

Session title is : “Developing and
‘embodying’ LC Technologies”

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International context

- Energy supply and demand; energy security and diversity;
- International politics: CC & Copenhagen – ‘technology transfer’ [technology and finance] key part of deal;
- Desire for new kinds of ‘technology’ to provide solutions

International context: can't ignore the politics

CC is a highly political issue: UNFCCC, strategic negotiation

- developed, developing countries
- US...Japan...Canada
- Who pays, and for what
- Energy itself is a strategic foreign policy issue, based around access to fossil fuel resources; only just starting to broaden out following high fossil fuel prices
- Energy policy is essentially energy politics at domestic level (CBI's response to RE target this week.....)

But 'technology': where does it fit in –
question of what we mean

Do we have common understanding of what we
mean when we use the term 'technology':
what are the policy objectives?

- IPCC AR4 review
 - Technology R&DDDD[what makes
'deployment' different from energy policy?]
- Technology transfer
 - an anachronism in one way, but embodied in
UNFCCC text (embodying technology?)
- Innovation?

Set in context of basic infrastructure challenge

Underlying issue (CC) : transformation of infrastructure in the v near term. Within a decade or so 2050 emissions start to get locked in due to near-term energy infrastructure investment.

Also DC's with supply problems eg India, Sth Africa, and countries with oil&gas import/price exposure.

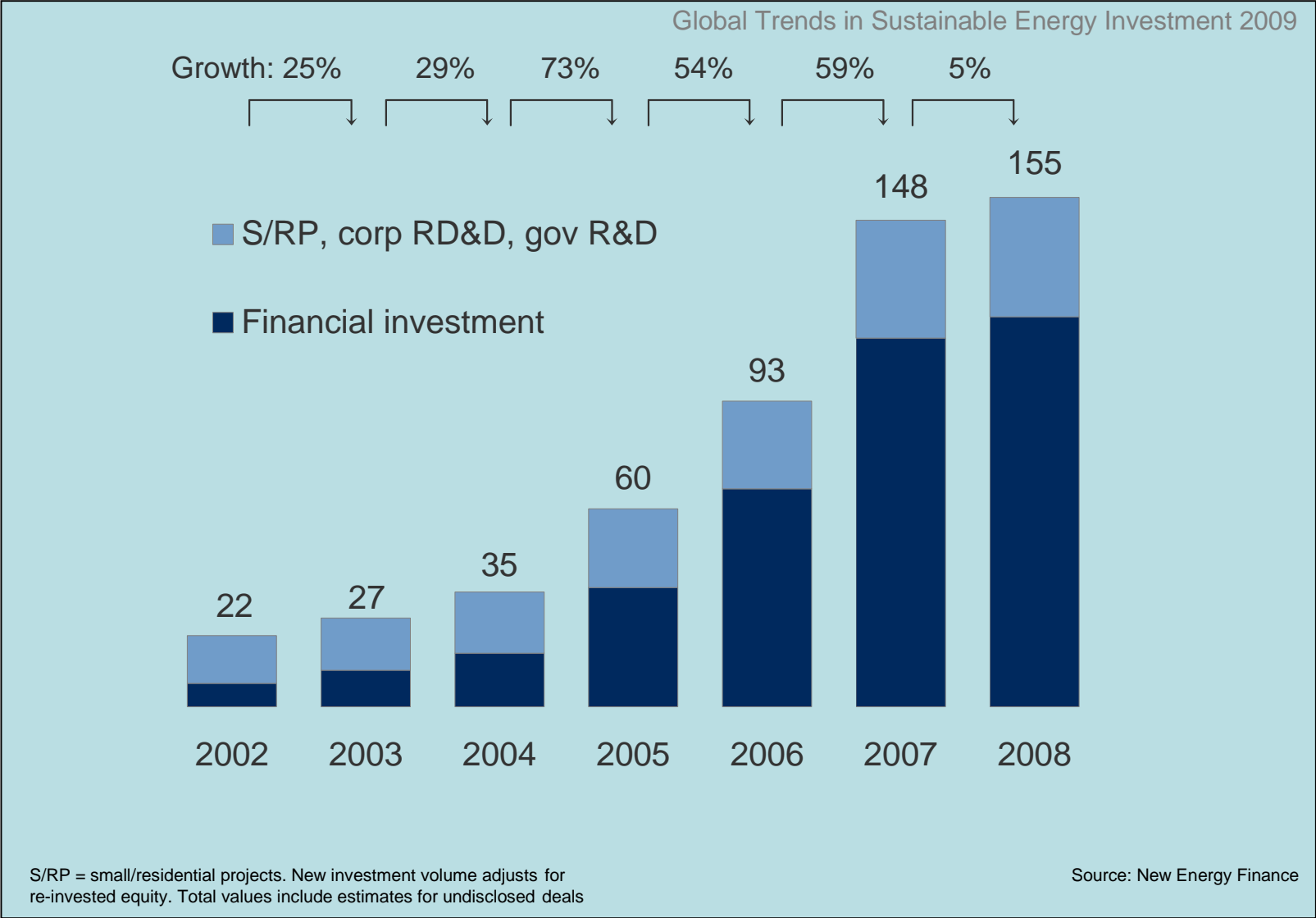
To meet the UK's RE target, decisions on grid and other sorts of infrastructure, needed in the very very near term. To enable connection, AND investment.

