The University Of Sheffield.

Post Fukushima: UK and local impact.

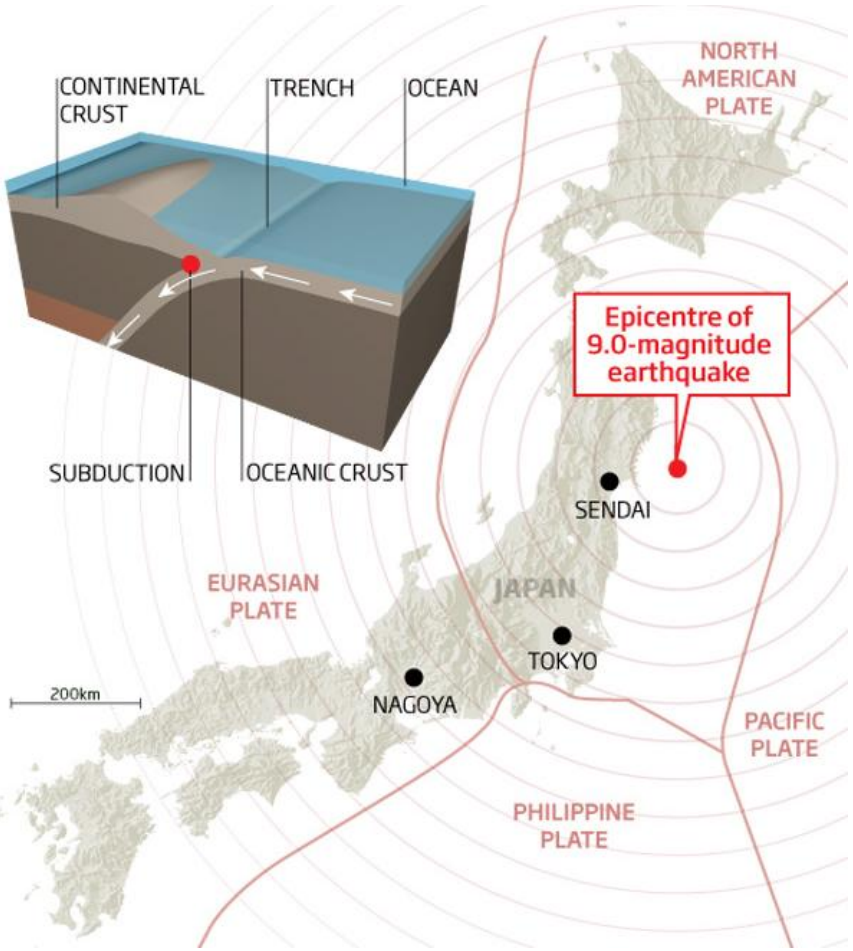
Neil Hyatt

Department of Materials Science & Engineering
The University of Sheffield

Post-Fukushima Symposium – 19 November 2012

The views expressed in this talk are the personal opinion of the speaker and do not necessarily reflect those of sponsors or funding agencies.

