UNIVERSITY OF CAMBRIDGE | Electricity Policy Research Group

Are ethical energy markets utopian?

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Ethical Trading: Whose Business?
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Outline

- Energy markets
- Energy policy
- Affordability and ethics
- Energy security and ethics
- Decarbonisation and ethics
- What can we do?

Energy Supply Chain

- Exploration and Production / Equipment
- Refining / Conversion
  - To useable oil products
  - To bio-fuel
  - To electricity
- Transportation
  - International
  - National
- Distribution
  - Regional
  - Local
- Retailing
  - Unit sales
  - Contract terms

International Trade in Energy

- *Fuels = 14.8 % of world exports in 2009 (18.2% in 2008)*

(Source: WTO, International Trade Statistics 2009)

Memo: World Exports / World GDP = 21% (2009)

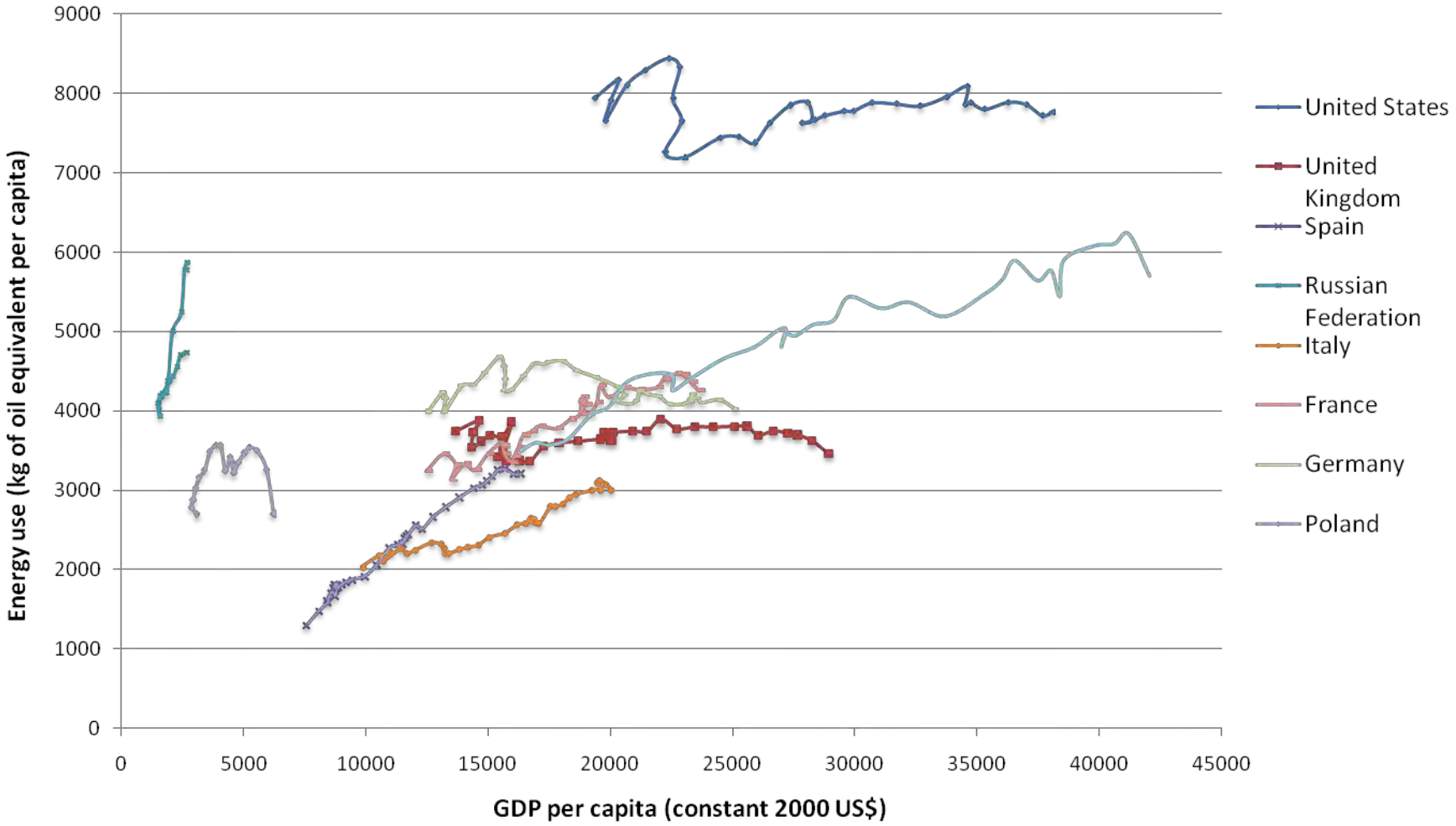
- *Oil*
  - *Exports/ Consumption = 63%*
- *Gas*
  - *Exports / Consumption = 30%, of which 8% is LNG*
- *Coal*
  - *Exports / Consumption = 16%*
- *Electricity*
  - *Exports / Consumption = 3%*

Sources: Oil, Gas (BP); Coal (EIA, 2009: World Coal Institute); Electricity (IEA).

