UCL Institute for Sustainable Resources

Sustainability Trumped?

Integration of EU energy, climate and economic policy in an age of transition

Michael Grubb

Professor International Energy and Climate Change Policy, UCL

Editor-in-Chief, *Climate Policy* journal

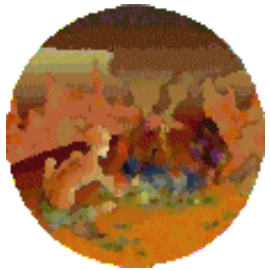
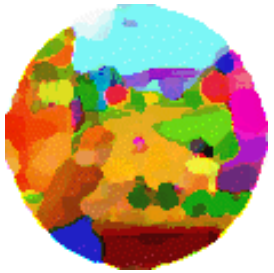
Goodwin Lecture

University of Siena, Italy

11 November 2016

- Old Narrative and the New Questions for Europe
- Economic Fundamentals
- The energy and climate dimension
- Social and finance roles of carbon pricing and policy integration
- Essence of the European challenge
- Return to origin: an *energy transition* for European recovery?

Of the six broad scenario types examined by the Global Scenarios Group, are we now heading for some form of Barbarization ….?

Conventional Worlds	***Barbarization***	***Great Transitions***
Market Forces 	***Breakdown*** 	***Eco-Communalism*** 
Policy Reform 	***Fortress World*** 	***New Sustainab***[y] 

Source: Global Scenario Group, http://www.gsg.org/scenario_descriptions.html

Old Narrative, and some New Questions

The 'old narrative' of climate policy

- Treat it as an environmental problem, an external cost
- Negotiate burden-sharing at global level
- Internalise through adequate carbon pricing and supportive measures

… has largely failed.

Under the onslaught of separatist and populist forces, new questions include:

- What can be expected of energy and climate policies?
- Can they make a positive contribution to economic and social development?
- How might they relate to the existential challenges now facing the EU?

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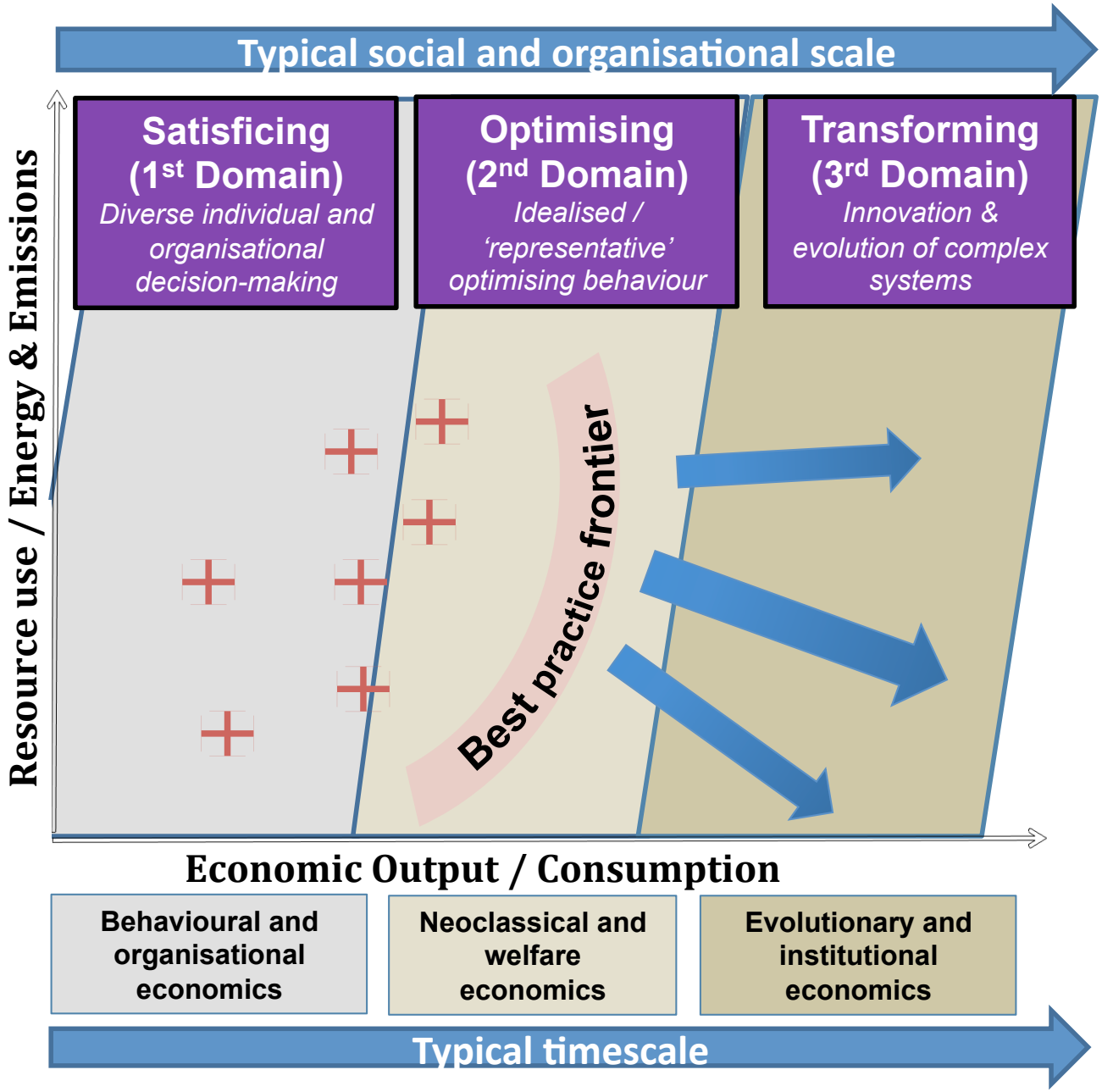
First step: Broaden economic horizons

