Building a Green Financial System – Funding the Green New Deal

Key Take Outs

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Re-Define

Structure

- Where is the EU now?
- What is the GND?
- EU current and ambitious targets
- Funding needed to achieve this
- Obstacles to Green finance
- Public finances
- Long term finance
- Green financial system
- Consumers – the great unknown
- A demand side perspective

Where we are now?

- Depressed investment
- High unemployment
- Bursting of speculative bubble
- Negative or anaemic growth
- Stressed public finances
- Malfunctioning financial system
- Unsustainable economy
- Low productivity growth
- High and volatile fossil fuel prices
- Depleted natural capital – 60% ecosystems

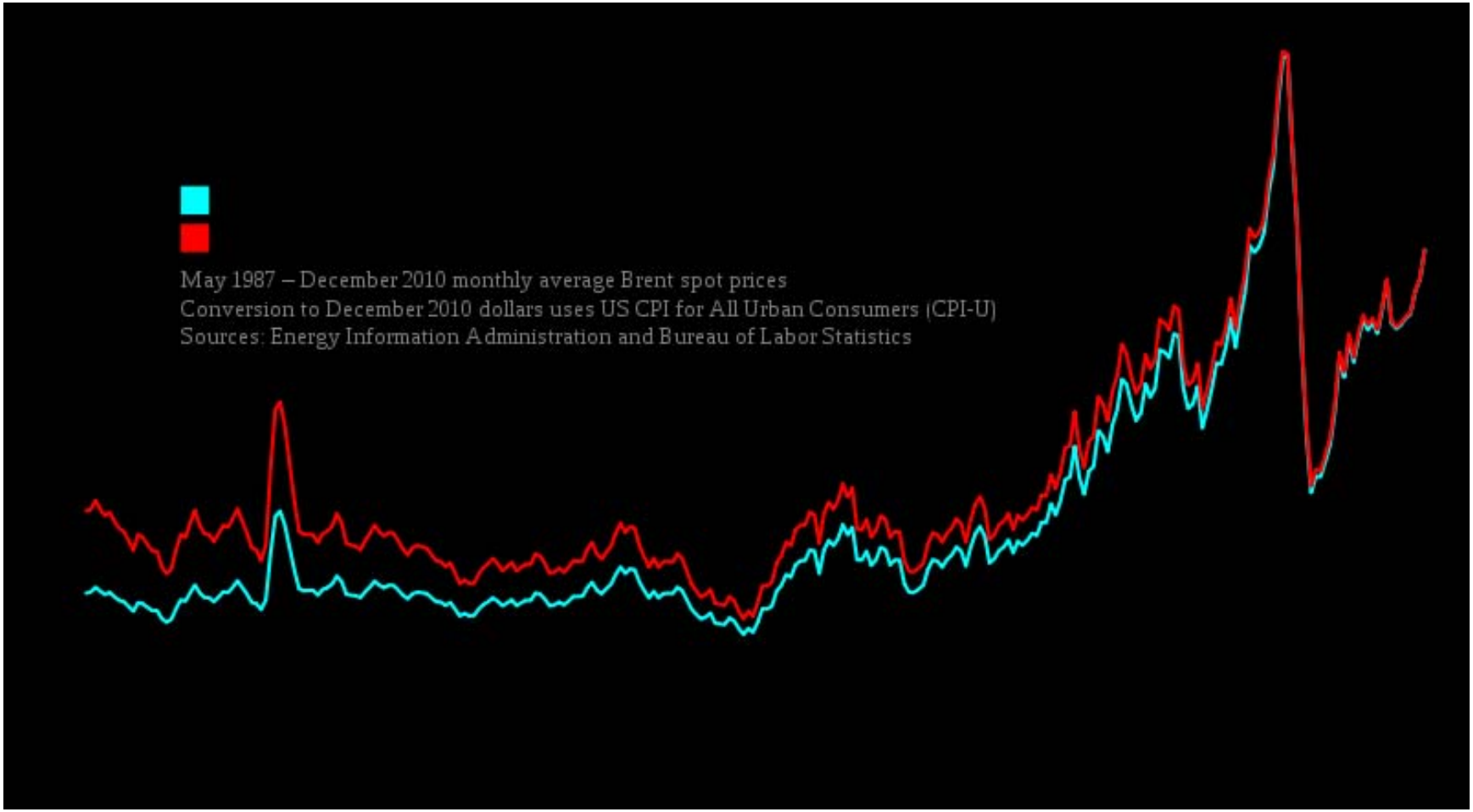
The Green New Deal

- Ambitious GHG Reduction Targets
- Through investments in efficiency and renewable energy and related infrastructure
- Will provide an economic stimulus
- And create growth and jobs
- Have a progressive footprint with appropriate policies
- Improve energy security, increase productivity and competitiveness and put the economy on a sustainable path (end of our bastards?)

EU Targets

- EU 20/20/20
- EU 2050 Road Map
- 2020: 25% or 30%
- 2030: 40%
- 2040: 60%
- 2050: 80%
- Euro 1 trillion till 2020
- Green investments Euro 270 bn, 1.5% GDP
- Euro 175-320 bn in fuel savings + Euro 88 bn in health related expenses
- 25% reduction will create 1.5 million jobs
- Mostly private and some public funding

Energy security issues



A new growth path for Europe

- Increase 2020 target to 30%
- 0.6% additional growth pa / 6 million additional jobs
- Investment needs to be boosted from 18% GDP to 22% GDP – Euro 300 billion?
- Advantages are available unilaterally
- Efficiency and shift from coal to renewables and gas
- Investment, learning by doing and expectation formation
- ETS revenue plus structural funds, tax relief and capital tax increase, public procurement reform, managing growth expectations
- Building codes, transport, ETS funded efficiency and renewables, smart grid and appliances and knowledge networks
- 860 policies reported to the UNFCCC

Key decision makers

- EU
- Member States
- Cities
- LT Investors
- Financial Intermediaries
- SMEs and Businesses
- Energy/Transport/Construction firms
