Carbon Risk Management
BP's Approach

Cambridge 6th Risk Summit

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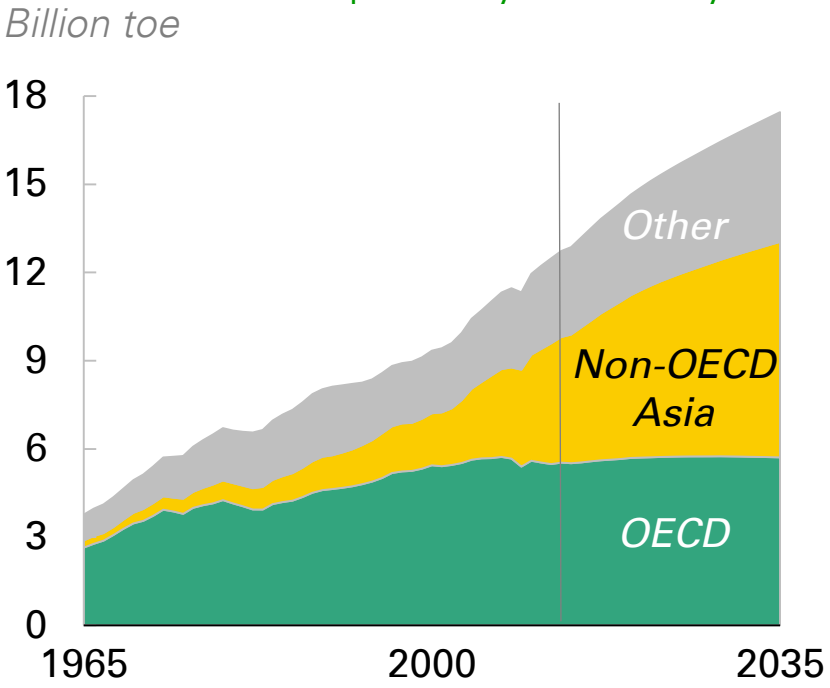
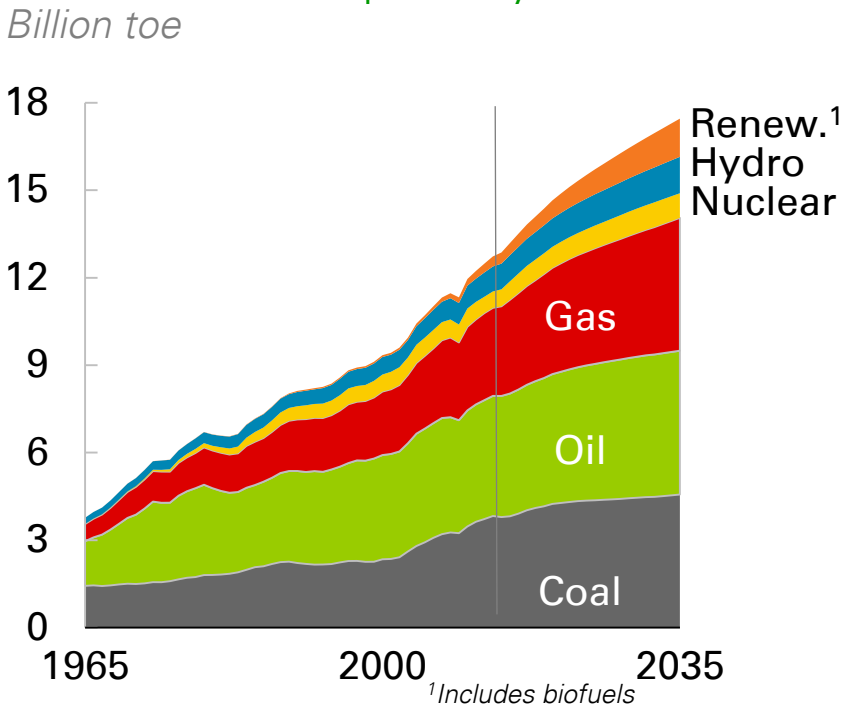
BP Energy Outlook - Global energy sector