Energy Policy Issues

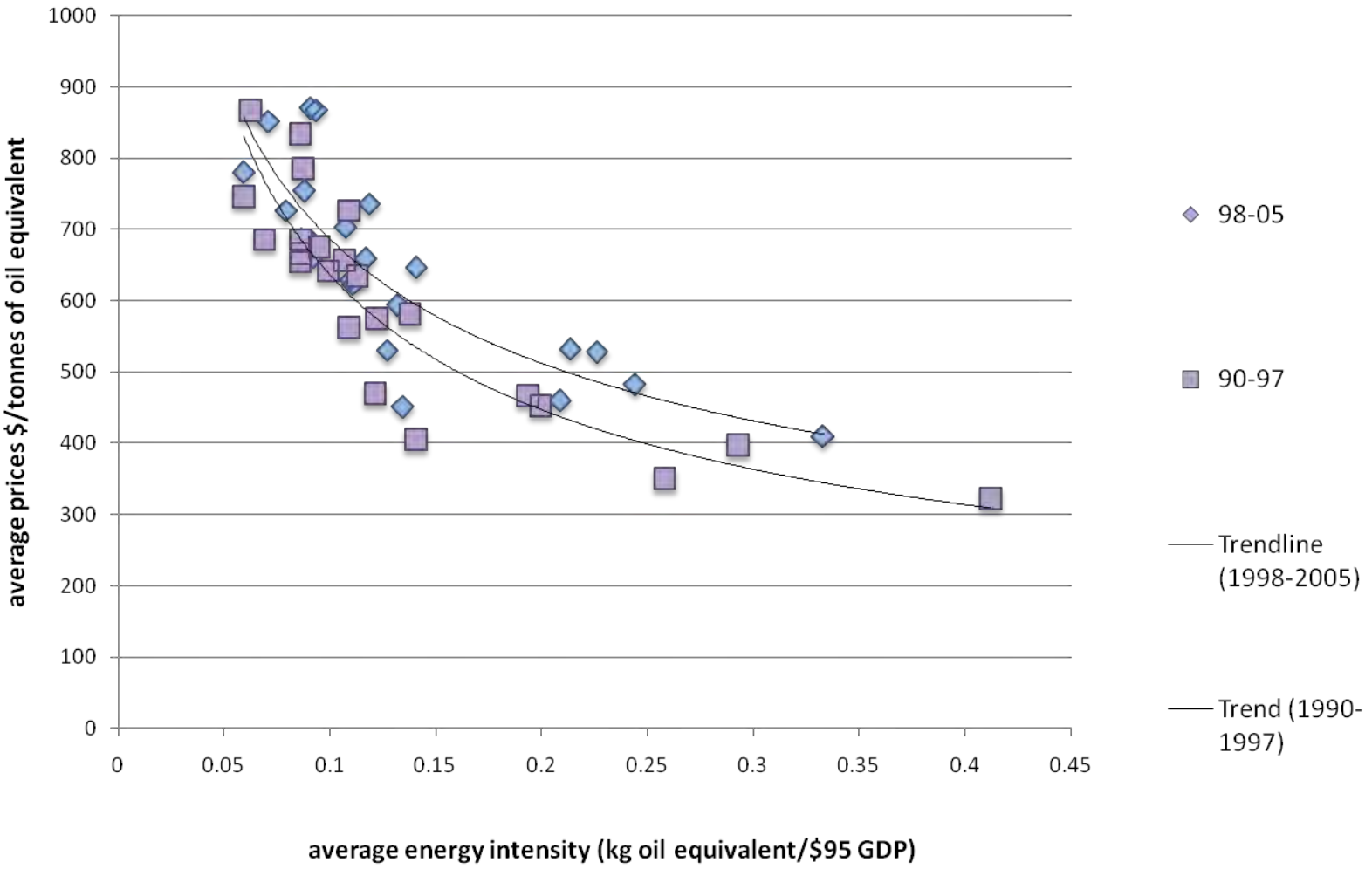
- Affordability
- Energy Security
- Emissions Reduction
- Can the three be reconciled?

Energy use per head versus GDP per head, 1972-2008



Source: World Bank (2010).

Energy intensity versus energy prices, 1990-1997 and 1998-2005



Source: Data from Steinbucks (2010).

Ethics of Affordable Energy

- Economic growth and population growth increase energy consumption.
- Reducing energy consumption ***must*** mean raising price of energy.
- Policy interventions which raise price effect poor, those which do not raise price fail to achieve other objectives.
- Adjustments to higher energy prices, are possible but take time.
- Raising prices of bads always has unfortunate consequences for poor (energy no different).

