



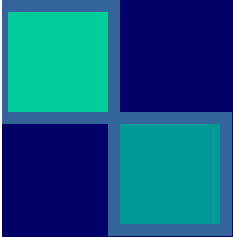

Nuclear power - an unlikely prospect

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An analysis of common perceptions




World's primary energy

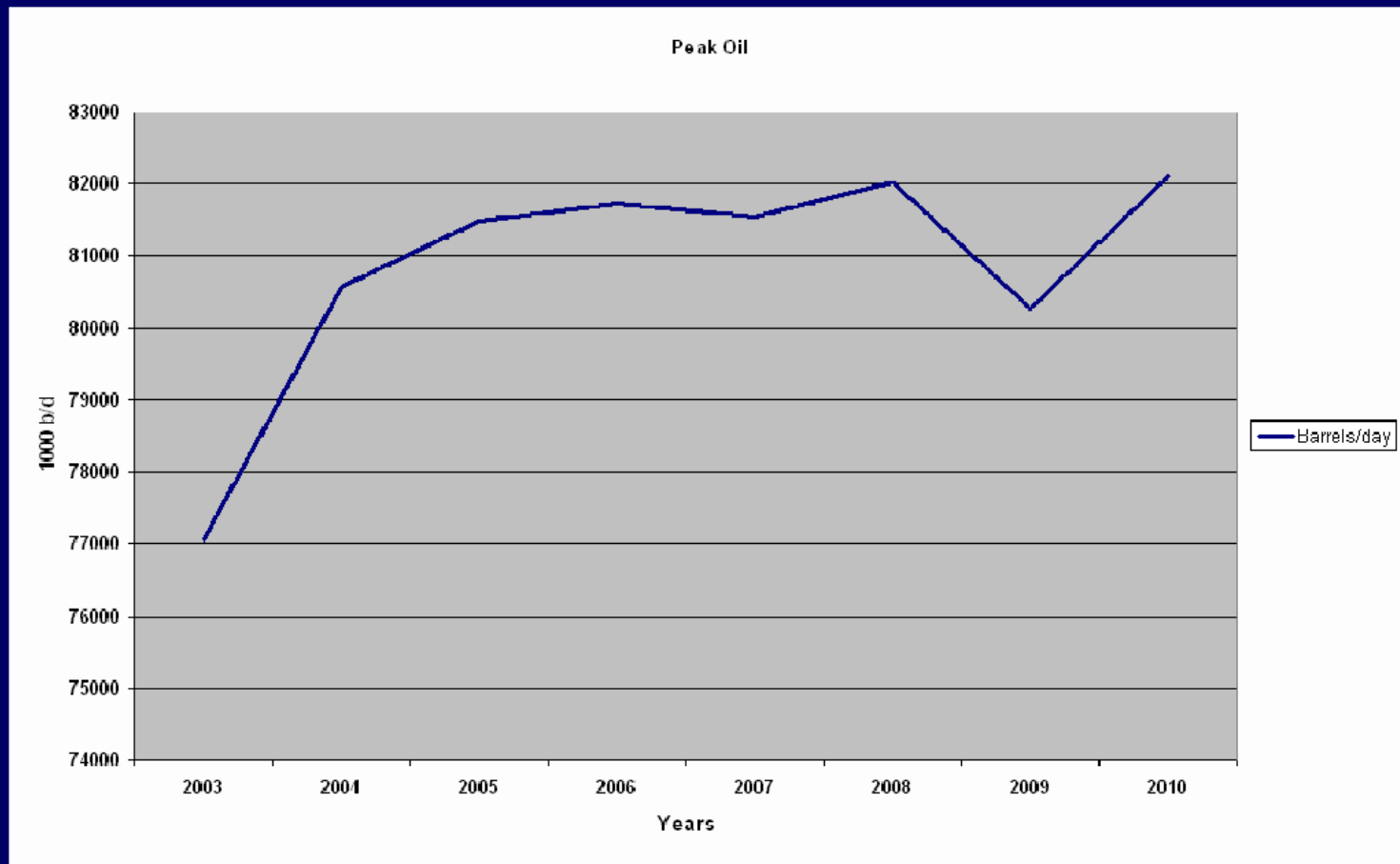
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- BP's Statistical Review of World Energy
