



Emerging Trends in Energy Technology Venturing

BIEE Financing the Energy Transition
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BP Ventures
developingalternatives

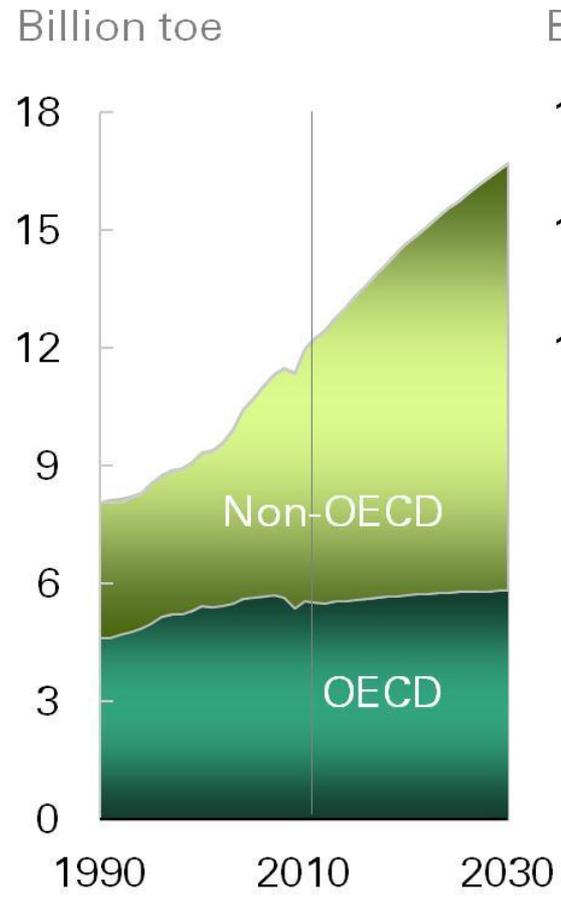


1. Energy Outlook
2. Corporate Venturing
3. BP Ventures

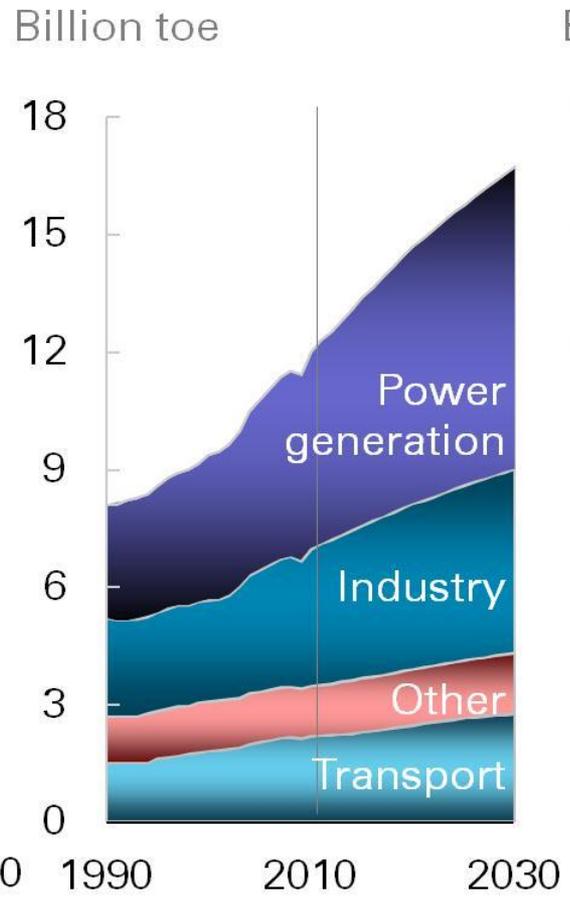


Industrialisation and growing power demand...

