



International Energy Association

Woodfuel Supply Chain – Sharing Experience

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Wednesday September 17th 2008

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Projections & Forecasts

- **Projections** simply take recent events and then find
 - The trend line and
 - Extrapolate this forward into the future assuming none of the fundamentals have changed
- Most newspaper articles are based on projections with limited attempts to forecast
- **Forecasts** take the projections and then adapt them to take account of the changed circumstances and can suggest to us what we can do to change the trend line

A new Emerging World Order

- Year 2008 is the year when more people in the world will live in an urban situation than a rural situation
- Moving from subsistence farming to more sophisticated tastes
- With an increased wealth leading to increased demand for
 - Food
 - energy
- The emerging economies of the East:
 - China
 - India and the rest of Asia
- The increased power of the oil and gas rich countries
 - Russia and the countries of the former USSR
 - Angola
 - South America

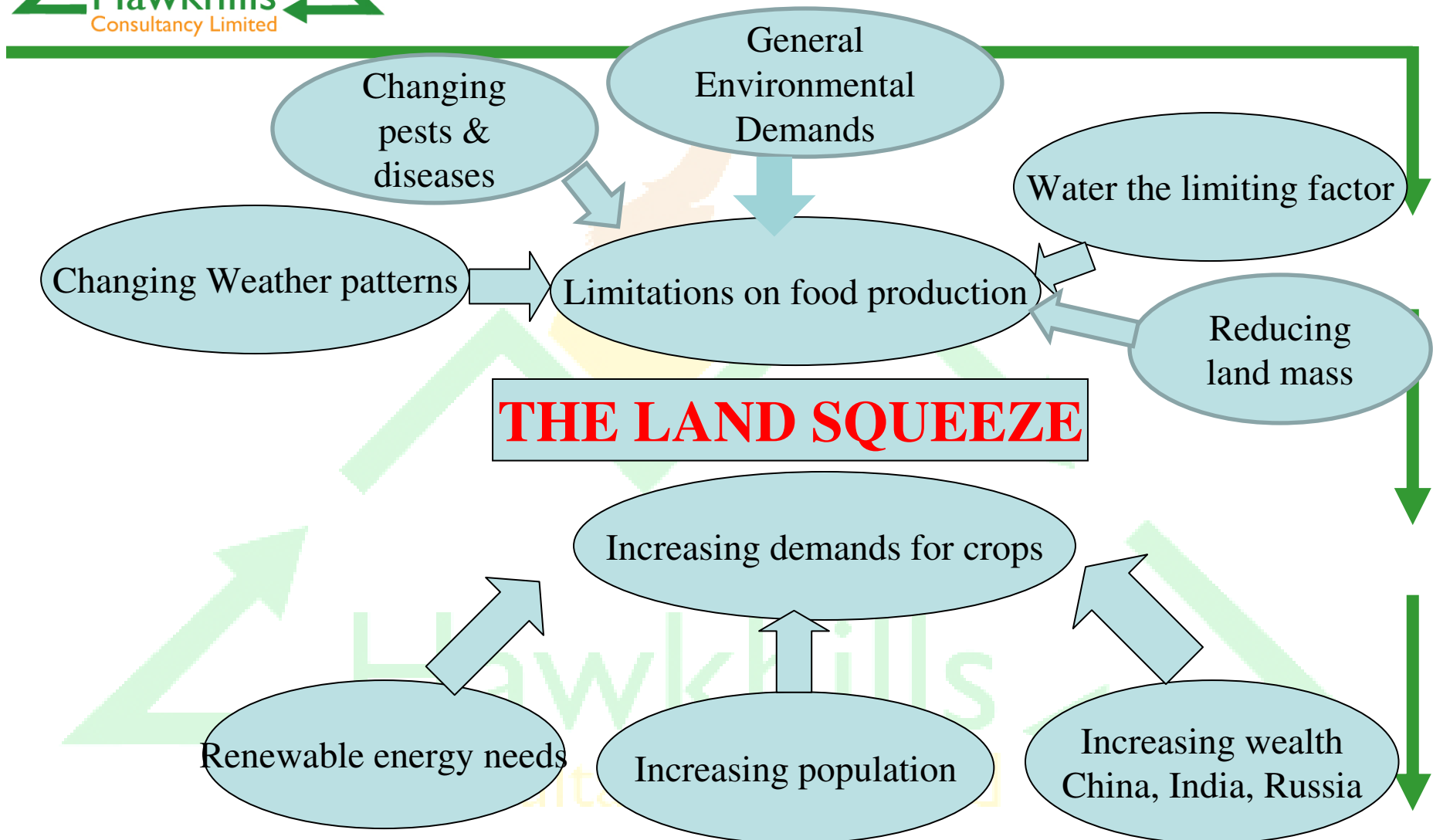


With the effects of Climate Change

- Not just from Carbon dioxide but also
 - Methane 23 times as damaging
 - Nitrous oxide 296 times as damaging
- Creates a need to reduce all GHG emissions urgently and reduce our GHG “footprint”
- Changing Weather patterns affecting our ability to produce
 - Water as a limiting factor
 - New pests and diseases of crops and animals
 - Rising temperatures inhibiting the ability to grow certain crops in some areas and helping in others
- Rising sea levels proving difficult for countries with low lying coastal areas

