



# Investing for Change

Clean Technology

March 2007

Berlin

## Something to think about!

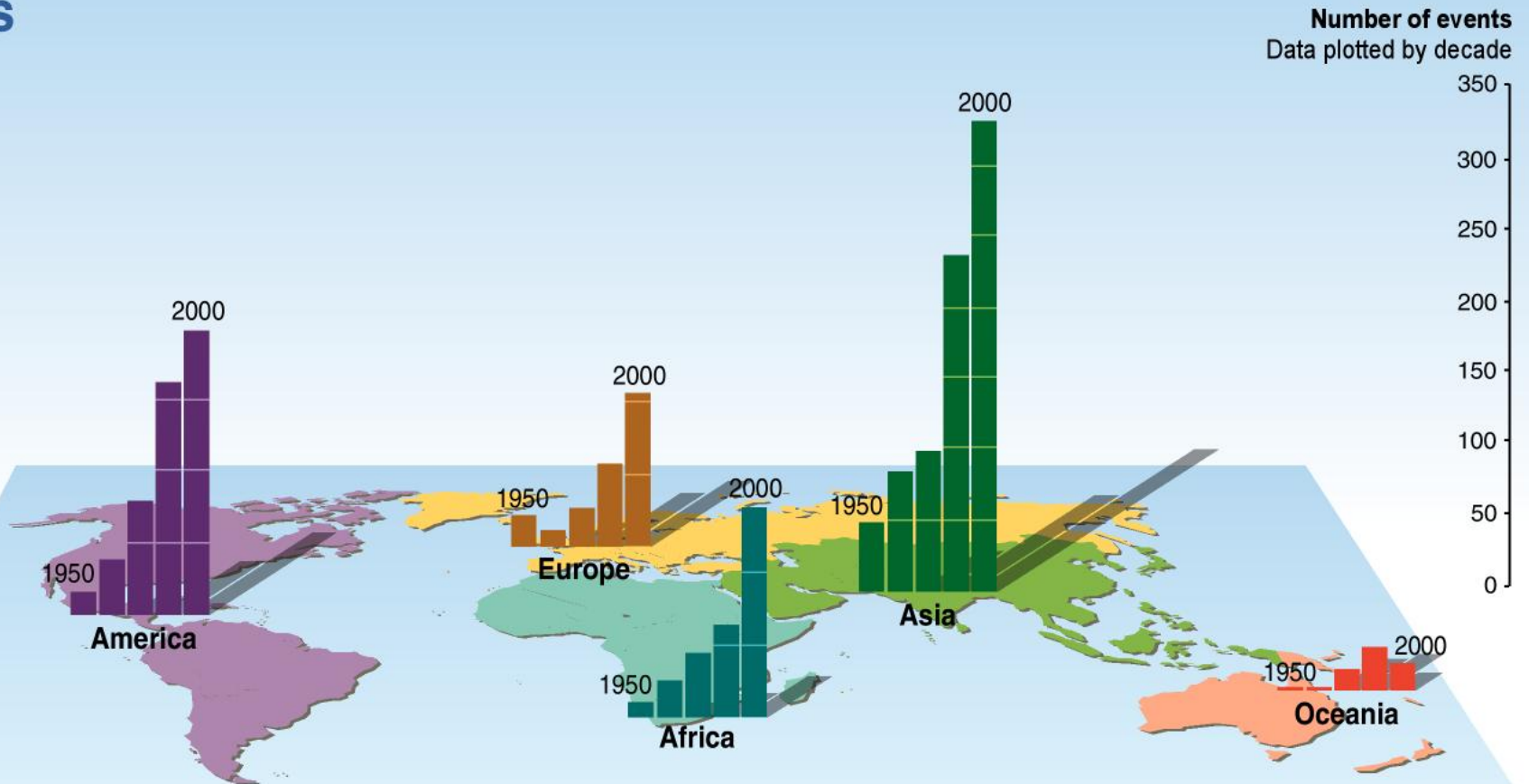
***“China presently consume 1-2 barrels of oil per year per capita whereas Korea consumes 12 and the US 30. If 400 million Chinese and 400 million Indians move into the middle class and consume Korea’s present level then China would consume more than all of OPEC’s annual capacity.”***

***“At the Beijing International Renewable Energy Conference 2005 on 7 and 8 November 2005, representatives of the People's Republic of China announced even longer-term objectives. By 2020, renewable sources' share of total energy consumption is to increase to 15%.”***

