

PETER HARPER

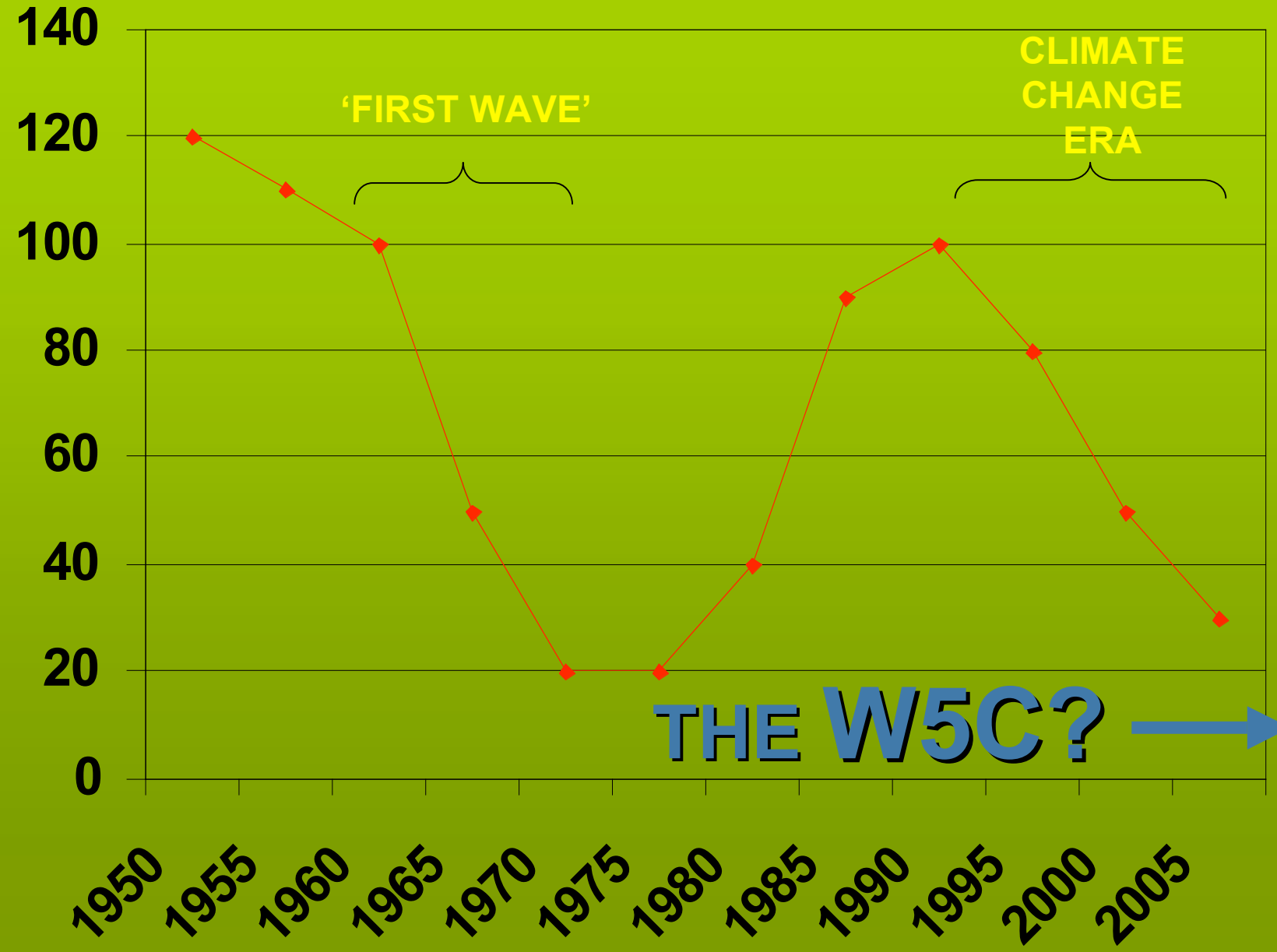
zerocarbo**n**britain
an alternative energy strategy



Centre for
Alternative
Technology

In collaboration with:
Public Interest Research Centre

HOW MANY YEARS HAVE WE GOT?



THE W5C? →

1990s IPCC

“60% global cuts as soon as possible”

IPCC ARs

1995 2001 2007

2000 RCEP

“60% UK cuts by 2050”

White Paper 2004

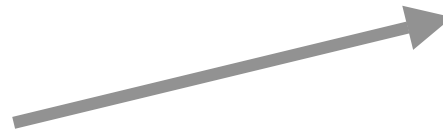
Climate Change Bill

**Stern
Review
2006**

2005 Hillman, Monbiot, 2007 IPPR

“80-90% UK cuts by 2050 or sooner”