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Demand For Land



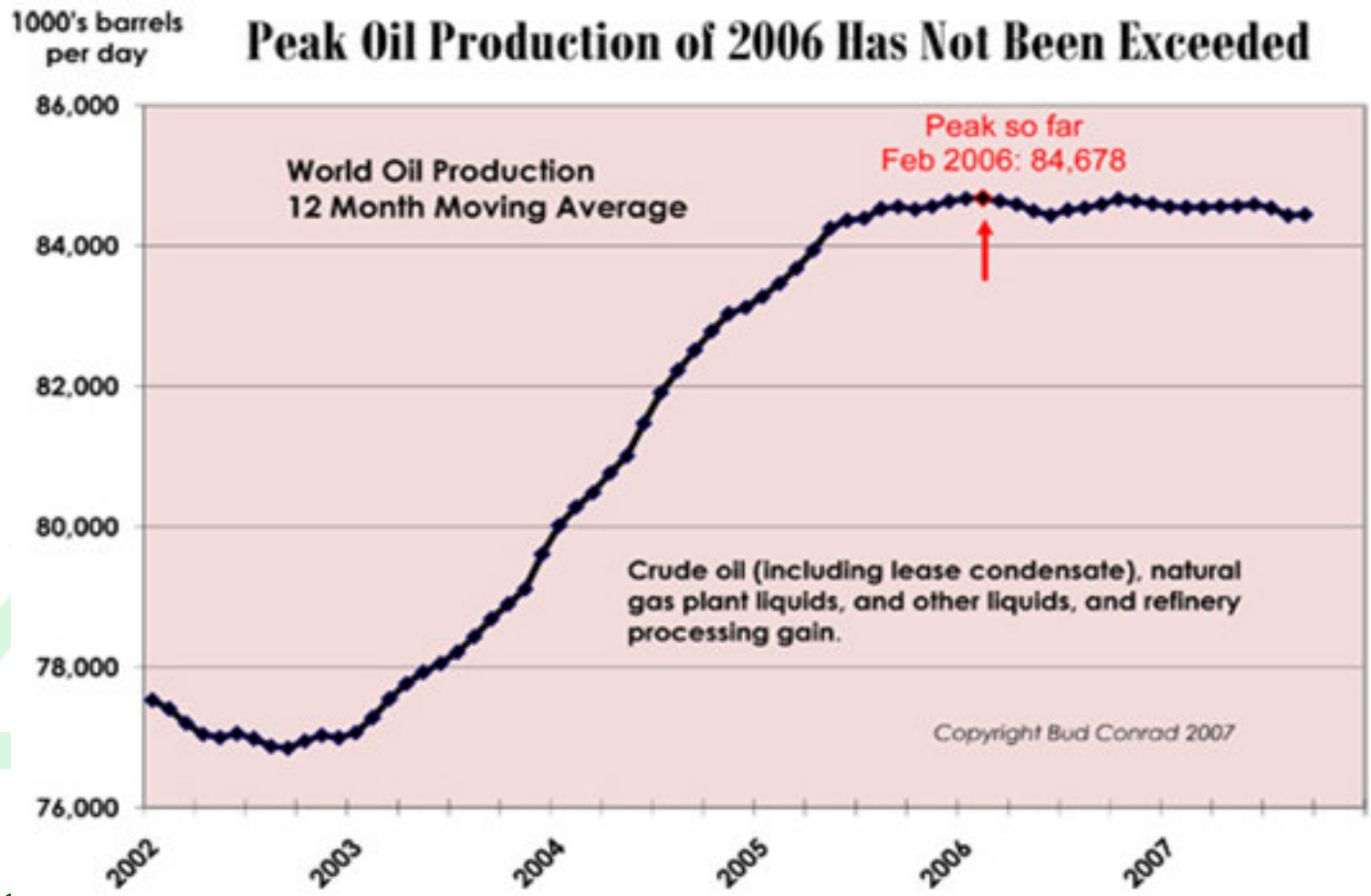


Brent Crude Oil Prices 2007/08

\$US per barrel



Oil a finite resource?