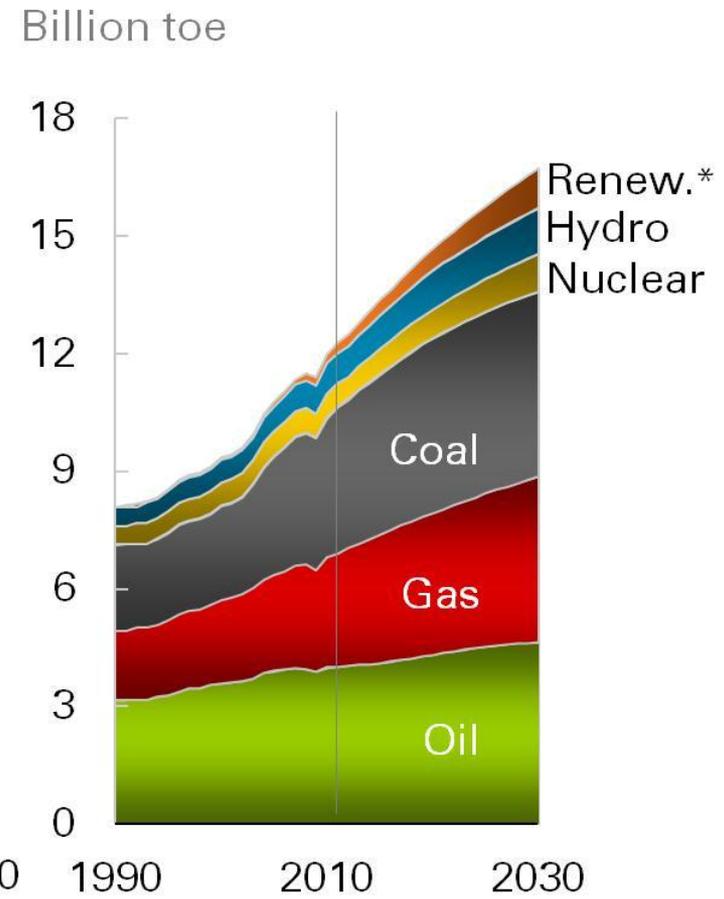
By region



By primary use



By fuel



*Includes biofuels



Corporate Venturing

Venturing is used by digital and biotech sectors and increasingly by energy



Venture capital study:

- Start-ups backed by VC since 1970:
 - employ 9% of US private sector
 - accounts for 16.6% of US GDP
- Total VC investment 0.2% of GDP



VC and innovation:

- Venture capital investments have 3 times higher innovation/patent output than R&D





Market trends: Rise of corporates in energy ventures

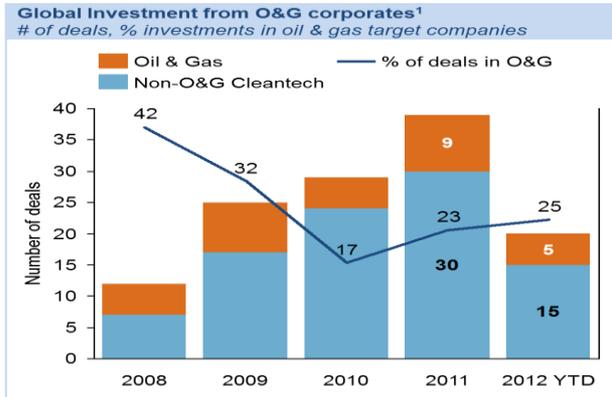
Selected recent corporate cleantech investments

Sector	Venture/Start-up	Corporate investor
Electric vehicles	Reva 	Mahindra & Mahindra 
Concentred solar power	BrightSource 	Alstom 
Electric vehicles	Tesla 	Toyota 
Advanced biofuels	Virent 	Shell/Cargill 
Solar	Stion 	TSMC 
Advanced biofuels	Amyris 	Total 
Offshore wind	A2Sea 	Siemens 
Advanced biofuels	Verenium 	BP 
Energy Efficiency	SynapseSense 	GE 
Material/Solar	Nanosys 	Samsung 
Electric vehicles	Bright Automotive 	GM 
Solar	Solarfun 	Hanwha Chemicals 

