



“Cleantech Venture Capital 2.0 – Faster Exits, Higher Returns”

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Introducing Zouk Capital

Background : Focus on cleantech investment since 2004

Assets : Over €400m under management across 2 investment strategies

Team :
25 members - 14 nationalities - 11 languages
14 private equity professionals specialised in cleantech investing

Approach : Dual-track approach to cleantech: growth capital and infrastructure investment

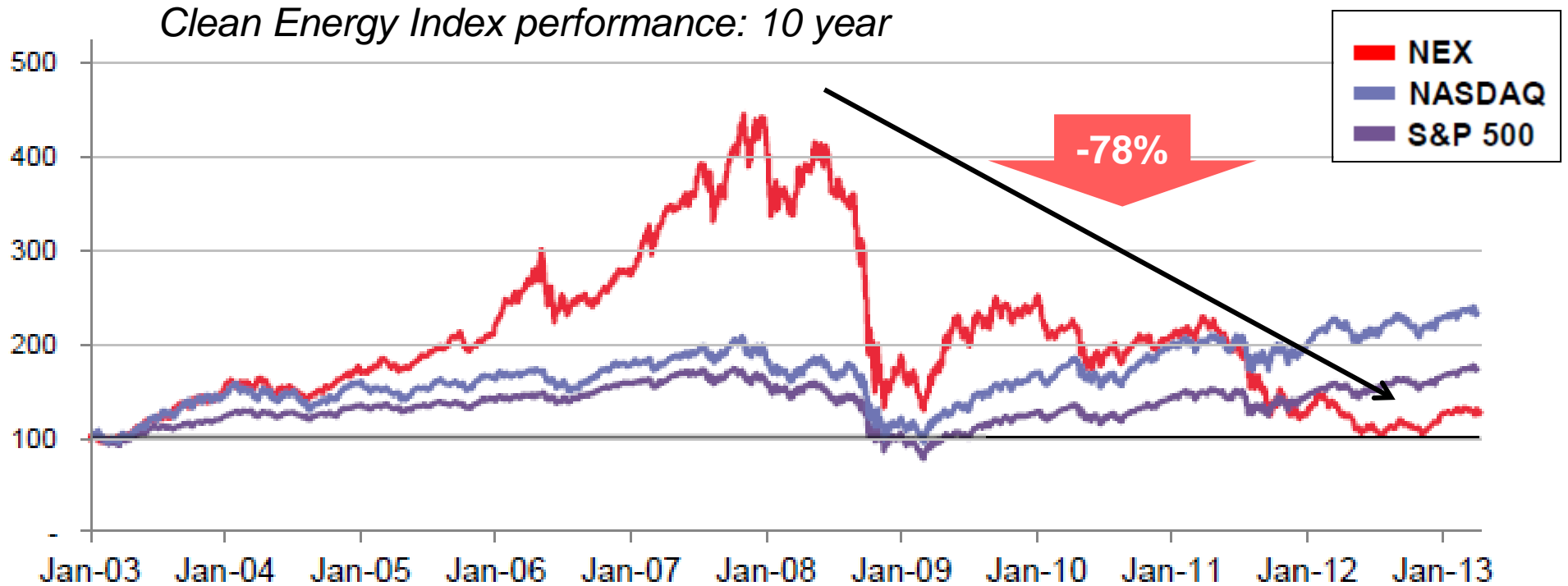
Funds :

 Growth Capital	Cleantech Europe I <i>Vintage: 2007 Size: €88m</i>	Cleantech Europe II <i>Vintage: 2011 Size: €230m</i>
 Infrastructure	Renewable Energy & Environmental Infrastructure Fund I ('ZSOL') <i>Vintage: 2008 Size: €52m</i>	Renewable Energy & Environmental Infrastructure Fund II <i>Vintage: 2012/13 Size: €200m*</i>

