



Nuclear : No Chance? Or No Chance Without Nuclear?

by

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24 May 2007, Aberdeen

Our Energy Challenge

Securing clean, affordable energy for the long-term



dti

ENERGY REVIEW

Consultation Document

JANUARY 2006

- ◆ Secure (Reliable)
- ◆ Clean (Low carbon)
- ◆ Affordable (Cost-effective)
- ◆ Long-term (10 to 50 years)

20% Renewables [or >30% electricity]
“a binding target of a 20% share of renewable energies in overall EU energy consumption by 2020”

CCS demonstration plants

“...framework to bring environmentally safe carbon capture and sequestration (CCS) to deployment with new fossil-fuel power plants, if possible by 2020”

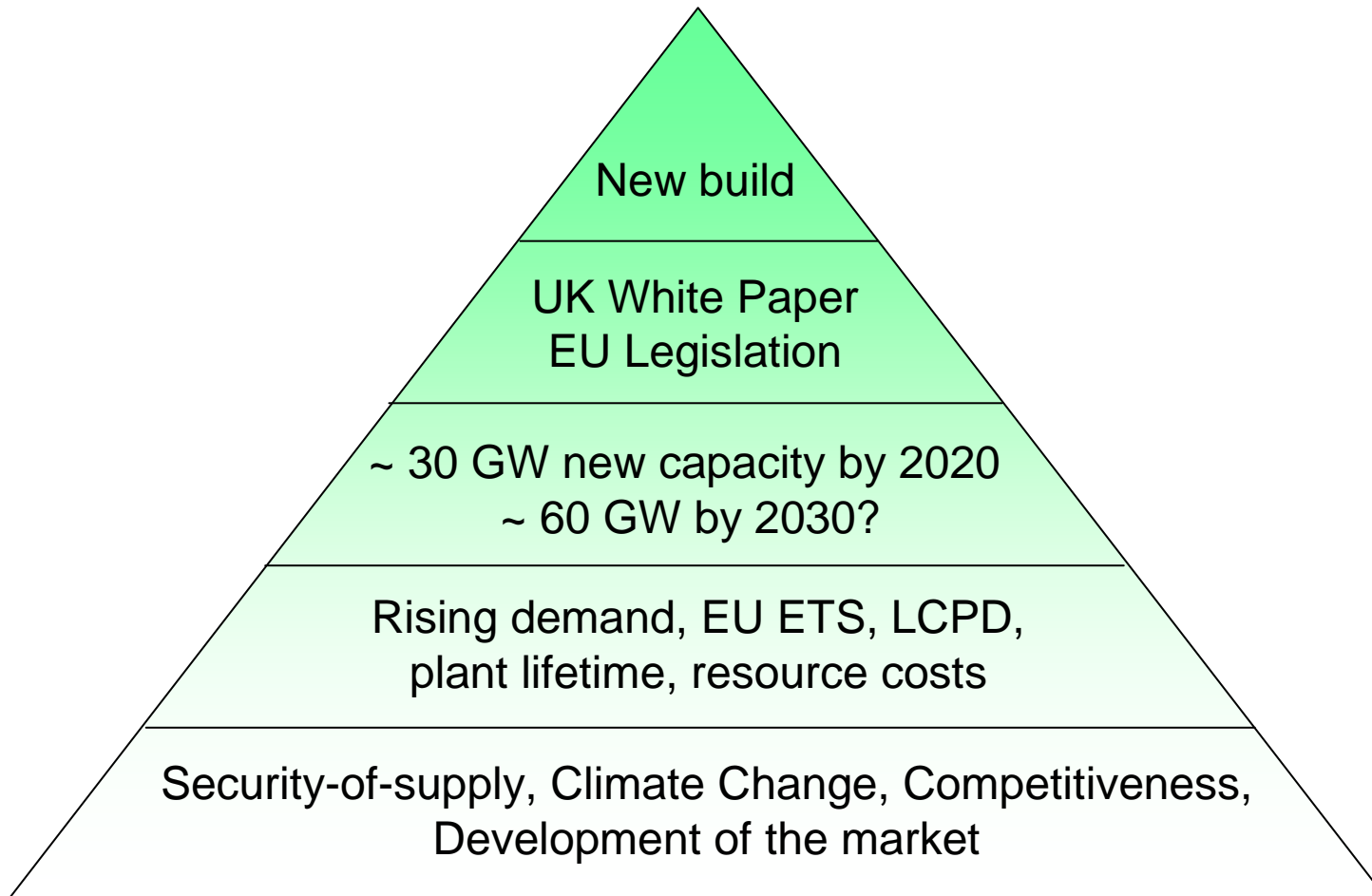
*Brussels European Council Presidency Conclusions
9 March 2007*

