



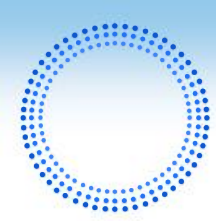
# Winter Outlook 2009-10

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# Agenda

## Summer 09

- ⦿ Power and spreads
- ⦿ Plant running

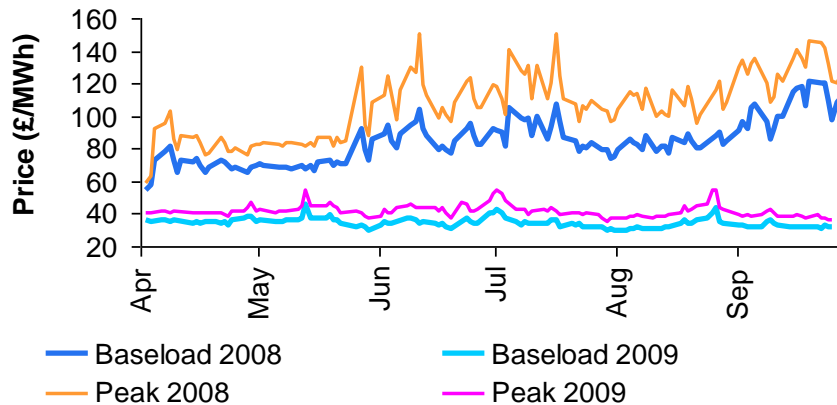
## Winter 09

- ⦿ Fuel price movements
- ⦿ System margin
- ⦿ Power prices and clean spreads

## Implications

# Summer 09 Power & Spreads

Prompt Power Prices



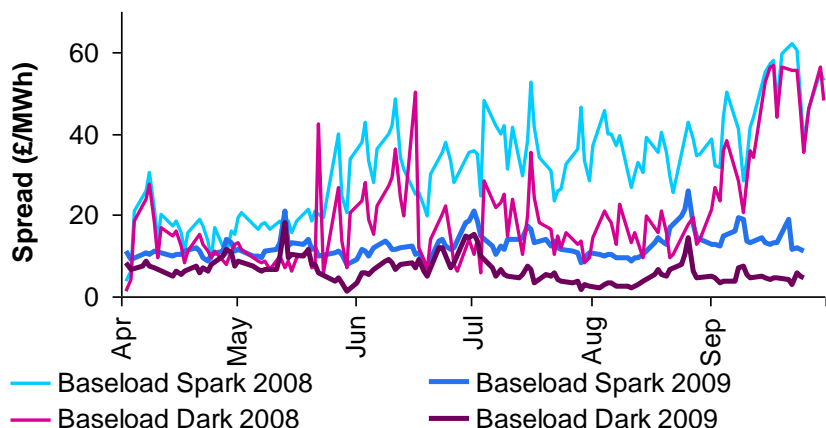
**Prompt prices were significantly lower than last year**

- Summer 09 baseload out-turned at £34.3/MWh down £49.9/MWh from last year
- Summer 09 peaks out-turned at £41.5/MWh down £64.20/MWh from last year

**The sharp decline was in part driven by underlying fuels and carbon**

- Summer gas down 36.3p/th year-on-year
- API2 coal prices down \$107/t year-on-year
- Carbon prices down €10.8/t year-on-year