Value of Zouk's dual track Strategy in today's Market

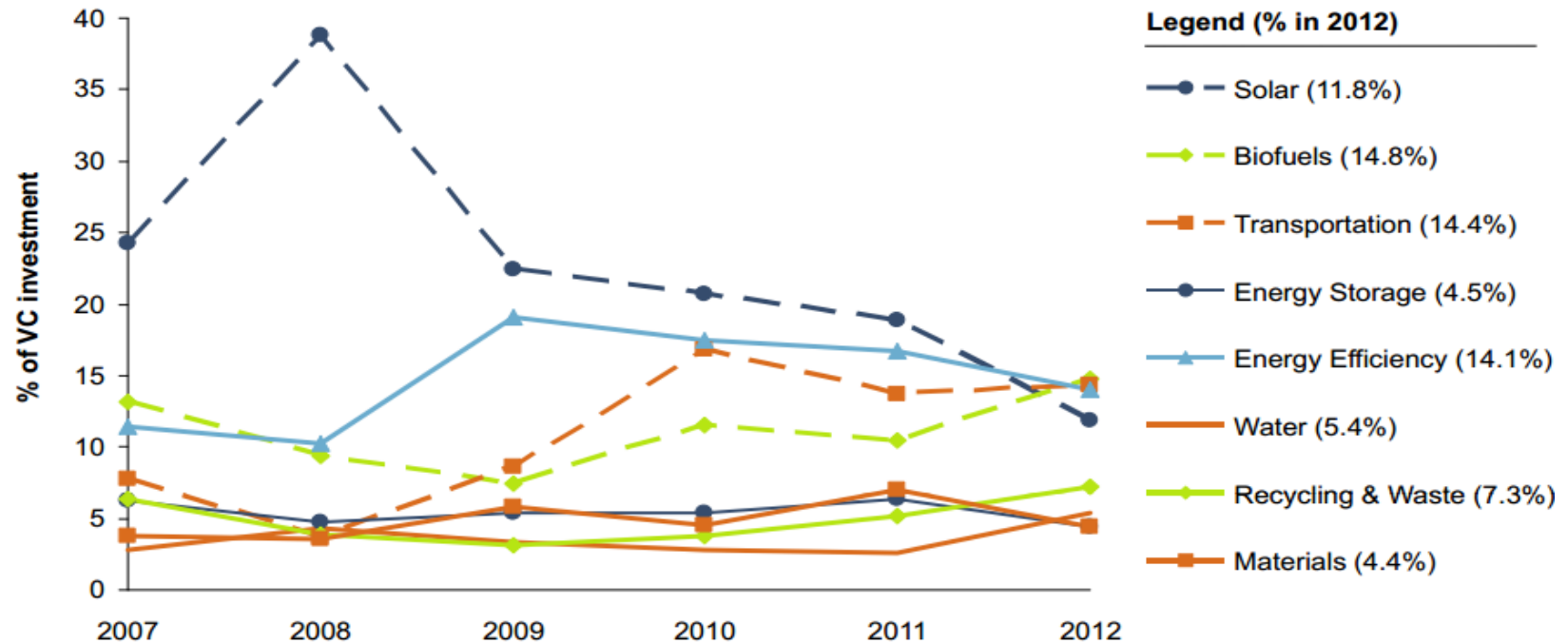


Public Cleantech Companies have suffered



Investment in solar has been decreasing since 2008

Cleantech VC investment breakdown, Top 8 Sectors
(% of dollars invested)



Source: Cleantech Group's i3 Platform

2008: 200 VC-backed solar start-ups`

2009-2012: ~80 solar companies bankrupt, closed or acquired through fire-sale*

Boom & Bust Cycles in Cleantech

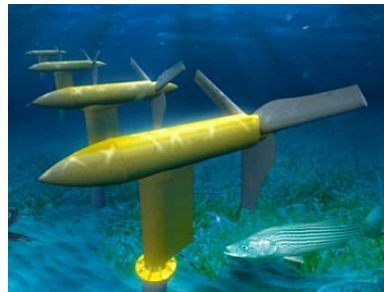
- Technology hype has often driven investment cycles
- Investment needs and development times have been underestimated
- However, these technologies are still necessary and continue to make progress
- What's next?