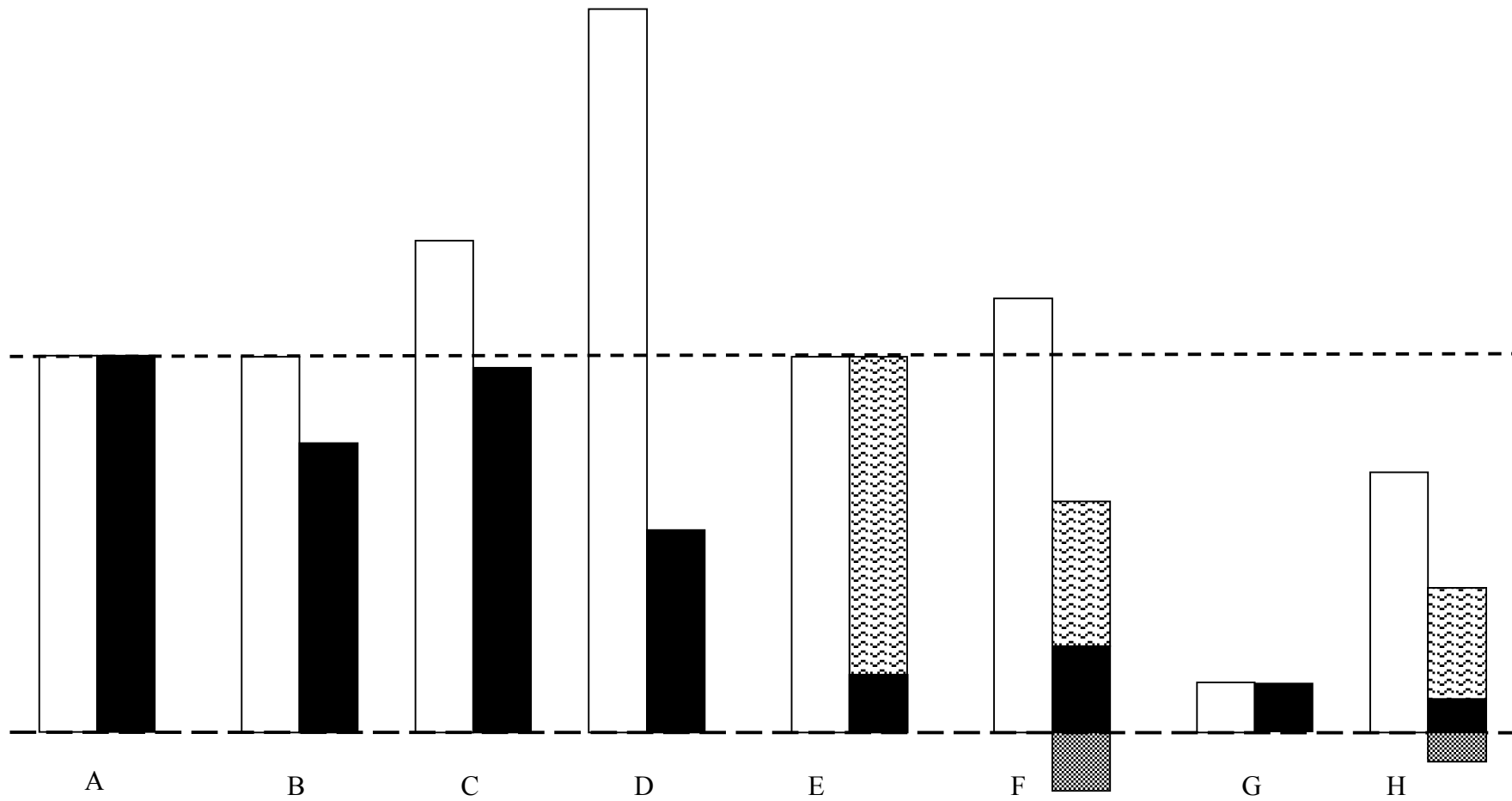
**Compelling evidence for
feedback effects**



2007 CAT ZCB

“100% UK cuts by 2027”