2011 Tōhoku earthquake and tsunami



11 March 2011,14:46 LT

16,0000 fatalities from earthquake / tsunami

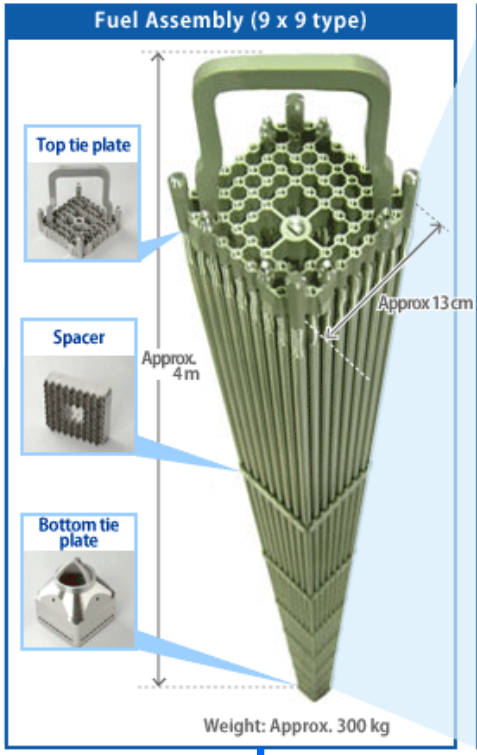
32 hospital cases from Fukushima NPP

2 workers treated for radiation exposure

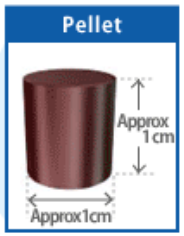
78,000 residents displaced

“Equivalent” of 5% Chernobyl release

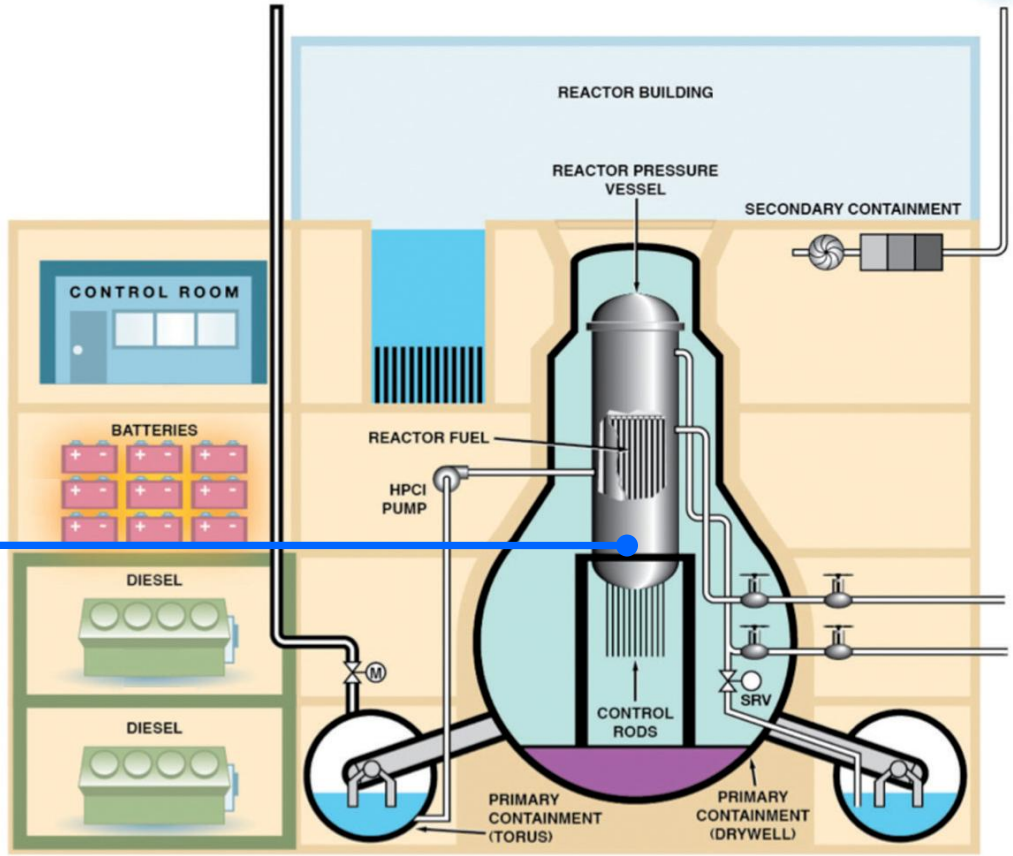
Energy from nuclear fission



◀ A metal pipe contains 350 pellets with both ends plugged. Those pellets are fixed with springs.



▲ Uranium powder is baked into the pellet form in a cylindrical shape. About eight grams of the pellet can produce electricity by that could support a normal household life for eight months.