- Consumers and households

What is needed is

- Top down policy re GHG reductions
- Minimum carbon price
- Supply side renewable energy
- Appropriate infrastructure
- Public procurement
- Public funding support where needed
- Removal of friction costs
- Completion of financial instruments
- Long term funding support from private sector
- Building a green financial system
- Demand side bottom up efficiency measures
- Changes to consumer behaviour
- A mix of price and quantity and standards and incentives regulatory policy

$$So what is the fuss about$$

- Green is under-funded even in normal times
- Fiscal crisis and austerity measures
- De-leveraging of the banking sector
- Securitization is now suspect
- Pool of private funds has shrunk
- Long term investors have a shorter horizon
- The average cost of funds has risen sharply
- Additional green funding squeeze
- Debt overhang and economic uncertainty

The Fuss

Who Will Pay

Why

How

£$%&Green investments £$%&

£$%&Green investments £$%&

- Some are simply unprofitable
- High upfront costs
- Too small or too large
- Little quantitative history
- Large future policy uncertainty
- Technological risk and obsolescence
- High perceived riskiness and unfamiliarity
- Other friction costs (for example planning)
- Information barriers
- Split incentives and under-priced carbon
- Crowding out by speculative investments
- Incomplete financial instrument availability
- Excessive short-termism in the financial markets
- Risks from dirty investments are under-priced
- Accounting problems

Public Finances

- Close to 80% Debt/GDP and 5% Deficit
- ETS Auctions : Euro 50bn – Euro 80bn
- Carbon Tax: Euro 50bn – Euro 87bn
- Aviation Tax: Euro 40bn
- Shipping Tax: Euro 1bn
- FTT: Euro 50bn +
- FAT/Bonus Tax: Euro 10bn
- Bank Levy: Euro 20bn
- Tackling Tax Flight: Euro 100bn
- Other innovative sources
- Public banks such as the EIB
- 16% of EU GDP Public Procurement: Top Runner

Long term investors

- Investment opportunity – stock vs flow: more than $2 trillion globally by 2020
- By 2020 the clean tech industry will generate more than $1 trillion in sales
- Iberdrola renewables and Gamesa
- Clorox – GreenWorks line – 40% of share
- White ‘Black Swans’ in technology
- Toyota Hybrid- Electric Motor Technology