Day-ahead Clean Spreads



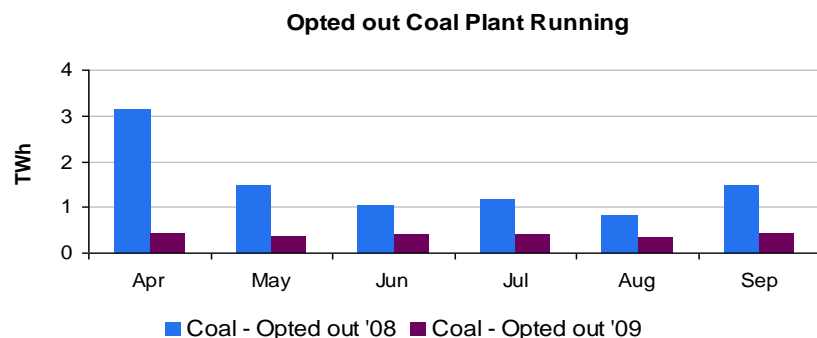
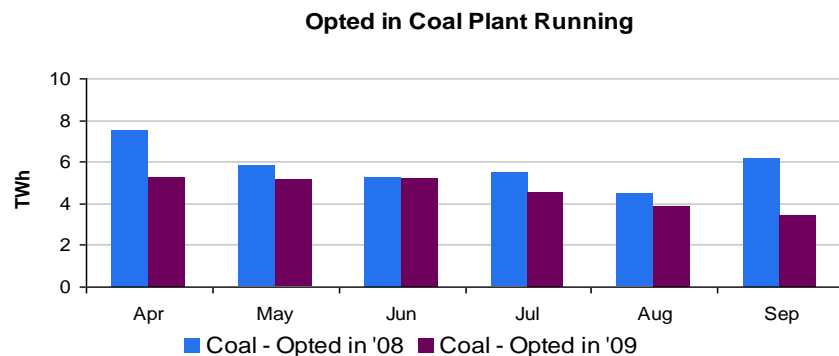
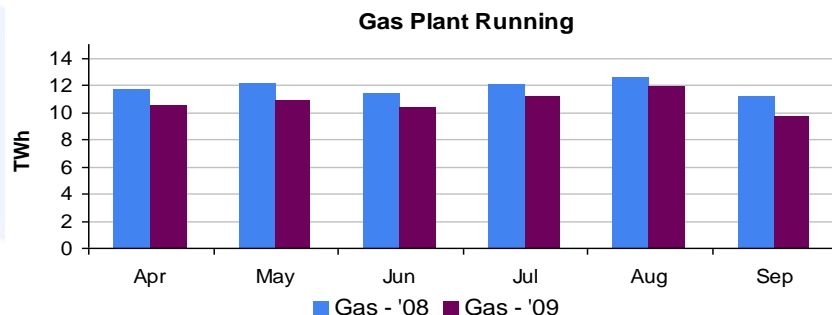
**Marginal clean spreads have also declined**

- Coal plant was at the margin for the entire summer with a clean baseload spread of £1.85/MWh (£9.50/MWh peakload)
- Lowest marginal clean spread since 2003

**Key drivers of the reduction in spreads**

- Temperature corrected daily peak demand out-turned 2-3.5GW below normal
- Output from the UK nuclear fleet has been at the highest level since 2005
- New plant commissioned
  - Immingham CHP (April 450MW)
  - Marchwood CCGT (June 850MW)

# Shifts in Generation Output



**Plant running has been significantly different this summer compared to last**

- ⦿ Gas plant output declined by 9% to 64.6TWh
- ⦿ Coal plant output declined by 32% to 29.8TWh

**Combined fossil output decline of 20.3TWh**

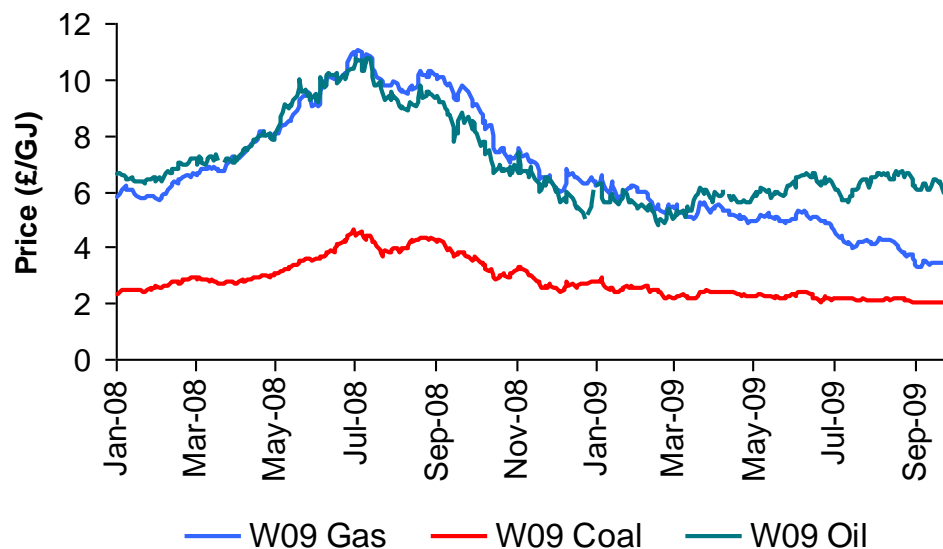
**Opted-out coal plant running declined sharply from 9.1TWh to 2.4TWh**