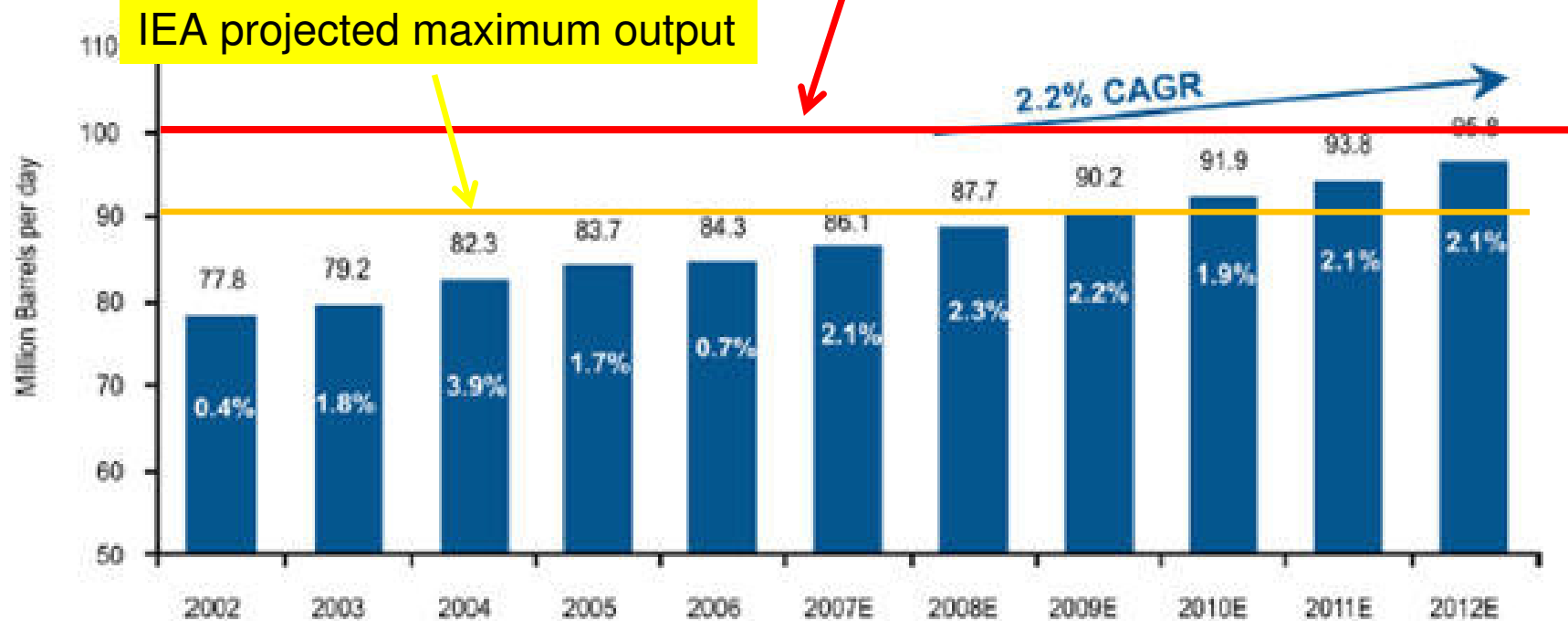


And where is that oil supply?

- Conventional oil reserves 1.75×10^{12} bbl
- Tar Sands & Shales currently represent around 2/3rds of total oil reserves found principally in
 - Canada: Athabasca Tar Sands 1.7×10^{12} bbl
 - Venezuelan Ormoco Tar Sands 1.8×10^{12} bbl
- Environmental Extraction Cost of Tar Sands & Shales
 - In Canada they cover 140,000 Kms²
 - High water usage to extract
 - High energy cost to extract

IEA Predictions in Growth in Oil demand against supply

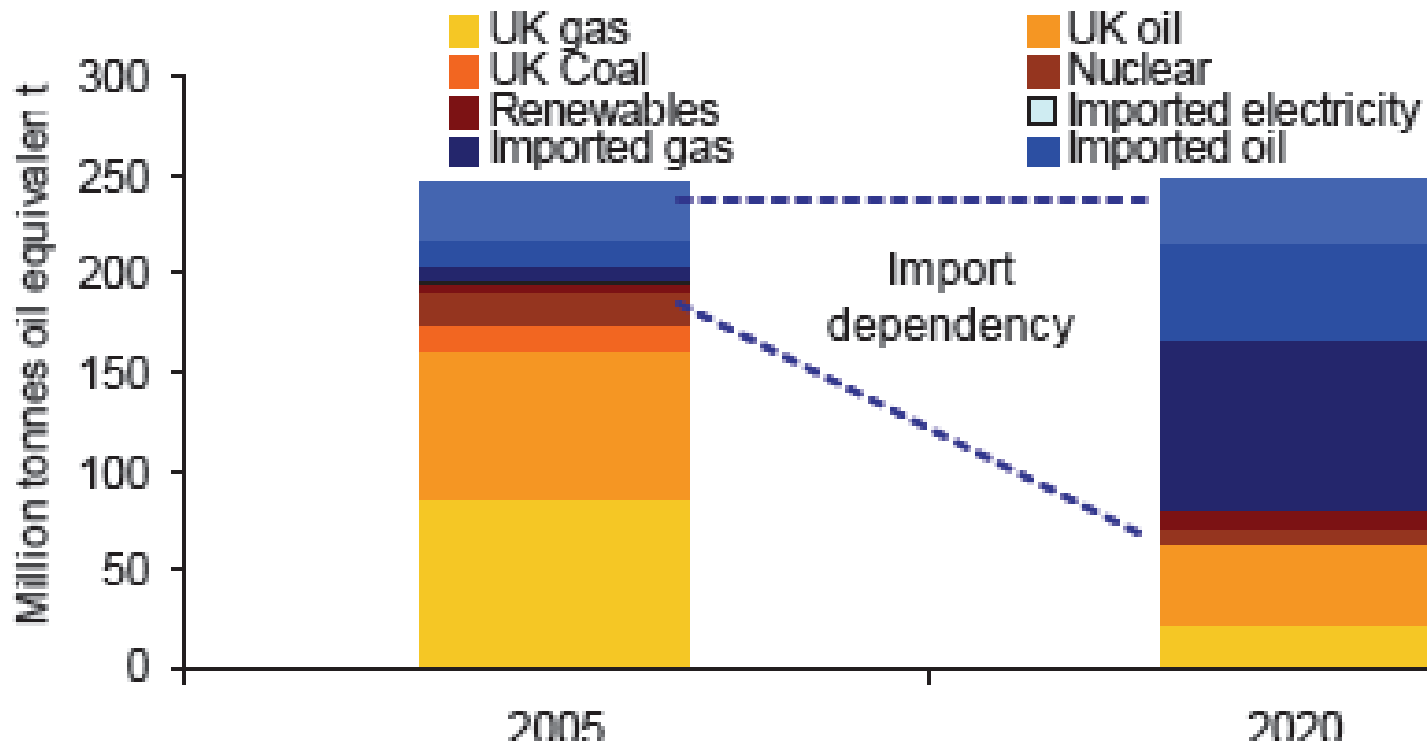
“Total” Projected maximum production level



