EU Energy markets and carbon pricing

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Session Question Posed:

Can EU ETS provide a pathway for fossils generation and flexibility options?

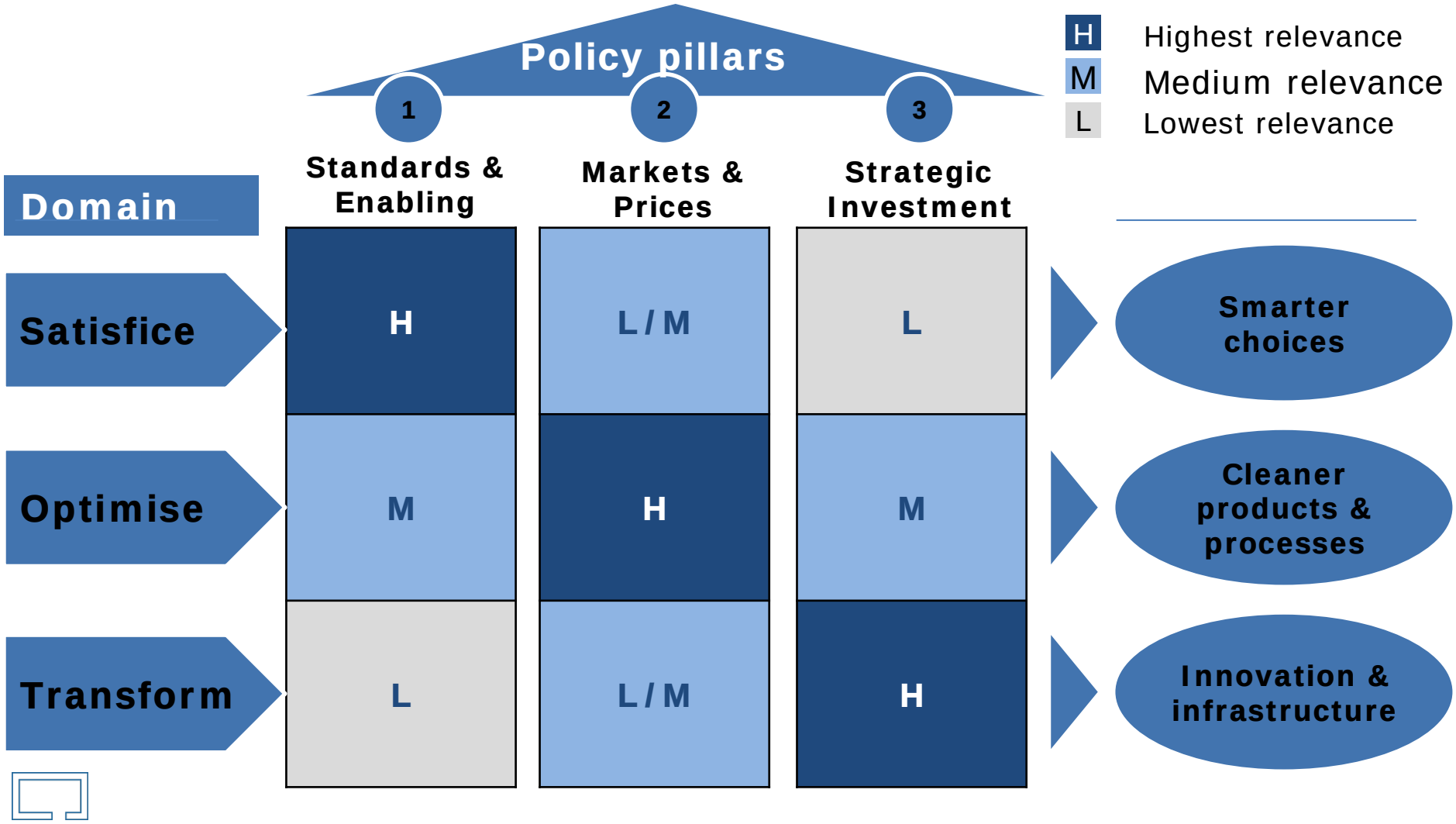
Answer: **No**

A more interesting question:

What might be the role of markets and carbon pricing for European energy transition in an age of existential crisis, and how to deliver it?

- Broadened economic theory
- Possible implications for electricity markets (plural)
- Old Narrative and the New Questions for Europe
- ETS flaws and carbon pricing repairs
- Return to origin?