For a problem which spans from

- the inattentive decision-making of seven billion energy consumers, to
- long-term transformation of vast and complex infrastructure-based techno-economic systems

To date, far more progress on energy efficiency and technology / renewables etc policy than carbon pricing



Link the broadened framework to debates about macroeconomic growth

- Neoclassical economic growth models have consistently found a 'residual' accounting for typically half of observed economic growth that cannot be explained by resource and capital accumulation (Ch.11 the "Dark Matter" of growth)
- Economic research points two broad explanatory areas:
  - Tackling suboptimal performance of many economic actors and structures
  - Education, infrastructure and innovation
- *ie.* First and Third domain processes are recognised as important for macroeconomic growth. Yet these remain
  - largely absent in global (or national) modelling
  - poorly charted in policy
- Energy is a particularly strong candidate because
  - Pervasive input to numerous production sectors
  - Fossil fuel markets are intrinsically unstable
  - Exceptionally low rates of innovation particularly electricity & construction

We are seeking to transform some of the least innovative sectors of our economies

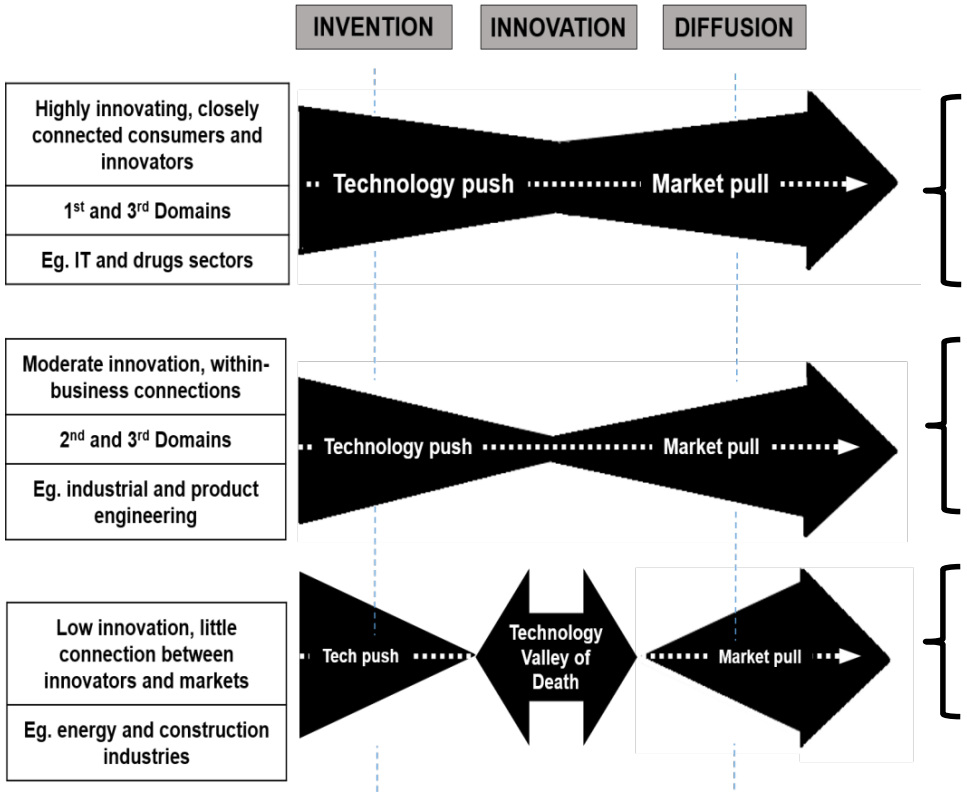


Fig.9.7

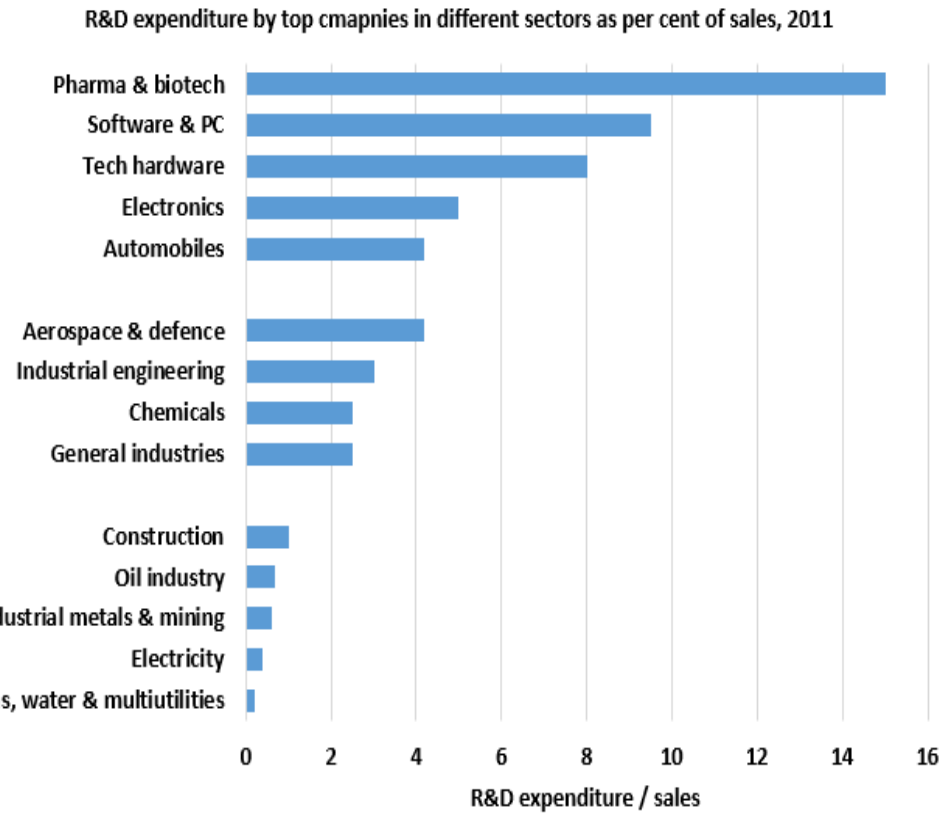


Fig.9.3 R&D expenditure by top companies in different sectors as % of sales, 2011

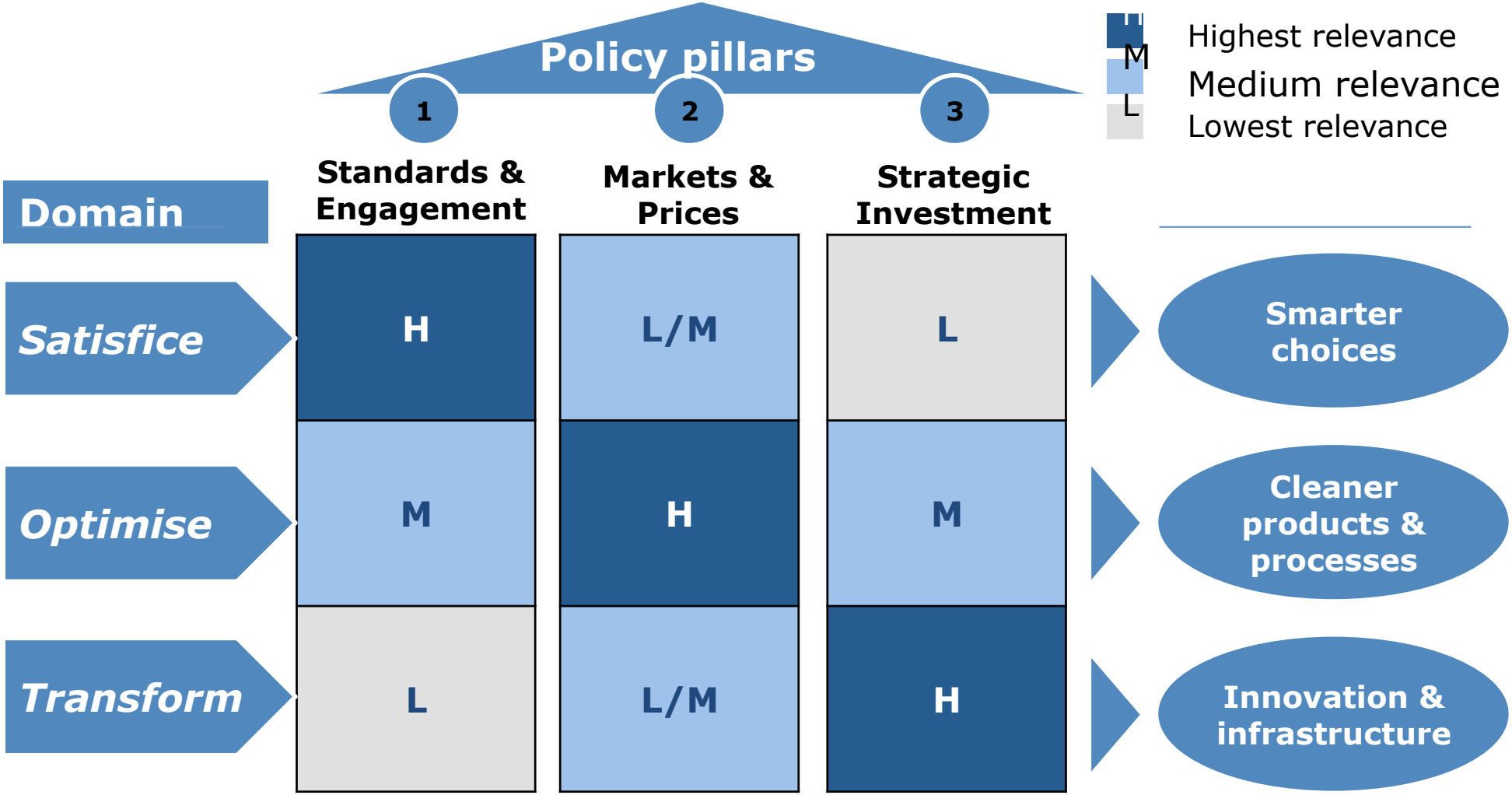
The 'technology valley of death' caused by

