in depth in focus **in front**

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Balancing food security, climate change and bioenergy

Financial sector perspectives

Coen Weddepohl

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Contribution from the financial sector

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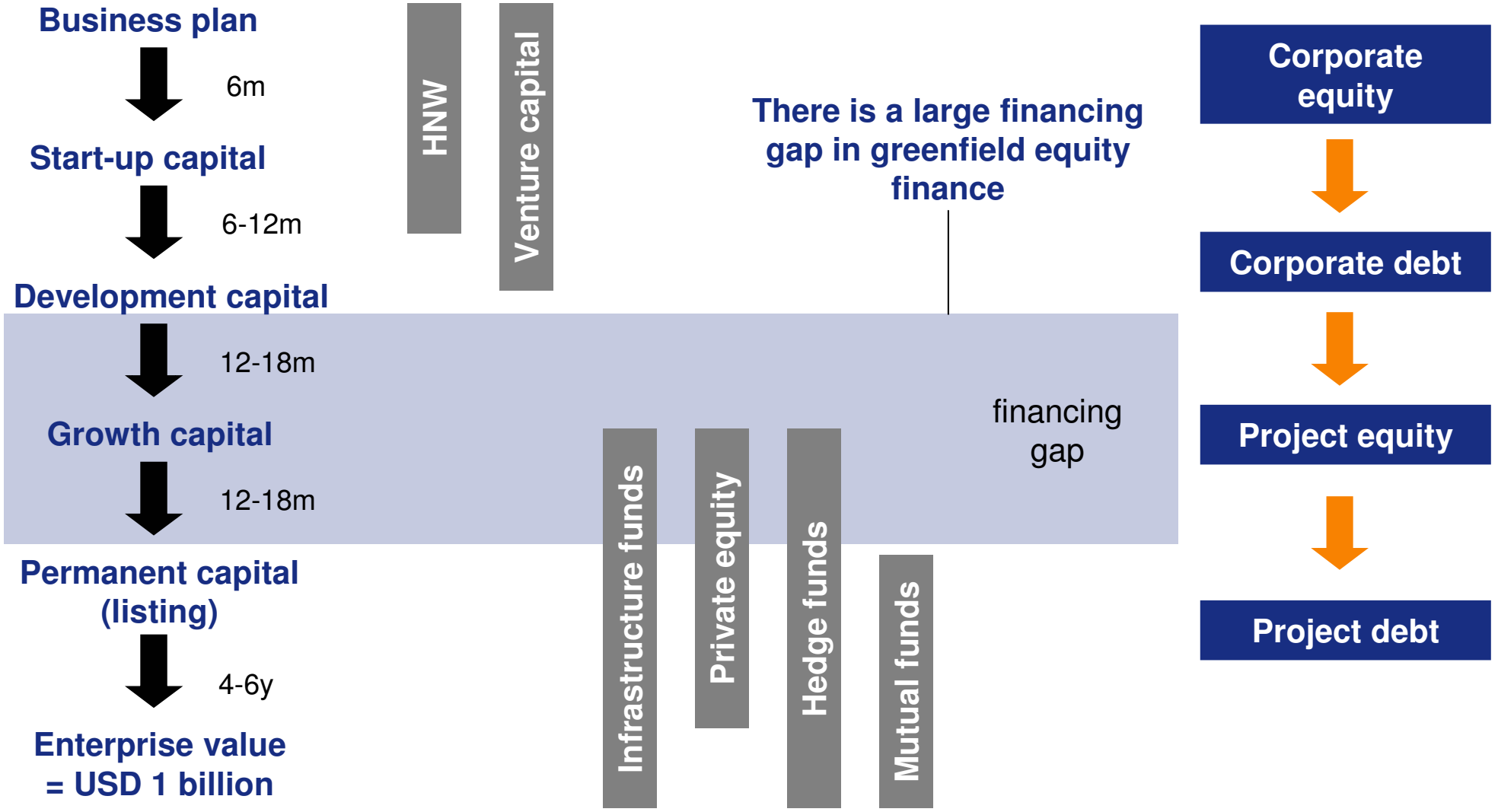
- Mitigating climate change will require trillions of dollars in capital investments
- Financial sector is considered to be an efficient allocator of capital
- Financial sector can mobilize capital on a large scale by means of:
  - Sector consolidation & vertical integration
  - Improving company balance sheets
  - Introduce sound risk management
  - Superimpose environmental & social standards
  - Financial (re-)structuring
- Allocation of capital is driven by:
  - Minimum return on capital in order to be justified to clients
  - Marginal abatement cost of GHG emissions
  - Government subsidies