**Changes in plant running are primarily driven by the recession and higher nuclear generation**

- ⦿ Demand declined from 153TWh last summer to 145TWh
- ⦿ Nuclear output up by 10.2TWh from last summer

# Winter 09 Gas, Coal & Oil price movements

UK Coal and Gas Prices



**Prior to March 09 coal, gas, and oil prices were correlated relatively strongly**

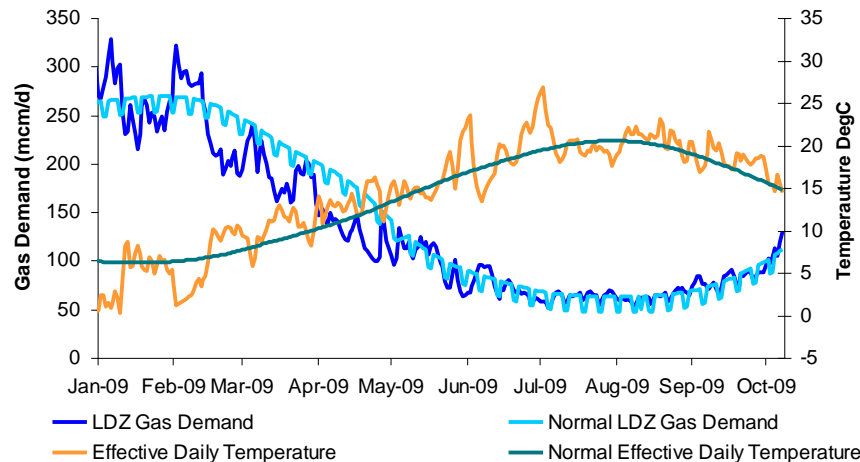
- Oil price rally was fuelled by lower non-OPEC production, booming Asian demand, and a shortage of refining capacity
- Delays to new UK LNG re-gasification infrastructure and European oil-indexation, pulled UK NBP gas prices higher
- Coal pushed to record highs
  - A range of production problems
  - Port capacity limitations
  - Rallying non-energy commodities

**Post March 09, gas and oil prices for the front Winter have diverged significantly**

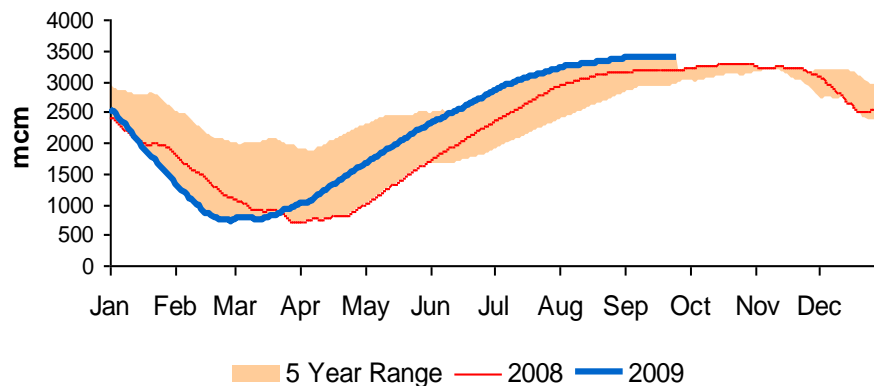
- NBP Winter 09 gas lost 35% of its value from March 09 to expire at 34.8p/th
- Oil has rallied 50% from 2009 lows of \$40/bbl
- Coal has traded sideways in a range of \$63-85/tonne