 - World's primary energy 2010 – 88 Gb/a
 - Oil 33.6%; Gas 23.8%; Coal 30.5%
 - Hydro 6.5%; Nuclear 5.2%;
 - Renewables 1.3%
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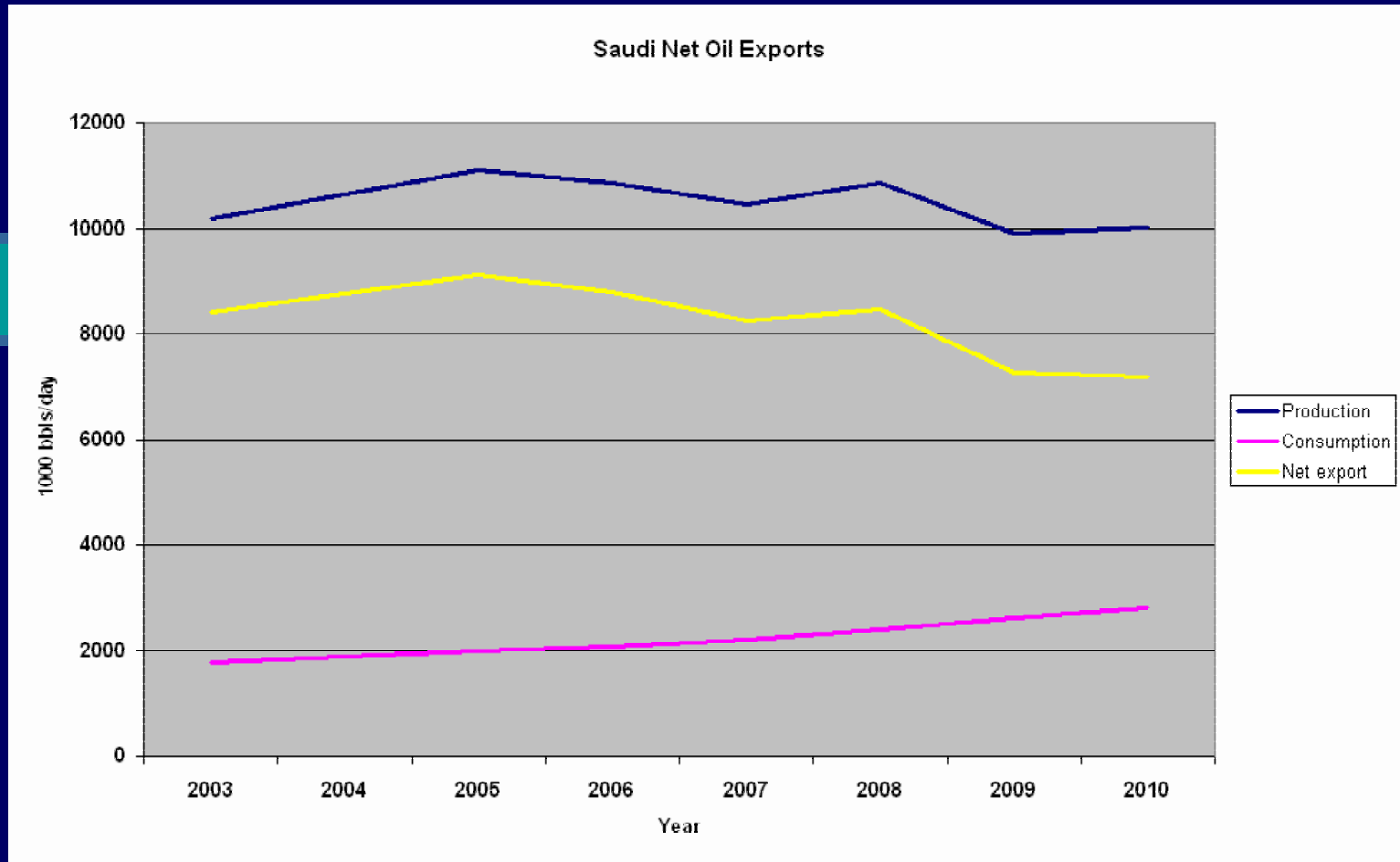
A peak in global oil production?