Source: International Energy Agency

UK's declining self sufficiency

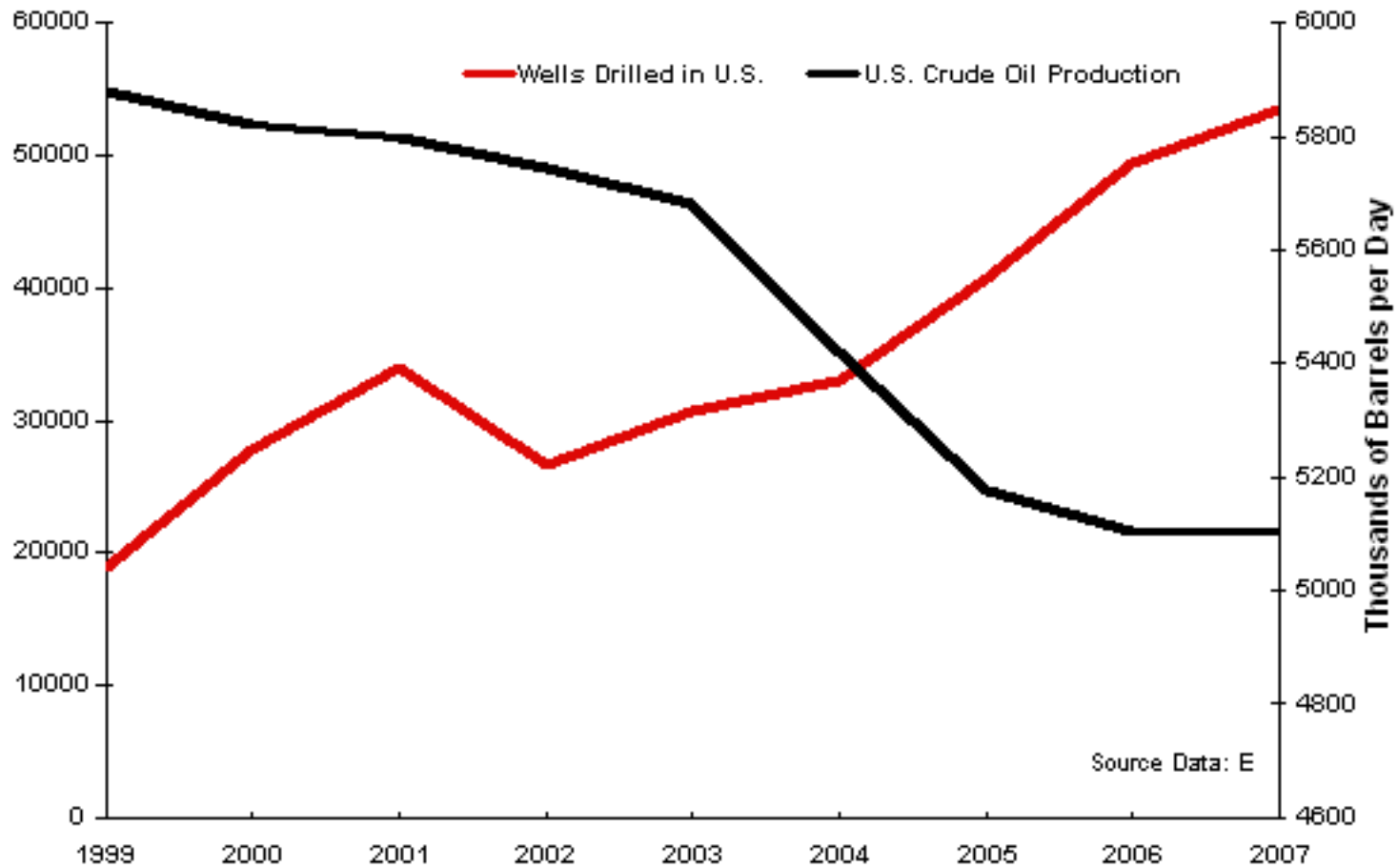
The UK will be importing around two thirds of its energy by 2020¹