ENERGY AND CARBON STRATEGIES



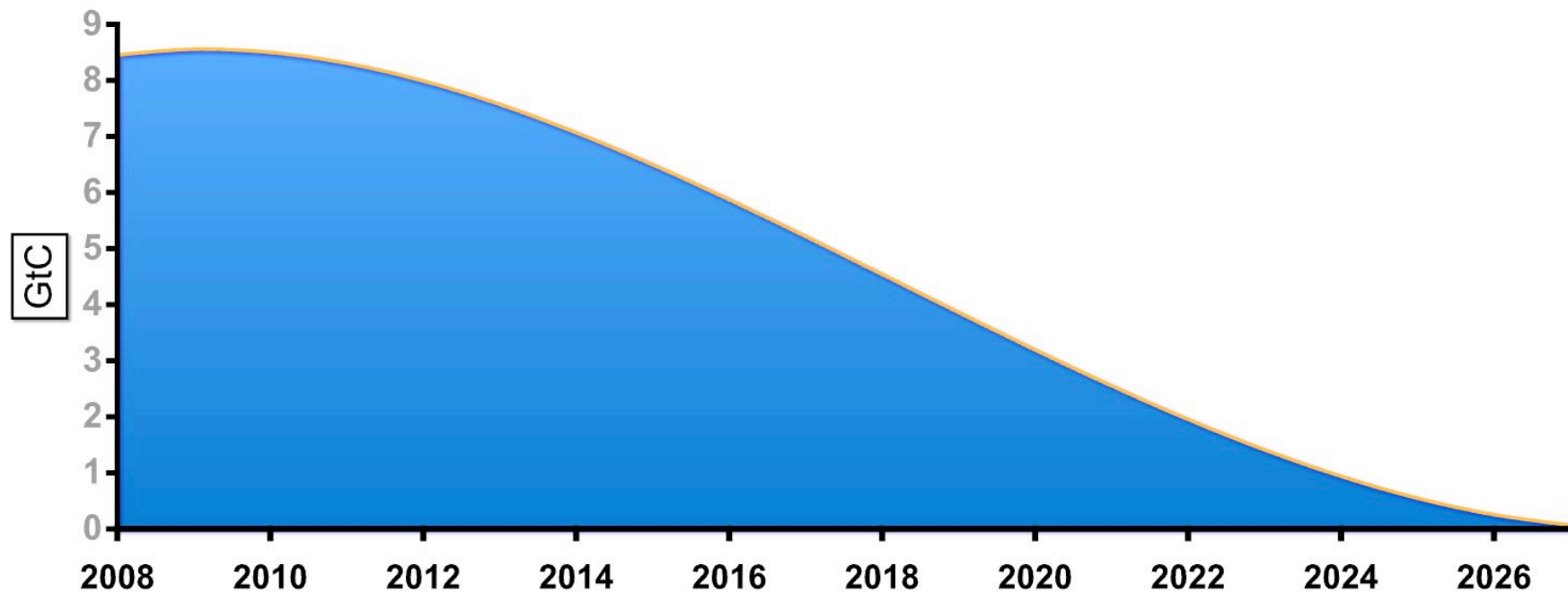


Keep it
cheap!

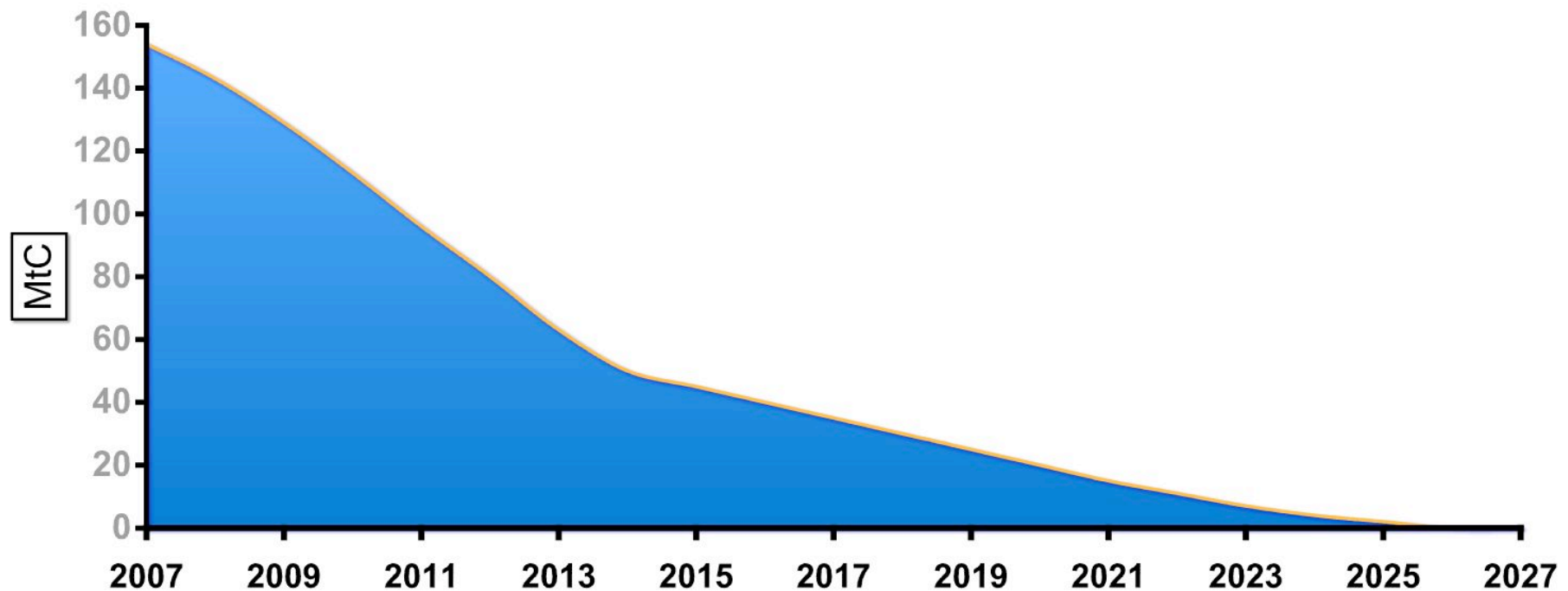
No Power Cuts!

LOTS of it!