LT Investor Perspective

- “We think that all pension funds will need to adopt a climate change-proofed financial investment strategy in the future” – EPA Fund
- “Climate change is a global risk factor that all long-term investors should take into account when formulating investment strategy” -GPF
- Strategic Asset Allocation is responsible for more than 90% of variation in portfolio returns for long-term investors
- More than 10% of the portfolio risk is Climate related
- Technology, Behaviour, Footprint, Policy Changes etc
- A typical portfolio with a 7% return can manage climate risk by ensuring 40% of the assets are climate sensitive
- An emphasis on assets that are green friendly or can adopt to climate change can reduce risk
- How carbon is priced can fundamentally alter many industries – Fur/Chemical Cos
- Norwegian GPF – more than $10 bn Green Window
- Additional cumulative investments $3-$5 trillion and impact costs $2-$ 4 trillion
- Technology: $180-$260 bn, Impact: $70-$180 bn, Policy: $130 - $400 bn PA

LT investors

Institution	Estimated AUM (US$ trillions)	Key stakeholders	Liability profile	Risk appetite	Decision-making structure/ agency concerns	Estimated allocation to illiquid investments
Family offices	$1.2	Family	In perpetuity	High	Low	35%
Endowments/ Foundations	$1.3	Non-profit beneficiaries	In perpetuity with yearly payout requirement	High	Low	20%
Sovereign wealth funds	$3.1	Governments/ Nations	In perpetuity	Moderate	Moderate	10%
Defined benefit pension funds	$11	Members/ Shareholders	Average duration 12-15 yrs	Low	High	9%
Life insurers (general account)	$11	Policyholders/ Shareholders	Average duration 7-15 yrs	Low	High	4%

Positive for long-term investing Moderate for long-term investing Negative for long-term investing

Institution	Expected change in AUM	Impact of emerging constraints
Family offices (US$ 1.2 trillion)	↑ ▪ Sales of family business ▪ Increasing wealth of HNW families	↔ ▪ Reducing appetite for investments with uncertain long-term outcomes
Endowment/ Foundations (US$ 1.3 trillion)	↑ ▪ Increasing donations from HNW families	↔ ▪ Increasing pressure from trustees and beneficiaries resulting in a movement away from illiquid investments
Sovereign wealth funds (US$ 3.1 trillion)	↑ ▪ Excess reserves and account surpluses continue to be transferred to SWFs ▪ Numerous countries have expressed interest in creating a SWF	↔ ▪ Pre-crisis movement into riskier and illiquid investments has slowed down
Defined benefit pension funds (US$ 11 trillion)	↓ ▪ Shift from defined benefit plans via plan closing, sales and increase in defined contribution ▪ Ageing populations in countries with established pension systems increases payouts	↓ ▪ Trend towards mark-to-market accounting ▪ Stricter funding and solvency requirements ▪ Decreased sponsor appetite for pension volatility ▪ Maturing liabilities
Life insurers (US$ 11 trillion)	↔ ▪ Increased wealth, in particular in emerging markets, will increase assets ▪ Ageing population will increase payouts	↓ ▪ Emerging regulation, including Solvency II discourages longer-term risky investments

