Nuclear Energy and Climate Change

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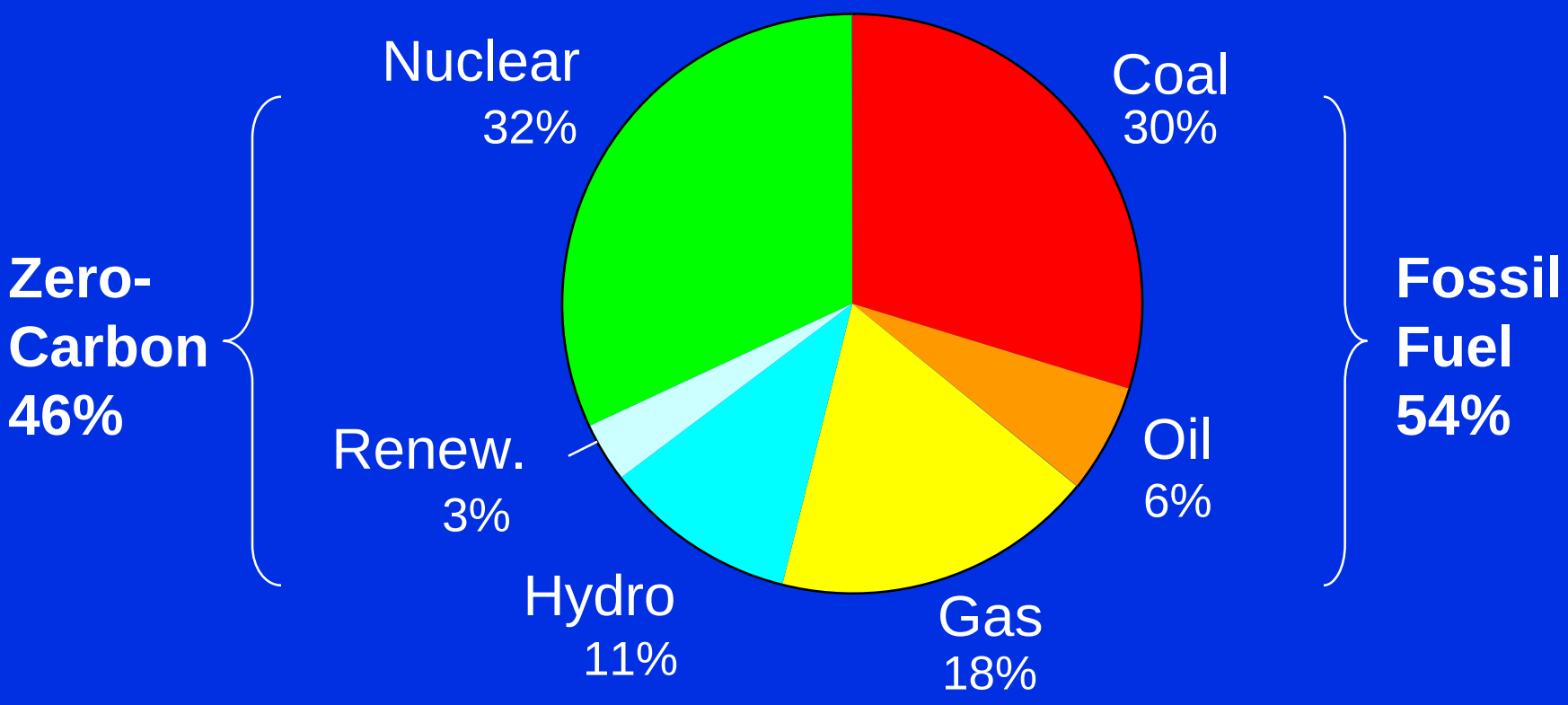
Presentation Summary