Fuel Cells



1995

Wave Turbines



2000

Agri-Fuels



2005

Solar



2010

Cleantech Challenges: Lessons Learned Over 20 yrs

Long technology development cycles



- Time from technology innovation to commercialization not always aligned with investor goals

Capital intensity of hardware based products



- CAPEX intensive industrial solutions require huge financing
- Strong balance sheets required
- Projects often require more time than planned to realize

Dependency on regulatory frameworks



- Carrots are rolled back (FIT)
- Regulatory changes faster than tech dev cycles

Dependence on strong gate keepers



- Risk averse or late adopter utilities and OEMs
- Enterprise customers considering service models over capex spent

Cleantech is part of industrial policy



- Chinese PV companies received \$66.1 bn since 2010
- China plans to invest \$740 bn in cleantech by 2020

Challenges facing the cleantech industry undeniable; however, rapid continued innovation and fundamental opportunities remain, which in many ways are more promising than the historical cleantech hype

Transformational Shifts in the Energy Industry

Decoupling of energy and economic growth



- Western economies are 25% less energy intensive in 20 year
- 2011: German GDP: +3%; energy demand: -1%
- German energy demand was 10% less in 2011 compared to 1990

Digitization and networking of energy markets



- Connected environments and active consumers are creating a new energy use landscape (e.g. smart grid, big data, analytics)
- Consumers can intelligently manage demand

Fall in renewable generation costs



- Renewable power generated at zero marginal cost
- Wholesale prices hit a 5 year low: < €40/MWh; UK: > €60/MWh
- 70% of new built power capacity in Europe in 2011 was renewable

Shift towards decentralized energy generation



- Germany moved from 150 centralised power stations to 1.5m decentralised power stations (reduced transmission losses)
- 22GW of renewable power generation owned by privates; 4 GW owned by utilities
- Noone wants a multi-gigawatt power plant in their backyard

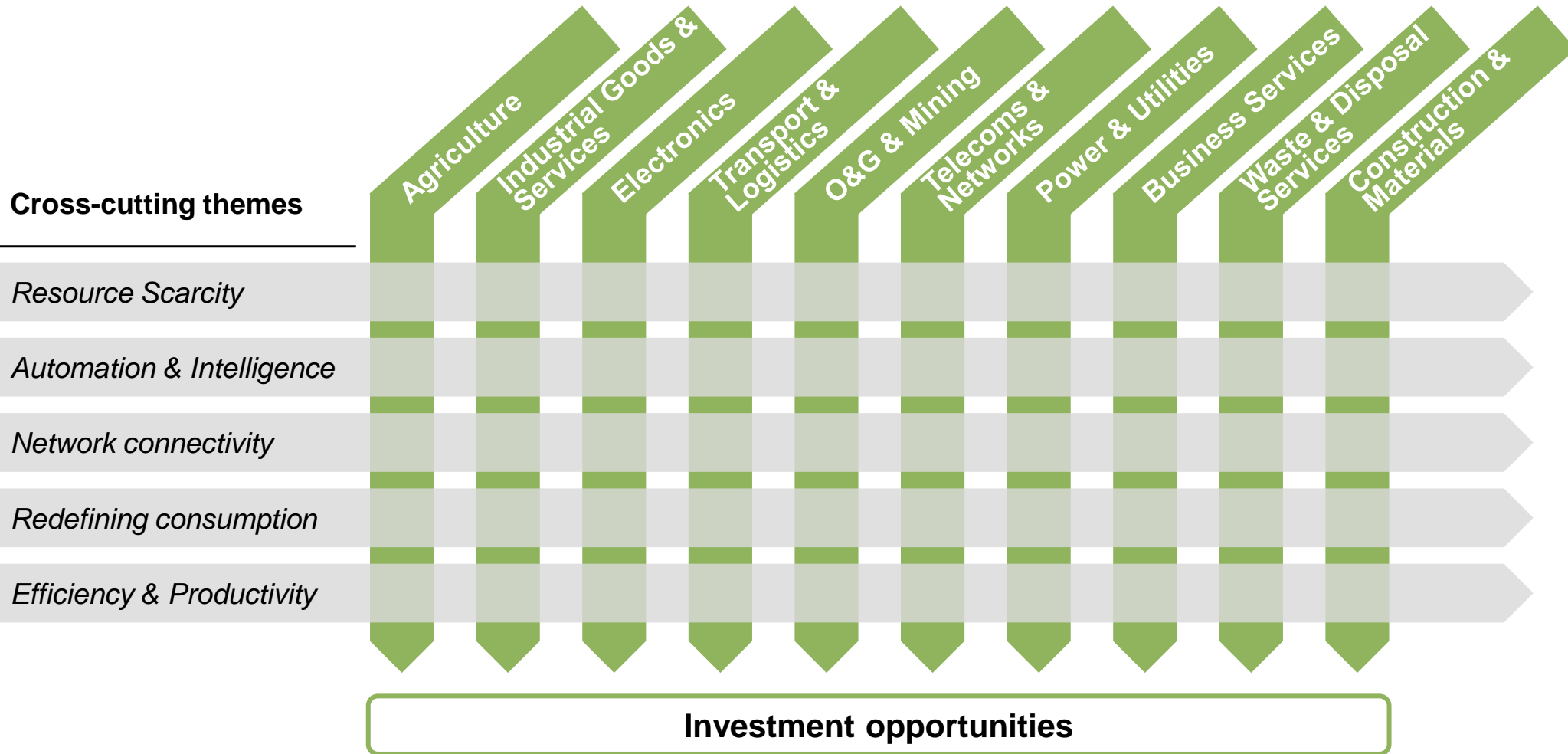
The rise of shale gas as a dominant fuel