Source: MunichRe, 2005, <http://www.munichre.com/>

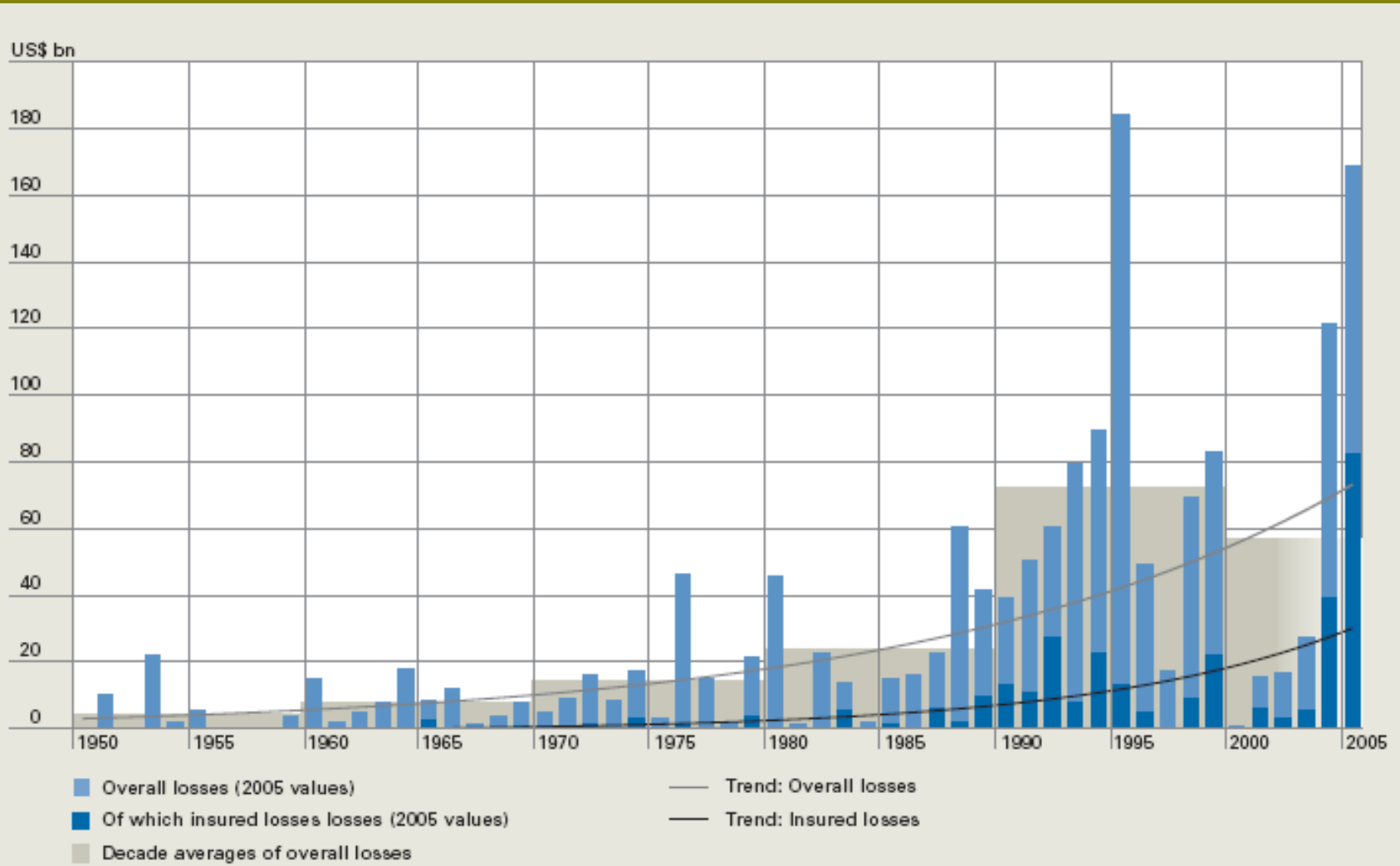
# Increase in Weather Catastrophes

## Floods



Source: Millennium Ecosystem Assessment

# Increase in Losses due to Catastrophes

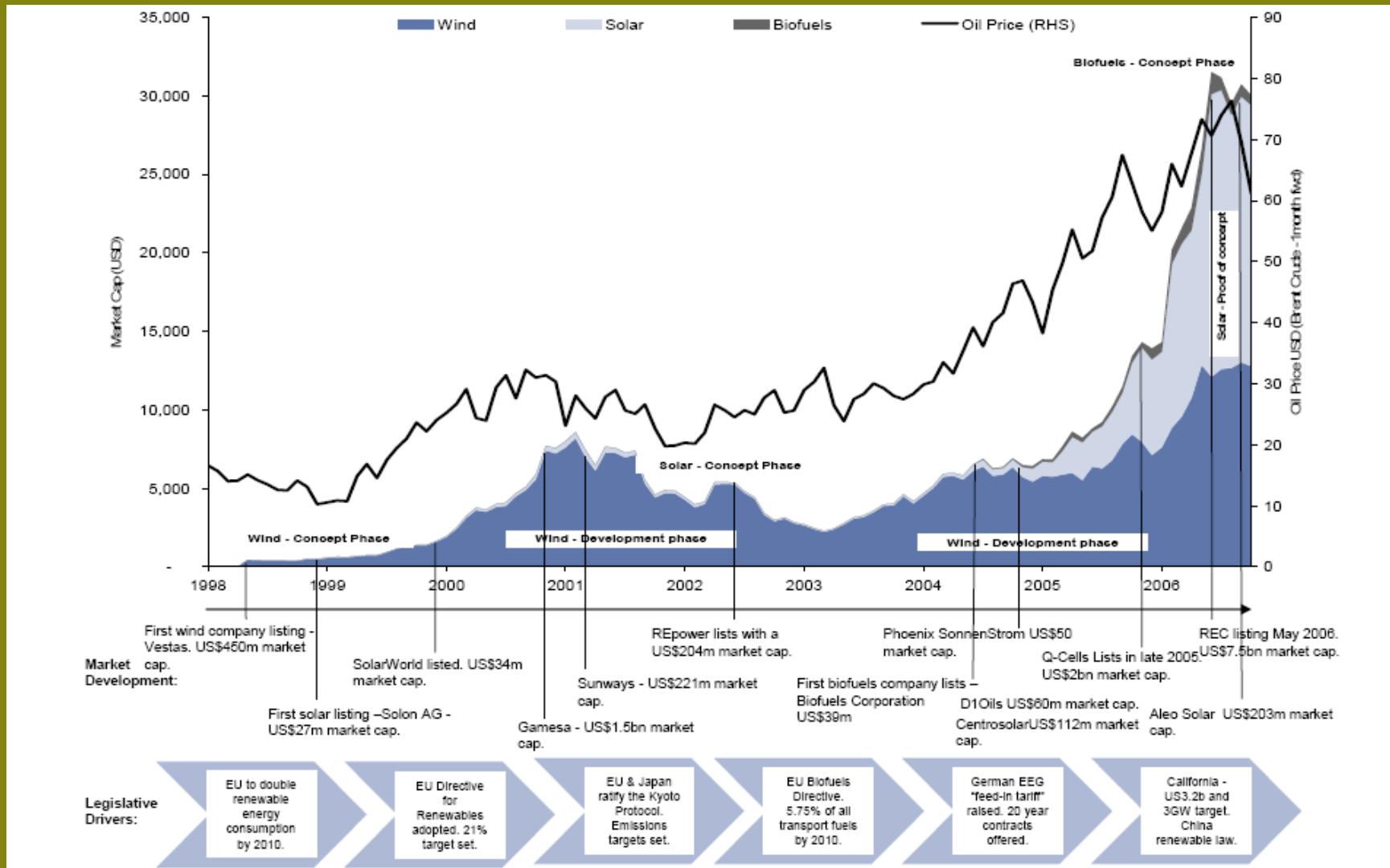


Source: Munich Re, Topics Geo, 2005

# What is Clean Technology

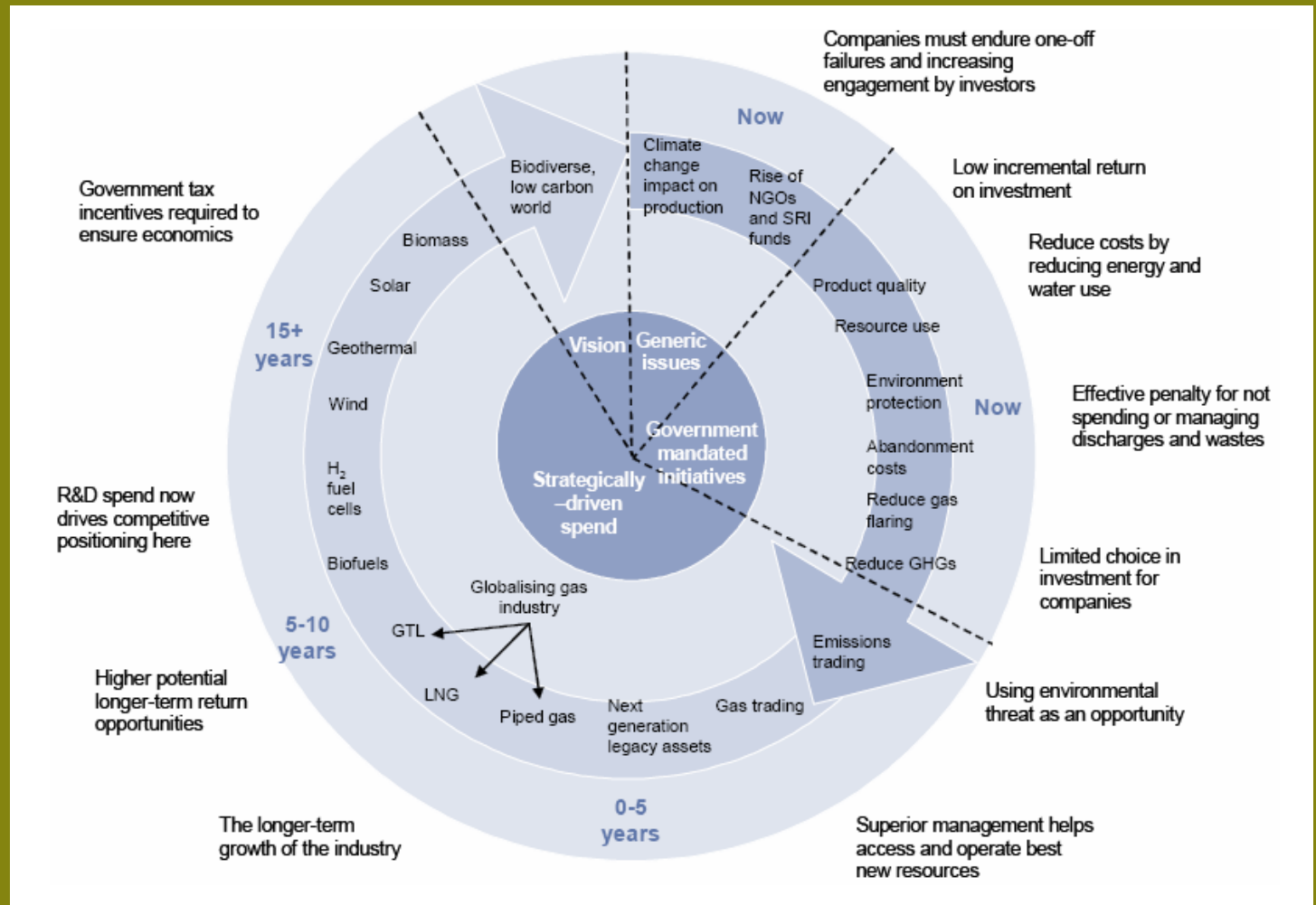
- **Innovative products or services that simultaneously reduce financial and environmental costs whilst driving better performance** (Cleantech Venture Network)
- Clean Technology is developing products that are:
  - Lighter, smarter and stronger
  - Offer dramatic improvements in resource efficiency and productivity
  - Less expensive to manufacture and operate
  - Less carbon-intensive and more energy efficient
  - Ecologically sustainable, or at least less harmful
- Examples are:
  - Renewable and alternative energy
  - Water purification
  - Energy Information Technology

# EU Renewable Energy Sector – rapidly growing



# Company's are Changing....

- Europe is implementing a range of measures and support programmes to promote development of renewable energy sources
- Best performing investment companies are also changing, affecting the way they operate and invest



# Latest Climate Change News

## Regulation:



Feb 21, 2007: Brussels - European Union Environment ministers from the 27- nation bloc supported a **binding commitment** to cut the bloc's emissions unilaterally by at least **20 percent by 2020 compared to 1990 levels**



Feb 21, 2007: Australia to ban old-style light bulb  
...restrict the sale of the old-style bulbs could reduce Australia's greenhouse gas emissions by **4 million tonnes by 2012 and cut household power bills by up to 66 percent**

## Corporate Action:

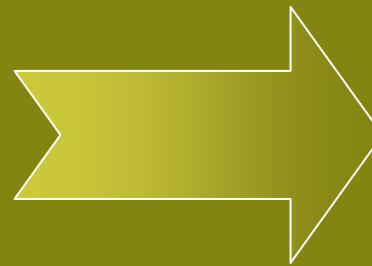


Feb 20, 2007: 90 International companies call for action on climate change  
...of 90 International companies and organisations from around the world - known as the **Global Roundtable on Climate Change, or GROCC** - have endorsed a bold **post - Kyoto framework** for affecting change at the levels of policy and industry, particularly in regard to creating sustainable energy systems necessary for achieving economic growth.