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- BP's review – since 2005 “all-oils” production has “plateaued” at 30 Gb/a
 - It may be its on its global peak
 - Saudi Arabia passed its national peak in 2005
 - The UK's national oil peak was in 1999
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Global oil production

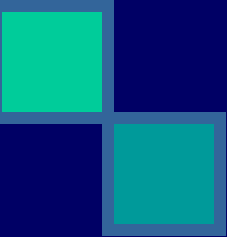




BP's Statistical Review 2010



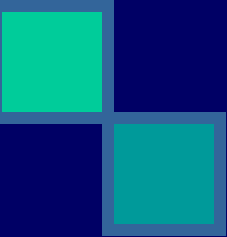



The UK's energy consumption is falling

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- Since 2005 crude oil consumption has fallen 12%
 - Since 2004 gas consumption has fallen 3.7%
 - Since 2006 coal consumption has fallen 23.7%
 - In 2005 electricity generation was 397.3 TWh
 - In 2010 it was but 381.2 TWh - a fall of 4%
 - Since 2005 primary energy consumption has fallen by 8.4%
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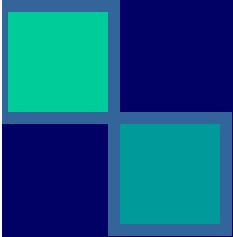



Mobility of people and goods depends on petrol, diesel and jet fuel

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- Liquid fuels can be synthesised from gas (GTL) with a thermal penalty of 50% and from coal with a penalty of 60% of heating values
 - Gas and coal can only replace oil at twice the rate of depletion
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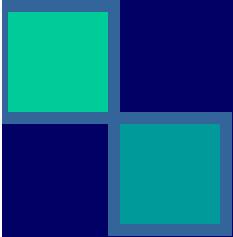



Transport by electricity

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- Personal and local transport by battery
 - Batteries useless for long distance goods
 - Electricity useless for air transport
 - Best for trams, trolleybuses and trains
 - Total rail electrification would free diesel for road and sea transport
 - Emptying motorways will provide routes for rail
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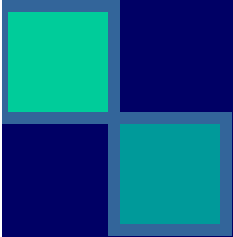



Electricity market

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- Reduction in road and air traffic will reduce associated electricity consumption
 - Better insulation will reduce heating
 - Domestic, industrial and agricultural solar and wind power will reduce market
 - Loss of revenue from free electricity
 - Grid only extended for off-shore wind
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Nuclear power