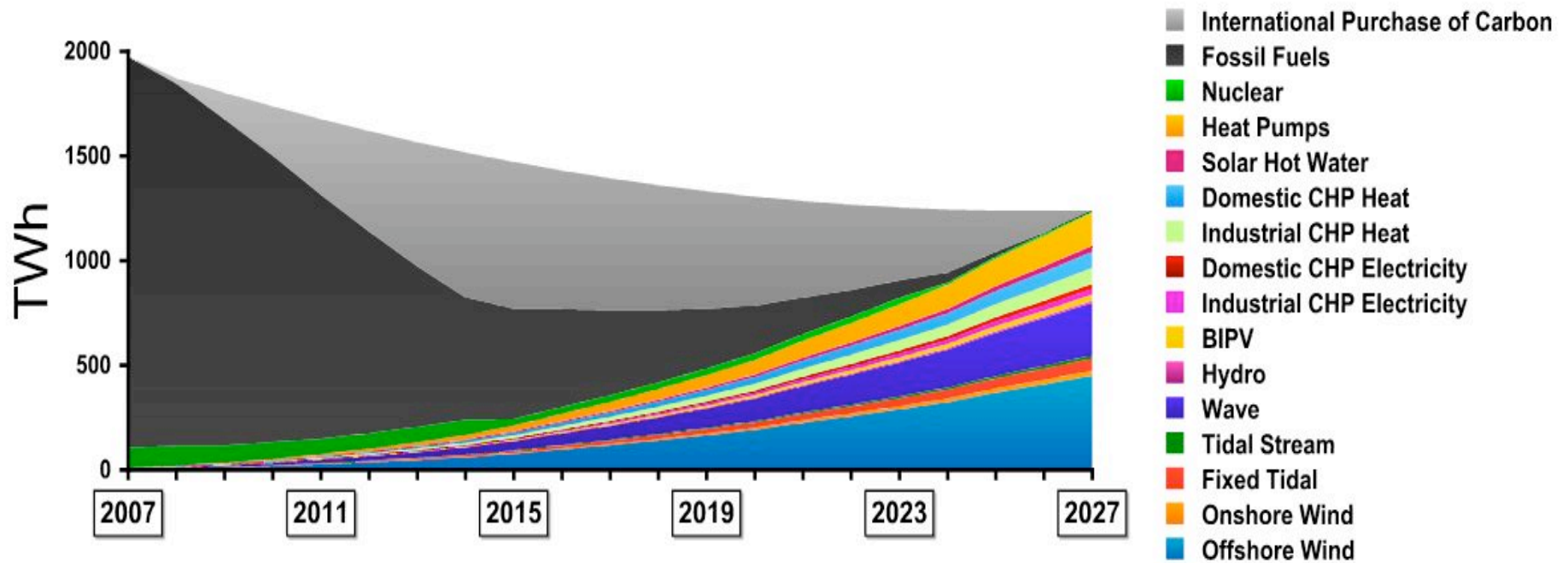
Carbon Budget - Global



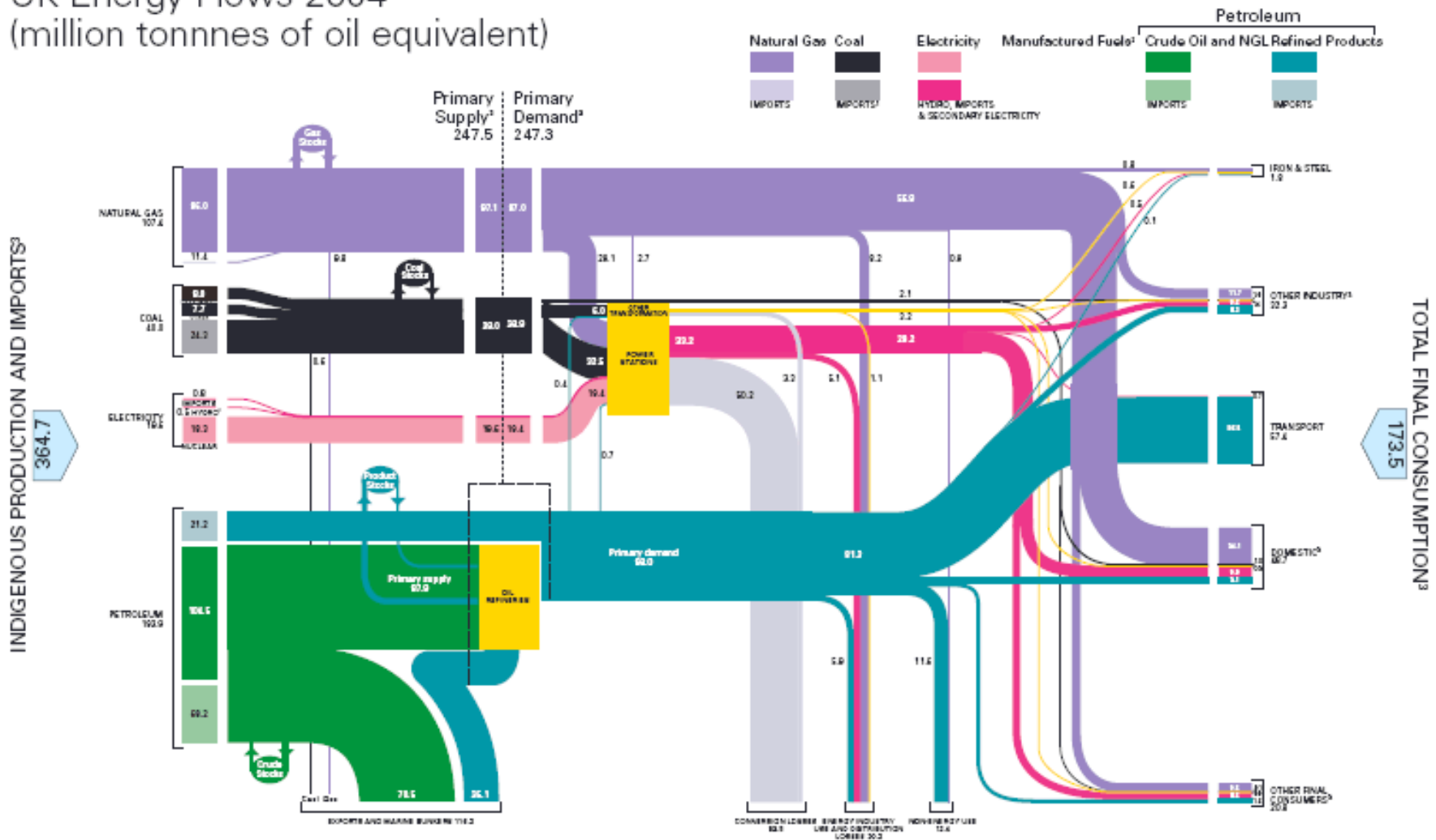
National Carbon Budgets - e.g. Britain