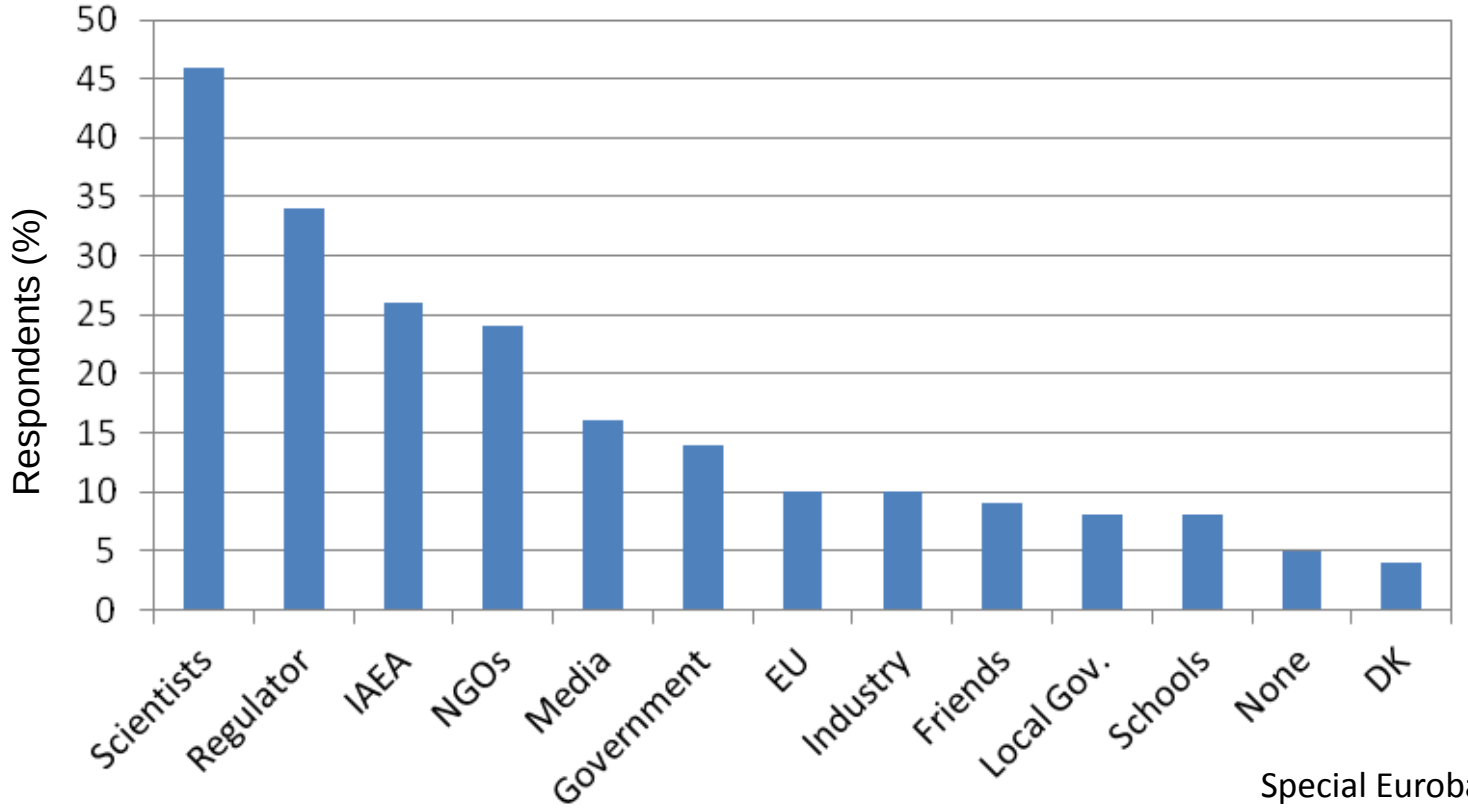


PSEG Power

The role of the regulator and public trust

Conclusion FR-1: *Consideration of the accident at Fukushima-1 against the ONR Safety Assessment Principles for design basis fault analysis and internal and external hazards has shown that the UK approach to identifying the design basis for nuclear facilities is sound for such initiating events.*

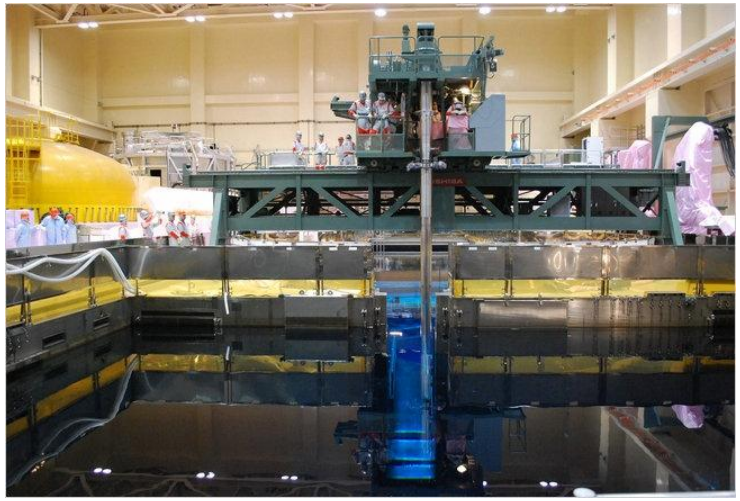
Which 3 of the following do you trust most to give you information about nuclear energy, especially nuclear safety?