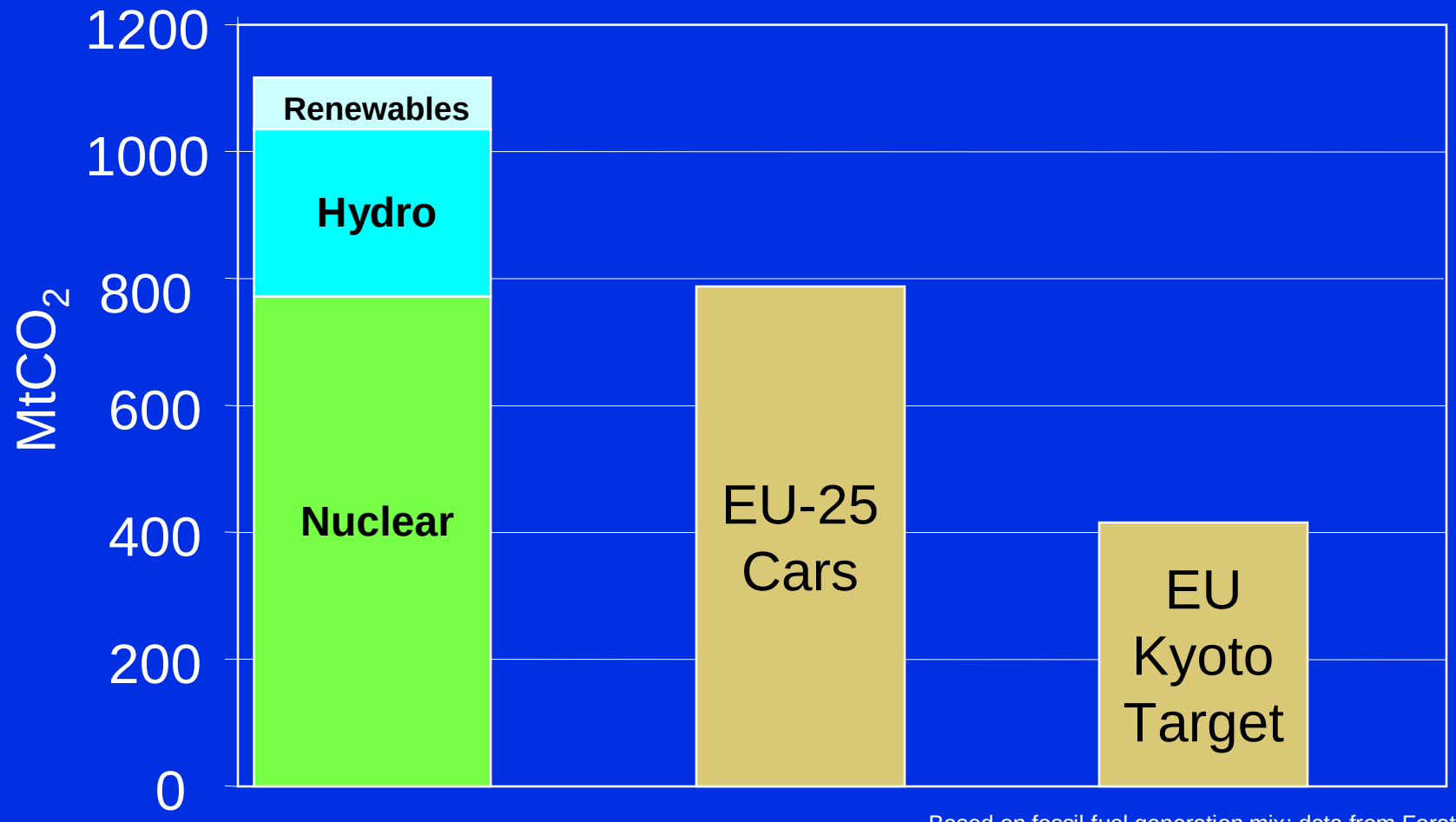
- The current contribution of nuclear generation in Europe
- The use of nuclear generation for the mitigation of climate change
- How the EU ETS affects carbon-free generation
- Future Climate Change Policy