<http://www.earthinstitute.columbia.edu/grocc/>

# Cleantech = Investment Opportunity

- Growing Environmental Concerns
- Kyoto protocol
- Energy security
- Economics
- Legislative Drivers



**Cleantech  
Market**

# The Five Key Drivers – Investment opportunity

- **Growing Environmental Concerns** – environmental issues and a greater public awareness thereof are driving interest and investment in renewable energy technologies
- **Kyoto protocol** – placed an obligation on countries to act and answer concerns relating to the environment. Targets and mechanisms are in place to promote development of low-carbon energy systems
- **Energy issues** – related to security and supply and high energy costs; “*resilience, robustness, reduced vulnerability* combined with *diversification of supplies, energy conservation, and technological innovation*, illuminates a more constructive path related to security and supply and high energy costs.” (CERA, 2007)
- **Economics** – falling capital equipment costs and improvement in yield and efficiency for alternative generation is making it more competitive against conventional technologies
- **Legislative Drivers** – as a result of the above, governments worldwide are developing and implementing policies and incentive programmes to promote renewable energy

# Size of Cleantech Markets

Technology	Market in 2000	Market in 2012
Wind	\$5.5 Billion	\$49 Billion
Solar	\$3.5 Billion	\$27.5 Billion
Power Quality	\$5 Billion	\$15 Billion
Industrial Water Purification	\$5-6 Billion	\$20 Billion

# European Cleantech Investment Market

## Substantial returns have been generated in Europe

Based on a study by New Energy Finance (October 2006) with data from 19 European funds covering 57 investments from 1999 to Q3 2006:

- Average return for Cleantech VC investments from 1999 – Q3 2006: **87.6% IRR**
- Best performing sectors: Solar, Biomass, Biofuels and Efficiency
- Best performing countries: Germany, UK
- Best performing investment stages: expansion/mid-stage (150% IRR), incubation/spin-out (19.6% IRR) and pre-IPO/PIPE (16.5% IRR)

# EU Cleantech Investment Market & Jobs

## Job generation through VC backed cleantech companies

- The 57 monitored companies have created an estimated 2,700 direct jobs
- Assuming a modest 'employment multiplier' of 1.7 indirect jobs for every direct job, the total created in the economy equals ~ 9,960 jobs
- Companies in this sample account for around 30% of venture funded clean energy companies in Europe, so total direct employment created was ~ 8,970 and total direct and indirect jobs created in Europe equal ~ 33,200

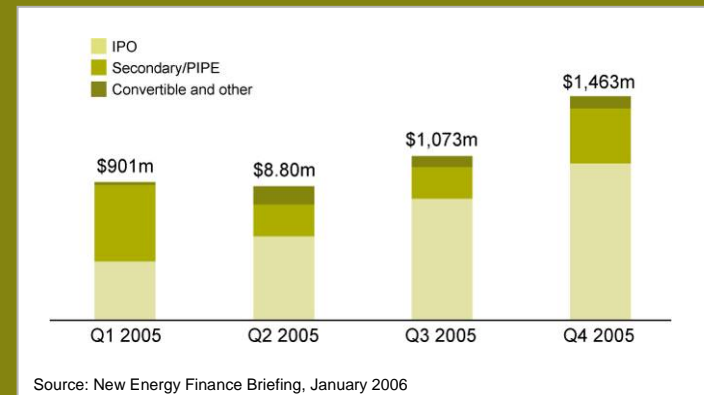
# Large Market Opportunity

## Europe leading in Cleantech investments

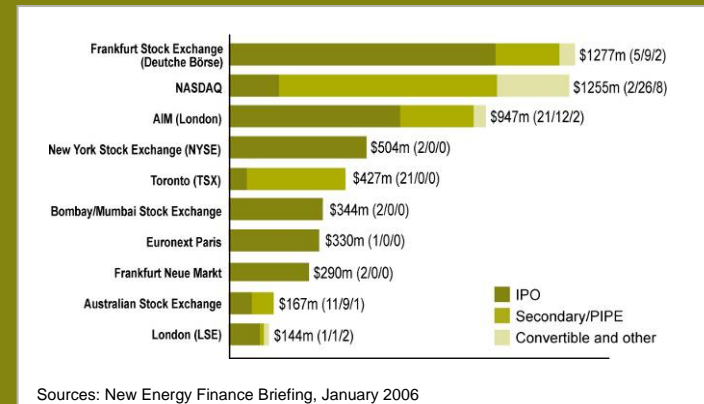
- \$6.7B total deal value in clean energy in 2005 including \$3.0B of investment in Europe
- Venture capital investment in clean energy topped \$1.1B world-wide in 2005
- 54 Cleantech IPOs in 2005 including 21 IPOs on AIM and 5 IPOs on Frankfurt Stock Exchange
- According to Cleantech Venture Investing – Patterns and Performance, March 2005:
  - Median estimated returns were around 8x invested capital in Europe and 5x in the U.S. (1996-2003)
  - Estimated IRR for venture Cleantech investments is above 30% (1996-2003)
- New Energy Finance study (Oct. 2006) found average return of European Cleantech investment to be at 87.6% from 1999 to Q2 2006

