A sustainable design for CCS in a competitive power market

Introduced by Mr Grant Budge Director, Powerfuel Power Limited

8th December2009

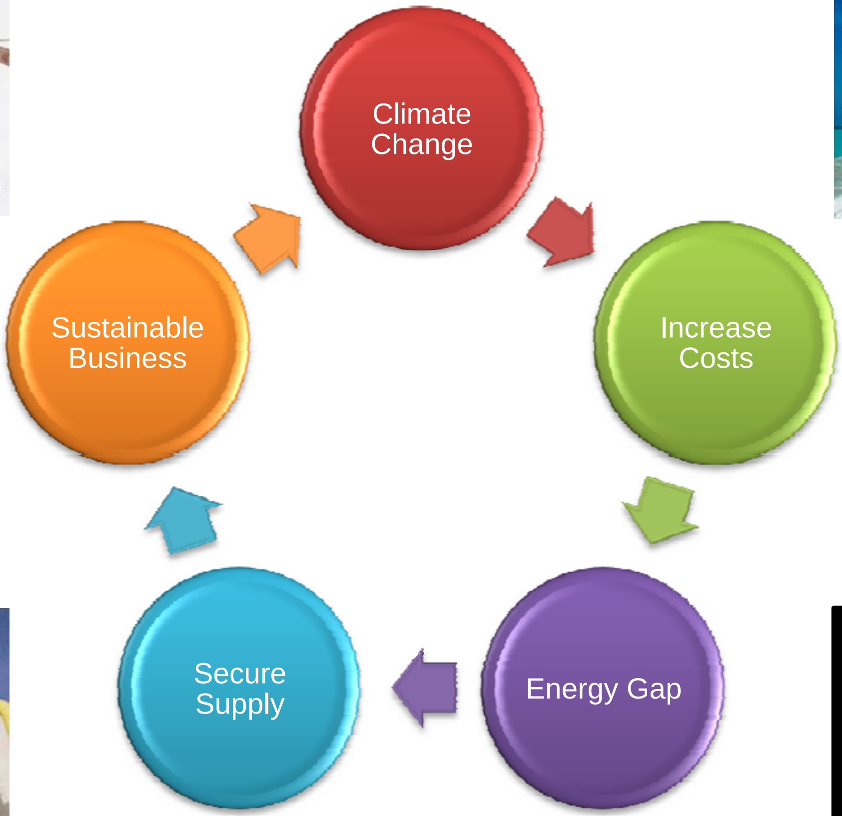
Presented at

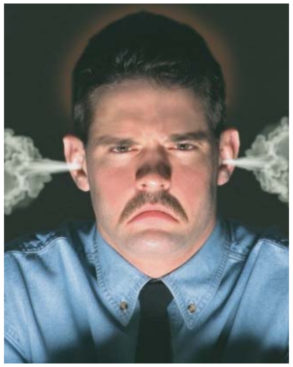
Major Energy Users Council




Powerfuel

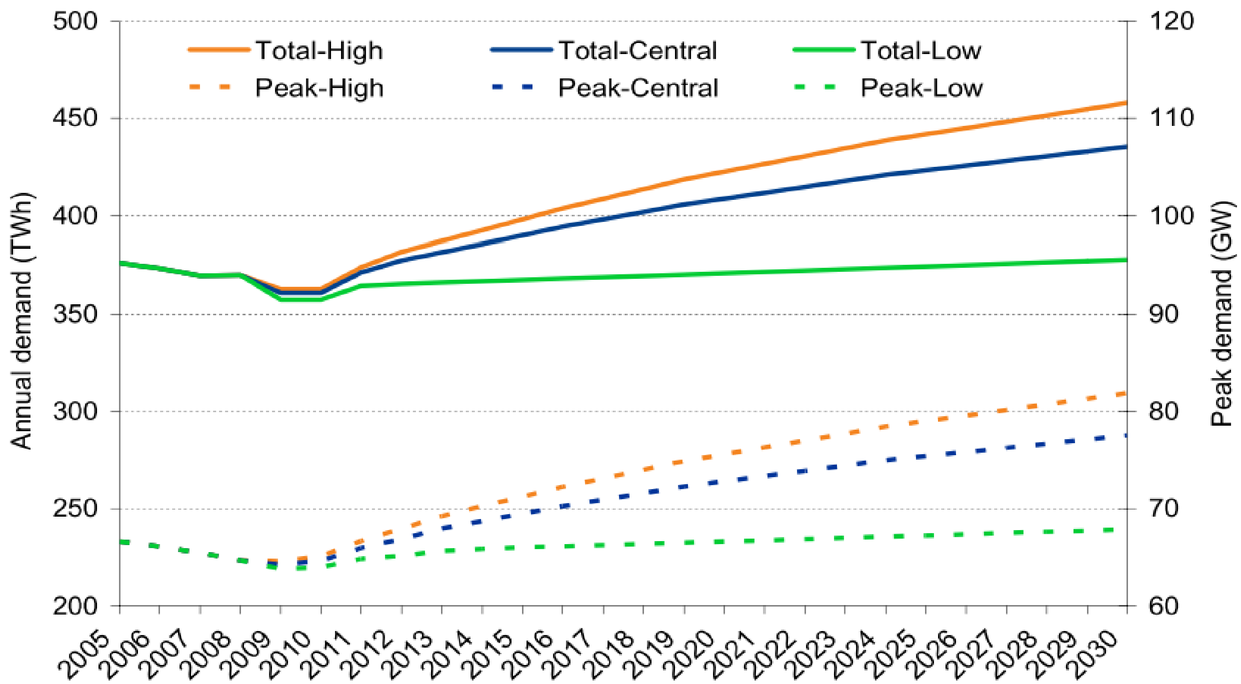