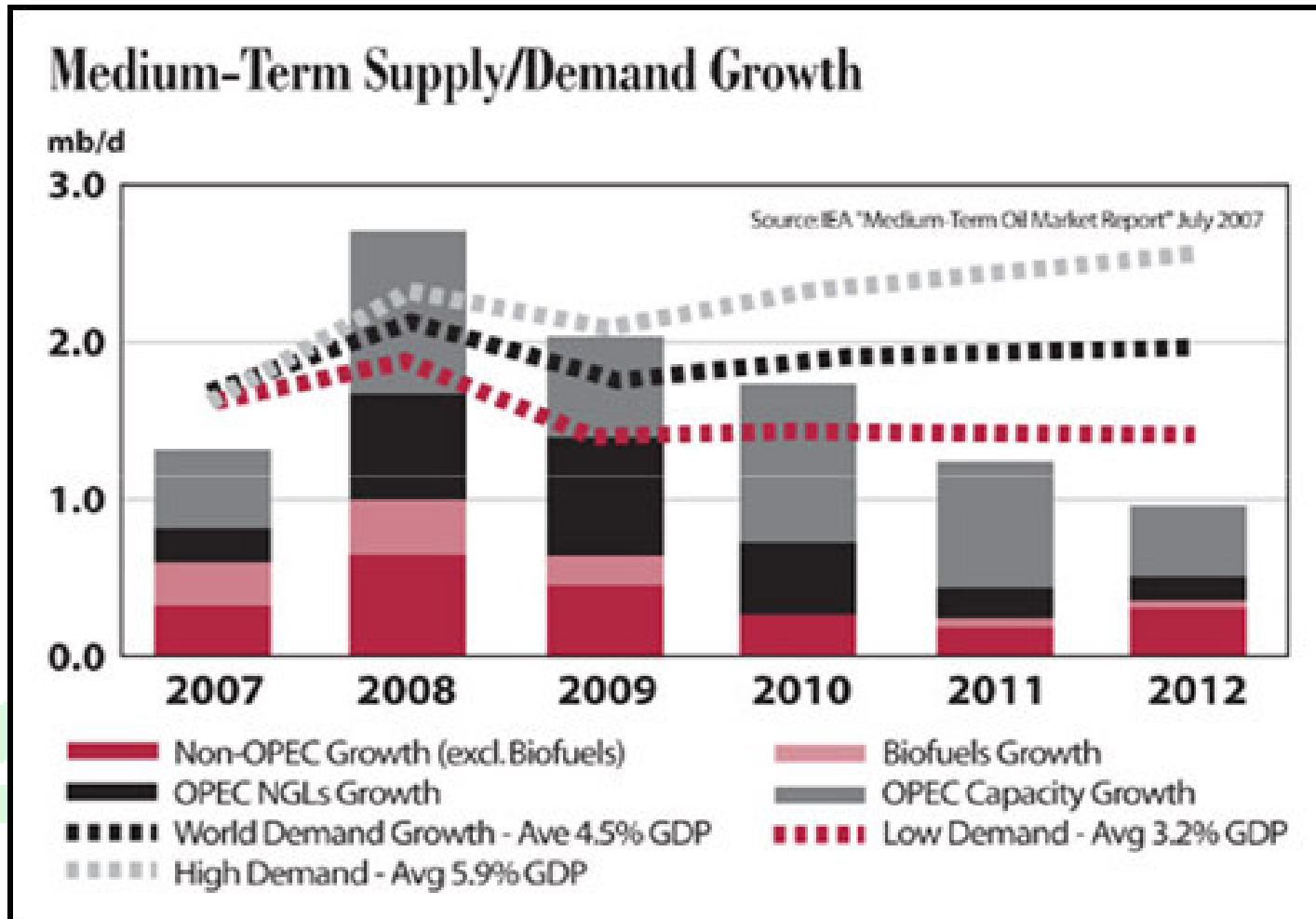
Declining US Oil Production

More Drilling, Less Oil



10/31/2008

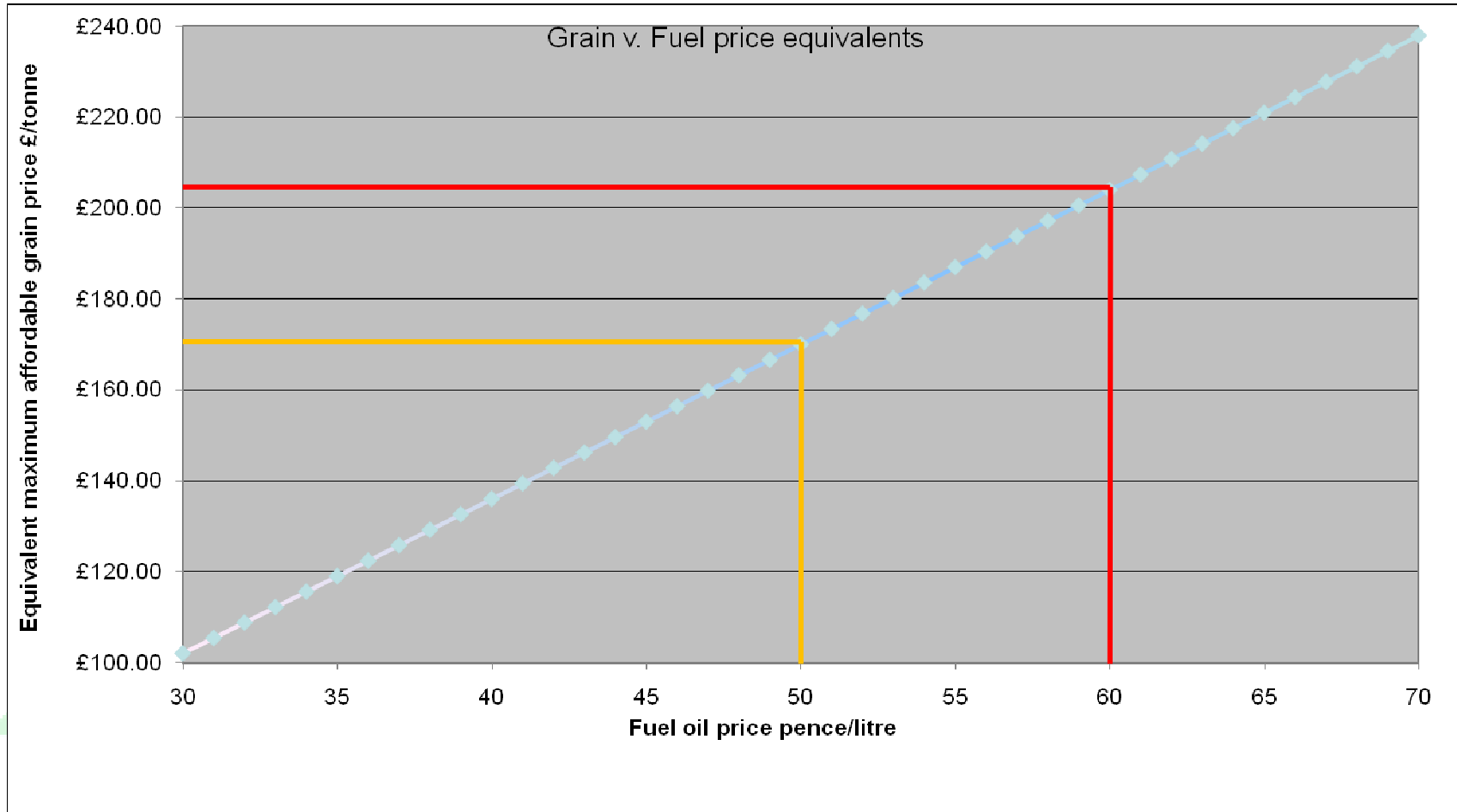
Supply & Demand growth trends



And For Food V Fuel

- The intrinsic energy value of food will increasingly underpin the value of crop products
- In general crop products all have the same energy content at 18GJ per tonne (oilseed rape 19 GJ per tonne)
- So as oil prices rise then the energy underpinning value rises irrespective on the demand for the product
- So there is a tension between the two BUT
- NGOs have argued in the past that low commodity prices depressed by the CAP have damaged 3rd World Countries
- Price rises in basic food commodities have the *potential* to benefit 3rd World Countries more. The issue is more about who gets the cake
 - The 3rd world farmer or
 - The global corporations

Biomass At 15% moisture equivalent to burning oil





The UK Biomass Task Force 2004/05

- Established by the Prime Minister and Secretary of State
- Its remit was to identify the potential of Biomass as a renewable energy source and the barriers that were preventing its uptake
- It immediately identified that renewable heat was the area that had
 - The most potential
 - With the lowest capital investment needs
 - And the lowest carbon reduction costs
- It also identified that within the UK we have an enormous amount of resource in the Forestry and woodland economies that was currently being wasted
- “The task of optimising the contribution of biomass energy to renewable energy targets and to sustainable farming, forestry and rural economy objectives **requires implementation through a holistic, cross-departmental approach in Government.**”



UK Biomass Task Force (2005) identified the barriers to progress as:

- Ignorance of the potential
- Ignorance of the availability
- Ignorance of the transformation technologies that are available
- Ignorance of the economic dynamics
- Ignorance of the potential carbon savings
- **IGNORANCE**