Special Eurobarometer 324

The issue of spent fuel / waste storage

Conclusion FR-2: The Fukushima accident reinforces the need for the Government, the Nuclear Decommissioning Authority and the Sellafield Licensee to continue to pursue the Legacy Ponds and Silos remediation and retrievals programme with utmost vigour and determination.



The issue of lifetime extension

Conclusion FR-3: The mandatory requirement for UK nuclear site licensees to perform periodic reviews of their safety cases and submit them to ONR to permit continued operation provides a robust means of ensuring that operational facilities are adequately improved in line with advances in technology and standards, or otherwise shut down or decommissioned.

Hadley Freeman Aditya Chakrabortty Tanya Gold George Monbiot Gaby Hinsliff

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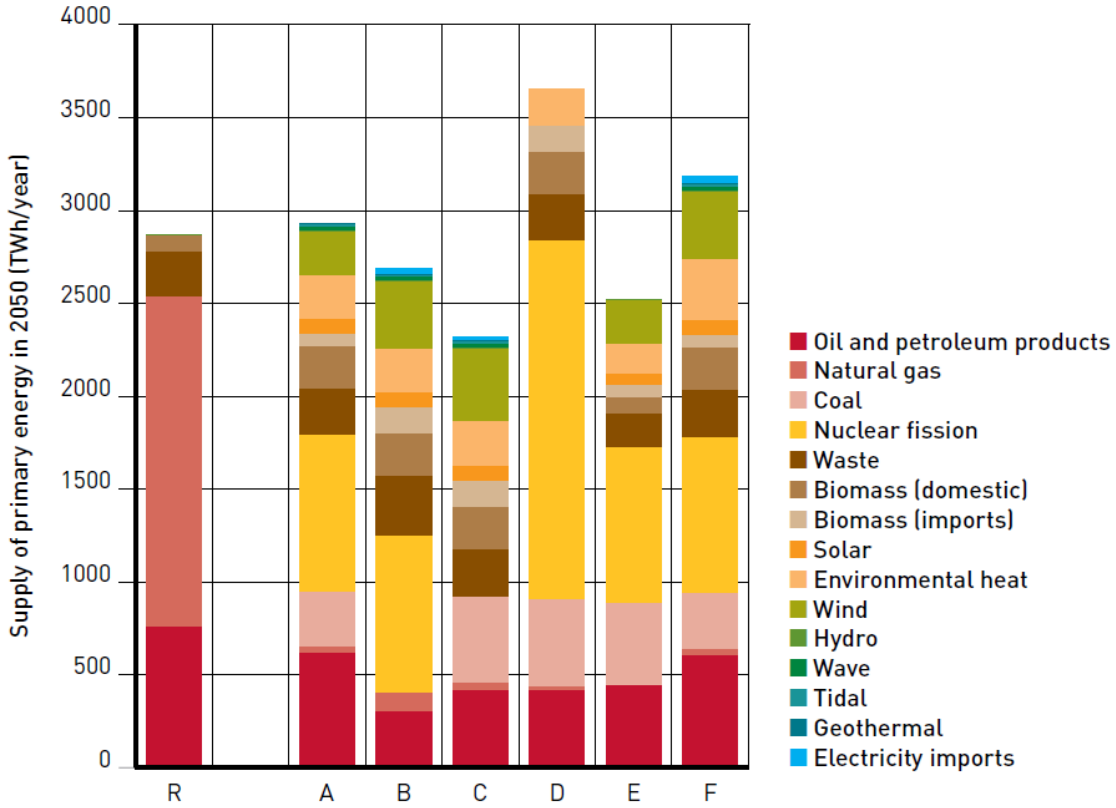
Champion leaves Chelsea flower show opens