Role of the financial sector

Financing the bioenergy infrastructure expansion – greenfield model

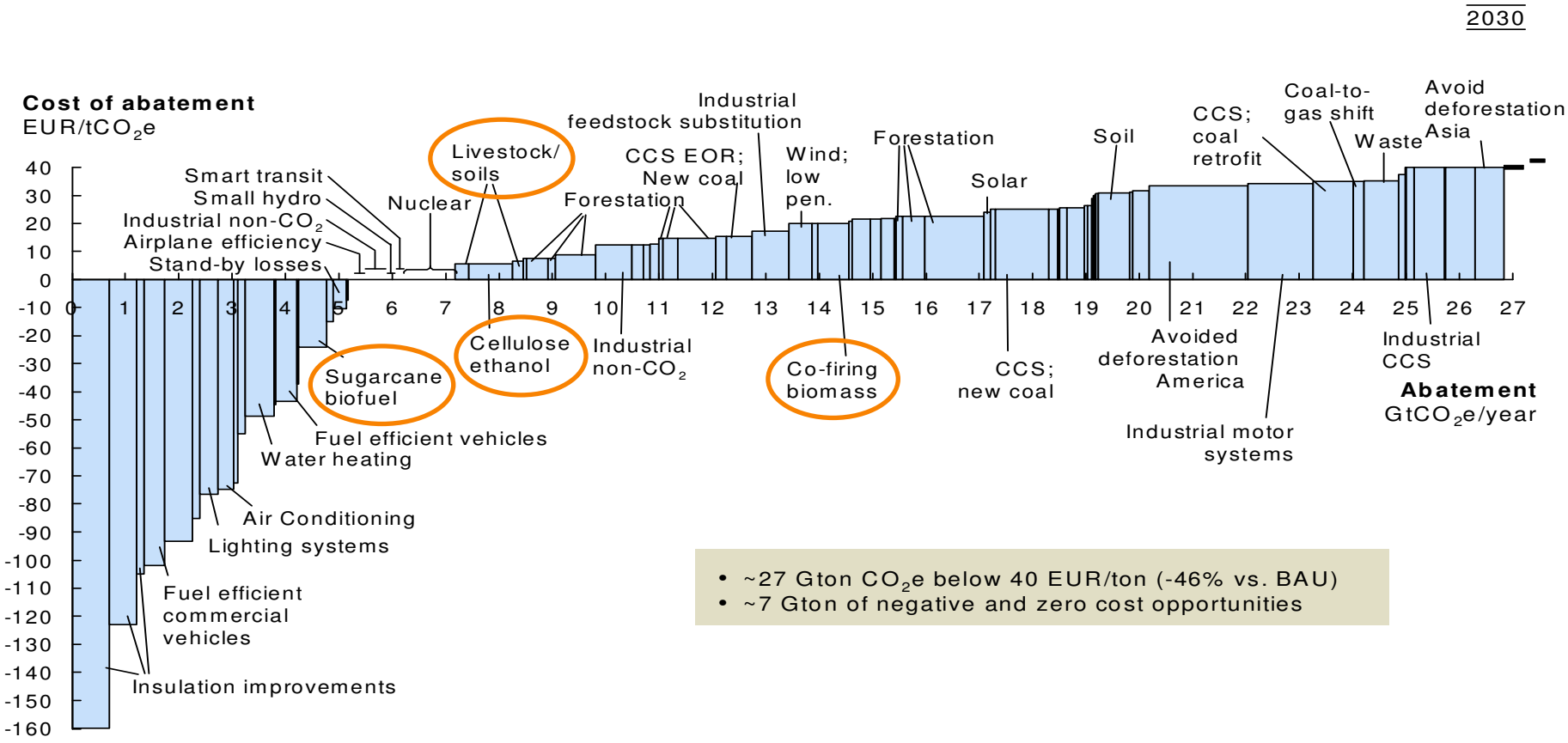


Man implementation strategy

- Implementation fund (roll-up strategy)
  - Cornerstone by Man
  - Access to MI infrastructure
  - Man brand & single A credit rating enhance negotiation position
  - Fund structuring & risk management
  - Distribution
- Advantage of fund structure
  - Often no capital gains on exit
  - Efficient cash management, avoid dilution of IRR
  - Access to broader client base
  - Raise capital once, no need for further placements

GHG abatement – a top down view

Global cost curve of GHG abatement opportunities beyond business as usual



- ~27 Gton CO_2e below 40 EUR/ton (-46% vs. BAU)
- ~7 Gton of negative and zero cost opportunities

Strong potential from GHG abatement through bioenergy

Source: McKinsey.