high up-front innovation costs & long lead times => large risks

weak demand-pull and large market risks in innovating for policy-dependent value

…. So this is *both a challenge and an opportunity*

Ideal policy comprises a package which matches the best instrument to the respective domain of decision-making



… Thereby *bringing the social and investment dimensions squarely into picture*
– ***not just about energy-climate policy, but about economic recovery***

The profound oddity of our current situation

- Stagnation and trepidation in the Eurozone
- Trapped in old debate about fiscal austerity *vs* neo-Keynesian stimulus
- Deep concern about public debt but mountains of private money unsure where to invest
- Social unrest driven by economic stagnation, sense of disengagement *and the divorce of consumer from producer interests:*
  - *As consumers we want cheaper products (eg. energy), a cleaner environment, more efficiency etc*
  - *As producers (workers) we want less competition ("migrants and cheap imports"), higher demand, higher wages*
  - *As members of society we are profoundly confused and split between these desires*
- The 'Three Domains' perspective may offer a way to get beyond some of the old divisions … particularly pertaining to energy

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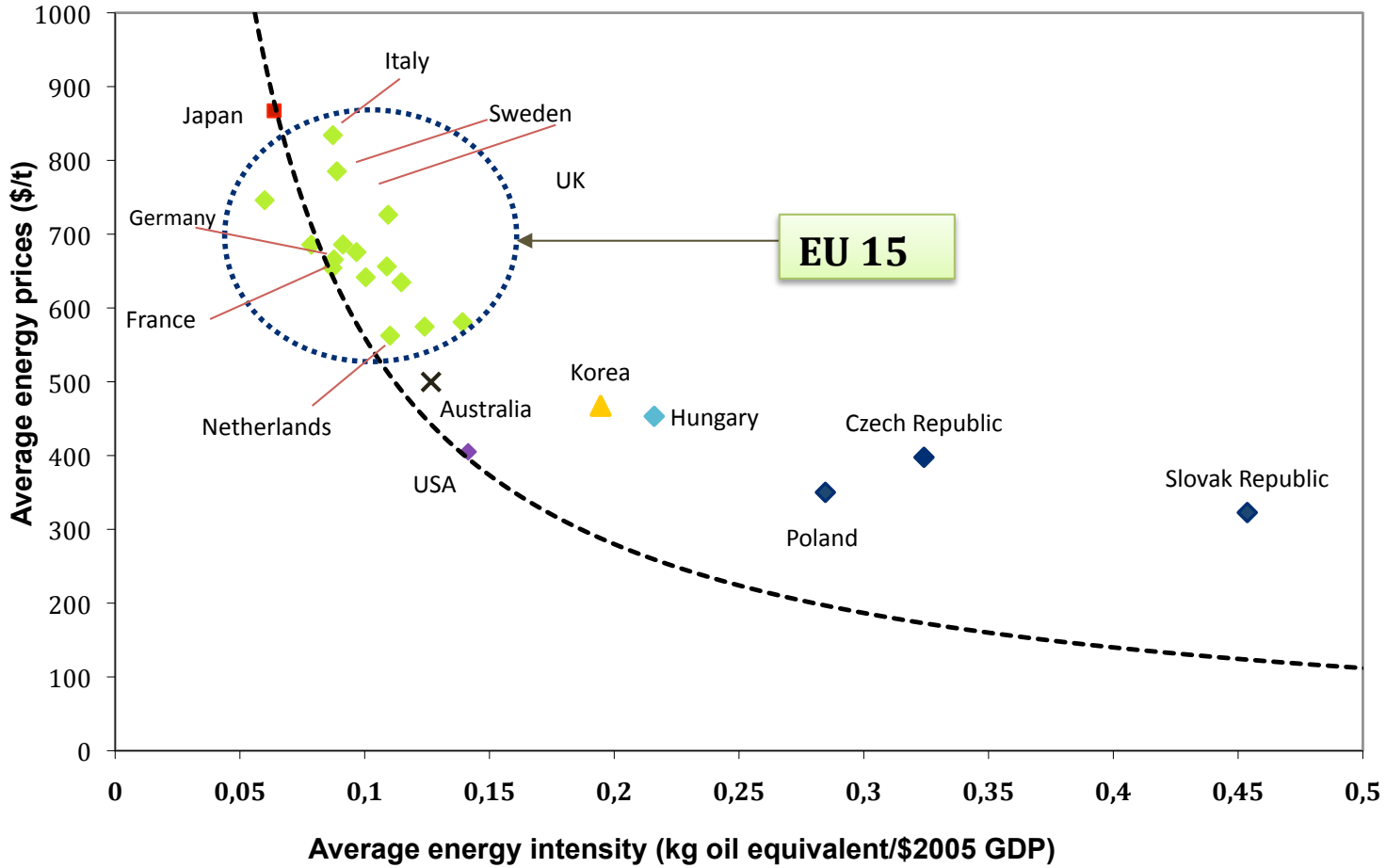
Economic linkages between economy, energy and climate