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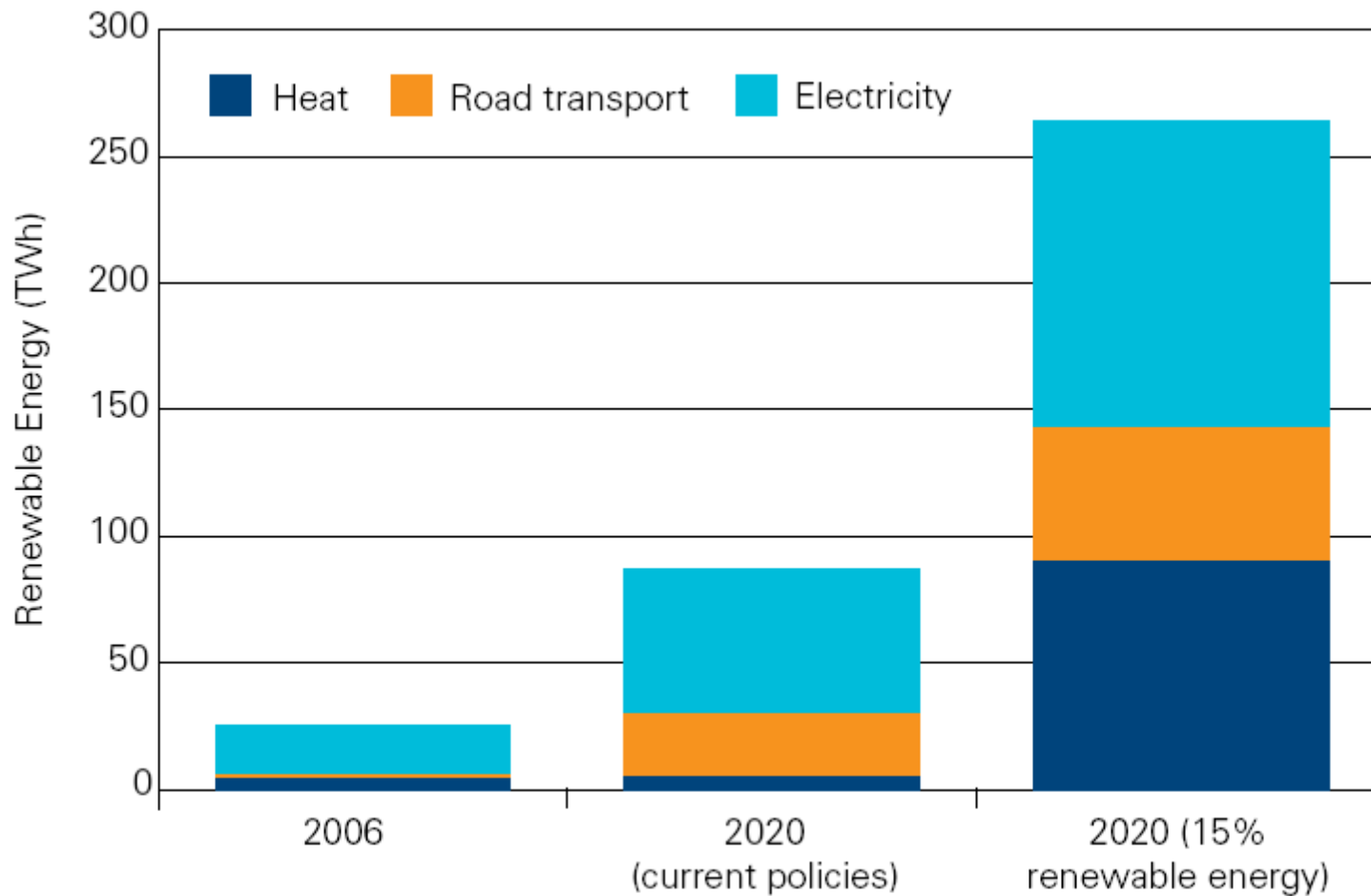
So where are we today in showing **Renewable Energy is important?**

- What are the issues?
 - Ignorance from the consumer
 - Ignorance amongst the Government officials
 - Ignorance amongst the politicians
 - Ignorance amongst the consultants
 - Ignorance amongst the engineers
 - Ignorance amongst the architects
- Lack of a credible, structured supply chain
- Need for an established fuel quality control system