The EU-25 Generation Mix



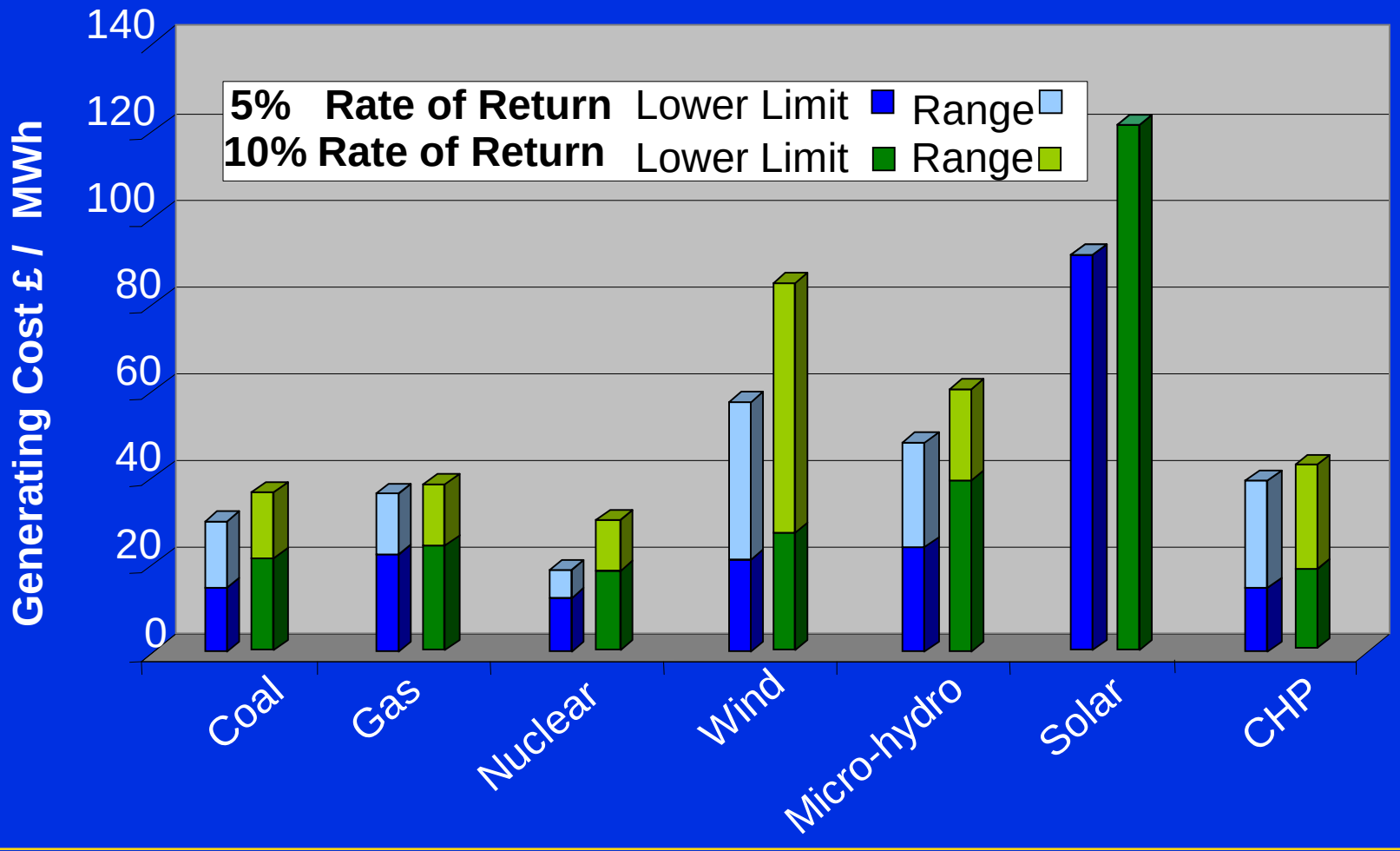
(TWh supplied)