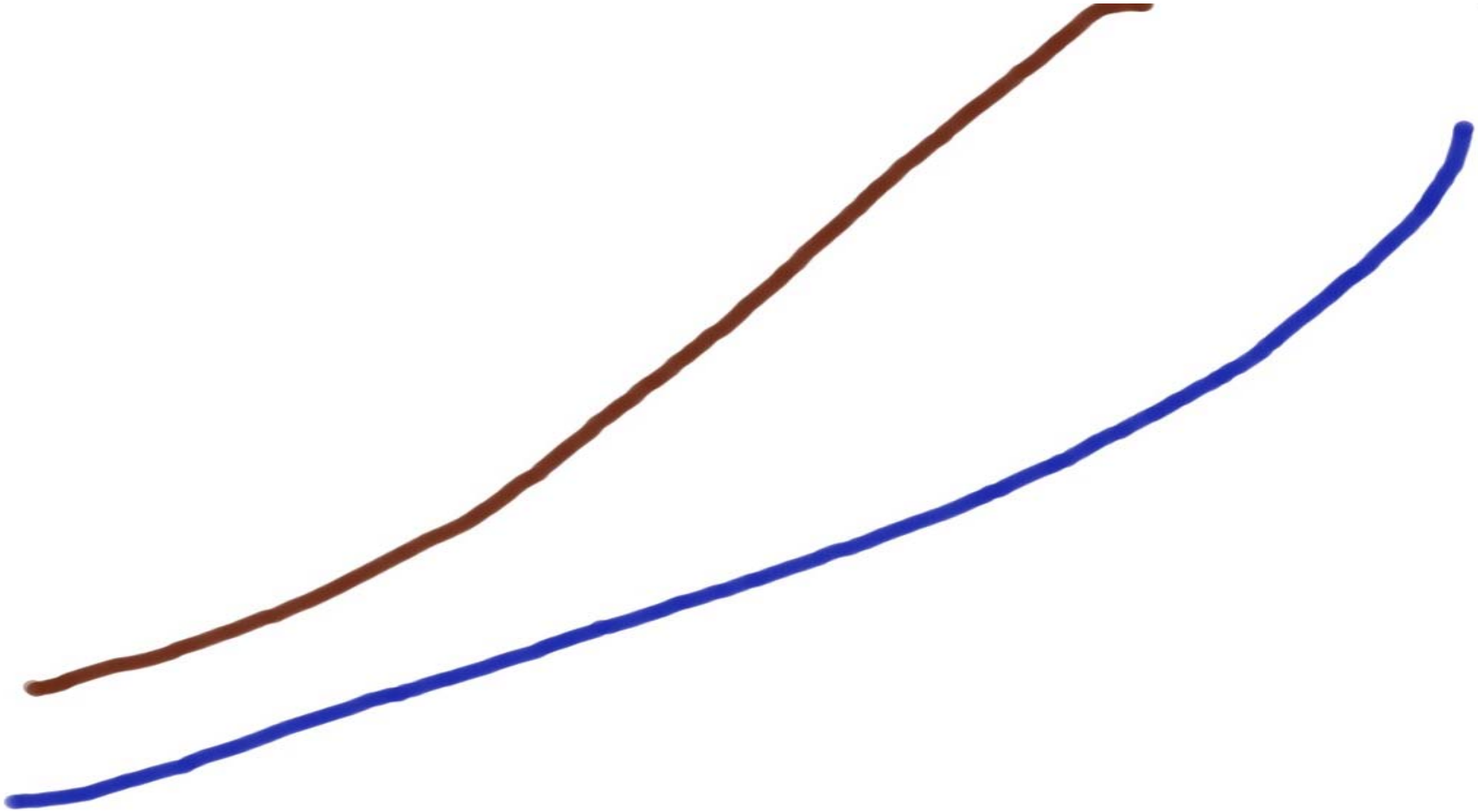
Positive for long-term investing Moderate for long-term investing Negative for long-term investing

LT Investment

- Accessing structural risk premiums
- Taking advantage of secular trends
- Impacting corporate decision making
- Avoiding buying high and selling low
- Minimising transaction costs
- Principal agent concerns
- Bonus terms, relative performance, definition of risk, career risk, decision making chain, behavioural biases – herding and loss aversion, resource constraints, regulatory barriers

Building a Green Financial System

A carbon price curve?