What are the feedback loops between demand side measures and supply side decision-making.

Looking at specifics

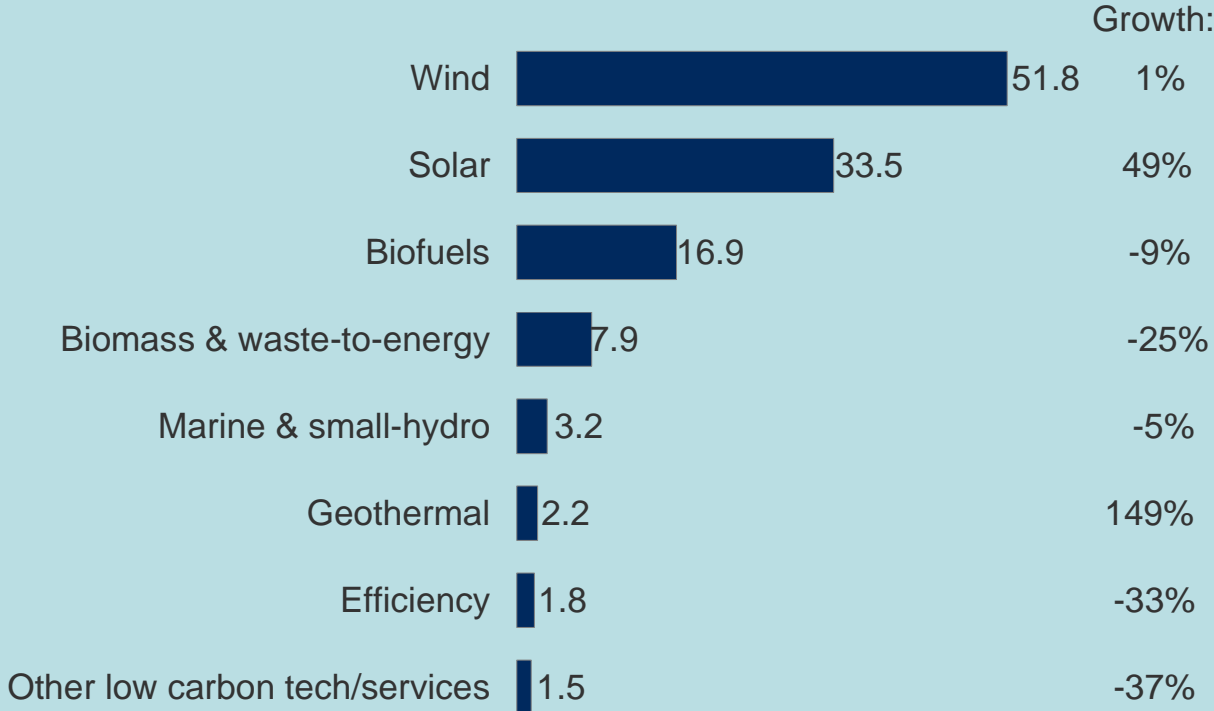
- Renewables investment growth
- Energy efficiency – growth in use of McKinsey MAC Curves!

