fuel Cells
UOP LLC	HyRadix	$15.00	Fuel Cells
Directed Technologies	H2Gen Innovations	$29.95	Hydrogen
Aspen Systems	Aspen Aerogels	$65.60	Materials
Orbital Research	ComSense Technology	$0.32	Materials
Silicon Valley Microelectronics	Silicon Valley Solar	$10.20	Solar
Primex Process Specialists, Inc.	Parse Technologies	$0.45	Water/Fluids
ViaSpace Technologies	SpectraSensors	$24.85	Water/Fluids

Investment Performance by Decile (148 Companies)

Outlook on Global Cleantech Venture Investments

Cleantech changes the way VCs have traditionally operated…

1. Cleantech VC investments will continue to grow to a major segment
2. Engineered solutions & Improved efficiency vs Breakthrough technology
3. Intl. Collaboration among VC portfolios will result in new solutions
4. Corporates will become a major part of VC/Startup pie in Cleantech
5. VCs will have to work closer with PE-players & governments for financing
6. VC will be a small piece in cleantech financing vs PE, corporates, govmt.
7. Project financing will become key for large scale deals (no clear path yet)
8. Cross-border / global investments into startups will increase
9. China & India become major drivers & exporters of cleantech (necessity)
10. Some sub-sectors will get overheated, however, there is a huge demand

Benchmarking the Global Cleantech Venture Industry

Your Burning Questions…

Q & A