



Energy Efficiency and Combined Heat And Power

Derrick Farthing, General Manager,
Power Technology, Powergen UK PLC

APGTF Forum
DTI London
10/Sept/02

PIU Energy Review



“...Energy efficiency has the closest match with all the major sustainable development initiatives”

Typical Plant Efficiencies



Conversion to useful energy

Conventional Coal Plant	38%
'State of the Art' Supercritical PF	45%
Combined Cycle Gas Turbines	56%
Next Generation (ultra) Supercritical PF	55%
Integrated Gasification Combined Cycle	45%
Industrial CHP	70 – 80%

UK Installed Capacity 2002



Conventional Coal	29,000 MW _e	Predominantly more than 25 year old plant
Supercritical Coal	0 MW _e	375MW at Drakelow now closed
CCGT	19,000 MW _e	Modern plant, but some already mothballed
CHP	4,800 MW _(e+th)	New development stopped
Renewables	2500 MW _e (hydro, wind, biomass)	Development underway and accelerating since introduction of ROCs
Micro CHP	? MW _e	Development could take off with distributed generation

Combined Heat and Power



- Positive government statement as recently as ‘Government Strategy on CHP to 2010 Public Consultation Draft’, May 2002
 - ‘CHP has a vital role; Government wants CHP capacity to double to at least 10GW by 2010’
- Actual Outcome post NETA
 - 38 MW_e new capacity installed 2001
 - No major developers active; new schemes that were once viable now shelved
 - 65% of new capacity has been from bigger players (e.g. TXU, Scottish Power, Innogy, Scottish & Southern, Powergen), but all have stopped

CO₂ is the Most Important Factor



- 10 GW conventional (coal) plant \equiv 40 Mt CO₂ /yr
- 10 GW (gas fired) CHP \equiv 10 Mt CO₂ /yr
- Difference of 30 Mt CO₂ /yr needs, for example:
 - investment in CHP of £4 billion, or
 - investment in CO₂ capture technology of £5 billion
 - investment in nuclear power of >£10 billion, or
 - investment in renewables (wind) of £6 billion,
nb renewables subsidy also costs circa £900m pa

Conclusion



Aim

- Hit Government targets for CO₂ reduction through ‘joined up’ thinking, working with industry and with a healthy diversity of approach.

How

- Improve the prospect of a major contribution from CHP through the introduction of a CHP Obligation for suppliers
- Home CHP enabled: link with the previous debate on Distributed Generation.



POWERGEN