Reprieve for nuclear reactors puts energy plans in doubt

Regulator in talks to extend life of power stations earmarked for closure

Teenager saw parents kill sister, court told

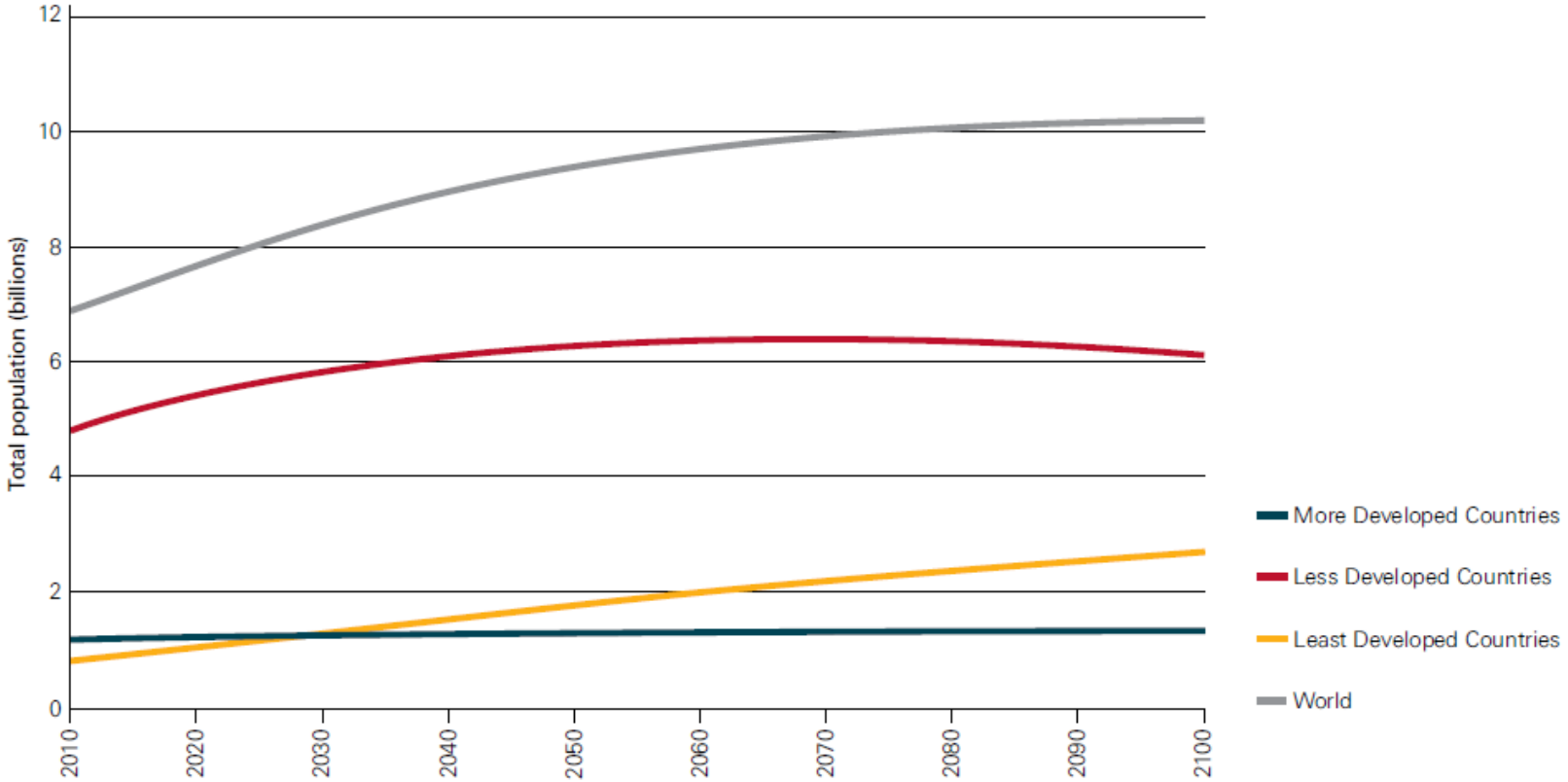
Ourselves alone: Syrian rebels cling to bullets and hope



DECC 2050 Pathways Calculator

Nuclear future?