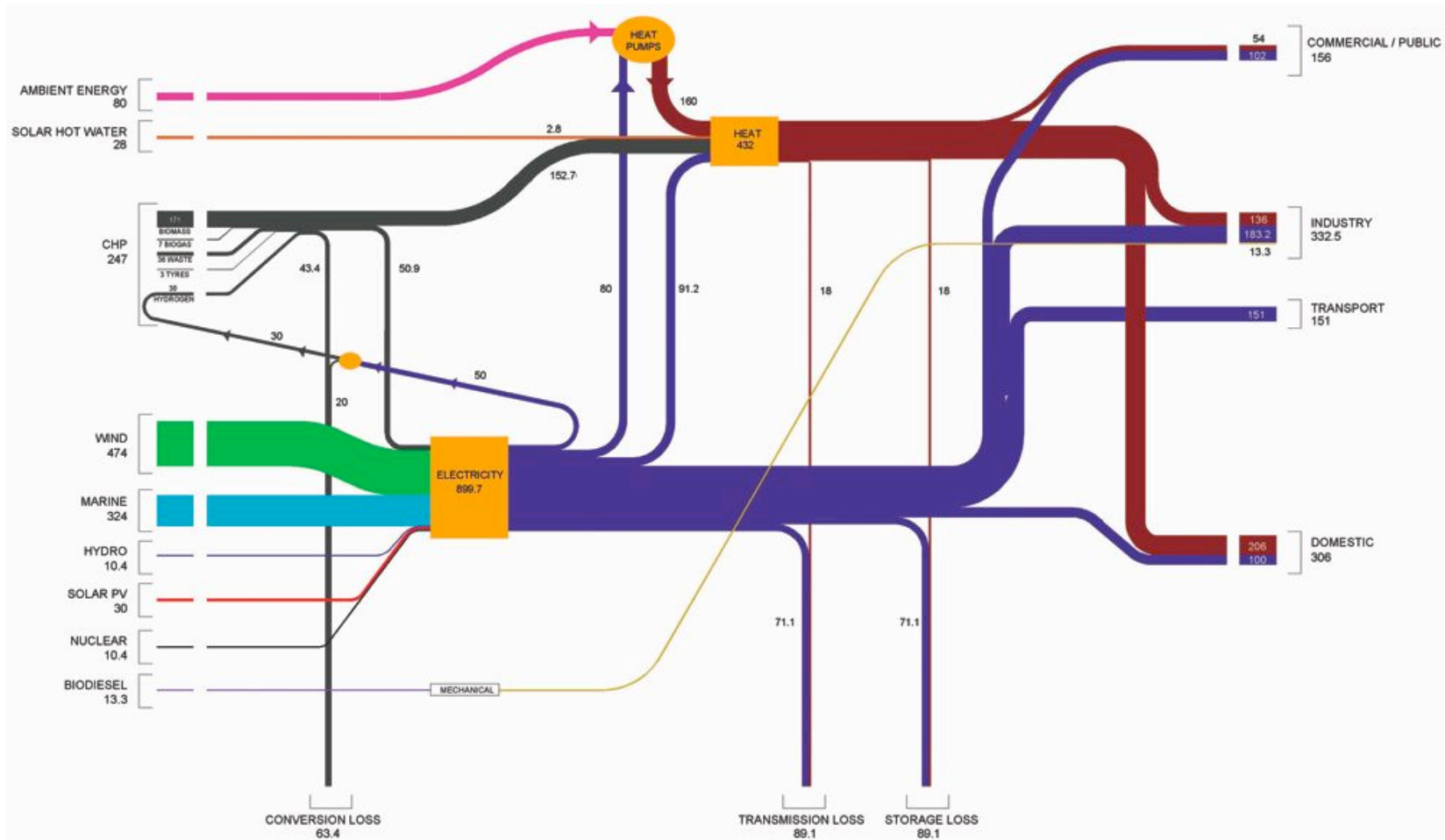
SIMULTANEOUS POWER-DOWN AND POWER-UP



UK Energy Flows 2004 (million tonnes of oil equivalent)