Industry Challenges





Future Energy Needs

DELIVERING TOMORROW'S CLEAN POWER TODAY



(Source: Poyry GB Electricity Report – August 2009)

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Hatfield IGCC

Basis of design

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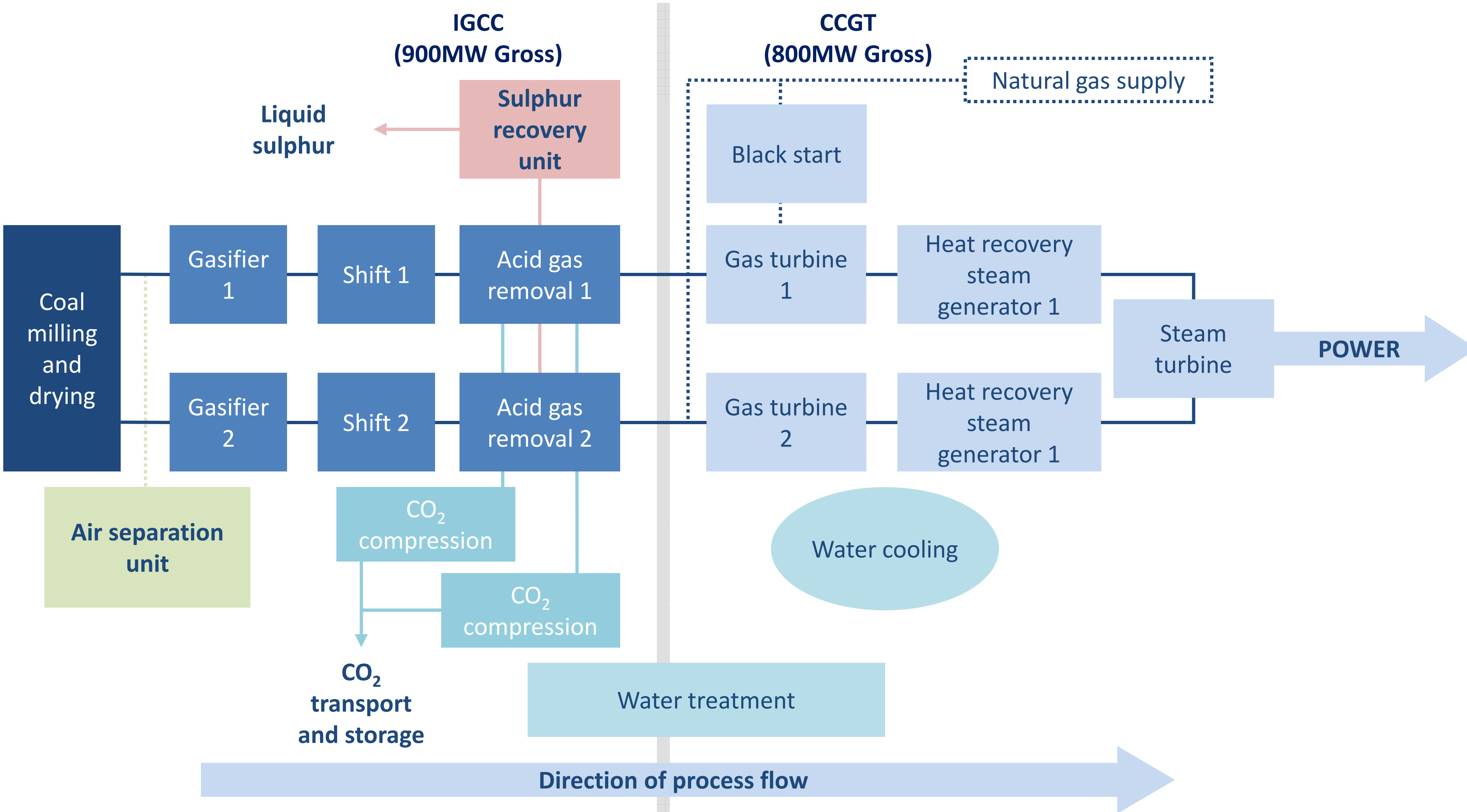