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



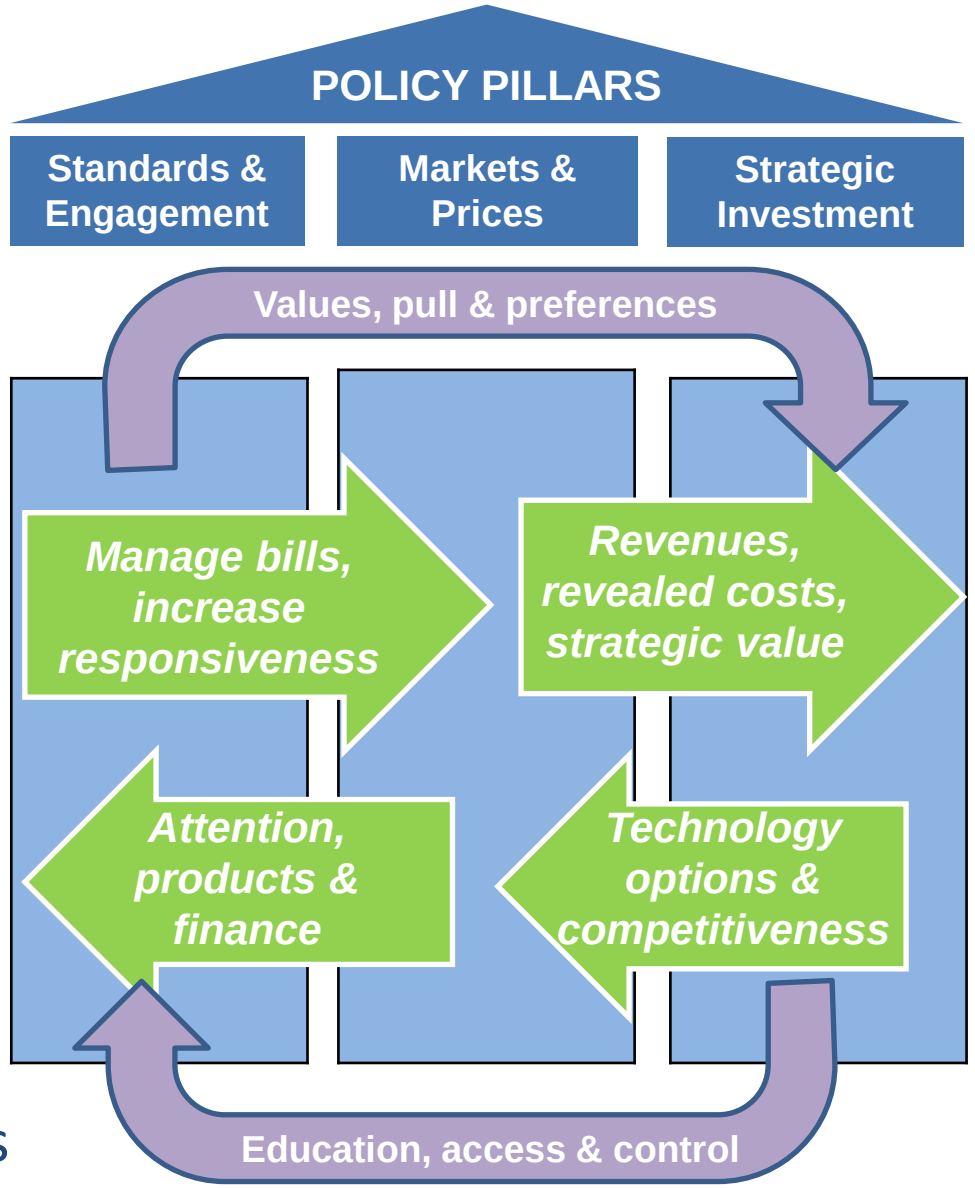
Markets and prices as *part of the package*

Need to integrate across all three pillars:

- Enhanced efficiency
- Cleaner products
- Innovation and infrastructure

And harness this for *social and industrial strategy*

- Lower resource costs, engage consumers
- Carbon pricing through supply chains
- Enhance investment, innovation, competitiveness