- Sufficient affordable energy is fundamental to economic and social wellbeing, but excessive dependence on fossil fuel imports has been a periodic problem
- Energy is a major investment sector of the economy – energy transition potentially €100bn / yr in EU, €1trn /yr globally
- Renewable resources are plentiful for EU, predominant in rural areas, but also require cooperation between Member States
- The 'tragedy (and opportunity) of the horizons':
  - Eternal concerns that the financial sector is too short-term
  - At typical time horizons of markets and consumers, and returns typically *sought* by equity investors, renewables are expensive;
  - At the time horizons that reflect public concern on environment, *or at the actual prevalent interest rates*, renewable and infrastructure investment are highly economically attractive
  - We can be certain is that people will still want energy over coming decades (and the pressure of climate change will rise) : the product itself will 'not go out of fashion'

Energy Prices and Bills not synonymous

National energy intensity approx inversely proportional to long-run prices

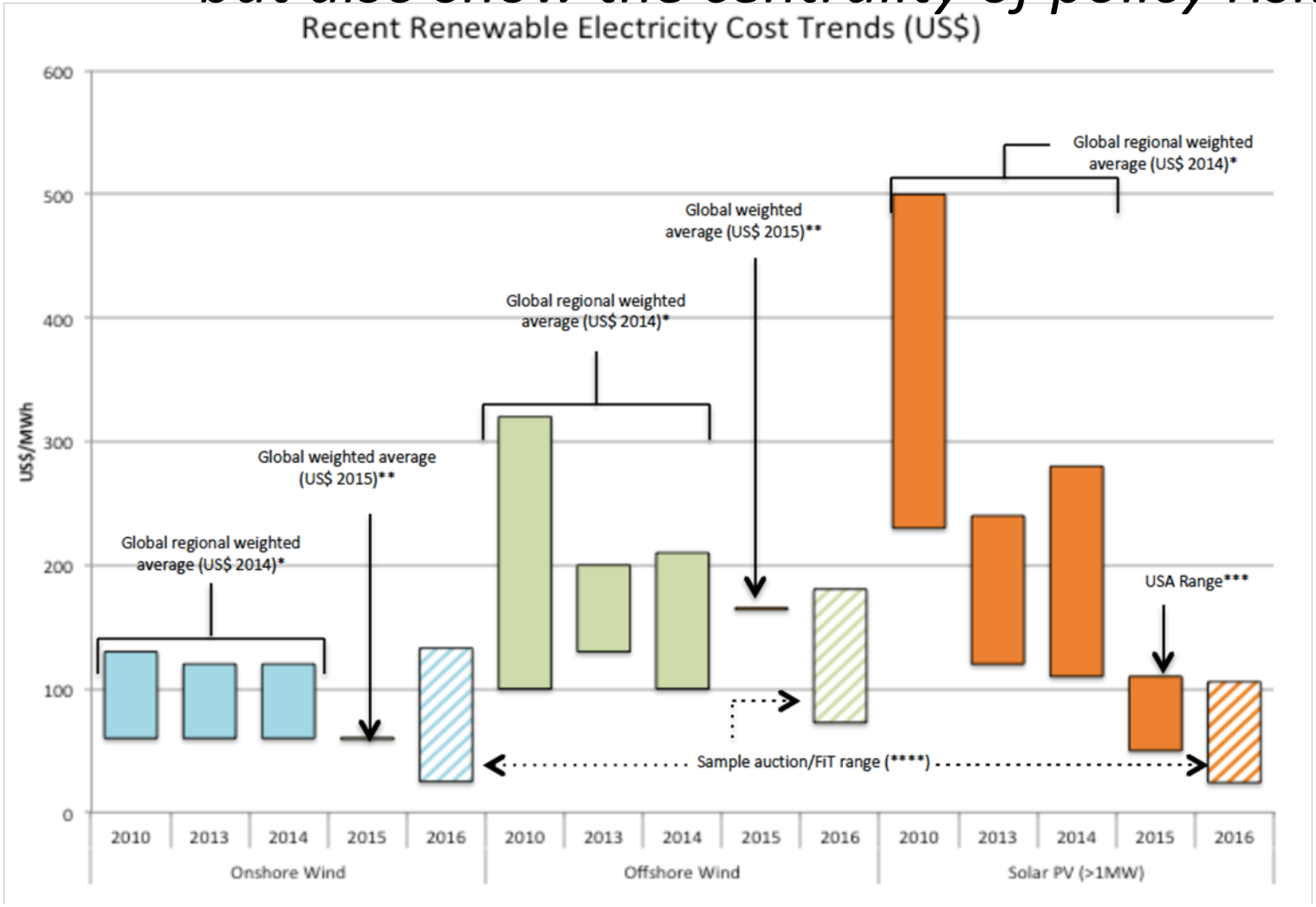
- %GDP spent on energy remarkably similar ('Basmakov–Newbery constant')