Sustainable generation concept

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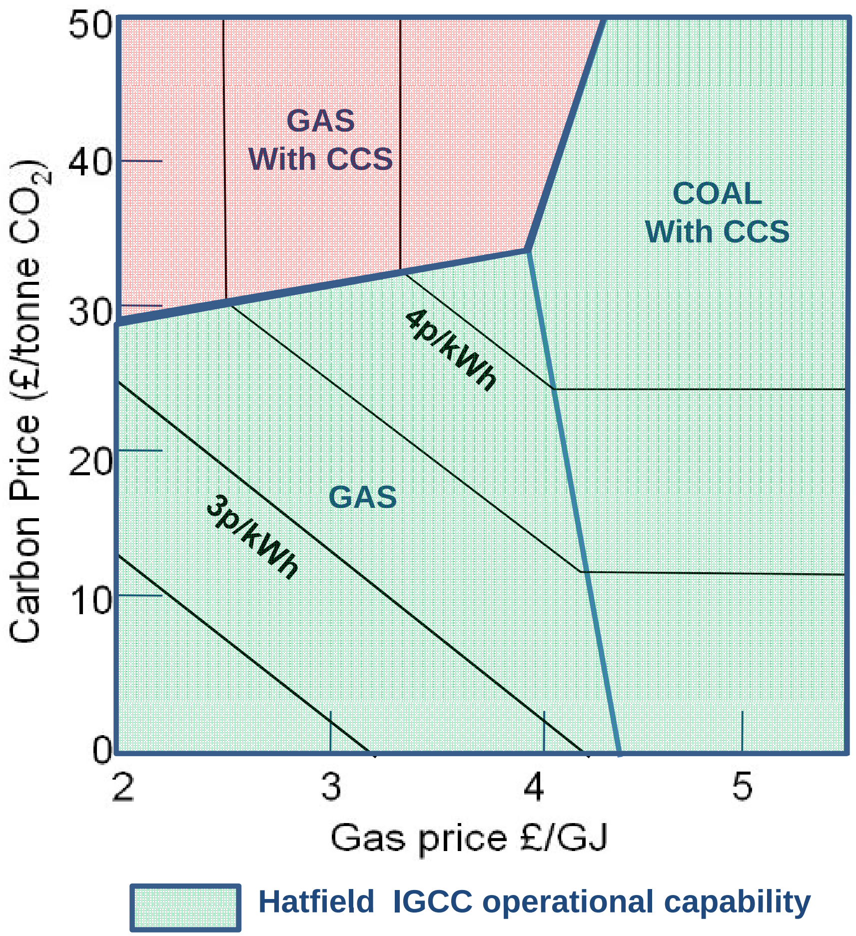

- ❑ Chart (left) is indicative operating potential based at circa £1.40/GJ price of coal
- ❑ Security of supply. Fuel flexibility 100% natural gas to 100% syngas
- ❑ Long term commodity arbitrage: natural gas, CO_2, electricity, hydrogen and coal
- ❑ Economic operating envelope across market, allowing power sales at or around the base load demand
- ❑ Enhanced availability and security of revenue from dual fuel
- ❑ Rapid response capability for balancing services

Carbon capture and storage

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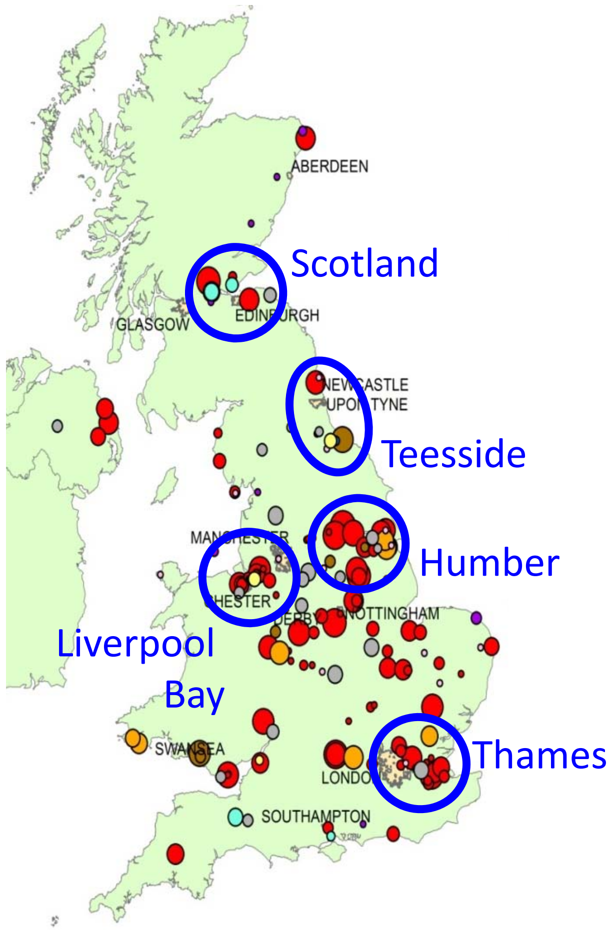