# UK NBP Gas – The Changes

LDZ Gas demand and Temperature Compared with Seasonal Normal



Rough Storage Level



**Winter 09 gas price declined 75p/th from record highs seen in July '08 of 110.3p/th**

- Driven by a combination of falling oil prices and weaker fundamentals

**LDZ demand has declined by 12% year-on-year and is at its lowest level since 2002**

- Driven by recession and higher prices
- Latest NGT view is that LDZ demand will be flat on last year with normal weather

**Gas to power demand has declined by approximately 10% year-on-year**

**UK storage facilities have filled in record time and currently stand at a record high of 4.4bcm**

- Up 0.25bcm year-on-year through the addition of Aldbrough MRS

**Flows from UKCS are significantly lower than last year**

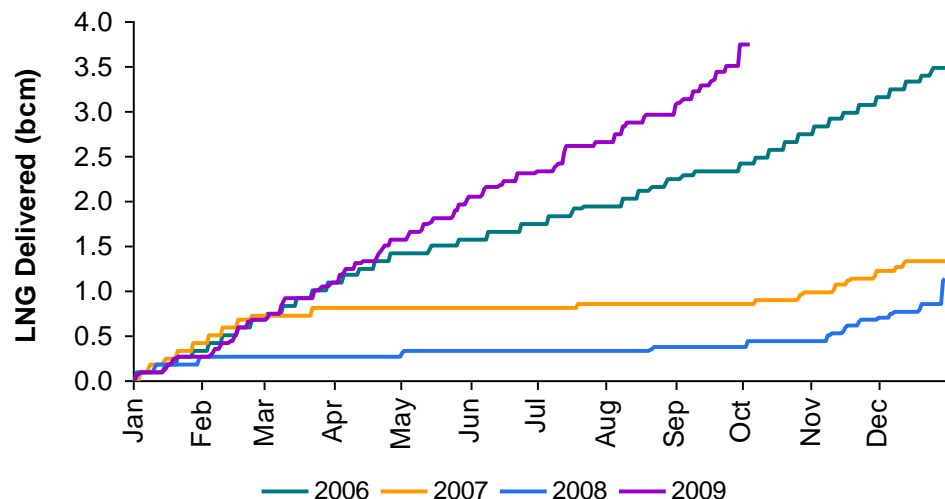
- Field decline and maintenance contributed to average flows of 146mcm/d '09 vs 175mcm/d '08
- Low prices encouraged swing field production to drop sharply from July 09 onwards due to low prices