Energy efficiency *“...saving 20% of the EU’s energy consumption compared to projections for 2020”*

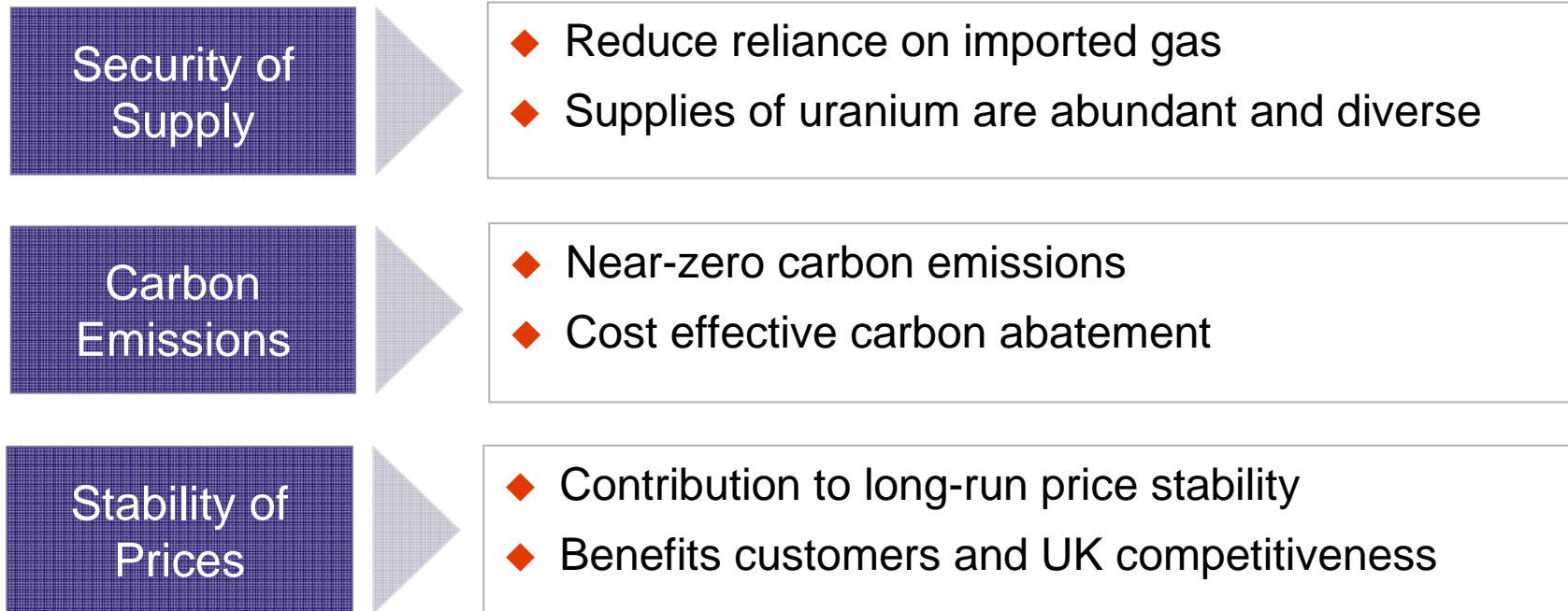
Unbundling to help gas and electricity

“[need for] effective separation of supply and production activities from network operations...”