With declining energy prices, climate change gives an opportunity to 'buck the historical pattern' of slipping into inefficiencies and underinvestment that have characterised energy cycles for the last half forty-five years

Prices trends of the big renewables within range

– *but also show the centrality of policy risk*



Recent trends in international costs and contracted prices for wind and solar (source: UCL Submission)

Now is a time …

- Rapid fall in renewable energy costs
- Declining energy prices
- Paris Agreement
- Rising geopolitical concerns
- System-level changes needed in power generation

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Spanning the innovation chain (& infrastructure blockages)

Money ==========➔
(at rising scale)

The EU Energy Union R&I strategy needs to be an **RI&I*** strategy

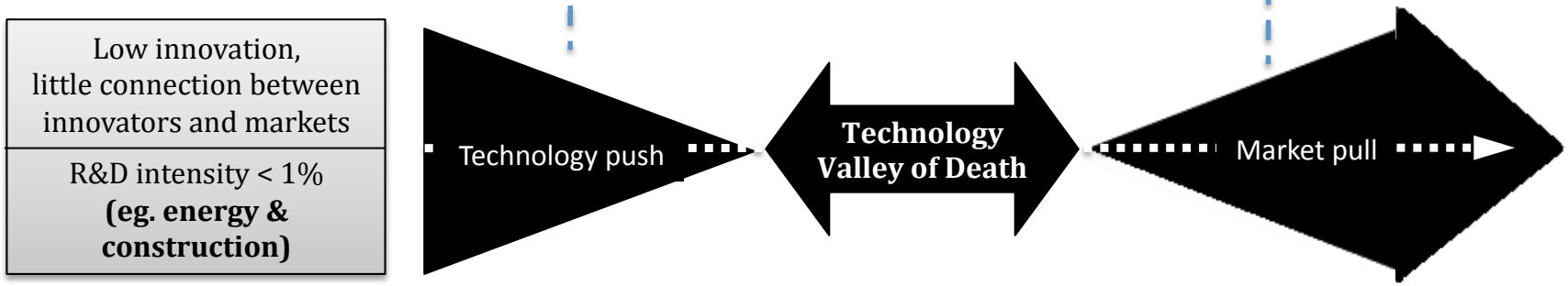
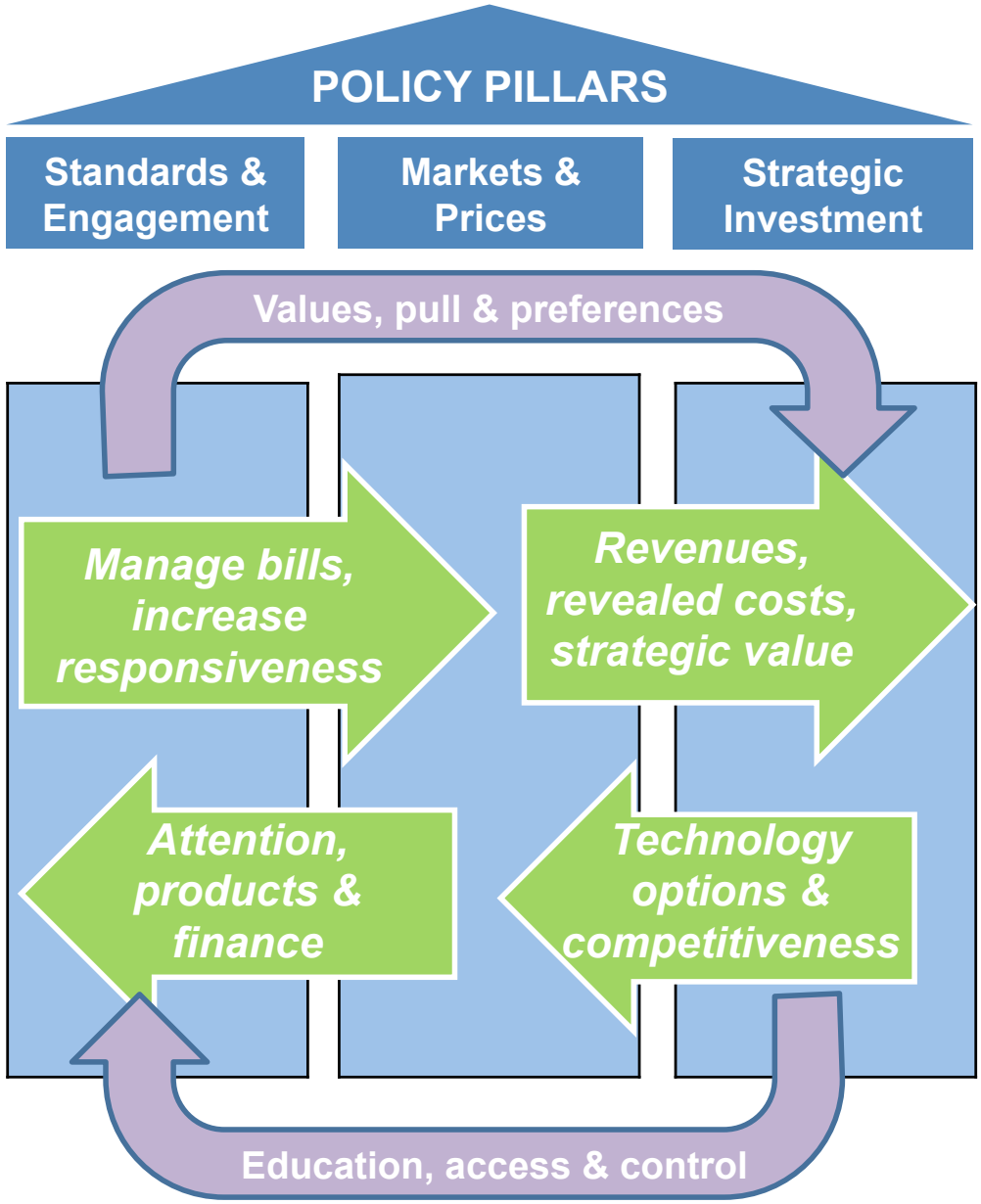