But well-known risks …

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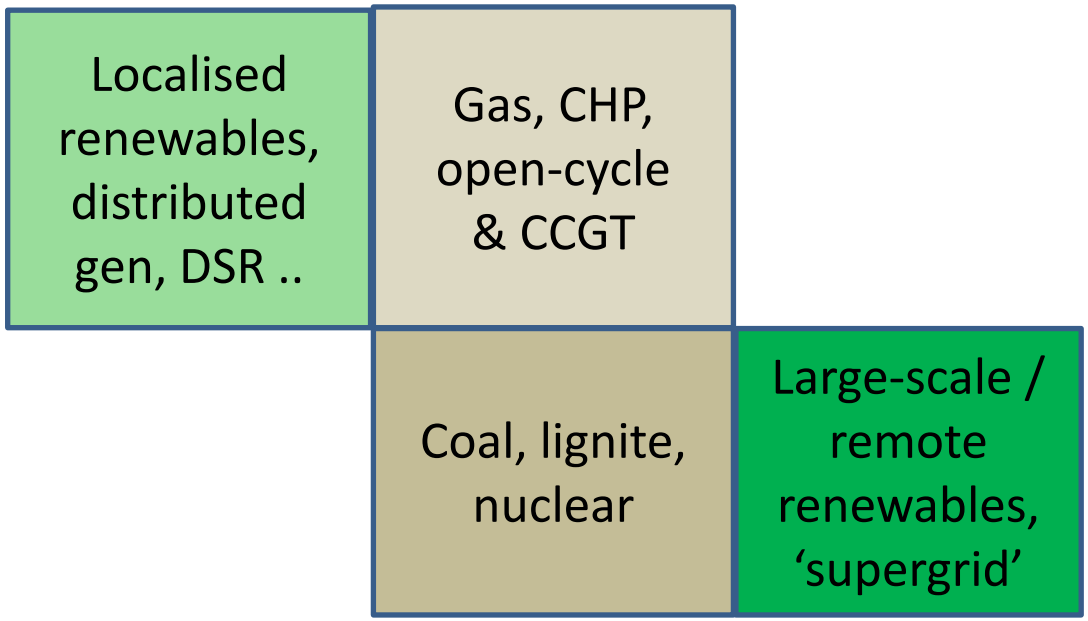
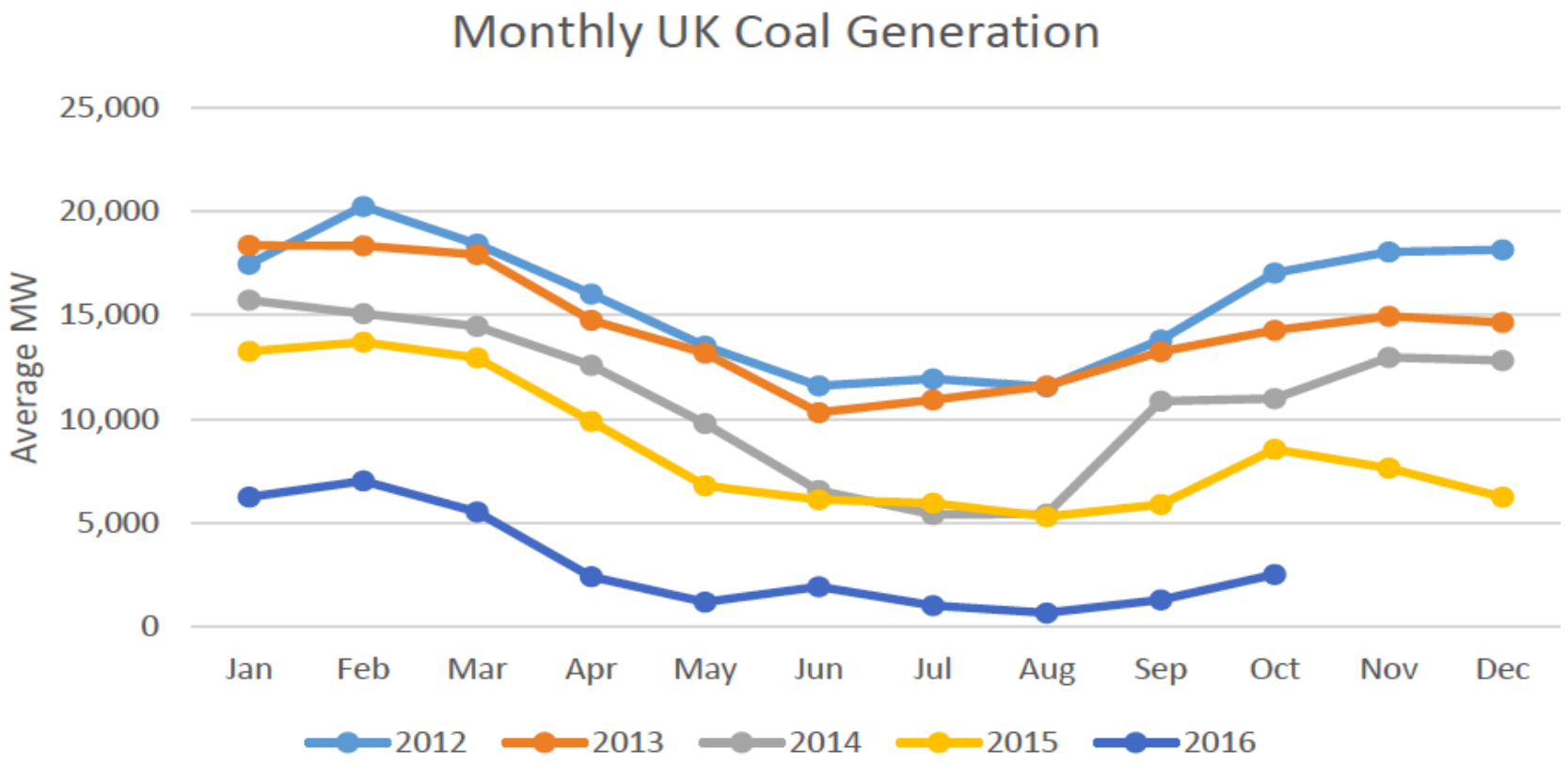
Different sources / contributions to power system