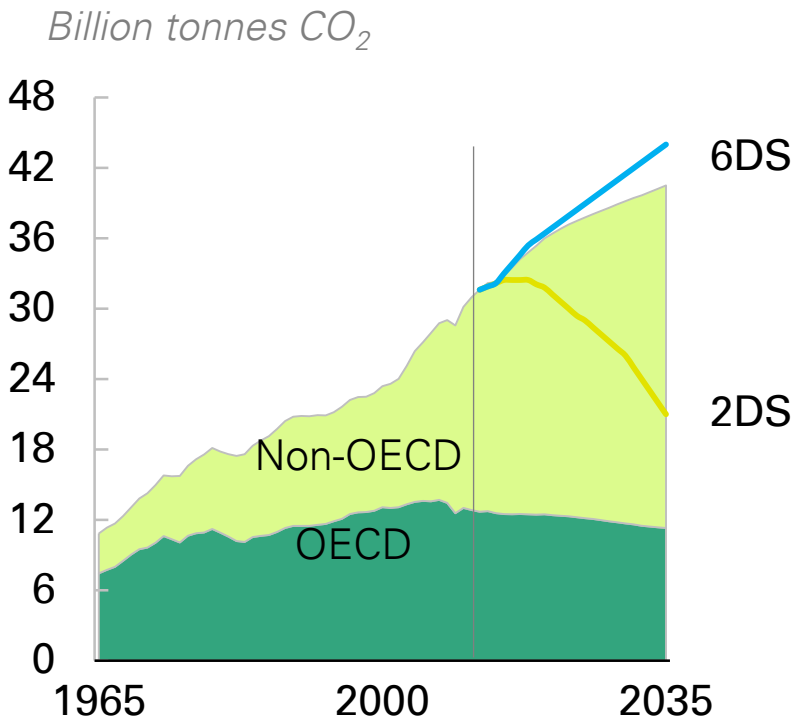
Consumption by economy



Consumption by fuel



BP Energy Outlook - Carbon emissions



[1] *Normalized for 1% swing in the coal/gas mix in power generation, equivalent to 110 Mt CO_2. Estimates are based on energy shares in 2013.*

Global options that achieve equal CO_2 emissions reductions[1]

Abatement option	Change required
Replace coal with gas in power (% of total power)	1%
Add CCS to coal power plants (% of total power)	0.7%
Increase renewables power generation	11%
Increase nuclear power generation	6%
Improve vehicle efficiency	2%
Improve 'other sector' energy efficiency	1%
Improve efficiency of power production	1%

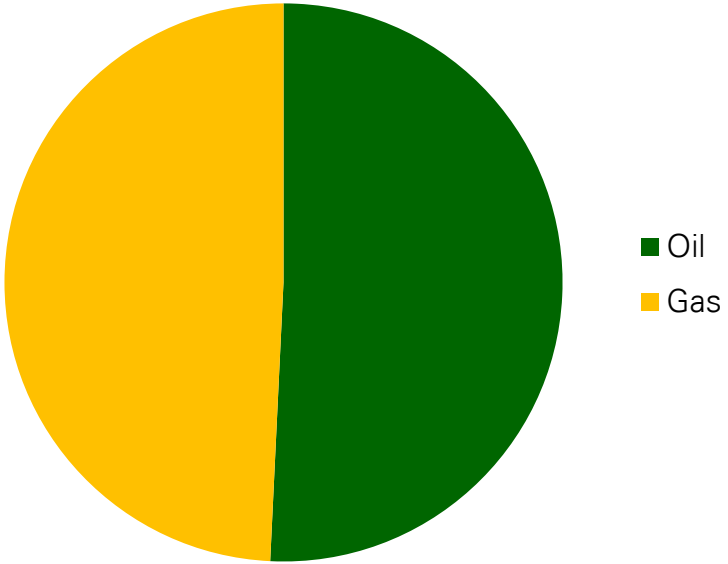
Resolution – strategic resilience for 2035 and beyond

- Asset portfolio resilience to the International Energy Agency's (IEA's) and any other relevant post-2035, scenarios;
- Low-carbon energy research and development (R&D) and investment strategies;
- Ongoing operational emissions management;
- Relevant strategic key performance indicators (KPIs) and executive incentives; and
- Public policy positions relating to climate change.