Figure 9.7. Innovation intensity and the broken chain

➔ ======= Markets
(credible and strategically growing)

* Research, Innovation and Investment

Markets and prices as *part of the package*



Enhanced efficiency

Better technologies & systems

.. A package which can both raise tens of €bns and attract private sector investment

***Source: Planetary Economics*, Chapter 12 *Changing Course,* Figure 12-1**

Conceptions of the *purpose* of pricing

Must change!

From expression & internalisation of damage / risk:

Expression of a single, universal valuation of *global damage*

- Explicit (damage estimates) or implicit (backcasting)
- Notional global decision-maker with foresight, low discount rate influencing a self-optimising global economic system including fully compensating international transfers
- A wonderful modelling device
- Value highly continent on vast range of dominated by discount rate and risk-aversion

Expression of global damage as evaluated *by a national decision-maker*

- Discount rate, influence on others, domestic costs etc a strong function *i.a.* of stage of development

… to an Instrument of change and support – 'positive carbon pricing':

Driver of *operational substitution to reduce emissions* in (mainly market) decision-making

- Eg. coal-gas switching in power generation
- Useful for value to be somewhat reflexive eg. in relation to coal-gas price differentials

Incentive to *investment and strategic decision-making including risk management*

- Eg. Expected returns to 'institutional investors' in low carbon assets
- Cost/benefit analysis of public decision-making in relation to infrastructure, innovation etc

Source of funding for **energy-related private (eg. energy efficiency, 'prosumers') or public (eg. innovation, technology cooperation etc) benefits**

A market-based complement to public 'strategic investment' in innovation etc

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Energy – European Governance Dimension

"Today, the European Union has energy rules set out at the European level, but in practice it has 28 national regulatory frameworks. This cannot continue"

The central achievement of European Union efforts on energy to date is the liberalisation and integration brought together in the Third Package

- This is a valuable achievement: do not mess it up
- But it only addresses one domain of the needs in the sector
- … taking the IEM as The Only Goal threatens to make it fundamentally *destructive*

