Economics, Energy & Wind

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Scottish Climate & Energy Forum

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Scottish Climate & Energy Forum

Association of sceptics who think:

- *The world warmed in the 20th century*
- *CO2 is rising*
- *CO2 is a greenhouse gas*
- *The greenhouse effect of doubling CO2 in the atmosphere is about 1C*
- *The climate models do not work*

My Experience

- *MBA*
- *Became interested in energy economics through the BWEA & SPREG*
- *Researched development of renewable energy industry*
- *Became sceptic of wind policy then climate*

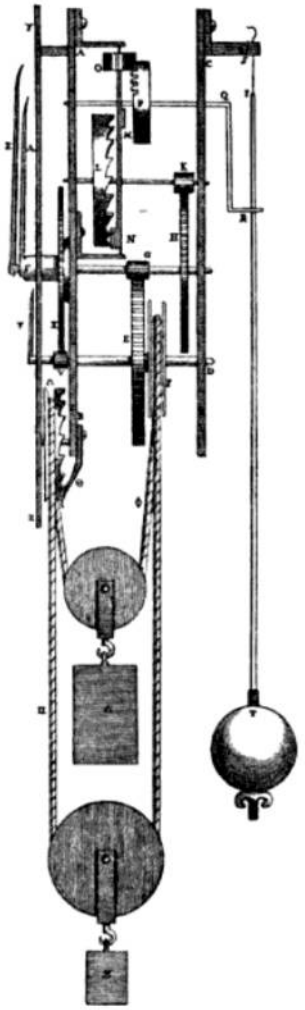
What is Energy

"ENERGY IS THE POWER TO MAKE US DO THINGS"

Alexander Haseler (Age 5)

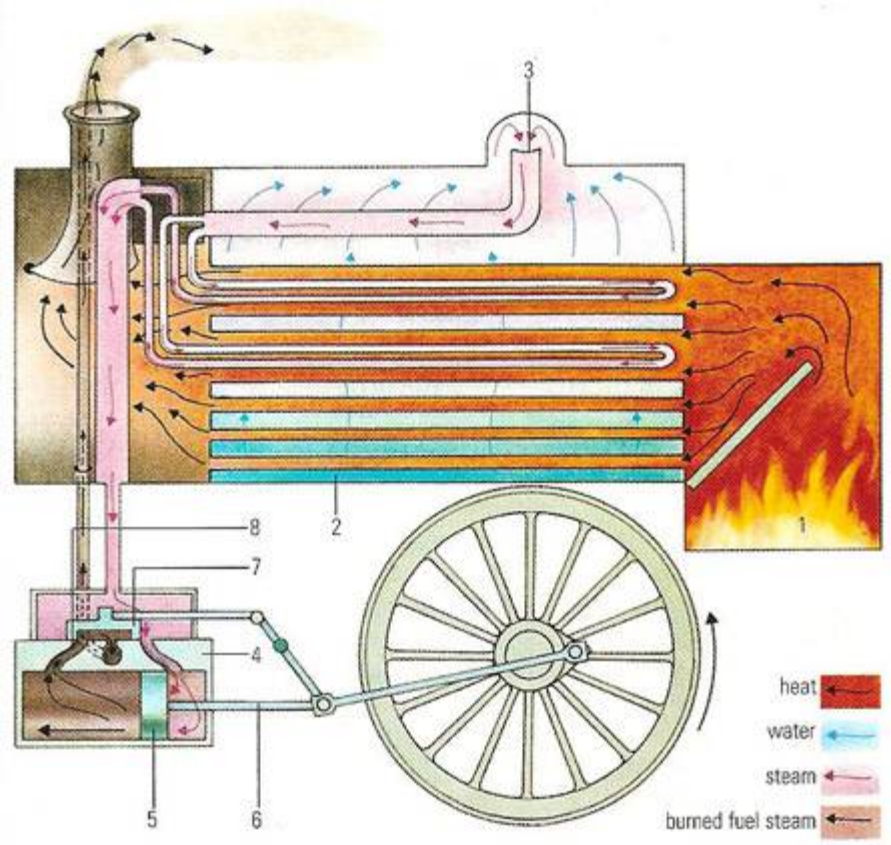
Coriolis: Energy is work done

- Work is done by winding clock to lift the weight
- As the weight falls it turns the clock dial
- The weight descending replaces someone working



The age of steam

- Burning coal produces steam that does work
- Replacing men or animals if cheaper
- But workers still needed



GDP

- GDP = total earnings from work
  (inflation adjusted)
  (+ a few other things)

- Rising GDP = more earnings

Earnings  Spending

A basket of goods

- Inflation calculated by the cost of a typical basket of goods
- If cost goes up 10% inflation is 10%
- Rising GDP means that on average we can buy a bigger basket of goods