The UK power sector in transition

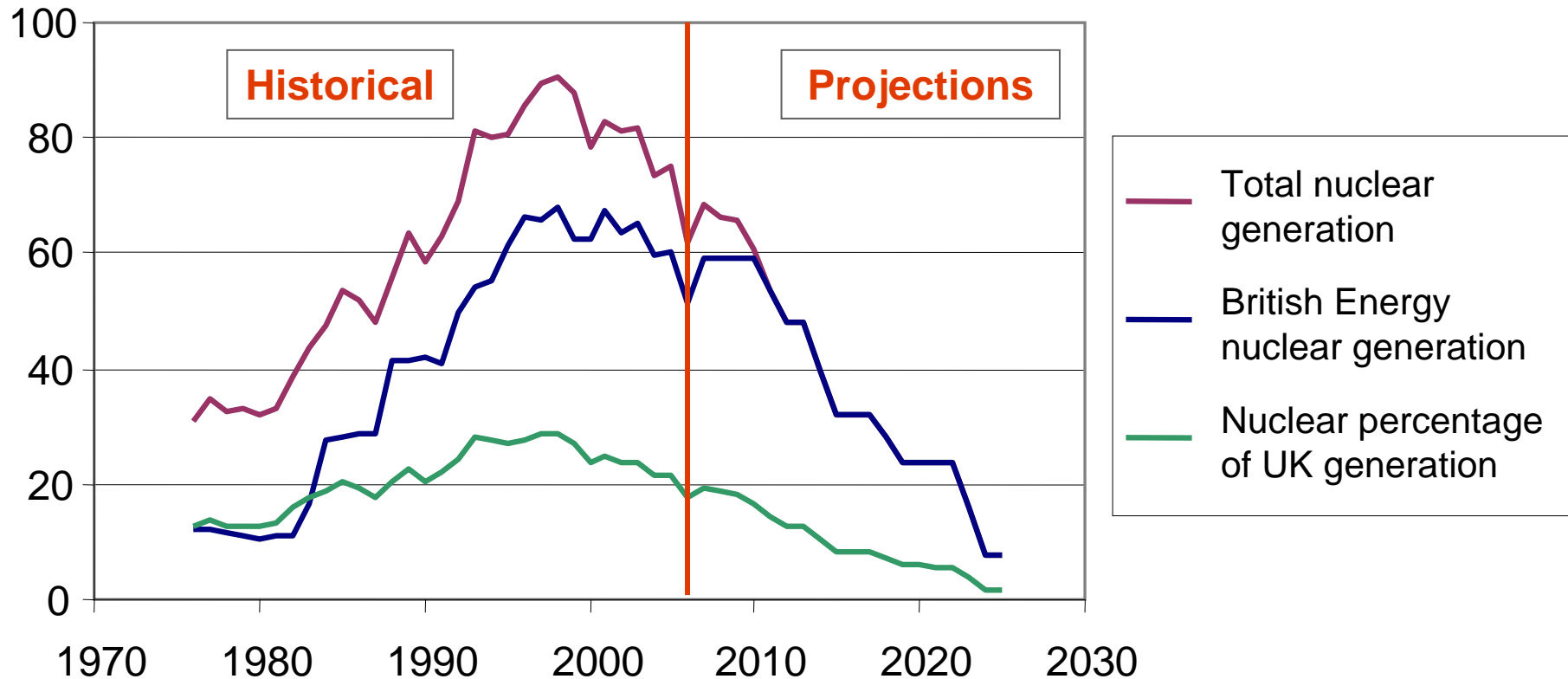


The Policy Case for Nuclear



Nuclear generation in the UK

Generation (TWh / %)



Note: Projections based on current declared nuclear lifetimes, typical nuclear station generation and DTI estimates of total electricity supply

Cost of losing nuclear generation in the UK

At nuclear peak in 1998

Total electricity supply

- ◆ 90.6 TWh or 28.5% of the total generated

Emissions avoided

- ◆ 64 MtCO₂ emissions avoided, total value to economy of £640 million assuming £10/tCO₂

Resources conserved

- ◆ 10 bcm gas avoided, total value to economy of £938 million assuming 25p/therm