**Strong LNG flows have replaced declines from UKCS**

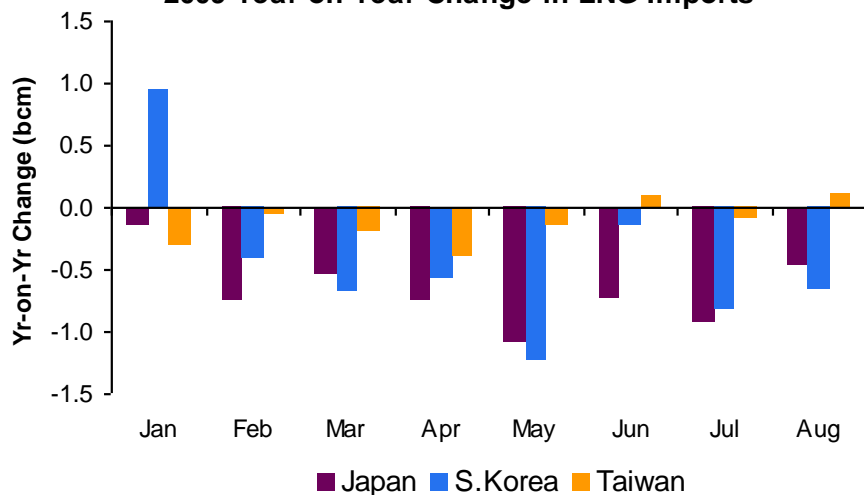


# UK NBP Gas – The Changes

Cumulative UK LNG Deliveries



2009 Year-on-Year Change in LNG Imports



## UK LNG infrastructure has expanded and Milford Haven is a key supply hub

- ⦿ South Hook started commissioning April 09
  - Operating at c.20mcm/d since July 09
  - Phase II scheduled for Q1 2010
- ⦿ Dragon started commissioning August 09 and has started commercial operation

## 2009 LNG deliveries up 3.3bcm on 2008

- ⦿ Demand weakness in major LNG markets
  - Asian markets 8bcm lower across S09
- ⦿ New liquifaction facilities

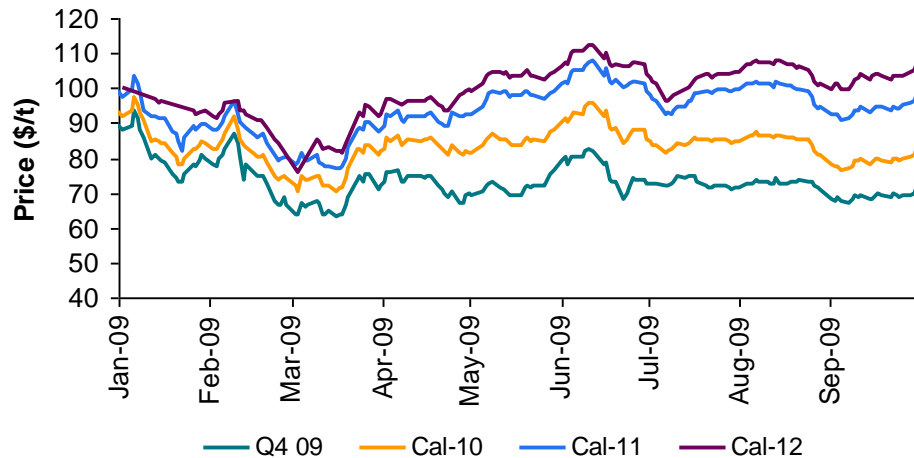
## Key uncertainties for gas this winter

- ⦿ How much LNG will come to UK?
  - Price of US gas market relative to UK
  - The level of demand recovery in Asia
  - New liquifaction
- ⦿ Continental appetite for UK gas through IUK
  - Current flows suggest that long-term contract holders have little flexibility to take UK gas due to ToP or full storage
- ⦿ Weather - W08 was cold