Sources: Cleantech Venture Investing: Patterns and Performance, March 2005; New Energy Finance Briefing, January 2006

## Cleantech IPOs & secondary offerings Q1-Q4 2005



## Europe leading in Cleantech IPOs



# Cleantech IPO's

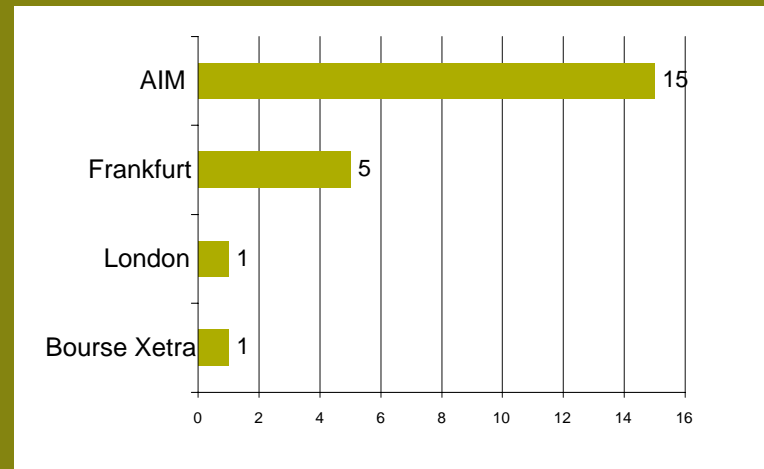
## 2003-Q2 2006: Cleantech IPOs by Year, Number and Total Amounts

Year	Number of IPOs	Total Value
2003	None	None
2004	3	€98,154,000
2005	11	€594,074,805
2006*	8	€1,119,264,797
<b>TOTAL</b>	<b>22</b>	<b>€1,811,492,602</b>

\* Through Q2

- The number and size of IPO's has been rising in recent years

## 2003-Q2 2006: Cleantech IPOs by Exchange



- AIM is emerging as the market of choice for EU cleantech company's that want to go public, followed by Frankfurt's Stock Exchange

# Top IPO's of VC backed Cleantech Company's

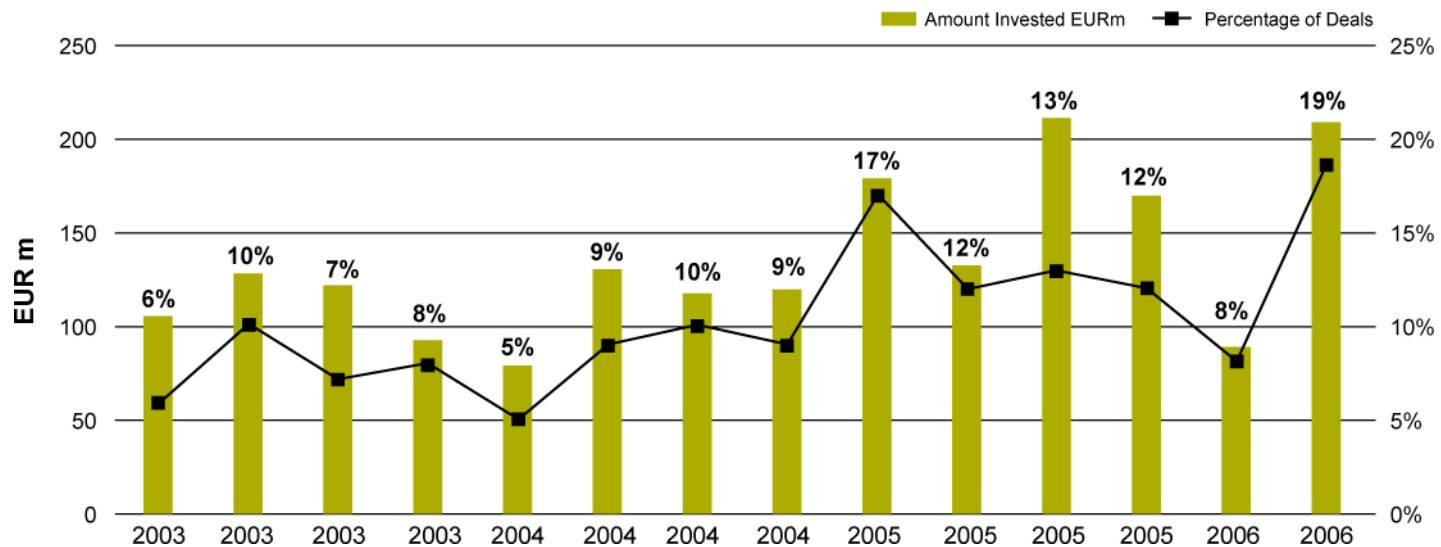
## 2003-Q2 2006: Top 10 IPOs of Venture-backed Cleantech Companies

Company Name	Date of IPO	Total Raised (Euros)	Shares	Price Per Share/Euros
QinetiQ Group	2/10/2006	904,180,555	308,750,000	2.93
Q-Cels AG	10/7/2005	313,000,000	8,243,262	37.97
ErSol Solar Energy AG	9/30/05	194,990,000	3,700,000	52.7
Econergy International	2/23/2006	105,132,000	60,000,000	1.75
Camco International	4/25/2005	43,298,160	38,906,250	1.11
Phoenix SonnenStrom	11/18/2004	42,712,500	5,025,000	8.5
ITM Power	6/11/2005	14,948,500	20,000,000	0.75
Vestas Wind Systems	4/25/2006	35,861,478	38,906,250	0.92
Ceres Power Ltd.	11/25/2004	28,219,500	55,096,393	0.51
Biofuels Corp.	6/13/2004	27,222,000	20,000,000	1.36