EU Contribution of Carbon-Free Generation

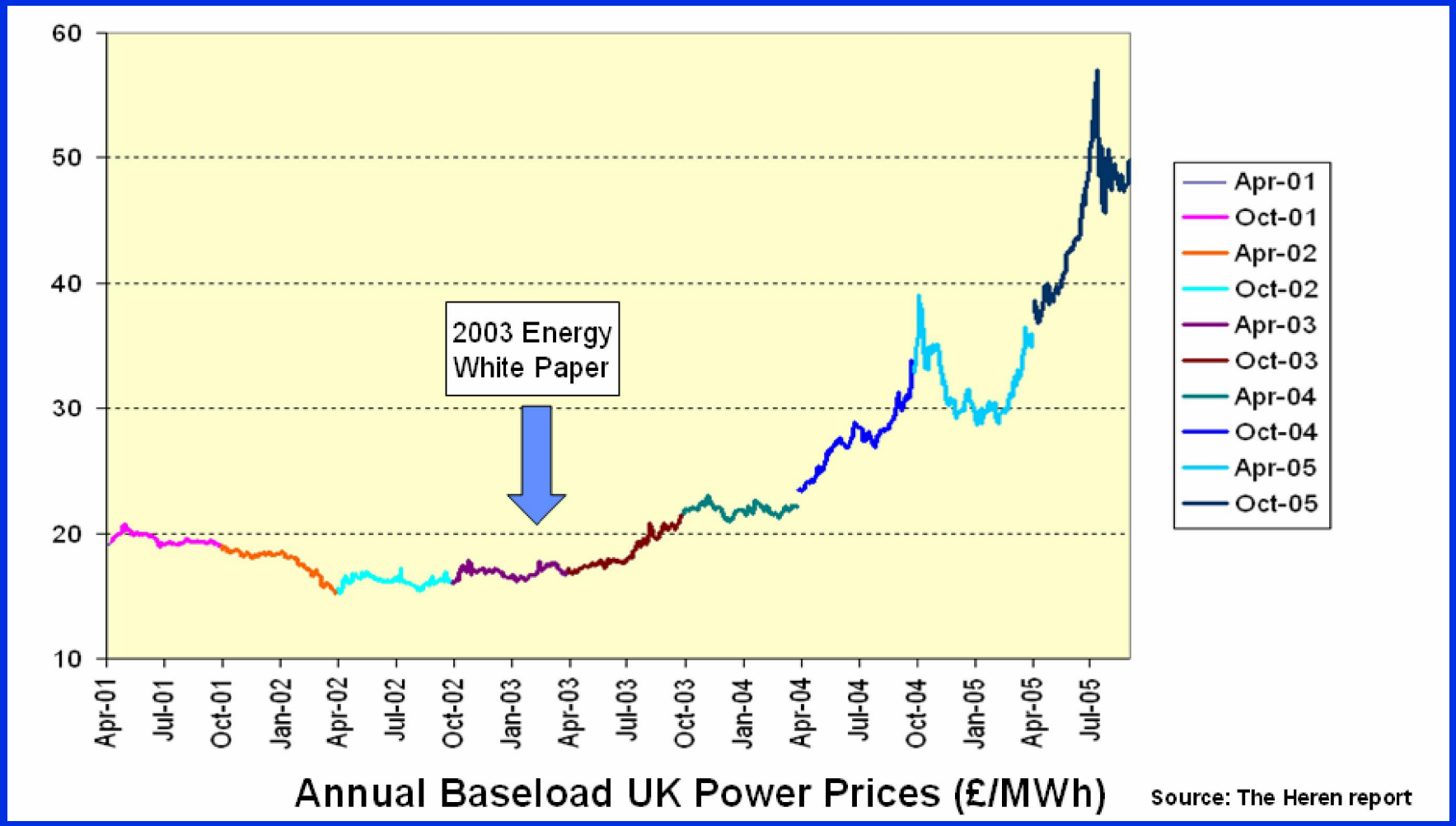


Based on fossil fuel generation mix: data from Foratom

OECD Projected Costs of Generating Electricity 2005



UK Baseload Electricity Prices



Emissions Trading and Its Impact on Generation

- Emissions trading is seen as a key element of future climate change mitigation policies.
- Because of free allocation, the main route for any transfer of “carbon cost” is through opportunity cost.
- Fossil fuel generators may or may not pass on full opportunity cost.
- Carbon-free generators may have contractual arrangements that do not fully take account of fossil fuel generators opportunity costs.

How the EU ETS affects carbon free generation

- Nuclear plant already operate as baseload plant, little opportunity for additional output.
- EU ETS may provide additional incentive for lifetime extension or capacity uprating.
- EU ETS adds to volatility and uncertainty in electricity costs.
- EU ETS will not favour least-cost emissions reductions, it will favour the lowest cost short-term options.

Effect of climate change policies on energy supplies

- Emissions trading provides indirect, uncertain incentive to investment in new generation capacity.
- Renewable Obligation (UK) provides greater long term certainty to participants (through to 2026).
- Current market framework is biased towards short-term investment

Future of International Climate Change Policies

- Kyoto Protocol
  - Future Annex I commitments debate starts 2005
- UNFCCC
  - Separate discussion on achieving framework aims

- Asia Pacific Partnership
  - Delayed: lack of commitment or strategic?

Future for Action on Climate Change

- Kyoto Protocol
- Bilateral/Multilateral agreements
- Future of CDM/JI
- Technology-based solutions
- Absolute or relative targets
- Voluntary or mandatory
- Linked Emissions Trading

Conclusions

- Nuclear generation is making a major contribution to avoiding greenhouse gas emissions. New nuclear generation will be needed to build on that contribution.
- The current electricity generation market and climate change policies could be improved to provide the right conditions to invest in low carbon technology.
- How one decides to address climate change is only the first step.