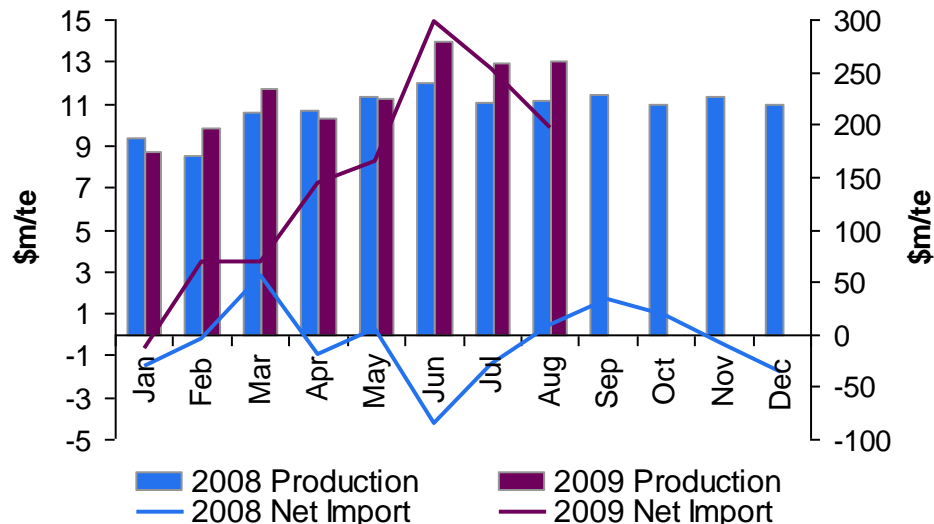


# Coal Price Drivers

API 2 Coal Prices



Chinese Coal Net Imports - 2008 - 2009



**Coal prices for Winter 09 have declined from record highs in July 08 of \$218/t**

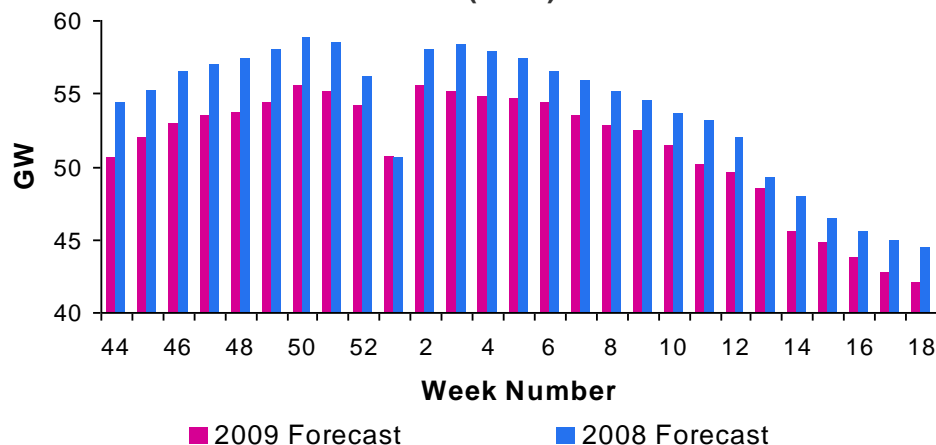
- ⦿ Coal stocks at ARA are at record highs at 95% full (8.2mt)
  - Spread of spot coal to forward contracts has encouraged stockpiling
- ⦿ UK coal stocks are reported to be at the highest levels since 1995
- ⦿ Russian coal production costs, estimated at around \$60/t, have supported spot prices

**Demand from China has also acted as a support for coal prices**

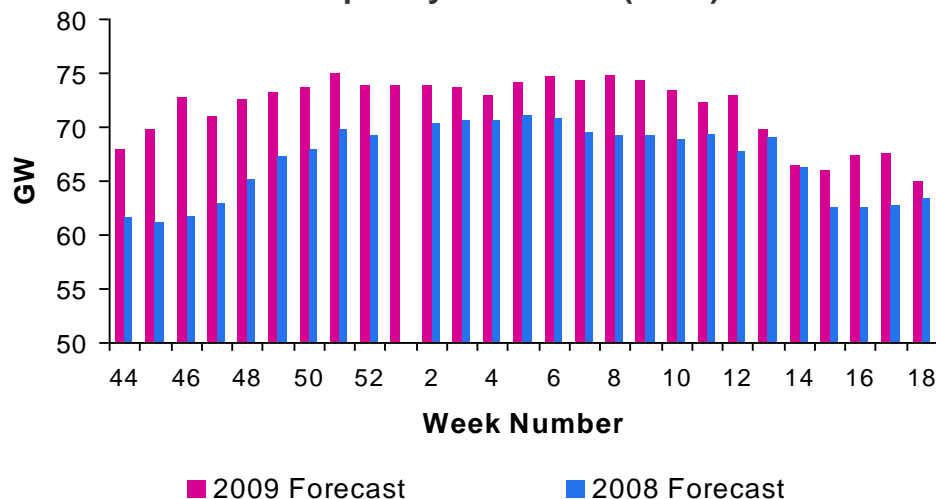
- ⦿ China net imported a record 15mt in June09
  - Net swing of 20mt from last year
  - UK coal consumption in 2007 was 49mt
- ⦿ Fiscal spend of \$580bn to shield the economy from the global slowdown
- ⦿ International coal prices have been competitive relative to domestic production