British Energy in 2005/06

Electricity supply

- ◆ 60.4 TWh or 17.5% of the total generated

Emissions avoided

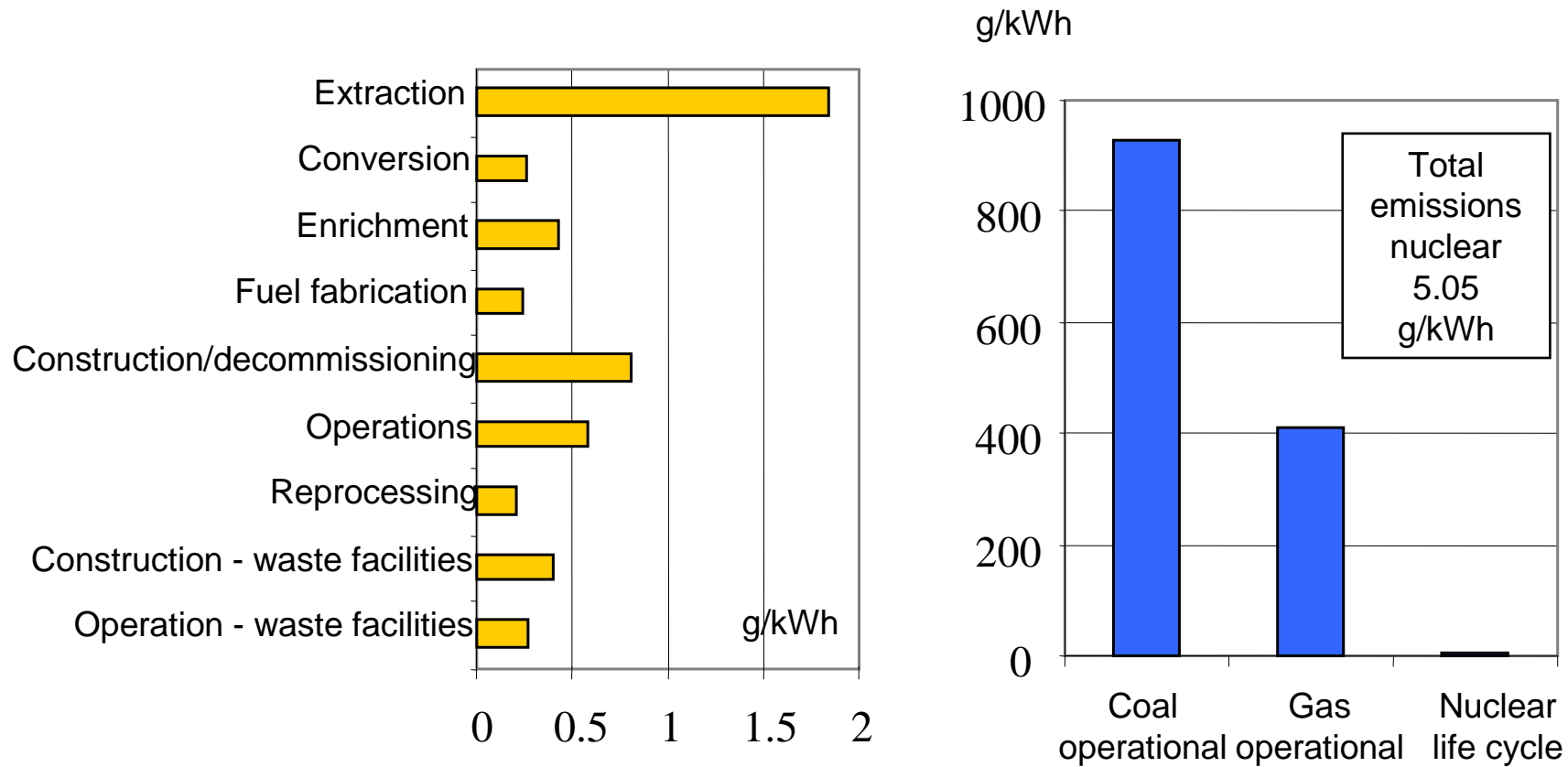
- ◆ 40.9 MtCO₂ emissions avoided, total value to economy of £409 million assuming £10/tCO₂

Resources conserved

- ◆ 12.1 bcm gas avoided, total value to economy of £1139 million assuming 25p/therm