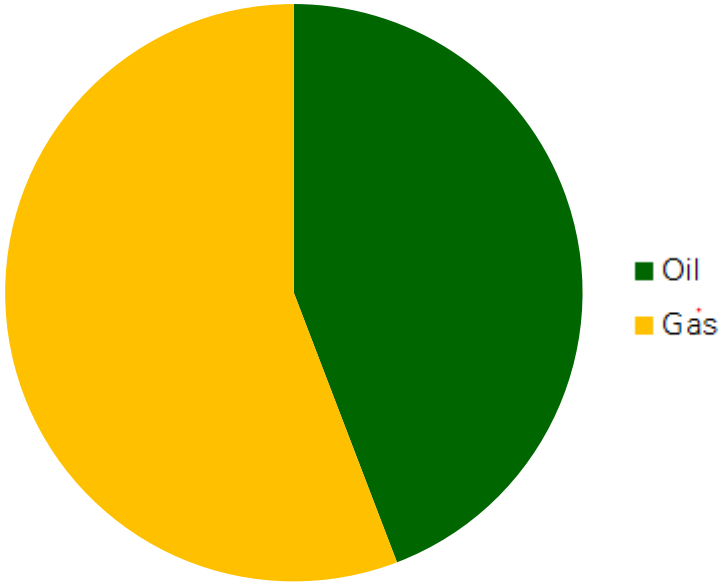
Portfolio resilience

Development of lower carbon options, in particular growing gas in our portfolio

2014 Production

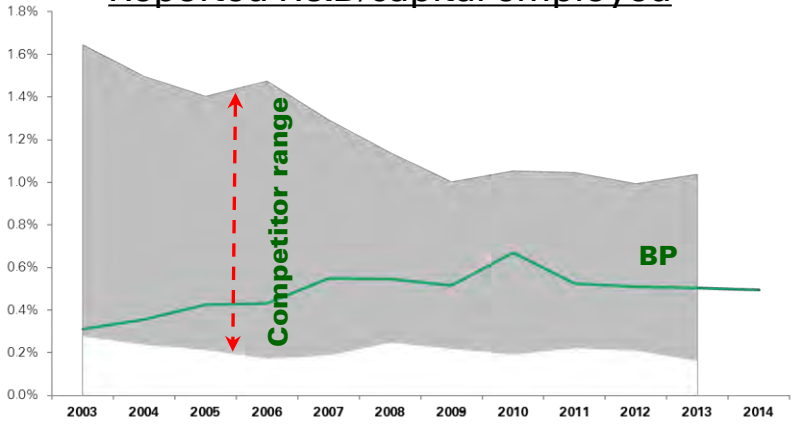


Mid 2020s Production



Low carbon energy R&D

Reported R&D/capital employed

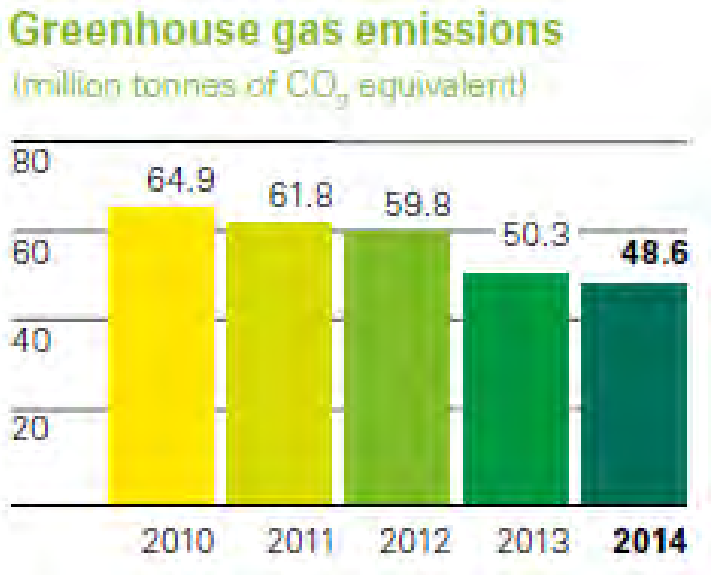


Our approach:

- Reported R&D spend of $663m in 2014
- **Leading technologies in**:
  - Upstream - seismic imaging and enhanced oil recovery
  - Downstream – petrochemicals and formulated products
- **Horizon scanning through**:
  - University relationships and partnerships
  - Venturing

Emissions management

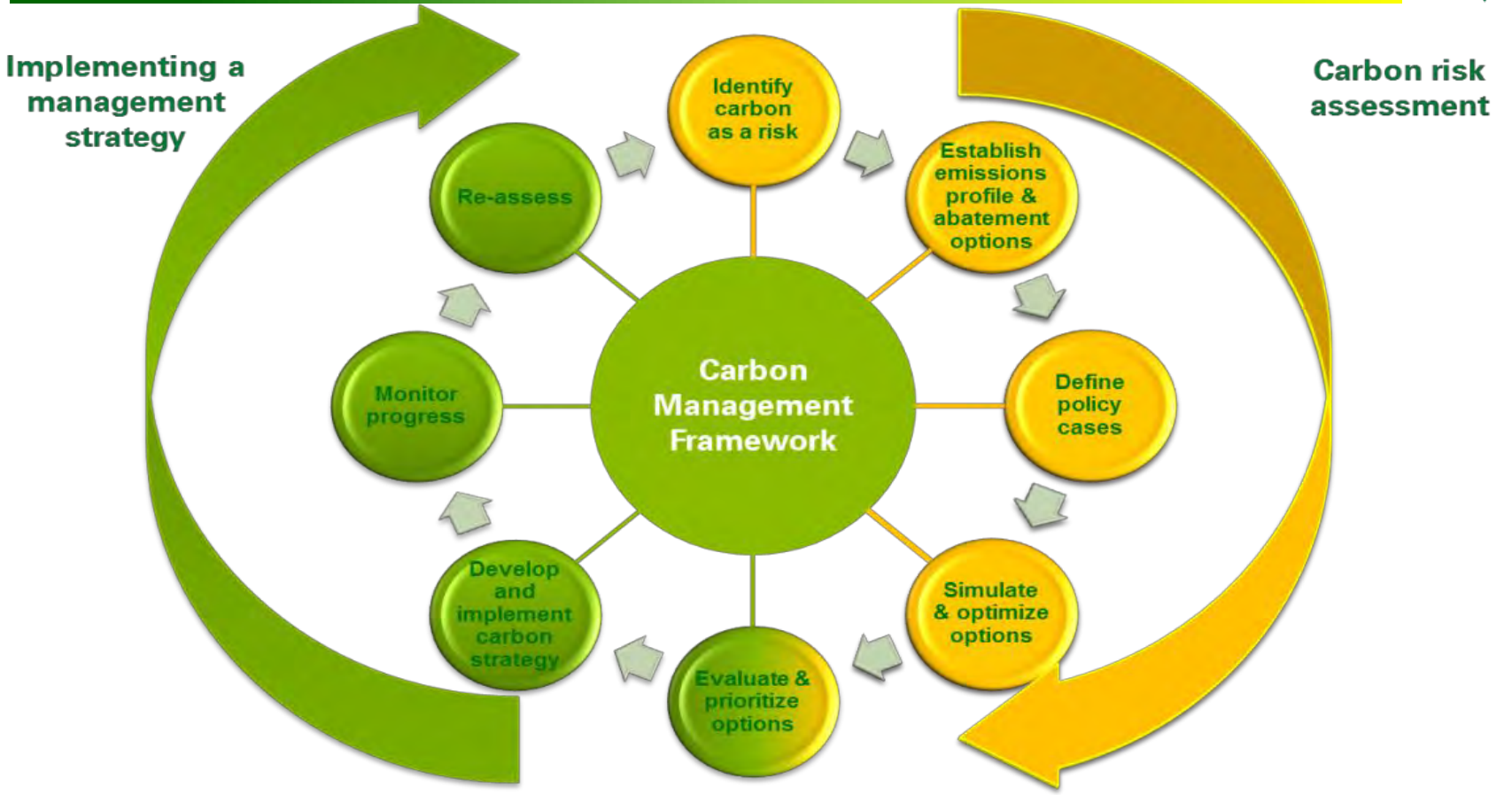
Globally only about **15%** of primary energy is converted into useful heat, light and motion. The scope for efficiency improvements is significant