The focus on Third Package market & liberalisation is no accident

- The main legitimacy of most European institutions, and also most national regulatory agencies, founded on the principles of Second Domain economics
- Has also been applied to clearly 3rd Domain areas like DG-Climate – hence central focus on EU ETS with very mixed results and many policy tensions
- Aside from explicitly non-economic institutions (like Foreign policy & security) the only EU institutions with some clear "Third Domain" remits are European Investment Bank and R&D programmes

This reflects the inconsistency at the heart of the EU – and particularly Eurozone – crisis

The Single European Act fostered the Single Market as an end, not a means …

- Good for aggregate efficiency
- *But not for the distributional implications*
- A political entity defined by 'Second Pillar' economics without recourse to the roles of First and Third Pillar is inherently unstable
  - The EU can be blamed for distributional consequences
  - Publics look to their Member State to solve the resulting problems

The Eurozone reflected the philosophy

- A common currency without a fiscal capacity
- … or strategic capability ?

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Energy Renewal

- a return to origins for European recovery?

Some sixty years after the Coal and Steel Community and EurAtom

- …. Energy transformation needs to be placed back at the core of European economic policymaking

This will not be funded and guided by the US Marshall Plan!

- It can be funded and guided by the conjoined needs of energy security and climate change, Including a goal of social inclusion and common purpose
- With multiple forms of carbon pricing can help to provide finance *and stabilise / underwrite investor expectations*

EU level framework

Predominantly around collective targets, infrastructure and review

High-level regulatory governance around 'Second Domain' instruments principally

- The Single Energy Market (Third Package)
- Common carbon pricing under the EU ETS / MSR – if tenable?

Geopolitical dimensions of energy security

Common pool efforts on innovation

The challenge for EU governance

To have any hope of tackling the issue, the EU needs a multi-level governance approach

- **National to regional level .. ?**
  - The principal decisions on Third Pillar investment strategies – including national infrastructure and renewables 'demand pull'
  - Need to navigate State Aid rules to support appropriate strategic investment
  - Regional energy coordination, interconnector investment, System Operation, capacity pooling and balancing markets
  - Carbon price floor …

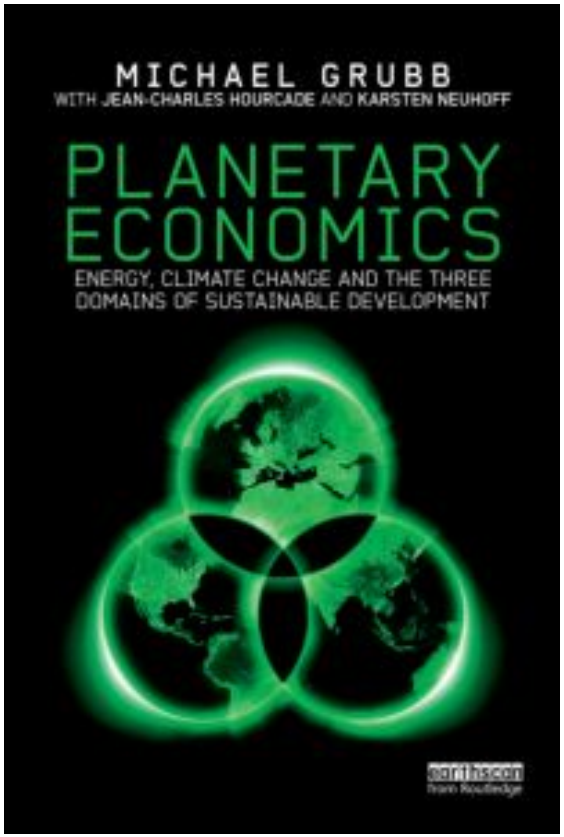
- **Energy regions and the Eurozone?**
  - 'Enhanced cooperation' by 9 Member States Arts 326 & 334 TFEU)?
  - A Eurozone carbon price corridor?
  - … or carbon-backed investment guarantees or credit lines
  - With a network of national Green Investment Banks channelling a portion of carbon revenues to rural energy development, domestic and agricultural energy prosumers & local networks

‘The Italian Job?’

[discuss]

Planetary Economics:

Energy, Climate Change and the Three Domains of Sustainable Development



1. **Introduction: Trapped?**
2. **The Three Domains**

Pillar 1

- **Standards and engagement *for* smarter choice**
- 3: Energy and Emissions – Technologies and Systems
- 4: Why so wasteful?
- 5: Tried and Tested – Four Decades of Energy Efficiency Policy

Pillar II

- **Markets and pricing *for* cleaner products and processes**
- 6: Pricing Pollution – of Truth and Taxes
- 7: Cap-and-trade & offsets: from idea to practice
- 8: Who's hit? Handling the distributional impacts of carbon pricing

Pillar III

- **Investment and incentives for innovation and infrastructure**
- 9: Pushing further, pulling deeper
- 10: Transforming systems
- 11: The dark matter of economic growth

12. **Conclusions: Changing Course**

http://climatestrategies.org/projects/planetary-economics/
for further information #planetaryeconomics