UK **Potential** Energy Flows 2027 (terawatt hours)



MAIN FEATURES

- International agreement based on Contraction and Convergence
- A cap on UK emissions declining gradually to zero
- Harnessing of market forces to drive a 'race out of carbon'
- Allocation of Tradable Energy Quotas to ensure fair access
- 'Power down' of primary energy demand through systematic efficiency improvements
- 'Power up' of low-carbon energy sources
- No 'silver bullets'
 - Well, not many

SOME POWER-DOWN FEATURES

- Effectively rising price of carbon will drive changes quickly in all sectors
- New buildings zero-C by 2012
- Massive retrofits in older buildings
- Radically different transport patterns
 - And holidays!
- Transport mostly electric-powered
- Large changes in diets and land-use
- World will feel upside-down, especially for high- consumers

SOME POWER-UP FEATURES

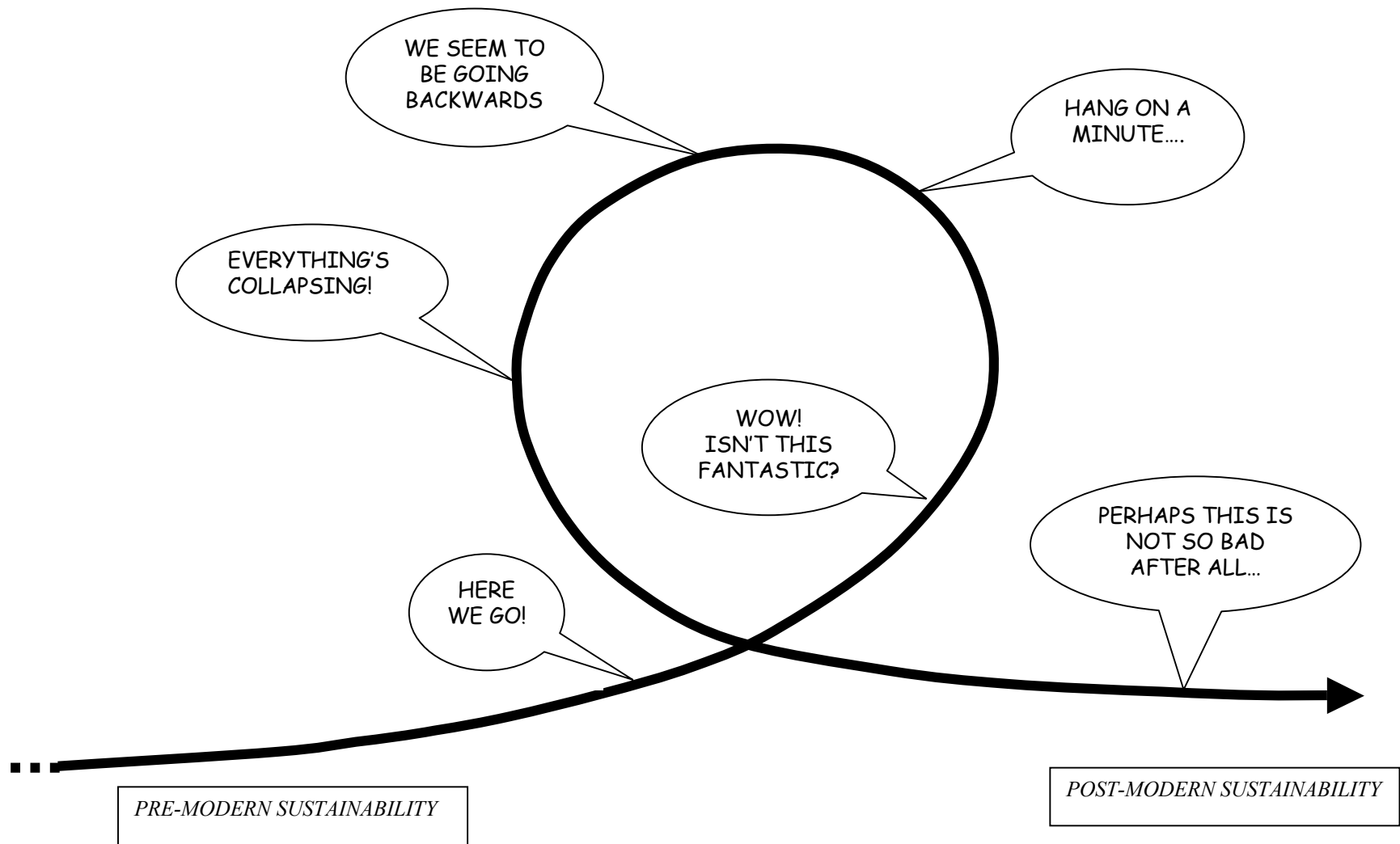
- A very electric Britain.
 - Big and small stuff. Ugly. Transmission lines
- Rigorous load-control and distributed storage measures
 - New kinds of batteries
 - Transport fleet helps balance loads
- Enormous development of marine energy resources, especially offshore wind- and wave-power
- Rapid development of CHP and heat-pump technology
- A crucial role for bio-energy