# Winter 2009-10 UK System Margin

Winter 2008 Vs Winter 2009 Demand Forecast (NGT)



Winter 2008 Vs Winter 2009 Available Capacity Forecast (NGT)



## Demand destruction unlikely to wane

- ⊙ No major recovery in the economy is currently projected
- ⊙ Industrial demand is likely to be similar to the end of Winter 08
- ⊙ Domestic energy saving likely to continue
- ⊙ Embedded wind generation is increasing

## NGT estimate that around 66GW of 77GW available to generate over peak

- ⊙ Higher availability of nuclear generation
- ⊙ New plant online

## Forecast system margin significantly higher than last year

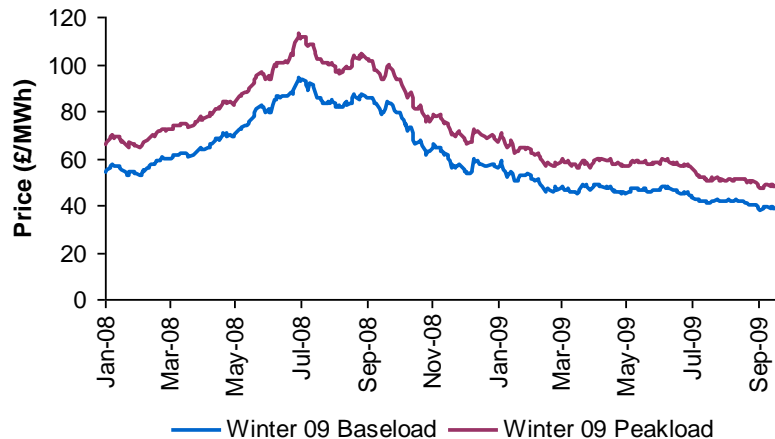
- ⊙ Downward pressure on power prices
- ⊙ Cold weather unlikely to tighten margin enough to get price spikes

## How will opted out coal fleet optimise their remaining running hours?

- ⊙ Will they be available if dark spreads deteriorate further?
- ⊙ Coal stock levels are high
  - Will this force running?

# Winter 09 Power Price History

Winter 09 UK Power Track



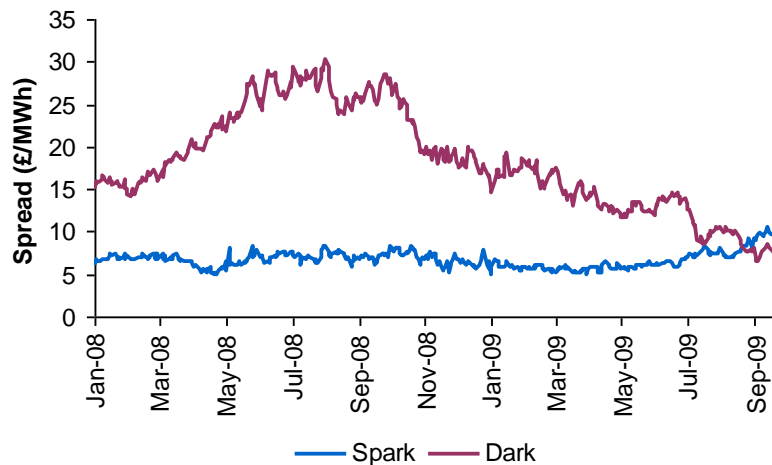
**Winter 09 power fell dramatically from a high of £113/MWh to £37.65/MWh at expiry**

- ⦿ Weakening fuel prices have eroded a significant amount of the value
- ⦿ Realisation that low demand and wide system margins are likely to persist has narrowed spreads