- US turns from a 45% net importer of oil and gas in 2012 to energy independence
- US to become world's largest oil and gas producer in 5 years (IEA)
- Integrates well with renewable energy

As clean and renewable energy technologies become more reliable, affordable and scalable they continue to drive us towards a fundamentally new energy economy

Cross cutting themes impact all industries



Focus on industry verticals, informed by insights into cross-cutting themes

Cleantech 2.0 – Cleantech Goes Digital

Truly intelligent and flexible grids



- Efficiency of storage solutions continues to become more efficient (e.g. capacitors, fuel cells, etc.) digital tech can help optimize the grid now
- Predictive analytics and smart control systems drive efficiency

Connected machines, buildings & homes



- Advances in power electronics, digital storage, and processors are causing rapid developments in controls and automation for the built environment

Shift from industrial to digital heavy energy users



- Historically, heavy energy users have been municipal and industrial power users
- Digital infrastructure (datacentres) is becoming a significant driver of energy consumption

Ubiquitous sensors, large data sets, and analytics

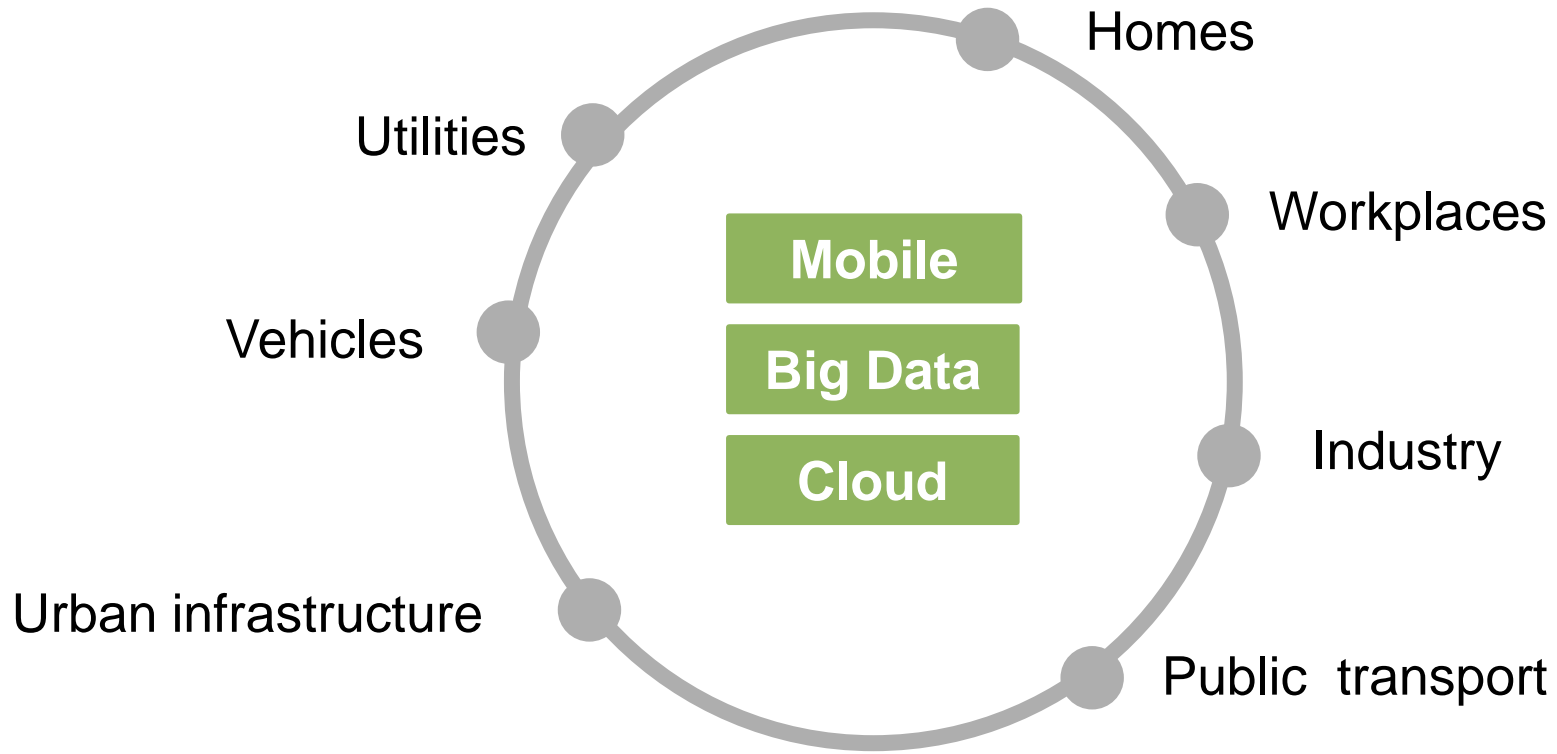


- Massive optimization potential across industries (e.g. Transportation, water, agriculture, materials, etc.)

Digital convergence is driving a whole range of investable new cleantech opportunities

Example: Connectivity – great potential for efficiency impact

Resource efficiency delivered using machine to machine communications



Cleantech 2.0 – Cleantech Becomes Ubiquitous

Operations and logistics efficiency



- Enterprises focus resource productivity on drivers of operational efficiency
- Supply chain optimization efforts continue to optimize resource use and reduce environmental footprints

Sustainable agriculture



- Intelligent sensor networks, data analytics, and material handling robots streamline the agricultural sector

Emerging energy services models



- Growth of regional or community power networks / systems
- Increase in value and uptake of energy efficiency services to customers
- ESCOs