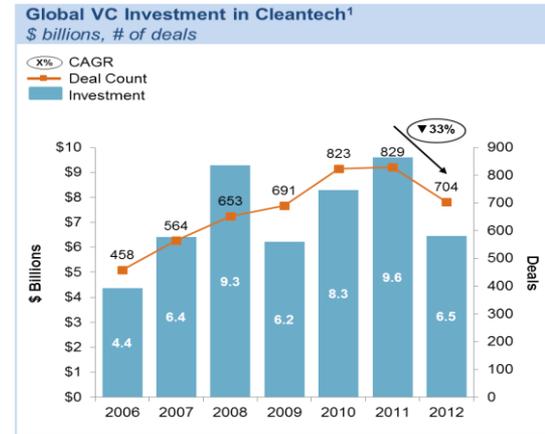


Market trends: Shift to 'All Energy' funds from Cleantech

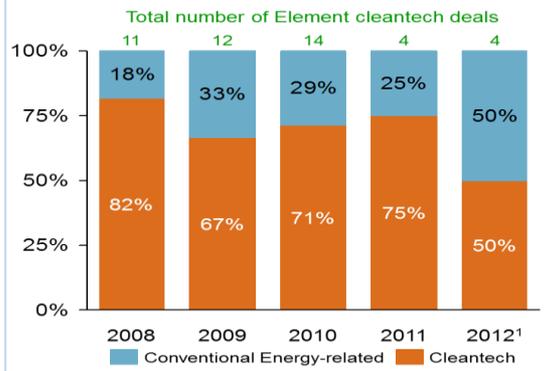
Shift to "All Energy" funds



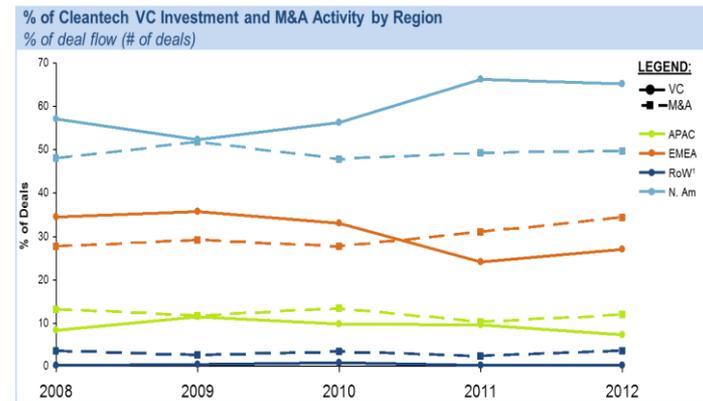
Cleantech investments declining



Cleantech vs Conventional Energy Investments within Element's portfolio (2008 - 2012¹)



US continue to dominate





Market Trends: New CVC models in Energy

Creating Partnerships

With other corporates or financial investors

Energy Technology Ventures

- Joint venture investment vehicle for **GE, NRG Energy, and ConocoPhillips**
- Focused across the energy space, from upstream O&G to renewables



- Joint fund between **Total, PSA Peugeot Citroen, Orange, and SNCF**
- Joint fund to focus on sustainable mobility across transportation



- Originally joint CVC fund between **Schneider Electric, Alstom, and Rhodia (Solvay)**
- Moved to VC fund manager model with corporates as LPs



- **EDF and Idinvest** have combined to form **Electranova Capital**
- €60m fund is open to financial LPs
- Fund an portfolio companies will have access to EDF R&D

Enriching the Ecosystem

	Competitions	Events	Fund Investments
Description	<ul style="list-style-type: none"> • Running innovation competitions • Cash or access prizes • May be specific to industry segment or broader category such as cleantech 	<ul style="list-style-type: none"> • Organization of industry events • May be either industry wide or more focused on a company's portfolio and/or immediate ecosystem 	<ul style="list-style-type: none"> • Participating as LP's in sector specific, or geography specific funds. • May also create new funds and open to others.
Benefits	<ul style="list-style-type: none"> • Raises corporate profile in innovation community • Alternative form of sourcing deal-flow • Maintains knowledge of new innovations 	<ul style="list-style-type: none"> • Puts staff at the center of an innovation network • Builds thought leadership • Forms informal links with start-ups 	<ul style="list-style-type: none"> • Enhanced access to deal flow. • Leverages other's expertise. • Leverages other's capital
Examples			