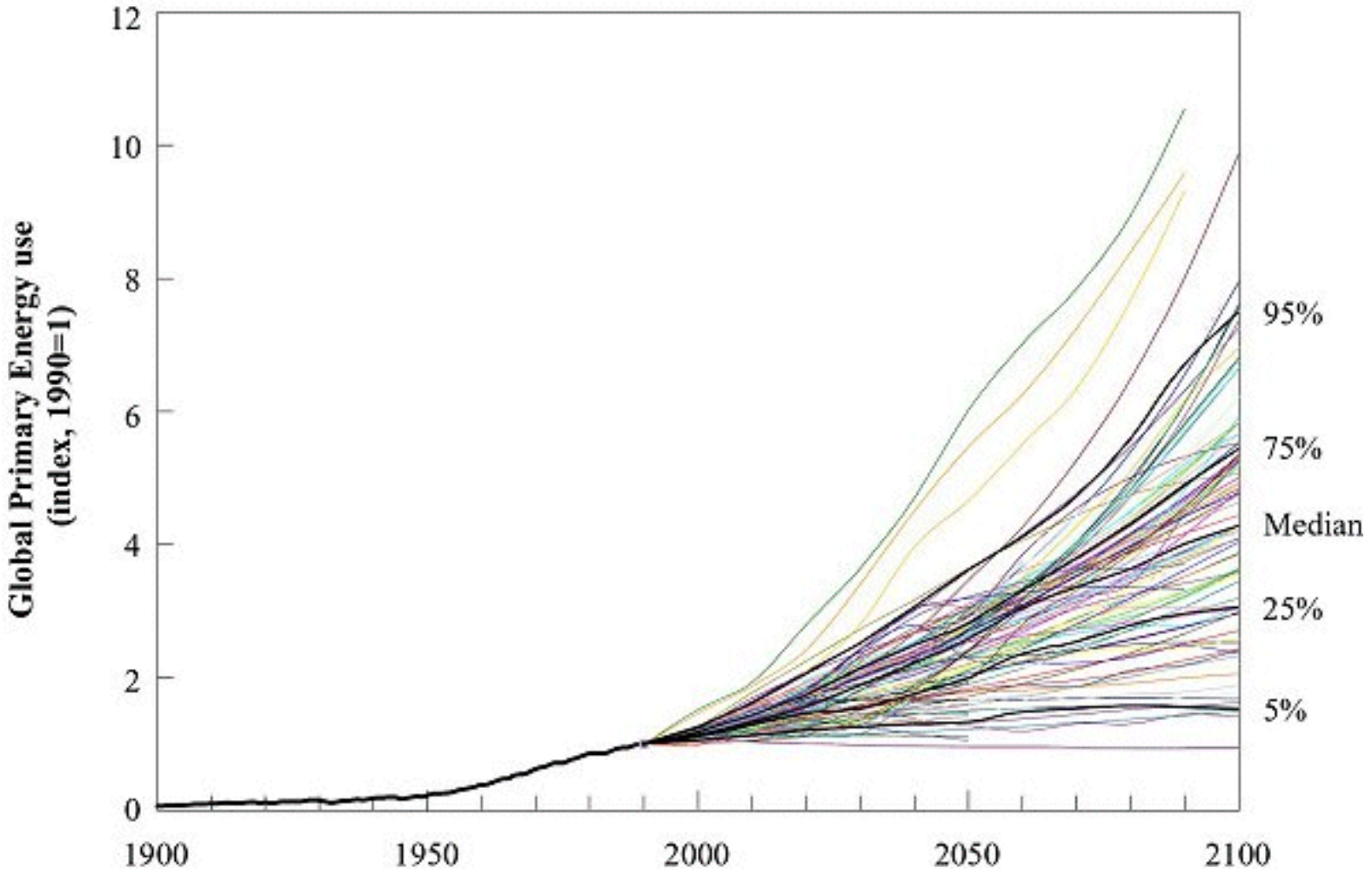
Figure 2.5 UN medium projections of total population size.
The More Developed Countries have been below replacement fertility for three decades, and are relatively stable. The average TFR of the Less Developed Countries (excluding Least) has fallen to 2.3; they are still growing rapidly due to demographic momentum, but with a small further decline in fertility will stabilise by the middle of the century. The Least Developed Countries are experiencing continued rapid growth at an average TFR of 4.1, and most of them need a substantial decline in fertility to reach stability.