Green Financial System: Macro

- A carbon forward curve?
- Carbon stress tests and sensitivity analysis
- Fossil fuel stress tests
- Mandatory Green disclosures for listed companies
- New risk ratings for green and dirty projects
- Lifetime pricing of emissions risk
- Using special discount rates
- Putting an upfront price on volatility
- Reduce Short-Termism in Finance
- Pension funds and insurance green exemptions
- Accounting reforms to suit green investments
- Regulatory, reputation, physical, competitive, litigation risks
- Discounted risk weights for capital
- Bank Portfolio Green Audits

Green Financial System: Micro

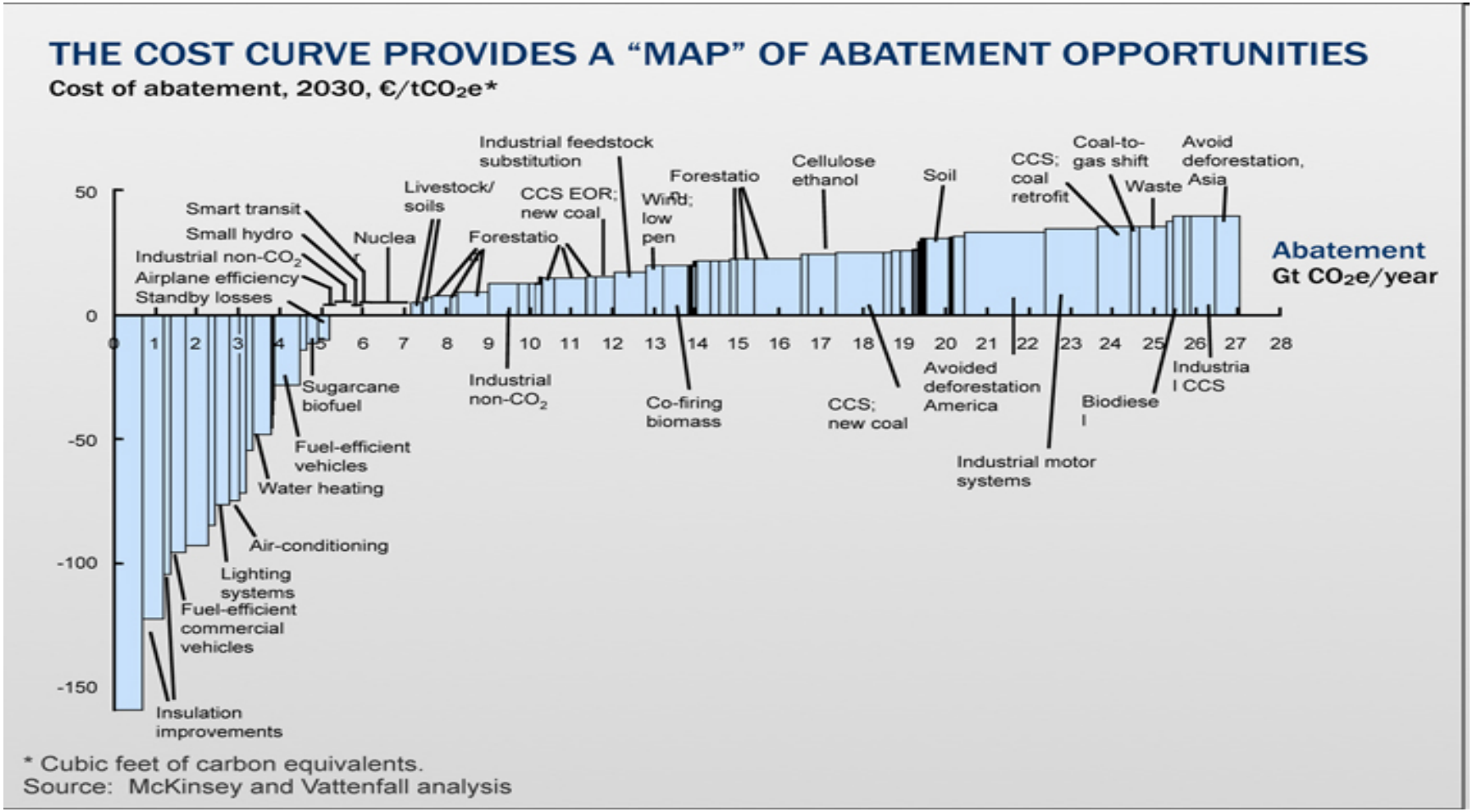
- Lifetime carbon emission pricing
- Green property sales
- Green electricity and heating billing
- Innovation prizes and contingent grants
- Green mortgages
- Audit of gadgets and energy intensive products
- ESCO instruments and pooling
- Green leases

Green Instruments

- Green Bonds
- Green Venture capital
- Green Indices
- Green Securitization – ABS (Euro 1.4 trillion)
- Exchange Traded Funds (Euro 244 billion)
- EIB and other public support instruments
- Eurobonds
- Tax enhanced products, credit enhancements, risk sharing
- ELENA, JESSICA, JASPERS,
- Green Accounts
- Green Leases
- Euro 2.9 and Euro 2.2 trillion LCT cost

Consumers – the great unknown

The Low Hanging Fruit?