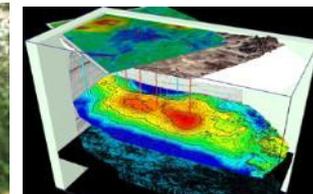
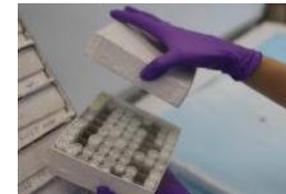


BP Ventures

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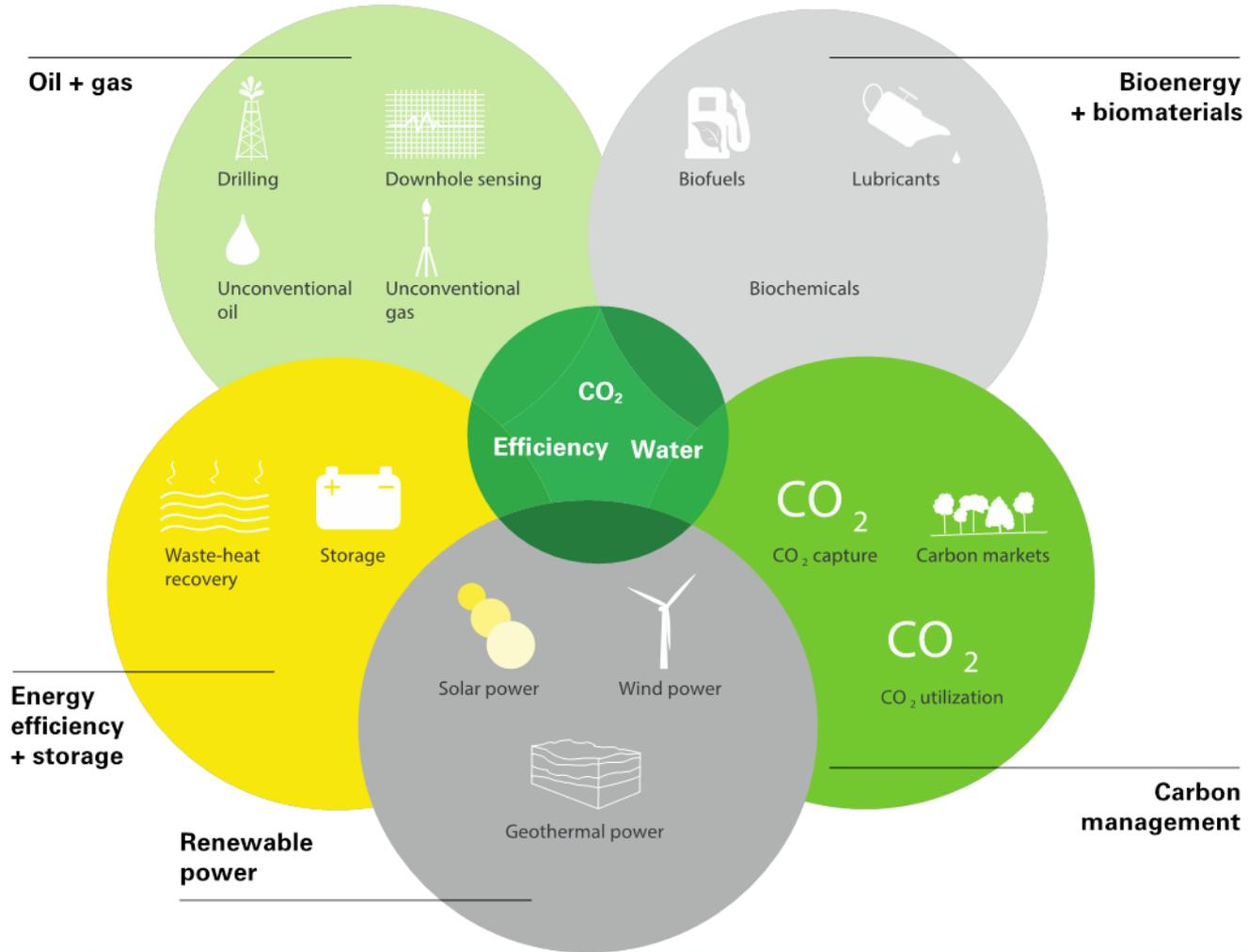