Source: UNPD 2011

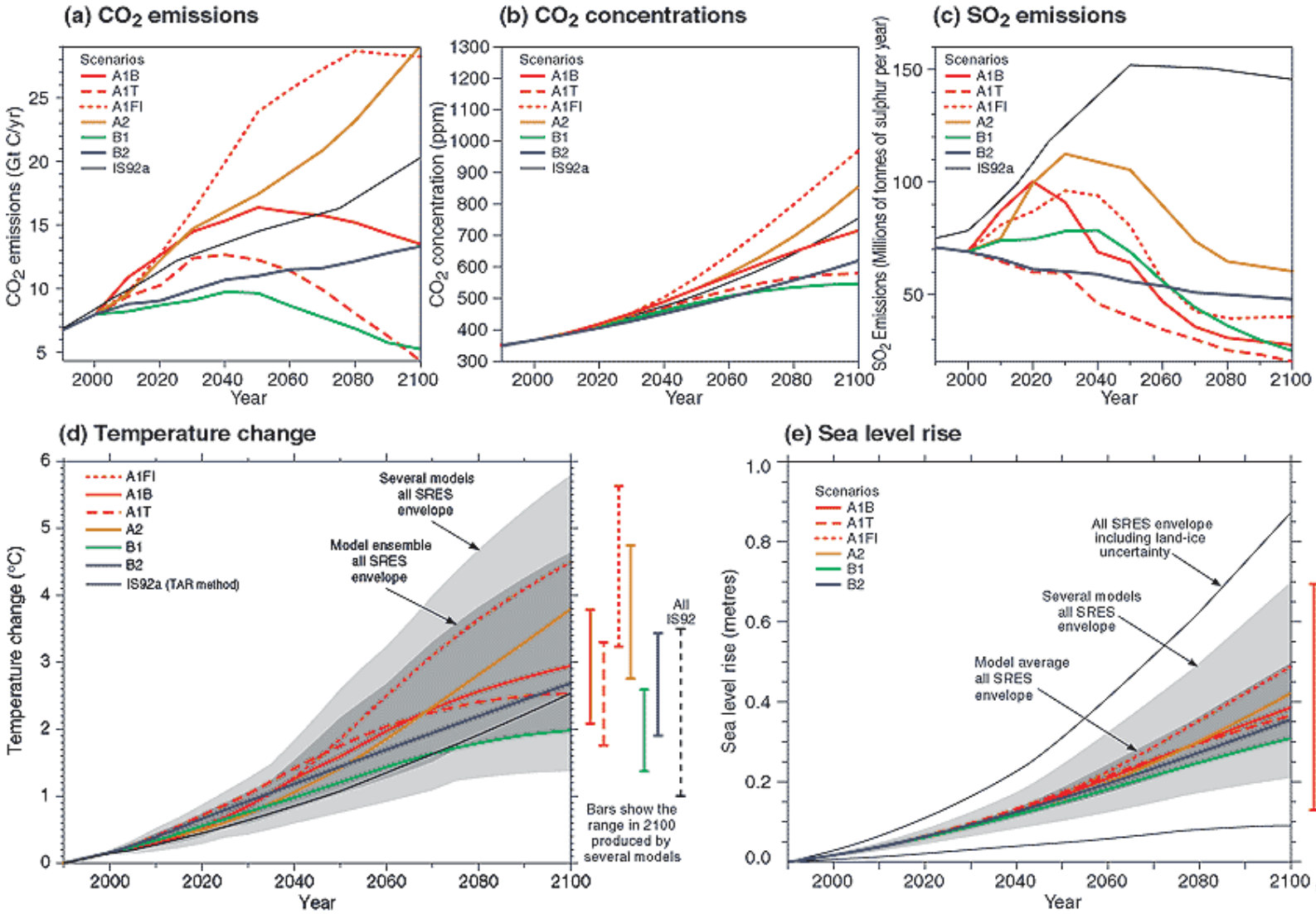
Royal Society, People and the planet, April 2012.

Nuclear future?



IPCC Special Report on Emission Scenarios (SRES)

Nuclear future?