… have radically different technical, finance, risk etc profiles.



Since investment is about risk and returns, not minimum p/kWh (and many risks and benefits concern public policy / public goods), there is no 'level playing field'

Carbon prices at sufficient levels have impacted *operational coal/gas* emissions – eg dramatic fall in UK coal as carbon price floor kicks in



But adequate prices politically difficult and limited investment impact, in UK exacerbating debate about SoS

To minimise 'state management', the future system could develop competition ***between*** at least four markets

Competition for peak load capability

Capacity market only integrated & efficient if extends to DSP, eg electric vehicles

Distributed Service Providers

Capacity market

Balancing and short-term storage

Heat integration and long-term storage

kWh Spot market

Green supply / carbon-backed contracts

Markets for plant investment require **capital efficiency** and a **meaningful** carbon price

Competition for bulk electricity

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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 EU ETS and supportive measures
- Assume that operational and investment efficiency go together

… has largely failed.

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

- What can be expected politically 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?

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*
- We need new approaches and energy could be a good place to start – given a new, more coherent and integrated strategy …

Economic linkages between economy, energy and climate

- Sufficient affordable energy is fundamental to economic and social wellbeing (though 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 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'

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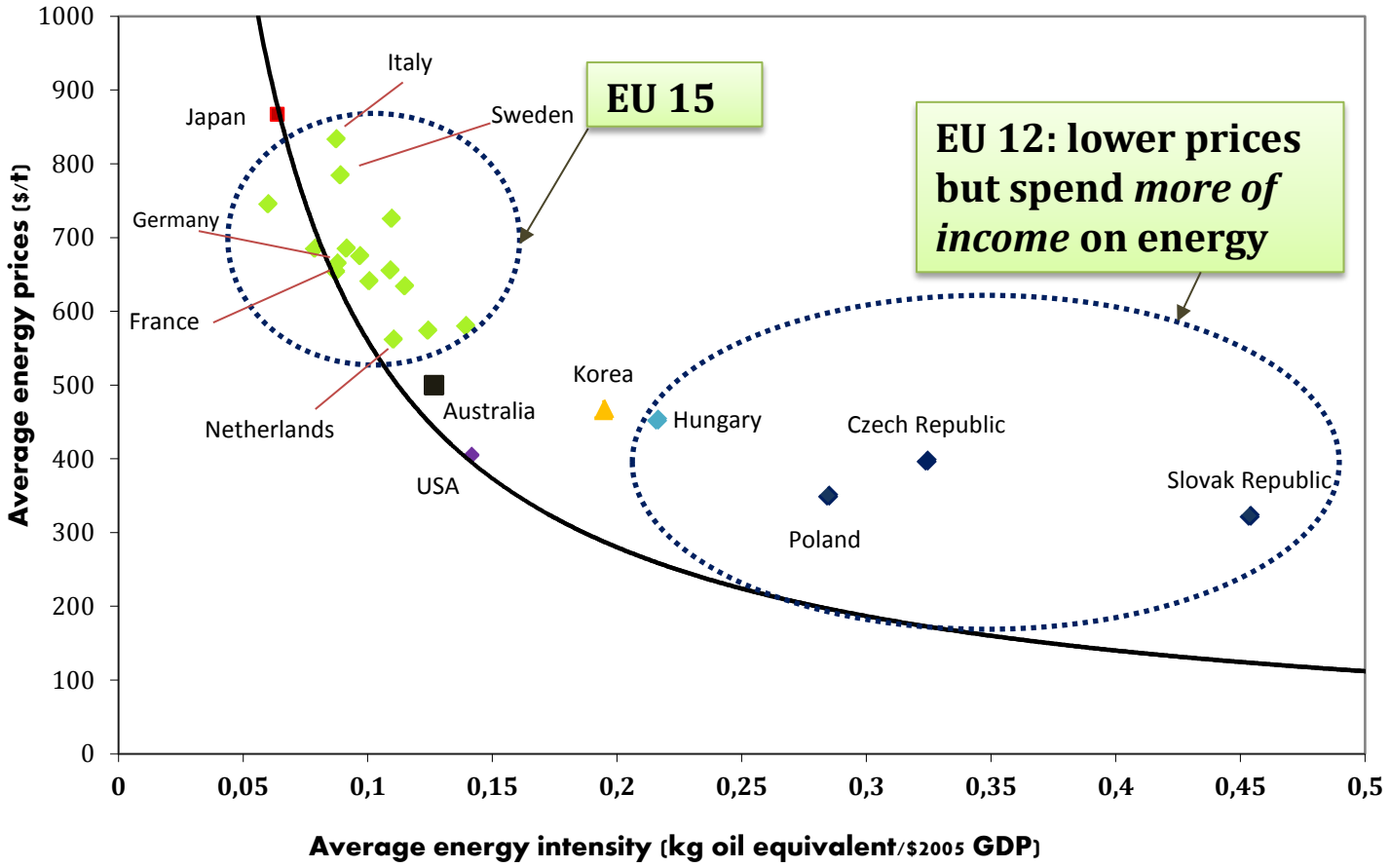
Narrative: Energy Prices & Bills not synonymous