- The highest amount achieved for an IPO was by QinetiQ, which has roots in defense and diversified into energy technologies, smart materials, and other
- The other top raisers went to energy-led companies

# Cleantech Investment as Part of overall VC Investment

2003-Q2 2006: European Cleantech Venture Investment as a Percentage of Overall VC



Source: European Cleantech Investment Report 2006

- European Cleantech is capturing an overall larger annual percentage of total VC
- Q2 2006 is three times the share of the total VC invested in Q1 2003
- The upwards curve is likely to grow further

# Cleantech Venture Investment in Germany & UK

## 2003-Q2 2006: European Cleantech Investments by Region

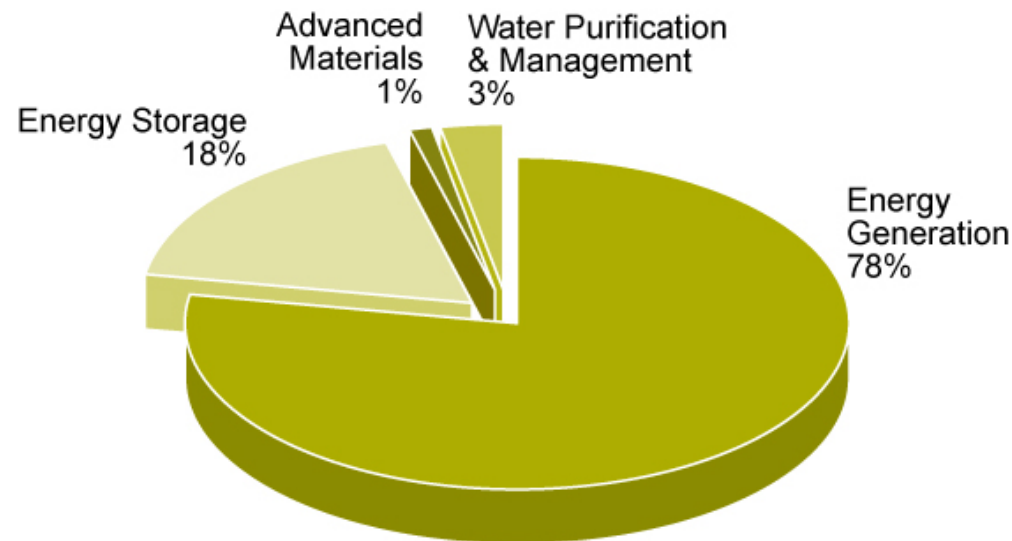
Region	Number of Deals	Total Investment
Israel/Middle East	12	€81,557,080
Western Europe	295	€1,229,284,558
Nordic/Northern Europe	79	€334,310,494
Southern Europe	20	€148,582,456
Central & Eastern Europe	20	€28,094,547
<b>GRAND TOTAL</b>	<b>426</b>	<b>€1,891,829,134</b>

Source: European Cleantech Report 2006

- Western Europe leads the way in cleantech investments.
- The UK and Germany are the most active countries for cleantech venture investment
- The UK leading with the most deals and highest total amount, but with Germany's average deal size almost double the size of the UK's

# Sector Specific Investments in Germany

2003-Q2 2006: Cleantech IPOs by Year, Number and Total Amounts



Source: European Cleantech Report 2006

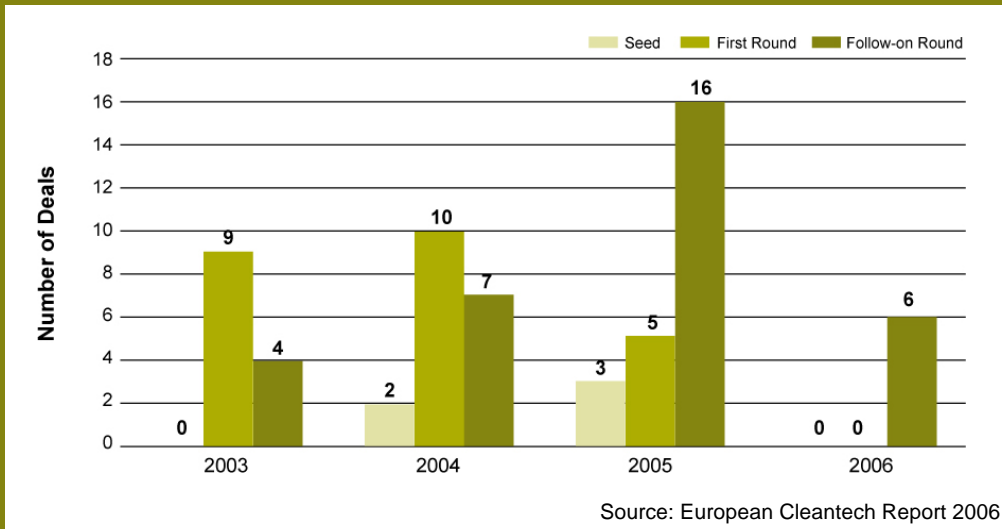
- Most capital in Germany was invested in energy related technologies
- It's focus on renewable energy may help to transform itself into a hub for technologies such as solar, fuel cells and biofuels

# Cleantech Investment by Round: EU & Germany

## 2003-Q2 2006: European Cleantech Investments by Stage

Round	Number of Deals	Total Value
Seed-stage	77	€79,181,079
First round	175	€641,552,014
Follow-on	174	€1,171,096,041
<b>Grand Total</b>	<b>426</b>	<b>€1,891,829,134</b>