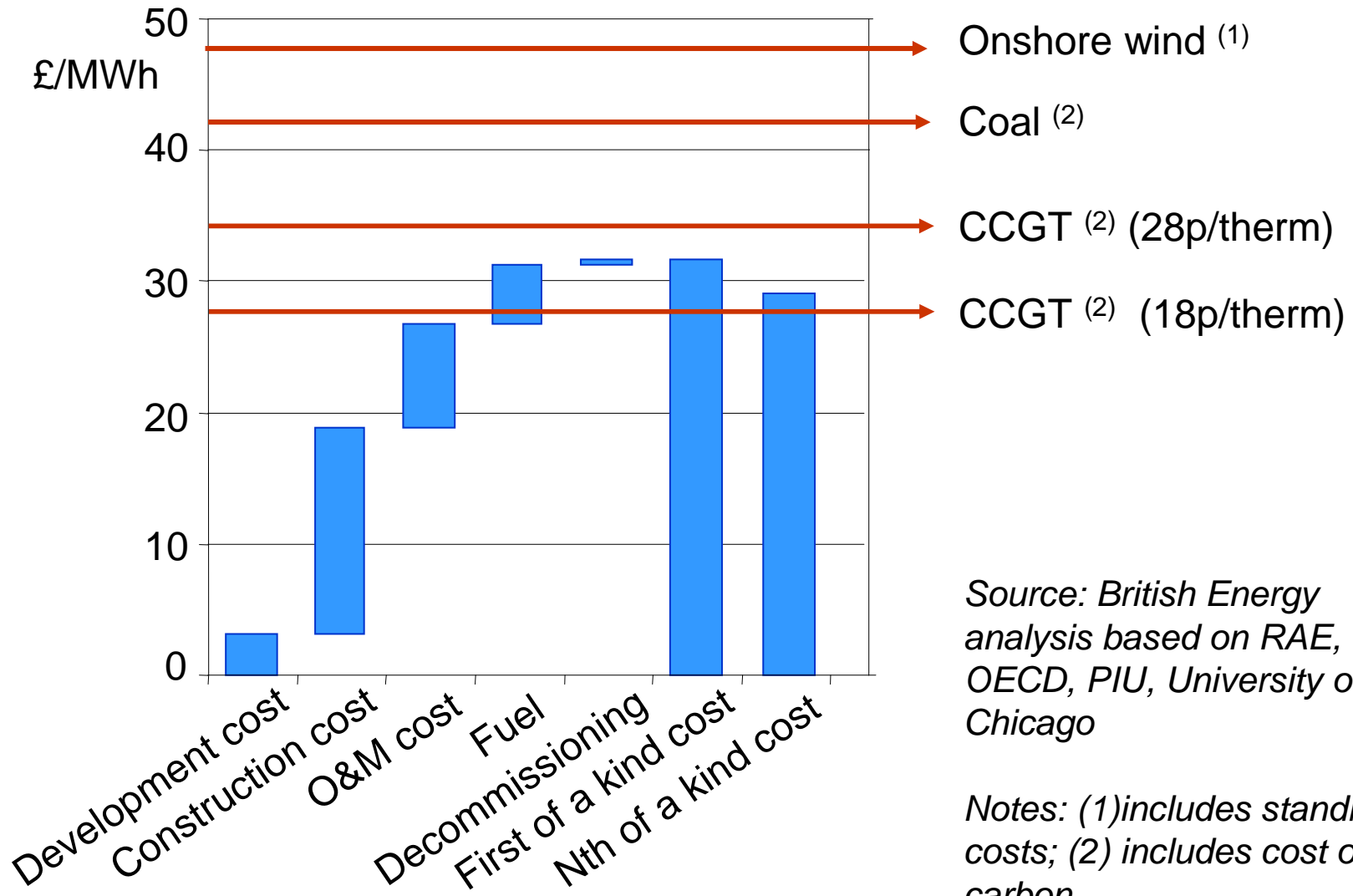
Emissions reductions being sought by the UK through Phase 2 EU ETS is 29.3MtCO₂/year

Life-cycle emissions for Torness



Source - Environmental Product Declaration for Torness Nuclear Power Station, AEA Technology (for British Energy Group plc), July 05

New nuclear economics under scrutiny



Source: British Energy analysis based on RAE, OECD, PIU, University of Chicago

Notes: (1) includes standby costs; (2) includes cost of carbon

◆ **Planning White Paper**

- New system for dealing with major infrastructure decisions
- New measures to tackle climate change at the local level