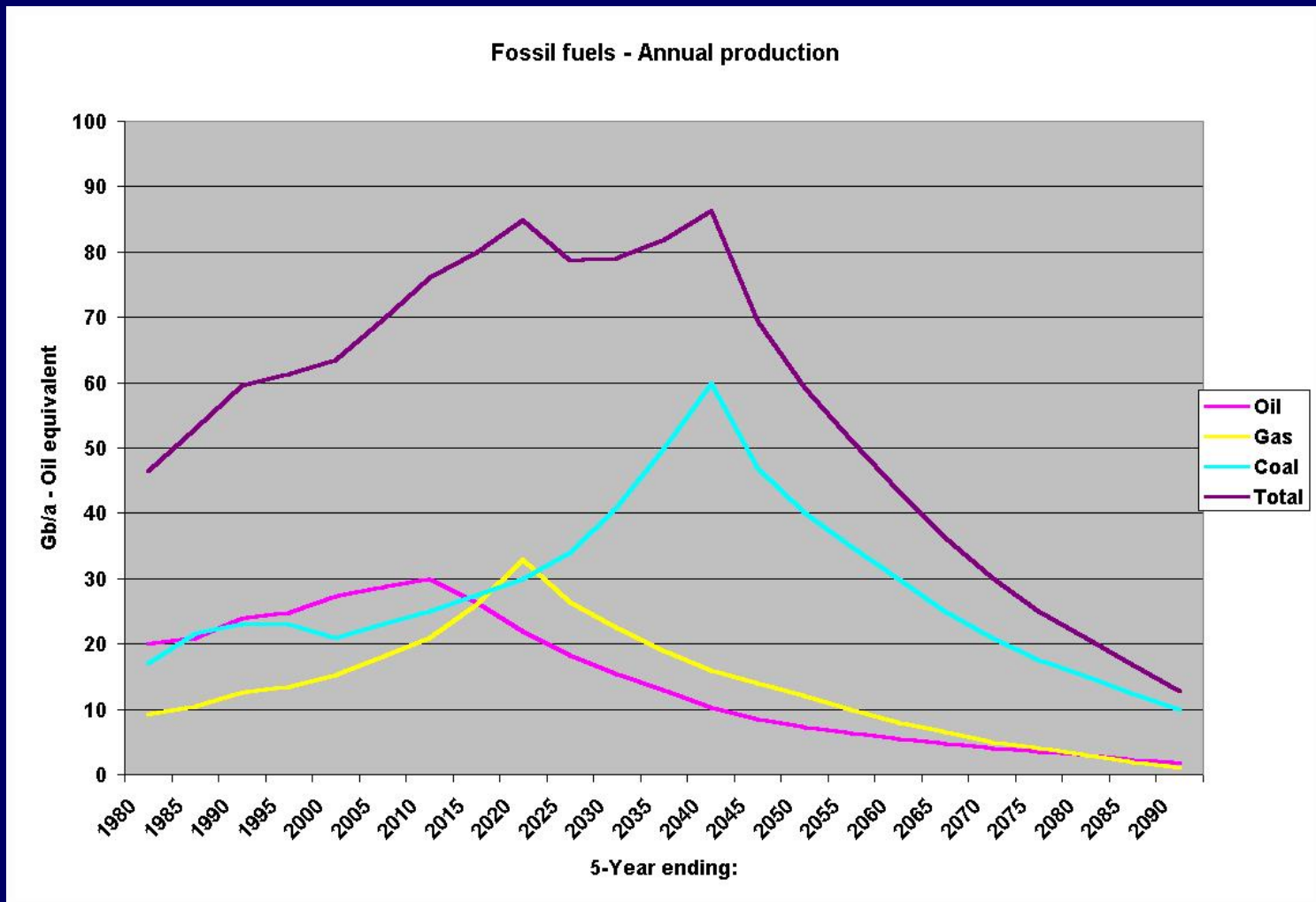
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- Just 5% of world primary energy at low carbon offers little alleviation of climate change
 - UK imports its nuclear fuel and technology
 - Canadian and Oz uranium mining in decline
 - EPR's delayed, overspent, replaced with ATMEA-1
 - AP1000 assessment 'paused' – non-metric design
 - EdF in France in financial meltdown
 - DECC incentives inadequate, investment unlikely
 - BE will be re-nationalised for decommissioning
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Climate change

- By 2100 fossil fuels virtually gone, situation self-correcting, temperatures will moderate
 - The problem for man is the lack of fossil fuels not imagined consequences of burning them
 - Water grid for irrigation would, with atmospheric carbon, increase plant growth for agriculture and fuel crops and control floods
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Oil, gas and coal





Solutions?

- Tailor our energy consumption to that from renewables – less than 25% of now
 - Lack of movement compensated by Internet and small devices
 - Localisation instead of globalisation
 - The “Big Society” is the answer
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