Energy Security

- ‘Securing adequate energy supplies at reasonable and stable prices in order to sustain economic performance and growth’ (APERC, 2003)
- Possible policies:
  - Equity oil and gas
  - (Penalty) Price for non-delivery
  - Stocks of raw material
  - Rationing plans
  - Technology choice interventions

Ethics of Energy Security

- Is energy security just an aspect of national security?
- Is energy security 'an idol of our time' (Goudzwaard, 84) ?
- Is energy security a way to justify unnecessary and unwanted investments at the expense of consumers?

- Self-sufficiency in energy is economically impossible for most countries and is fundamentally anti-trade and international development.
- The desire for energy security may give rise to ineffective interventions which have extremely undesirable unintended consequences.

Decarbonisation

- The Stern Review (2006) suggested:

- Costs of climate change: rising to 5% of world GDP
- Cost of mitigation: c.1% of world GDP
- Assumed social discount rate: 1.4% p.a.

- Implies Social Cost Benefit Analysis (SCBA) has positive Net Present Value (NPV).

- Also, argued for immediate action.

The power of discounting

Climate project:
Cost: 1 forever starting now;
Benefit: 5 forever starting in 100 years.

Discount rate		Benefit		Cost
1.40%		90.1		72.4
1.50%		76.3		67.7
2.00%		35.2		51
6.00%		0.3		17.7

The Ethics of the Stern Review

- Importance of Social Discount Rate (SDR)
- Formally: SDR = $p + eg$
- p = rate of pure time preference
- e = inequality parameter
- g =growth rate of consumption per head
- Stern Review set SDR = 0.1 + 1 x 1.3 =1.4%
- Earlier studies set SDR = 2 + 2 x 2 = 6%

Ethics of Stern Review

- Low value of rate of pure time preference implies we care about future a lot (low catastrophe risk)
- Low value of inequality parameter (implies we don't care about inequality of incomes that much (though we do care somewhat)
- Low value of growth rate assumes growth rate slower than recently, especially in developing countries.
- Implication we are happy to transfer to consumption to richer future generations and don't care that much about doing things about current inequality.

Ethics of global clean air ownership

(Johansen, 07)

- Carbon reduction Burden sharing:

- Cumulative emissions to date? Equal cumulative total?

- Equal final target per capita target? US needs 90% cut in CO2 by 2050

What can we do?
1. Vote for sensible policies

- Tjernstrom and Tietenberg (2008):

- International Social Survey Program 2000 data
- 8000+ respondents, 26 countries

- Individual values shaped by education, urbanisation, affinity
- National emissions reductions increase:
  - Higher percentage individuals think climate change important
  - Higher press freedom
  - Higher trust in government

- Authors conclude ‘what citizens believe does matter’.

What can we do?
2. Change Personal Behaviour

TABLE 2: ESTIMATED RANGE OF EMISSIONS REDUCTIONS

Measure	Low*	High*
1. Reduce Idling	6	9
2. Reduce Standby Power	16	22
3. CFL Substitution	12	37
4. Two Degree Temperature Change	18	36
5. Water Heater Temperature Changes	28	39
6. Tire Pressure Maintenance	12	12
7. Auto Air Filter Changes	19	27
Totals	111	182

*Numbers are in millions of tons CO_2, rounded to the nearest million.

Even after assuming limited uptake, this is still 7% of individual and household carbon emissions in the US.

Source: Vandenbergh et al., 2008, p.1750.

What can we do?
3. Change where we work

- We should all be interested in building social capital: the quality and quantity of social relations (or ***interaction***) in society (see Woolcock, 2002).

- We should help the businesses that we work for build four types of social capital: institutional, relational, moral and spiritual (see Heslam et al., 2009).
- Four concepts are distinguished within the capitals: 'constraints', 'interactions', 'behaviours' and 'motivation'.
- Examples: BP on climate change; Anglo American on community; John Lewis on behaviour; M&S on motivation etc…

What can we do?
4. Change Philosophy of life

(Vandenbergh, 08; Sandelands and Hoffman, 2008)

- Regulation unlikely to work
- Distributional problems with pricing
- Need to appeal to moral imperative
- Need 'norm' activation
- A sense of duty in the absence of sanctions

- Norms: 'environmental protection', 'personal responsibility' and 'reciprocity'

- 'Only a fundamental change in human character from a preponderance of the having mode to the predominantly being mode of existence can save us' (Fromm, 1977)

Conclusions

- Our three core energy policies towards energy markets fundamentally conflict.
- Ethical behaviour with respect to energy affordability and energy security are largely about whether we think energy is good or bad and our attitude to markets and trade.
- The desire for decarbonisation raises difficult ethical issues of who pays and how much.
- Our demand for energy and willingness to pay is at the heart of the extent to which energy markets will be ethical.
- Individual values and behavioural change are core to making good use of scarce resources and implementing sensible policies.

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