IMPLICATIONS FOR FARMING AND LAND-USE

- Net-emitting processes must either be 'fixed', substituted or balanced by sinks
- This applies to ruminants
 - Also to paddy rice, cement production, worm farms, possibly aviation
- There are no fixes or substitutes
- Sinks will be scarce and very expensive
- There will therefore be massive reductions of ruminant numbers
- **This will transform food, farming and the landscape**
- The implications for traditional mixed and organic farming are particularly severe

THERE ARE A FEW SILVER LININGS

- C-reduction programme will deal with the peak oil problem
- It will be harder to become obese
- Large amounts of land will be released for other purposes
- It will present enormous opportunities to farmers as well as threats
- It might improve biodiversity
 - But might not
- It would foster re-localisation
- It could be a chance to re-think and re-establish modern societies on the basis of fulfilment rather than stuff



WE SEEM TO
BE GOING
BACKWARDS

HANG ON A
MINUTE....

EVERYTHING'S
COLLAPSING!

WOW!
ISN'T THIS
FANTASTIC?

PERHAPS THIS IS
NOT SO BAD
AFTER ALL...

HERE
WE GO!

PRE-MODERN SUSTAINABILITY

POST-MODERN SUSTAINABILITY

IS IT REMOTELY LIKELY?

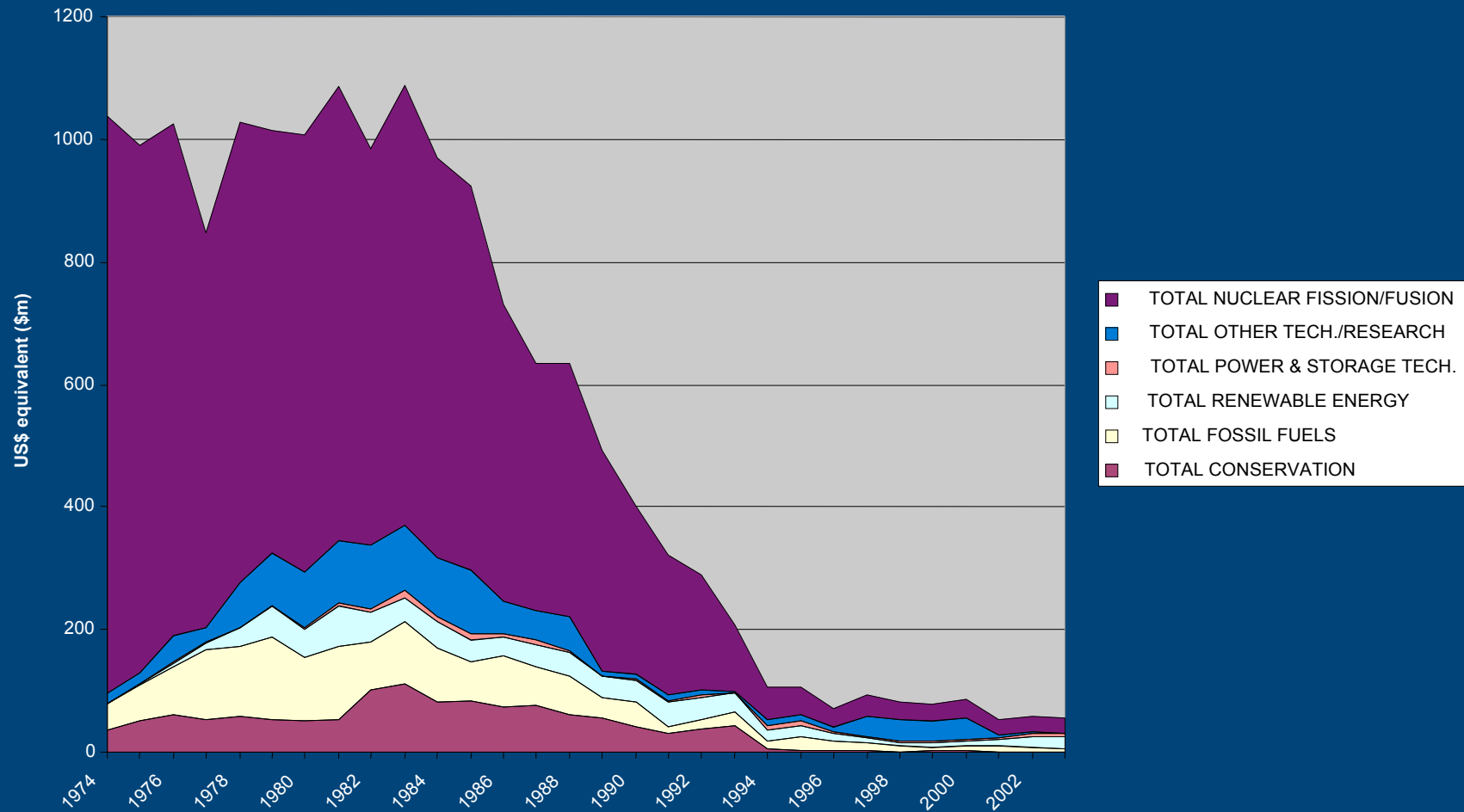
THAT WE'LL BITE THE BULLET AND AVOID TRIGGERING THE APOCALYPSE

- Probably not.
- By 2020 we'll know whether the world is stuffed
- But life in the UK will be rather similar for the next 50 years
 - How can you sell that?
- At what point should we switch to an adaptation strategy?
- To buy time, we might all be tempted by geo-engineering proposals, mass sequestration, and even nukes.
 - Why not? Are these worse than the W5C?
- Probably switching a very large amount of research effort into this, is the most rational and cost-effective strategy right now

R&D Energy Trends

The most depressing graph I have yet seen!