Both Energy & GDP equal work

- Energy:
  the work done by a unit of energy

- GDP per person:
  the basket of goods that can be purchased by
  the work done by the average worker

Energy increases prosperity

- Early man had no clothes, no fire, few tools
- Obtained energy to warm from food

- Fire warms without burning our calories
- Our standard of living improved

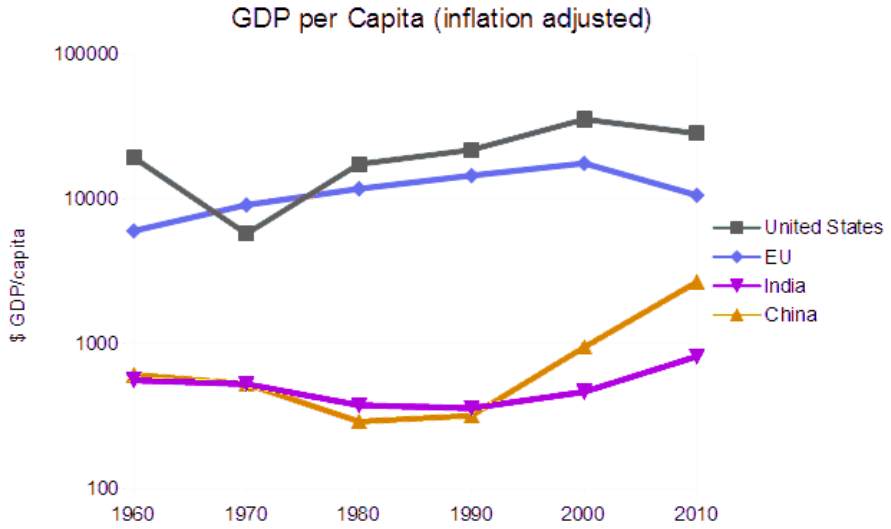
Energy increases prosperity

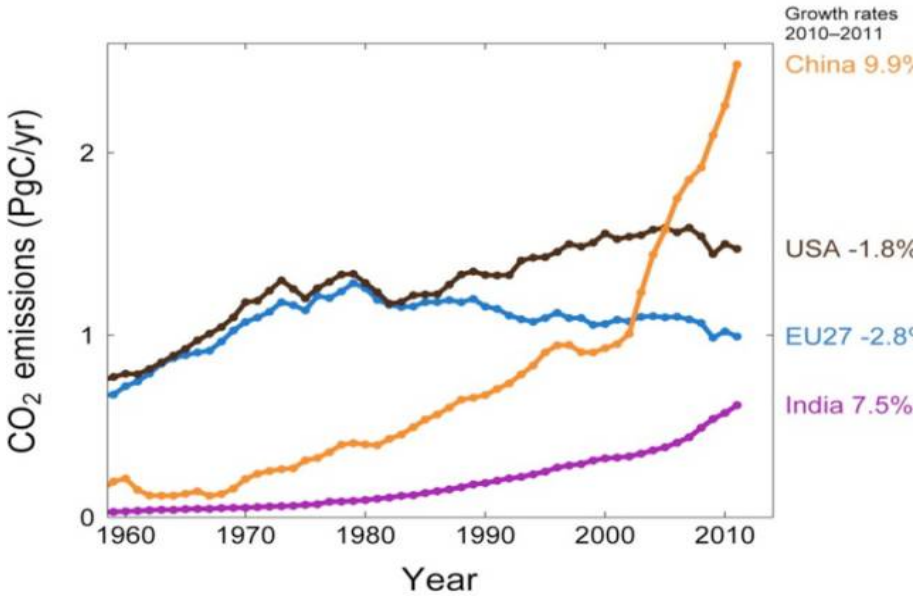
- Domesticated animals work
- Energy from their food
- Increased prosperity
- Increased work done per person
- Increased energy consumed per person

Energy ∝ GDP

- World Energy is a proxy for world GDP
- Energy use does not increase as a result of rising GDP,
- Rising GDP and rising energy use are the same thing!

Problem with Green economics





Energy Usage

GDP (inflation adjusted)

Energy saving schemes don't work

→ £ →

- Schemes to save energy
- Save money
- More money
- We spend it things that consume energy

Energy Costs

- In a free market cost is minimised
- Cost $\propto$ Energy
- In a free market energy use is minimised
- Added cost = added energy consumption

Wind is free?

- So is coal, oil & gas – until you count the cost

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Conclusion

As the added cost approaches twice the cost
of the energy cost for manufacturing
we approach the point where ...

more energy is consumed
gathering the energy source
than is produced
by the energy source.

A Net Energy Output?

Technology	£/Mwh	% of coal
Coal	18.81	0%
Gas	25.935	38%
Hydro	31.35	67%
Wind onshore	35.91	91%
Gas + CO2 capture	41.61	121%
Coal + CO2 capture	43.035	129%
Photovoltaic	68.4	264%