**Clean baseload dark spread fell from a high of £30/MWh to £7/MWh at expiry**

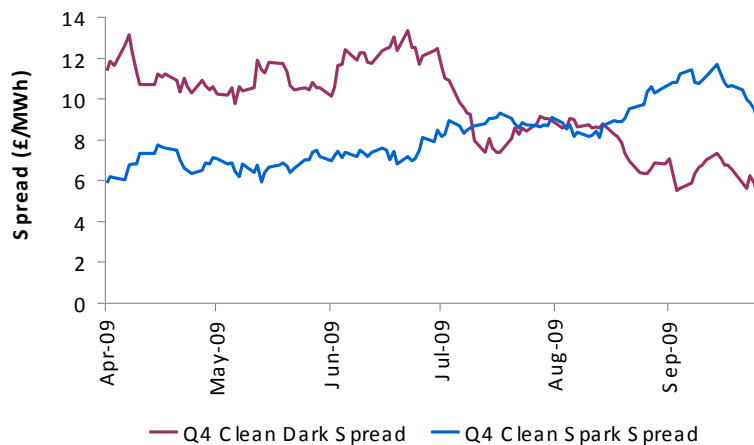
- ⦿ At expiry dark spreads were trading lower than spark spreads
- ⦿ Suggests coal plant will be marginal this winter – very unusual

Winter 09 Clean Baseload Spreads

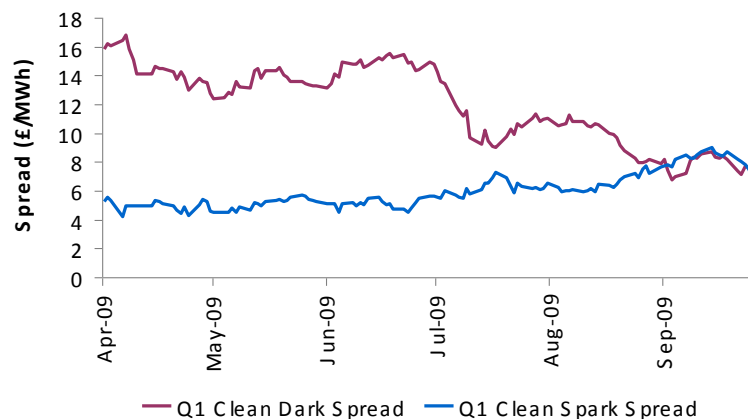


# Winter 09 Power & Spreads - Q4/Q1 split

Q4 2009 Clean Baseload Spreads



Q1 2010 Clean Baseload Spreads



The gas price slump has significantly altered the generation pattern for Winter 09

- ⦿ Coal at the margin for Q4 2009
- ⦿ Coal and gas generation are price neutral for Q1 2010

Coal firmly at the margin for Q4 2009

- ⦿ Q409 gas to coal switching price currently stands at approximately 6p/th
- ⦿ Balance of Q409 NBP currently trading at 32.8p/th

Not clear which fuel will be on the margin for Q1 2010

- ⦿ Price drivers on the gas market appear to be more bearish than those on coal
- ⦿ The coal switching price should present a strong resistance point for gas prices
- ⦿ Will stock levels force coal plant running?
- ⦿ Could the fuels chase each other down?



# Implications

## **There has been a major shift in fuel price dynamics through Summer 09**

- ⦿ Breakdown of correlation between gas and oil
- ⦿ Precipitated by a structural change in the gas market
- ⦿ LNG has changed the oil - gas price dynamic due to gas-on-gas competition
- ⦿ The supply overhang in the global LNG market will take time to clear due to a combination of the economic downturn and new liquefaction capacity

## **Coal assets have suffered the least profitable Summer since 2003**

- ⦿ A combination of relatively resilient coal prices, weak gas, recession, and highest nuclear generation for several years
- ⦿ Winter 09 offers little comfort as the current gas market outlook remains weak (barring a major supply side event – Russia/Ukraine or in US)
- ⦿ Forward clean dark spreads for 2010 are at historic lows
- ⦿ Current clean dark spreads threaten the viability of flexible plant during a period of uncertainty due to commissioning of new CCGT plant