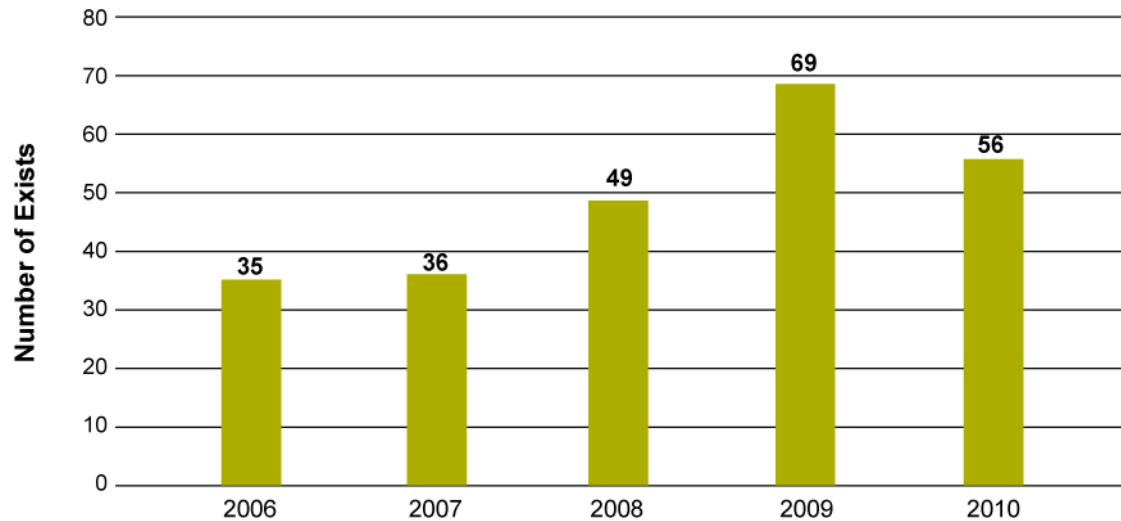
## 2003-Q2 2006: German Deals by Round



- In Europe investors supported companies throughout all stages, from seed-stage receiving 4% of the investment amount, to first round receiving 34% and later stage investments totalling 64%
- Cleantech entrepreneurs in Germany could be facing difficulties if no seed and first round investments will be committed, as was the case in H2 2006%

# Future projections for Exits in Europe

Q3 2006-2010: Projected Number of Exits for European Cleantech Companies

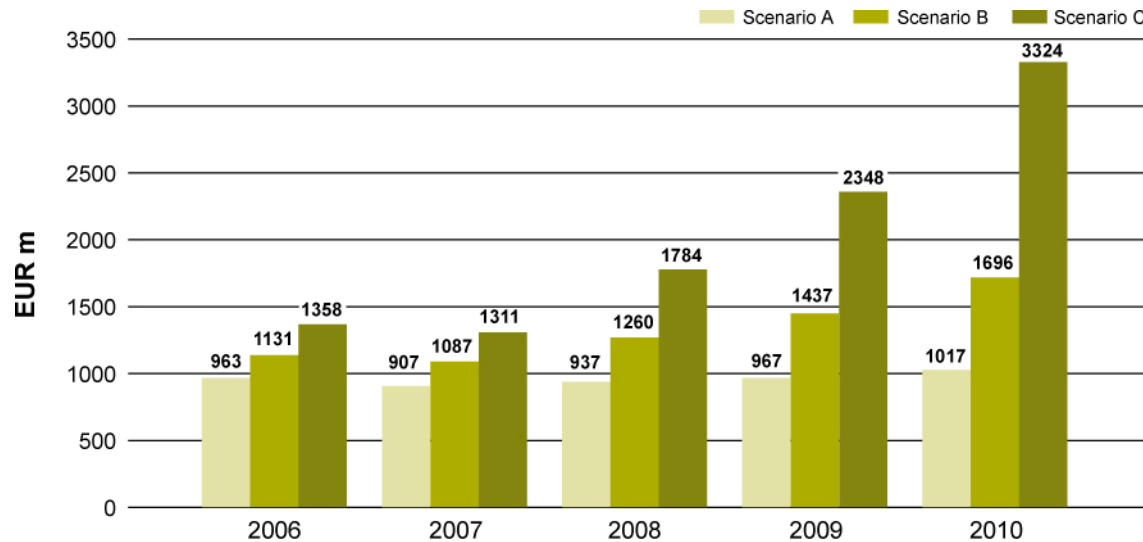


Source: European Cleantech Report 2006

- Given a healthy IPO market, the European Cleantech Report projects that 245 venture investments will exit between 2006 and 2010

# Capital Opportunities from 2006 through 2010

## Projection of Yearly Capital Opportunities in EU Cleantech Companies



Source: EuropeanCleantech Report 2006

- Should the most aggressive scenario prove correct many opportunities will arise in the coming years
- Even with the moderate scenarios coming true, there will be significant venture funding opportunities in European cleantech companies

**zouk ventures**, the pan-European technology investor, has launched **Cleantech Europe**, an expansion stage fund focused exclusively on the clean technology market

# Executive summary

## THE FUND AND ITS TEAM

- Core team has worked together since 1998; independently owned
- VC-focused technology investing; strong operational experience
- 4 experienced partners, who together have 57 yrs. combined VC experience; 120 yrs. operational and 60 yrs. technology experience

## FOCUSED CLEANTECH INVESTMENT STRATEGY

- Exclusive focus on technology companies in Cleantech market
- Focus on expansion stage companies
- Diversified investment strategy; renewable energy, efficiency, water

## LARGE MARKET OPPORTUNITY

- Europe leads world in clean energy technologies
- Favourable changes in European legal framework
- Opportunity to generate substantial returns; target IRR of 25%

## STRONG DEAL FLOW

- Access to good deal flow and a proprietary database of over 2000 Cleantech companies
- Tracking companies across all stages; early, expansion, PIPE

## CLEANTECH EUROPE FUND

- First Closing in March 2006; commitments of over €60MM to date
- 2 investments made in energy efficiency and solar
- Investors from First Fund have committed to Cleantech Europe