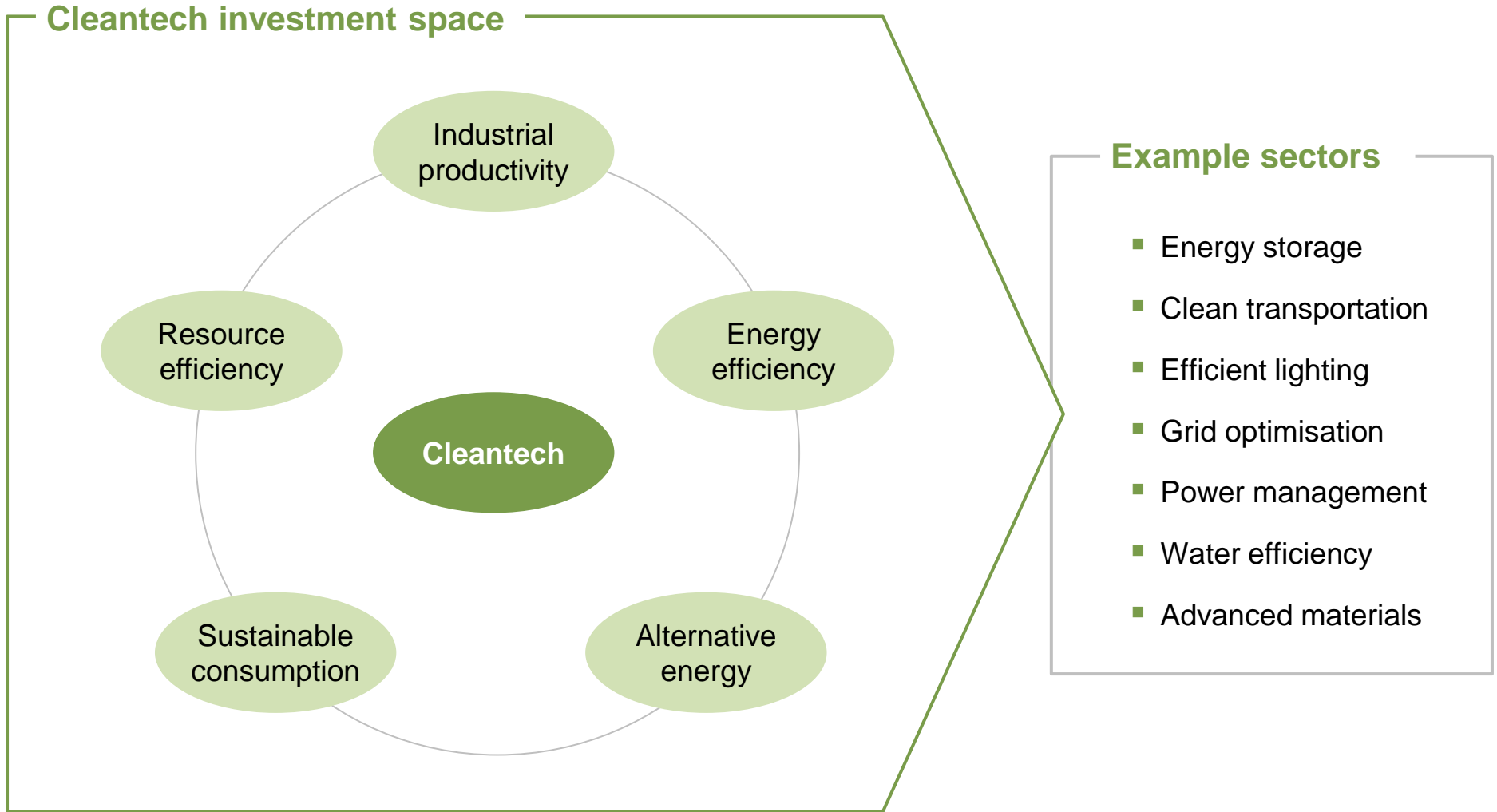
Collaborative consumption, up-cycling, and value from waste



- Growing consumer acceptance of shared and services based transactions vs. outright ownership
- Increasing monetization and repurposing of waste streams

Resource productivity and optimization opportunities are increasingly economical and valuable – cleantech in the context of resource efficiency is no longer just an opportunity but an imperative.

Cleantech Investment Space



Investment Considerations

Reduced dependence on regulatory framework



- Governments' financials to stay distressed in coming years
- Businesses must be agile to adapt to changing industrial models

Proven, cash generative business models



- Demonstrable customer and revenue traction in a core market
- Scalable business models

Capital efficient growth opportunities



- Fast growth at low CAPEX
- Capital light solutions for customers (services; recurring revenues)

Top management teams



- They drive an organisation, win clients and lead to success
- Most important single criteria of success

Early exit perspectives



- Investment horizons of investors shorten
- Exit focus and alignment at investment stage

Portfolio diversification



- Diversification by technology, business model, value chain
- Take into account economic cycle and geography

Resource efficiency is at the heart of Europe's future

Resource productivity

A European revolution in the making

- At the core of European industry
- Driven by competition with China & Asia
- Uses less resources
- Improves the life cycle of industry and products
- Builds on the existing European cultural focus on efficiency
- Helps to improve Europe's trade deficit of €100bn; €400bn spent on imports of fossil fuels



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