But 'Peak Oil' might provoke action where climate change does not

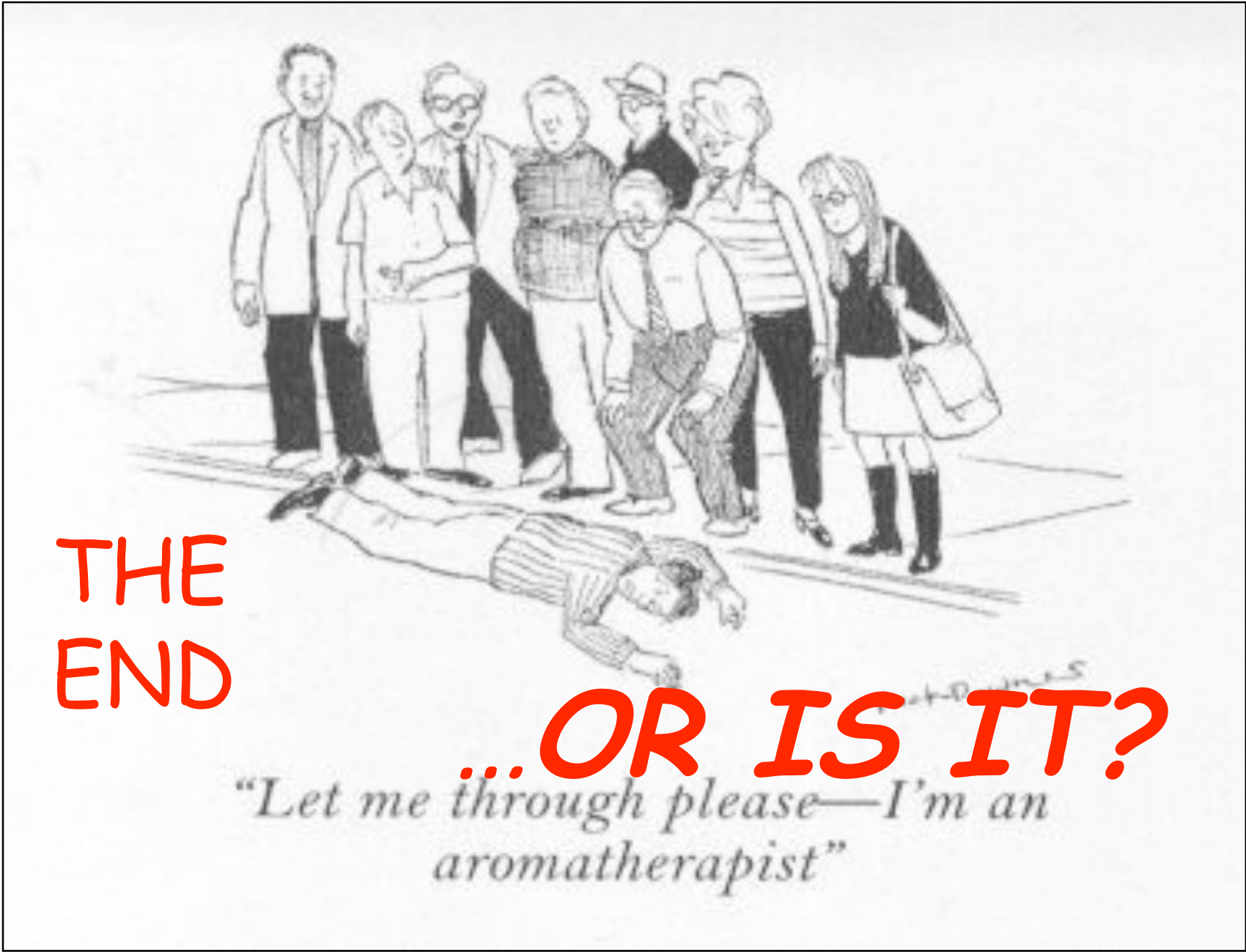


Source: Data reported to the IEA
by IEA Member countries

A SMALL TAKE-HOME MESSAGE

Because it's an emergency

- Deep-green eco-warriors need to accept that a lot of top-down control and Big Technology will be necessary
- Mainstream engineers, politicians and businesspeople need to accept that massive shifts of behaviour and lifestyle will be necessary
- A truce for 50 years?
 - then we can start arguing again about what long-term sustainability means!



THE
END

...OR IS IT?

"Let me through please—I'm an aromatherapist"

STUFF