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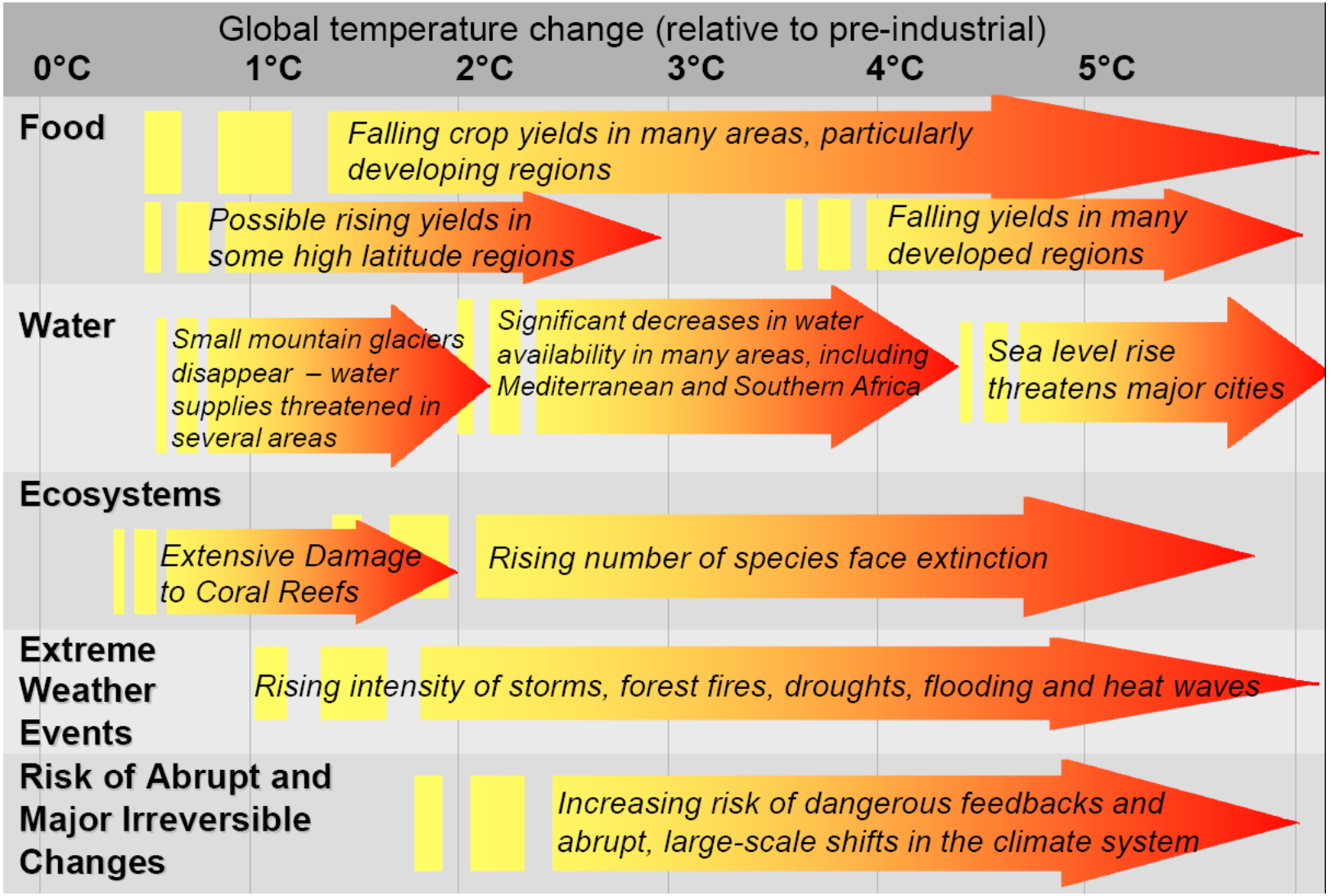


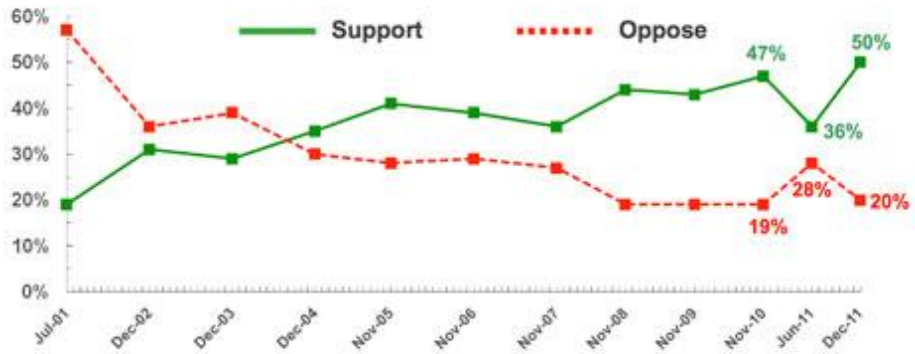
Stern Review: The Economics of Climate Change

The issue of business opportunities

Civil nuclear sectors contribute >£700 million to the UK economy.[1]

Planned 16 GW of nuclear will create >30,000 jobs in the supply chain.[2]

Global market £600 Bn for new build, £250 Bn for decommissioning (over 20 y).[3]



UK support for nuclear replacement at18%. Graphic: Ipsos MORI, 2012

1. Northwest Regional Development Agency (2006), Northwest Nuclear: A Strategic Approach to the Nuclear Sector in the Region.
2. Department of Energy & Climate Change (2011), Nuclear Key Facts.
3. A Review of the UK ‘s Nuclear R&D Capability, Technology Strategy Board (2010).