Very influential

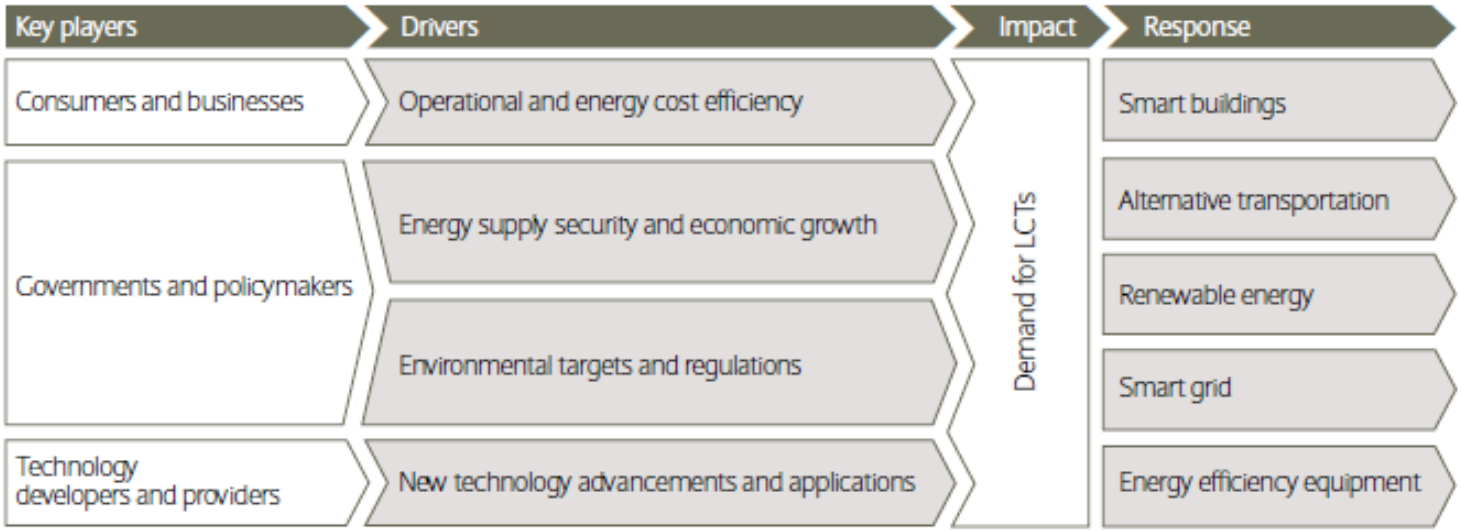
- MGI estimates $170 bn by 2020 or 1.6% of I will yield $900 bn in energy savings annually with an IRR of 17% at Oil $50 bbl
- 75% emissions in the UK influenced directly or indirectly by consumers
- Can reduce emissions in the least expensive way
- Have an immediate impact
- Which can be sustained
- Stimulate low carbon innovation
- Empower governments to enact LC policy
- Often profitable

Consumer barriers

- Principal agent problems
- Only 27% will consider payback > 2 years
- Too small a priority to focus on
- Access to capital is problematic
- Price of LC products (11%)
- Availability of LC products (26%)
- Lack of information (34%)
- Sense of hopelessness
- EC responses – 70% willing to take action
- UK experiment IAT – 83% favourable
- In Germany 40% of abatement from vehicles is ve+ but payoff periods are too long
- A large percentage of low and negative cost abatement potential is insensitive to price signals