Focus on efficiency and innovation to keep bills down even if prices rise – backed up by historical and international evidence



With declining international 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 forty-five years. BUT ….

EU ETS – the Conceptual Flaws

Reflected the orthodoxy that efficient = politically smart

'One tool to bind them' – ignored the other domains, the legitimacy and attractions of energy efficiency and renewables policies

Operation vs investment signals – assumed that 'a carbon cap and price' would deliver both operational efficiency and low carbon investment, without ever looking at actual investor decisionmaking

Failure to analyse uncertainties or design for robustness – ignored that steep demand curve and vertical supply curve is a recipe for instability

Addiction to 'Quantity not price' mantra – ideological, legal, political

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

… 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

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

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

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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 ?

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

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)
- A 'backstop' carbon price under the EU ETS / MSR

Geopolitical dimensions of energy security

Common pool efforts on innovation

The challenge for EU governance

UCL

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

- **Energy regions and the Eurozone?**
  - 'Enhanced cooperation' by 9 Member States Arts 326 & 334 TFEU)?
  - A **Eurozone carbon price corridor?**
  - … and/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, smart distribution infrastructure, domestic and agricultural energy prosumers

- **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

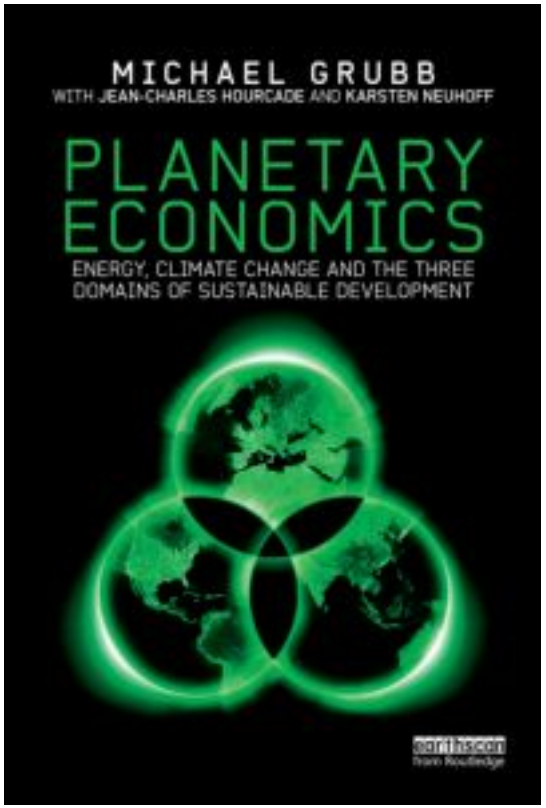
The Italian Job ?

- Some of the EU's best renewables resources
- Also Mediterranean links, within & outside the EU – regional development potentials
- Not Germany, but able to build on the *EnergieWende*
- Not France, is overcoming incumbency
- Pivotal member of the Eurozone, needing new resources

	In 2020 (@ €22/tCO$_2$)
EU-27	**€ 27 billion**
Germany	€ 6.8 billion
UK	€ 3.4 billion
Poland	€ 3.3 billion
Spain	€ 2.2 billion
Italy	€ 2.4 billion

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**