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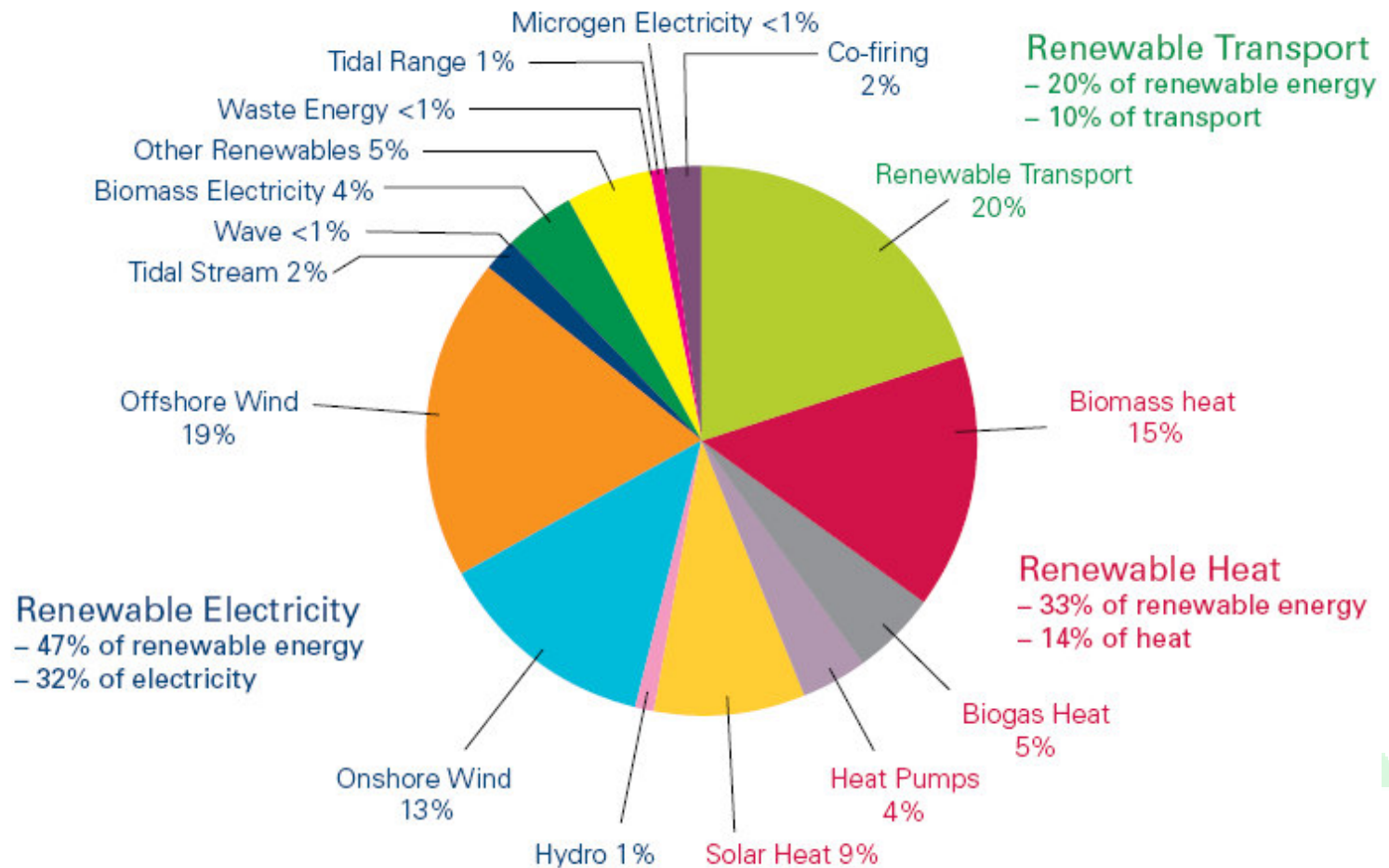


The UK Renewable Energy Consultation (DBERR)



Source: BERR analysis

Illustrative renewable technology breakdown to reach 2020 target (DBERR Consultation)



Source: Redpoint et al (2008), NERA (2008), Department for Transport estimates.³



UK Planning Policy Changes needed (DBERR Consultation)

- development of a suite of stronger National Policy Statements for renewables and electricity networks that would set a clear, comprehensive, national policy framework for local planning authorities;
- helping the planning system to deliver, by agreeing a clear deployment strategy at regional level similar to the approach established for housing;
- the creation of an expert body to provide specialist advice on renewable energy to local planners and developers;
- further extension of Permitted Development Rights for domestic microgeneration to include wind turbines and air source heat pumps, extension to smaller-scale non domestic renewables and using Local Development Orders to speed up the re-powering of existing wind turbines.



Options for increasing use of Renewable Heat (DBERR Consultation)

- introducing a new heat incentive mechanism, such as a Renewable Heat Obligation or a Renewable Heat Incentive, akin to a feed-in tariff, to provide the financial stimulus for new renewable heat deployment;
- improving the regulation of biomass heating systems to ensure that their rollout minimises the impact on air quality standards;
- providing regulatory incentives to install renewable heat technologies in new buildings through the implementation of the zero-carbon homes and non-domestic buildings initiatives;
- providing better information to consumers, businesses and Local Authorities on the potential of renewable heat, including for the planning process.

Remember:

- The Base objective is
 - To reduce the overall carbon footprint
 - To develop the most efficient supply chains and conversion processes
- That energy is used in 3 major areas
 - Transport
 - Electricity
 - Heat
- The simplest and most efficient conversion is biomass to
 - Heat alone or
 - Combined heat and power



And the Resources

- Need not lead to a dispute between food and fuel but
- There is an inevitable relationship between the two
- Forestry and woodland are a much underused and undervalued resource
- Scrap timber also has enormous potential
 - Up to 10 million tonnes are put to land fill each year in UK
- Food “Waste” and bye products can also be turned to advantage either through anaerobic digestion or combustion
- New technologies are being developed to further improve the conversion efficiency





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