Global New Investment in Sustainable Energy, 2002-2008,



Financial New Investment, by Technology, 2008 and growth

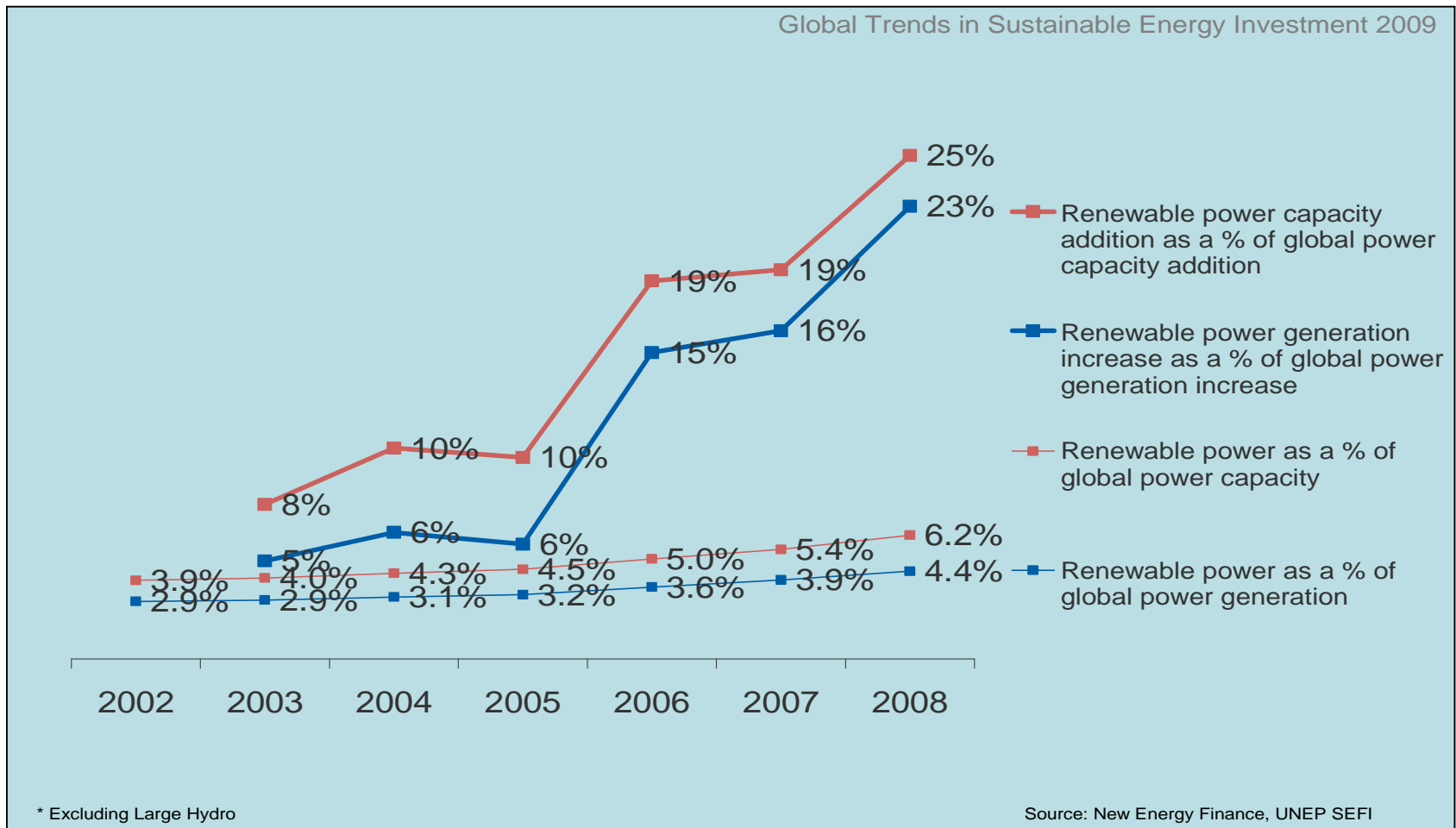
Global Trends in Sustainable Energy Investment 2009



New investment volume adjusts for re-invested equity.
Total values include estimates for undisclosed deals

Source: New Energy Finance, UNEP SEFI

Renewable power* Generation and Capacity as a proportion of global power, 2002-2008, % share



What drives 'technology' uptake?

Public policy – a central factor. For investors, key policy characteristics:

- Loud - makes difference to bottom line
- Long - reflects project horizons
- Legal – stable (investing in policy-driven market is itself a risk, given potential impact of any policy changes on investments)

Not the same as economics!

*RE Financiers, 2004: Chatham House & UNEP Sustainable Energy Finance Initiative.

Policy: the system; not just the incentive

- Planning and admin
- Grid and 'delivery' infrastructure
- Policy design – needs to reflect market characteristics of sub-sectors
 - Eg biomass: non-correlation of feedstock and retail markets – focus on policy around agriculture policy, and trade policy

EE investment – lender perspective

- Public finance – patchy (tendency to group EE, w RE, carbon finance); EEAs interesting – EBRD in lead
- Private finance – ‘perhaps the next goldmine’, little investment
- Financing issues: scale; EE as ‘asset’ problem; absence of loan guarantees where this might help; some innovation – esp in regulated markets (parts of US); ‘time and resources’ to develop new products and understand how to capture the value
- Policy issues: ‘Serious market failures exist in most jurisdictions’; high prices alone not sufficient (oil @\$148bbl); need clear RE-equiv policy signals w integration
- UK policy objectives – ref RE heat and EE.

UNEP Finance Initiative –EE & the Finance Sector Report

http://www.unepfi.org/fileadmin/documents/Energy_Efficiency.pdf

Conclusion...

- Technology = part of energy system, or transport system ie infrastructure needs to be there (will require, policy, regulation and financing). Pricing can't deliver this alone.
 - Is infrastructure decision making 'there', at present
 - Are the utility business models set up to deliver optimal outcomes eg on EE?
- Changes are occurring and are driven by different tiers of policymaking (UNFCCC; EU; UK implementation of the previous two);
- Loud, long and legal approaches – robust government to drive market; compliance important
- Role of the consumer – make it easy! (one phone call to get the house insulated...)