Economics of biofuel producers

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Biofuel economics in USD/gallon[1]

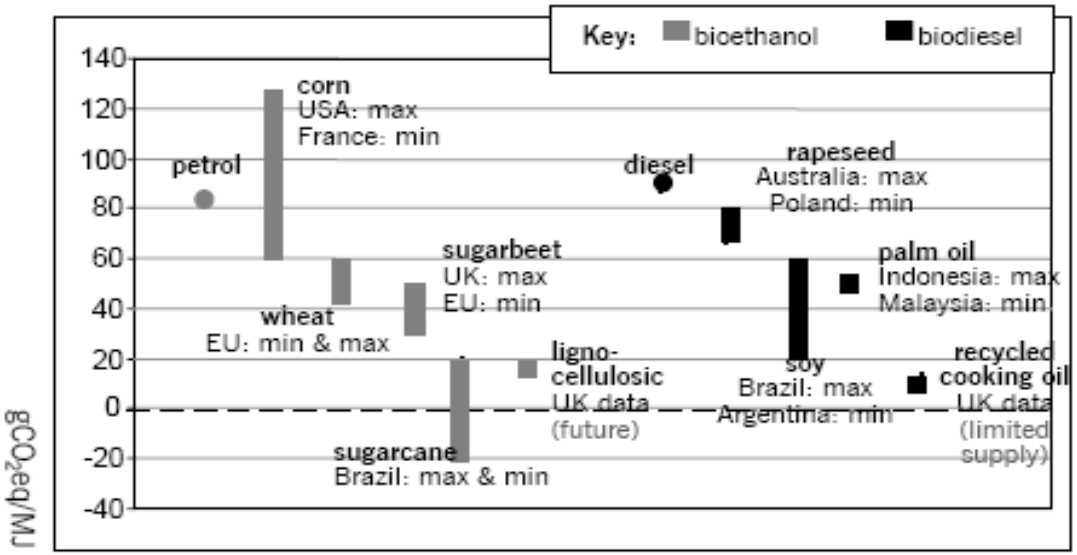
	US corn ethanol	US biodiesel	Brazilian ethanol	EU wheat ethanol	EU biodiesel	Asia palm oil
Revenue	1.96	3.43	1.76	1.96	3.25	3.25
COGS	1.66	3.55	1.25	2.52	3.27	3.35
EBITDA	0.25	(0.17)	0.41	(0.63)	(0.04)	(0.10)

Strong differences in economics provide opportunities for the discerning investor

Source: Matrix Corporate Capital. October 2007.
[1]Figures mentioned are expressed in USD/gallon.

Lifecycle carbon analysis of biofuels

Lifecycle of CO_2e emissions of fossil fuels and biofuels



Annual GHG savings targets (as set by the UK Department of Transport for the Renewable Transport Fuel Obligation)

- 2008–09 - 40%
- 2009-10 - 45%
- 2010-11 – 50%

Carbon intensity in fossil fuels:

- Gasoline: 84.8 g CO2e / MJ
- Diesel: 86.4 g CO2e / MJ

Carbon intensity[1]

Fuel	Feedstock	Origin	Carbon intensity	
			grams CO2e / MJ	GHG savings
Bioethanol				
1.	Wheat	Canada	80	5.7%
		France	65	23.3%
		UK	61	28.0%
2.	Sugarcane	Brazil	24	71.7%
3.	Corn	USA	108	-27.3%
		France	49	42.2%
Biodiesel				
1.	Oilseed rape	Australia	71	17.8%
		Canada	56	35.1%
		France	46	46.8%
		UK	55	36.3%
2.	Soy	Argentina	48	44.4%
		Brazil	78	9.7%
3.	Palm	Malaysia	45	47.9%
		Indonesia	45	47.9%
4.	Used cooking oil & tallow	UK	13	84.9%

Source: (1) E4Tech (2007), Concawe (2007), Sheffield Hallam (2003) as cited in Parliamentary Office of Science and Technology (2007); (2) UK Department of Transport (2008).
[1]This represents worst 'common' practice and therefore typical practice may vary.

Meeting global energy demand through bioenergy

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IEA study on biofuels:

- To displace 10% of conventional fuel with biofuels in the US would require 43% of total cropland[1]
- To displace 10% of conventional fuel with biofuels in the EU would require 38% of total cropland[1]

➔ **Biofuels are not a long term solution**

Other bioenergy opportunities

- Biomass: IEA expects USD 318 billion to be invested by 2030 in biomass energy[1]
- Waste-to-energy (MHT, MBT, gasification, pyrolysis etc.)
- Waste oils, foods, associated gas, methane capture etc.
- New technologies: cellulosic, algae, carbon capture, GMO
- Hydrogen, methanol etc.

[1]Source: International Energy Association.

Optimizing environmental benefits and revenue

Example - Investing in agriculture

- Agricultural commodities
- Kyoto Protocol Carbon Offsets
- Retail and voluntary carbon markets
- Renewable energy development and renewable energy credits
- Land leasing for wind farm development
- Small hydro development
- Solar power development
- Water quality credits
- Water rights and tradable water rights
- Conservation easements
- Endangered species banks
- Non-timber forest products (nuts, herbs, craft materials)
- Government grants and programs with foundations and endowments for habitat conservation or habitat enhancement
- Forestry development options
- Bio-fuel crops (ethanol, biodiesel, charcoal)
- Biomass energy crops
- Agro-forestry and agriculture development options

Taking a holistic rather than a focused approach can significantly increase overall revenues