# Cleantech Europe – investment strategy

Clearly defined investment strategy allowing optimised risk-return

Broad Approach in Cleantech	Technology Focus	Expansion Stage	European Focus
<ul style="list-style-type: none"> <li>▪ Main investment areas:                             <ul style="list-style-type: none"> <li>– Water technology</li> <li>– Renewable energy technology</li> <li>– Energy storage technologies</li> <li>– Efficiency technology</li> </ul> </li> <li>▪ Diversification across sub sectors                             <ul style="list-style-type: none"> <li>– Different drivers for water and renewables</li> <li>– Very low volatility in water and higher volatility in renewables</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Higher multiples in technology than in infrastructure and project</li> <li>▪ Lower capital requirements in technology than in infrastructure and project</li> <li>▪ Fast progress of 2nd generation technologies</li> </ul>	<ul style="list-style-type: none"> <li>▪ Investment in proven technologies                             <ul style="list-style-type: none"> <li>– Proven market acceptance of technologies</li> <li>– Reduces technology risk of early stage investments</li> </ul> </li> <li>▪ Limited valuation differential between early and late stage</li> <li>▪ Stages                             <ul style="list-style-type: none"> <li>– Expansion-stage opportunities (Minimum revenues of €2.0MM)</li> <li>– Pre-IPO opportunities</li> <li>– Selected PIPE deal</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>▪ Europe is leading the rest of the world in Cleantech</li> <li>▪ Attractive legal framework in Europe - legal frameworks create incentives (Germany, Scandinavia, UK, BENELUX, Austria followed by France, Spain, Italy)</li> <li>▪ Strongest exit markets in Europe (AIM / Frankfurt)</li> <li>▪ Strong average returns in European Cleantech (8x invested capital in Europe vs. 5x in the U.S. (1996-2003))</li> </ul>

# Cleantech Investee Companies



- Swedish company founded in 1988
- Unique IP for gas turbine cleaning
- Top-ranked CEO
- Listed on AIM Q4 2005
- zouk €1.0MM investment July 2006
- Follow on investment of €0.8MM in February 2007

## Overview

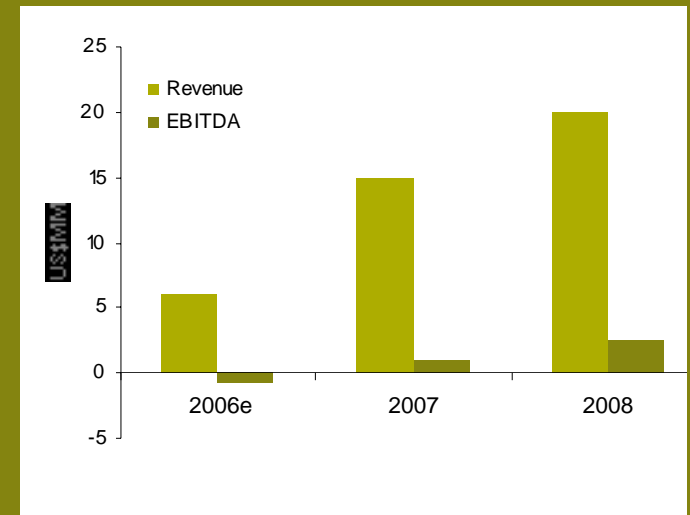
- Leading developer of gas turbine cleaning systems and products aimed at aircraft engine, gas turbine and oil & gas markets
- Patented technology around water droplet management to ensure turbine blades are not damaged in the cleaning process

## Value proposition

- Products offer efficiency gains of 1-2% and are sold as integrated components, external systems or services to the end customer
- Improves time-to-overhaul since turbine is working less to achieve the same thrust/energy output

## Investment rationale

- CEO with significant gas turbine experience
- €8.0B market in power gen., and aircraft
- Potential for add-on services and products to same customer base



# Cleantech Investee companies



- Singaporean company founded in 2006
- Solar implementation in rural Asia
- Management team built a similar business previously

## Overview

- Satisfying market demand in Asia for electricity capacity
- Clear business model; customisation of solar modules for rural areas; franchise-based sales strategy
- Exceptionally strong management team with track record at Shell Solar



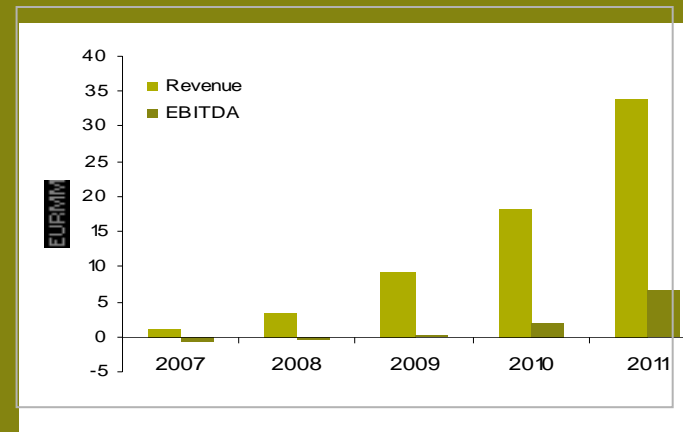
## Value proposition

- Large underlying market
- Efficiency improvements through local manufacturing
- Opportunity to combine with UV water treatment

## Investment rationale

- High growth rates
- Low-risk investment
- High return potential

## Financials



# Contact

**Alois Flatz**

**zouk ventures Limited**

5 Prince's Gate  
London  
SW7 1QJ  
United Kingdom

Telephone: +44 (0)20 7947 3404  
Facsimile: +44 (0)20 7947 3449

Email: [aflatz@zouk.com](mailto:aflatz@zouk.com)

Website: [www.zouk.com](http://www.zouk.com)