◆ **Energy White Paper**

- Energy efficiency
- Renewables
- Carbon capture and sequestration
- Nuclear

◆ **Nuclear Consultation**

- Statement of Need
- Economics
- Justification
- Strategic Siting Assessment
- Decommissioning and waste
- Pre-licensing

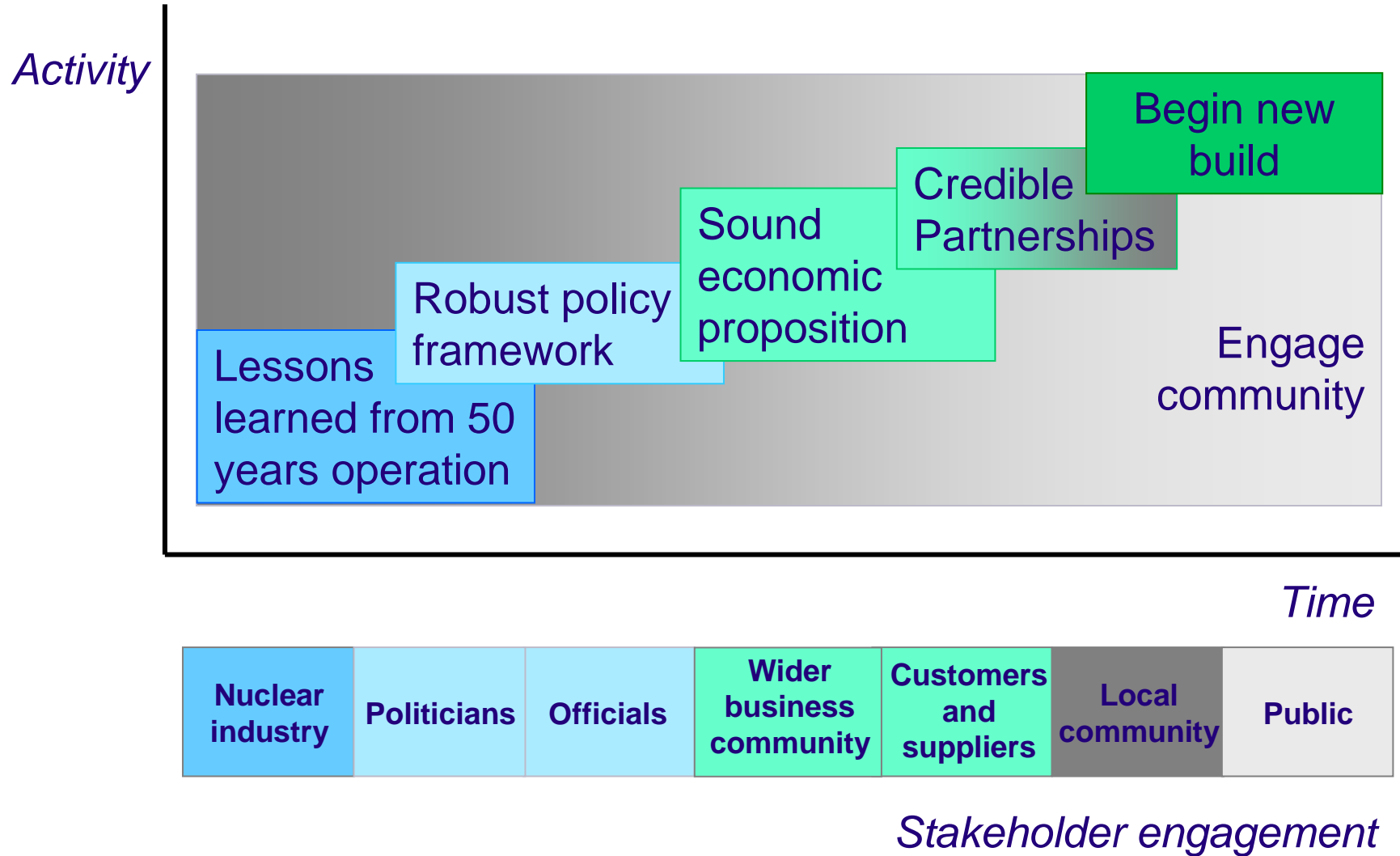


- ◆ Considerable experience of nuclear plant
- ◆ Nuclear sites with grid infrastructure
- ◆ Support in local communities
- ◆ Around 6,000 skilled employees
- ◆ Long established relationships with regulators
- ◆ Strong supplier and contractor relationships
- ◆ Strong trading capability