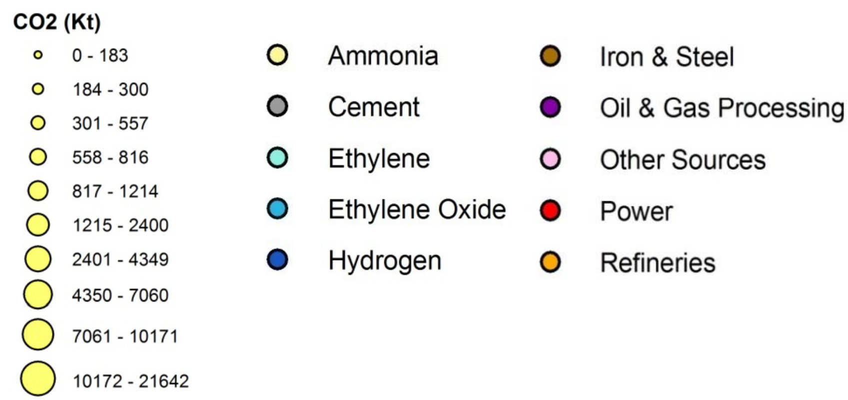

Cluster Region	Current CO_2 Volume	% of total UK emissions
Scotland	18Mt	3.4%
Teesside	11Mt	2.1%
Humber	68Mt	12.8%
Liverpool Bay*	10Mt	1.9%
Thames	28Mt	5.3%

Sources: IEA Greenhouse gas Programme and Yorkshire Forward

CCS application costs

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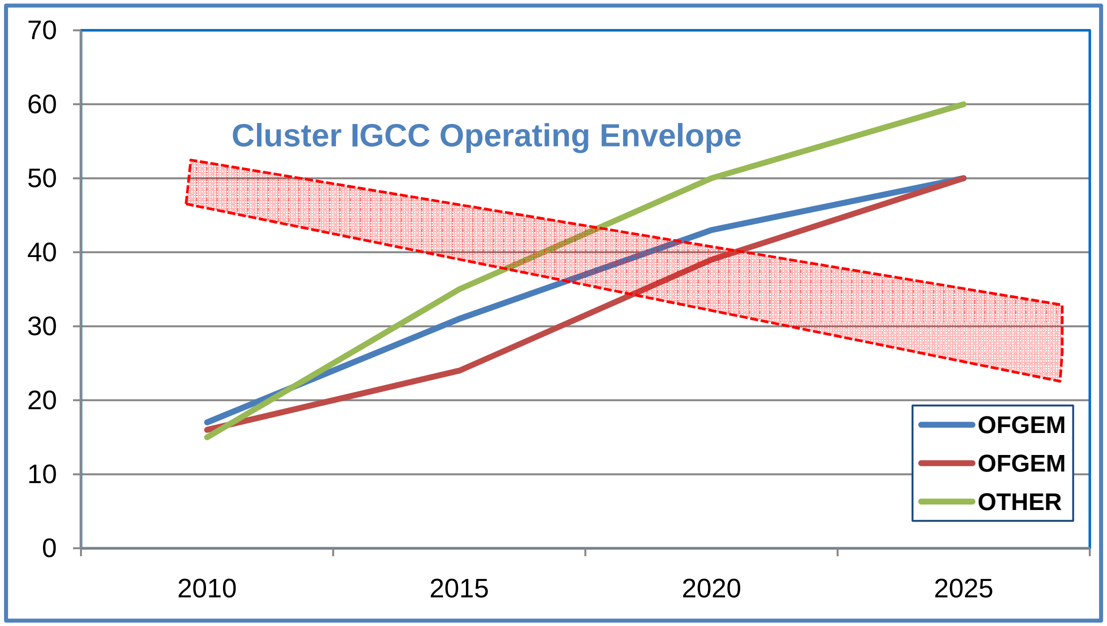

- Low intervention rate
- Competitive sustainability
- Available for deployment
- EU Demo. → Commercial design development for 2nd generation

	Euro/tonne of CO2 Stored (NETL 2007)	Euro/tonne of CO2 Stored (Updated 2009)
IGCC	**29.03**	**43.54**
Sub-Critical Coal	51.83	77.74
Super-Critical coal	51.83	77.74
CCGT	62.89	94.33

Questions

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