Our approach: driving efficiency

- OMS and Solomon EII
- Reducing flaring and venting
- Product efficiency
- Carbon price – engineering design

Integrated carbon risk management



Driving efficiency – Zhuhai petrochemical plant

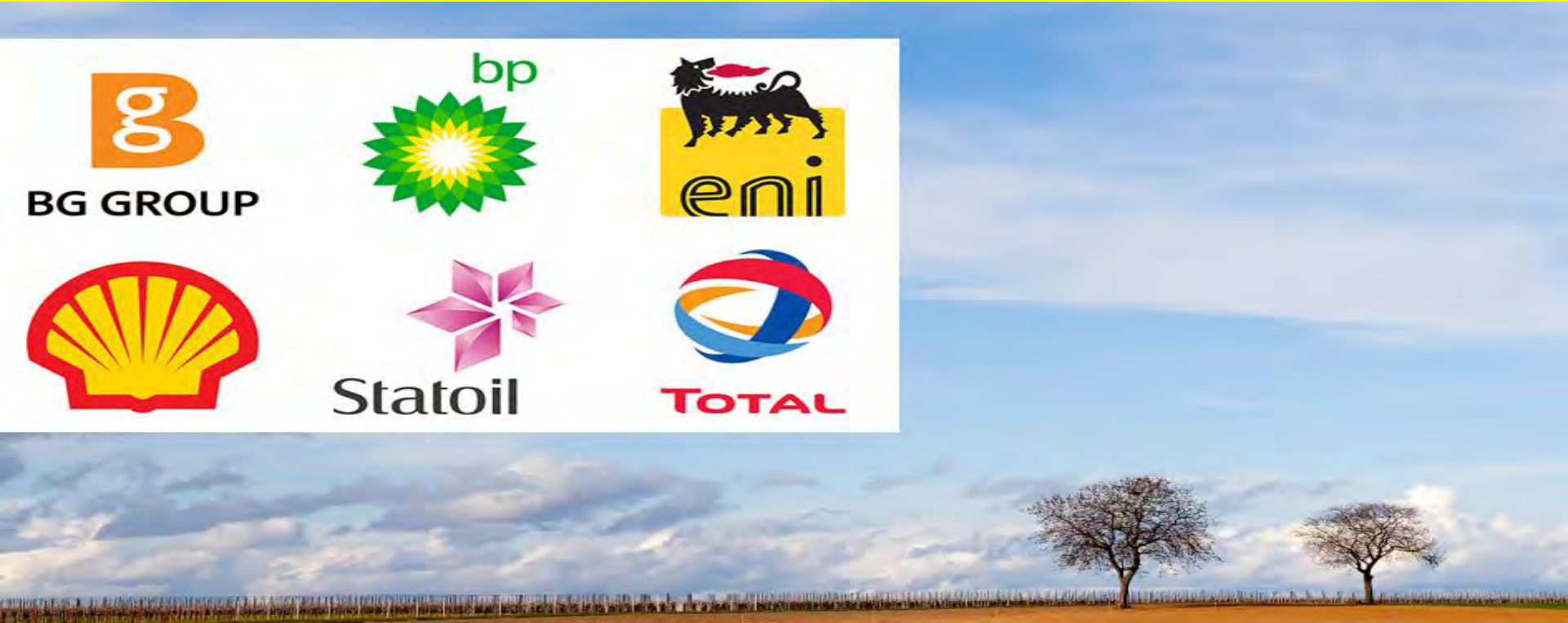
65%
lower greenhouse gas emissions

75%
lower water discharge than conventional PTA technology

95%
lower solid waste generation

Public policy

Joint call for tackling climate change & supporting carbon price



Conclusions

- Energy underpins socio-economic development
- Action on climate is needed:
  - Orderly energy transition
  - Multiple actors and actions
  - Mix of energy sources
  - Not all fossil fuels are equal
  - Drive energy efficiency
  - Effective price on carbon
- Technology helps all energy resources and uses