● *British Energy sites*

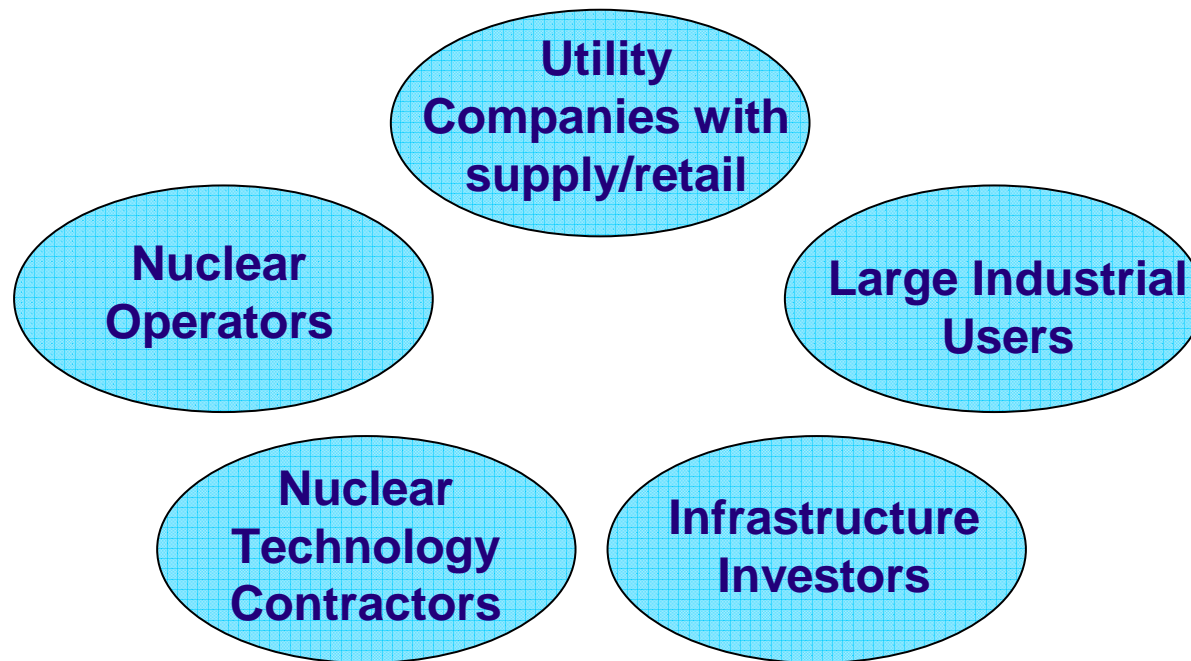
■ *Bradwell, adjacent to the decommissioning Magnox nuclear plant*

British Energy preparing for new build



New build partnerships

- ◆ **Participating** – playing a role in public and policy debate
- ◆ **Partnering** - inviting partners to work with British Energy to develop new nuclear generation
- ◆ **Progressing** - conducting early assessment work on sites



- ◆ British Energy owns land next to existing stations, and at Bradwell in Essex
- ◆ Work underway to assess potential of sites:
 - Physical characteristics of site, including long term risk of flooding and other climate change effects
 - Availability of cooling water and marine environment studies
 - Terrestrial ecology: environmental sensitivity (local flora and fauna)
 - Local planning issues
 - Grid capacity
- ◆ No siting conclusions before Strategic Siting Assessment completed

- ◆ UK power sector is set for a major transition over the next two decades as old fossil and nuclear plant retire.
- ◆ Challenge for government and the industry is to deliver secure, low carbon supplies of electricity at an affordable price.
- ◆ Planning and White Papers and the Nuclear Consultation are important steps in the policy process
- ◆ Nuclear has played an important role over the last three decades, providing large volumes of near-zero emission electricity
- ◆ British Energy brings a number of valuable attributes to a new nuclear build programme in the UK
- ◆ British Energy is actively participating in the energy policy debate, seeking partners for new build, and carrying out preliminary work on its sites