- Team active since 2006, housed in BP Alternative Energy with strong linkages across the Group
- Evolved from Alternative Energy Ventures to BP Ventures
- 35 investments with \$190m committed, partnering with more than 50 organizations
- Key innovation tool for disciplined experimentation
- Strategic value has primacy, with financial return boundary condition
- Focus on 5 sectors: oil and gas, bioenergy, energy efficiency & storage, carbon management, renewable power

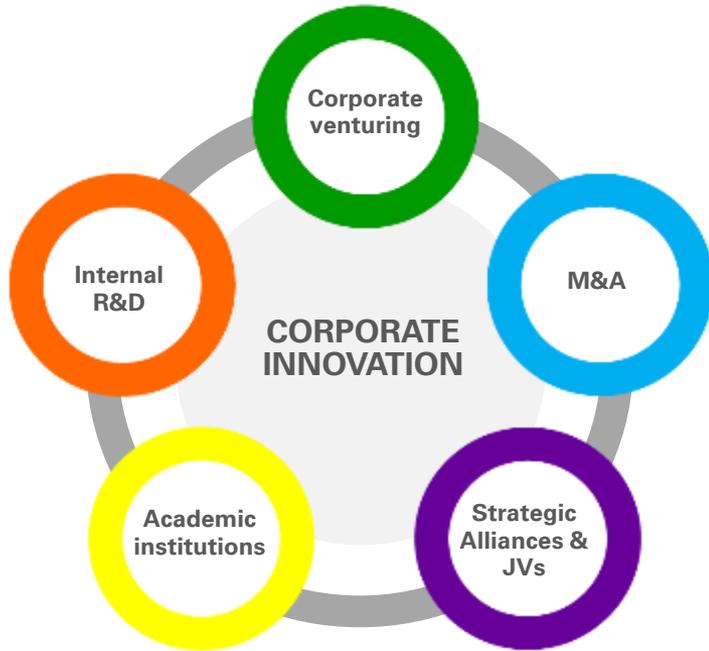




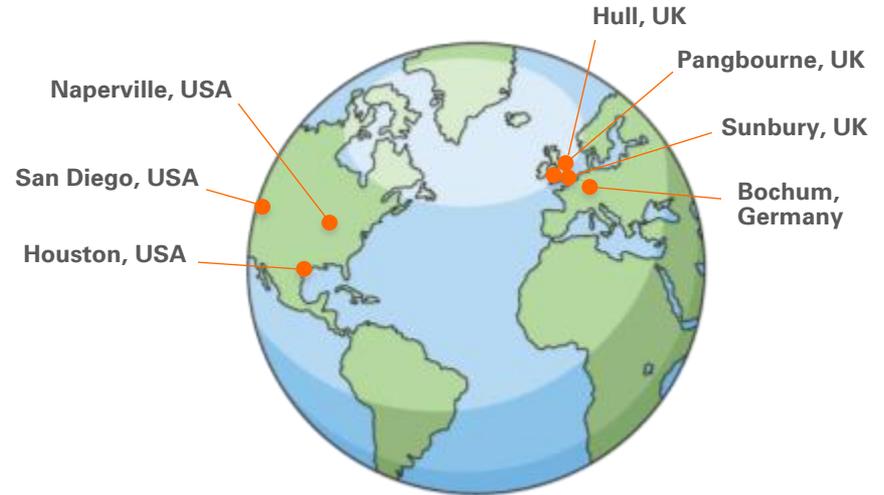
Scanning across multiple sectors today



An integral part of BP's innovation ecosystem



Internal R&D – 7 major technology centres



Examples of BP's major research partnerships



Examples of corporate venturing