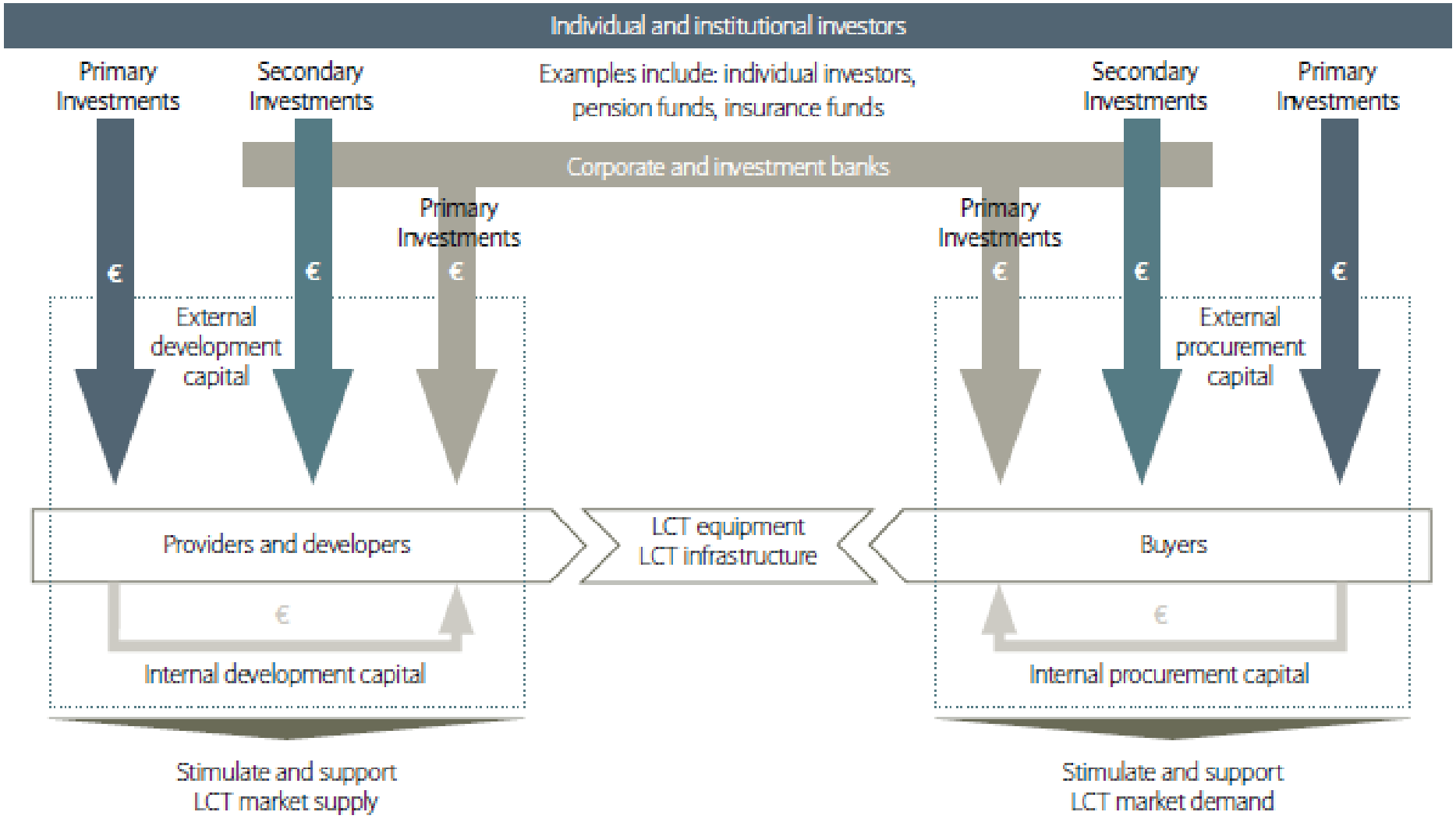
Another perspective

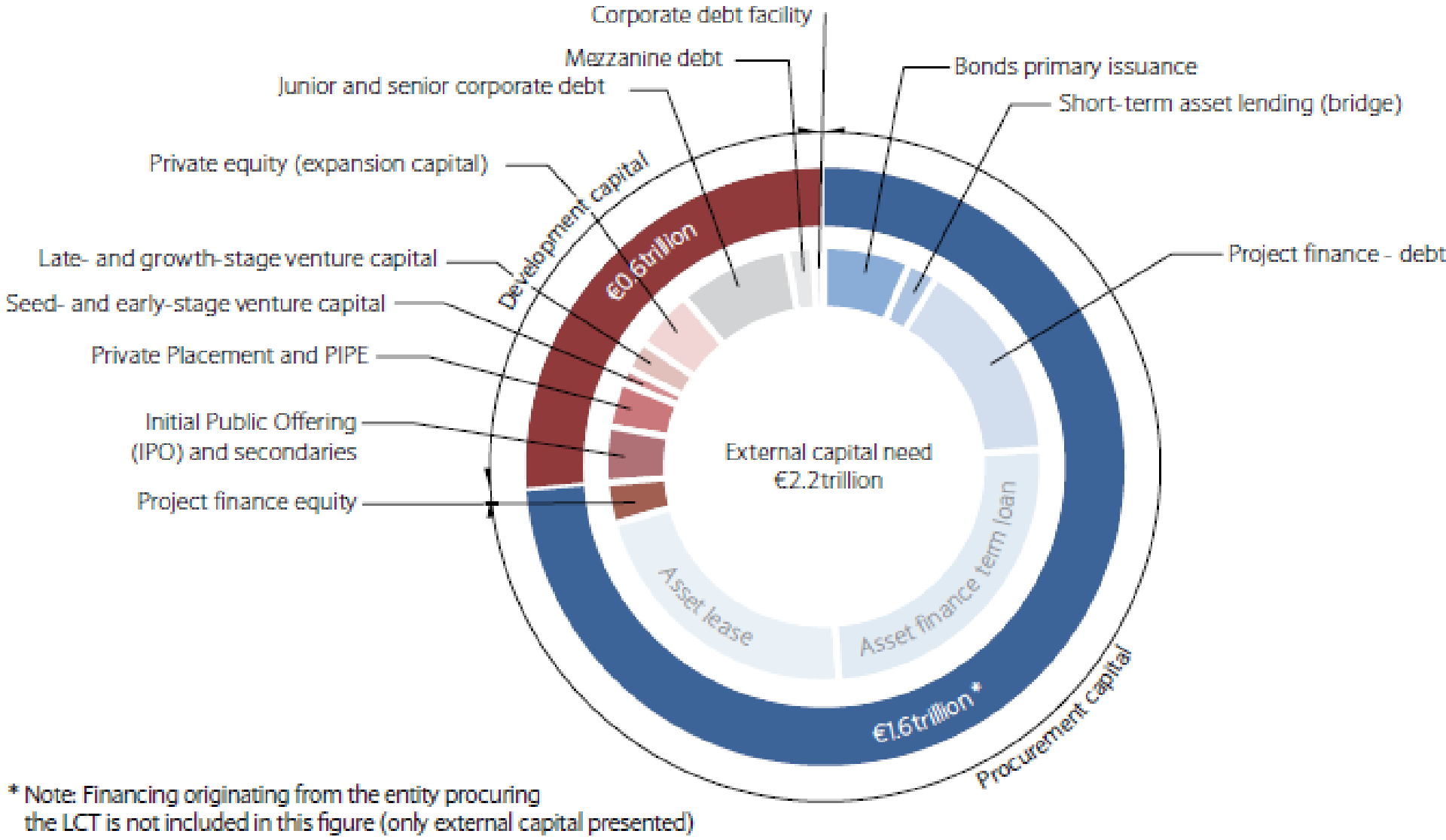
A demand side analysis



- Barclays and Accenture have analysed the investments required in the EU from the demand side
- Euro 591 billion development capital and Euro 2.3 trillion in procurement capital leading to savings of Euro 261 bilion

Profile of Investors





* Note: Financing originating from the entity procuring the LCT is not included in this figure (only external capital presented)

The End