

# Winter 2004/05 Preliminary Outlook

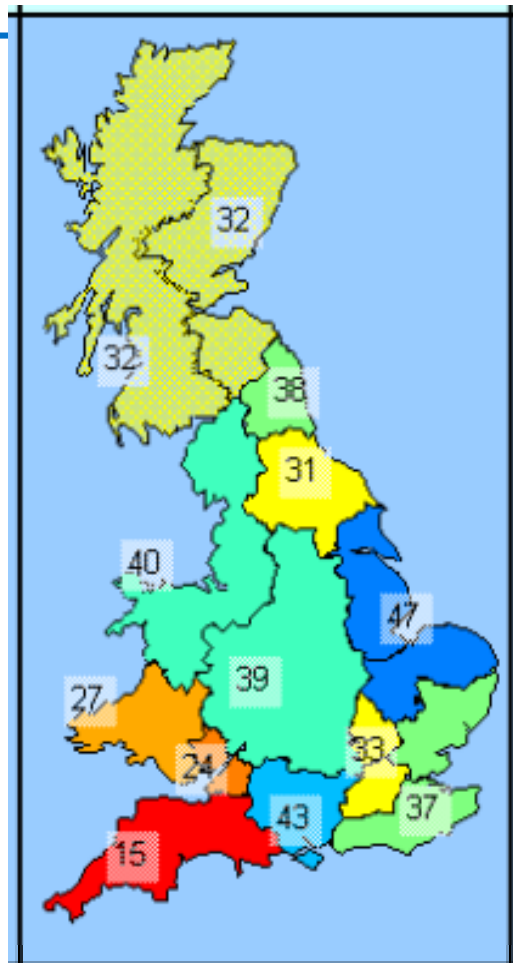
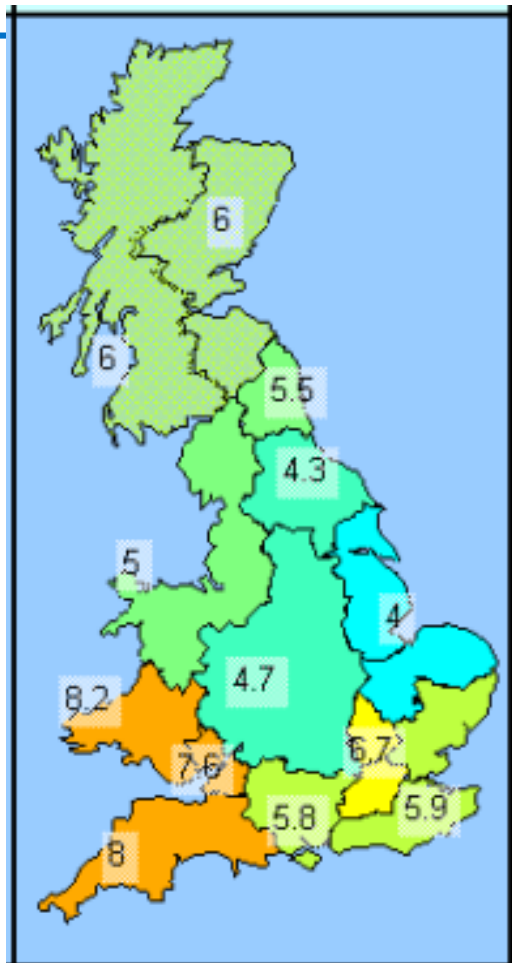
Phil Sheppard

# Winter 2004/05 Preliminary Outlook

- Winter 2004/05 Demand Forecasts
  - Normal, Average Cold Spell (NGT and customer based) and very cold spell
- Winter 2004/05 Generation Available to the Market
  - Plant Margin, declared unavailable, mothballed (TEC), availability
- Winter 2004/05 Security of Supply Outlook
  - Under ACS conditions and under extreme conditions
- Code developments to improve Security of Supply
  - BSC, CUSC, Grid Code & Cashout Review, Network Code
- Average Cold Spell
  - Definition & Methodology

# Winter 2004/05 Demand Forecasts

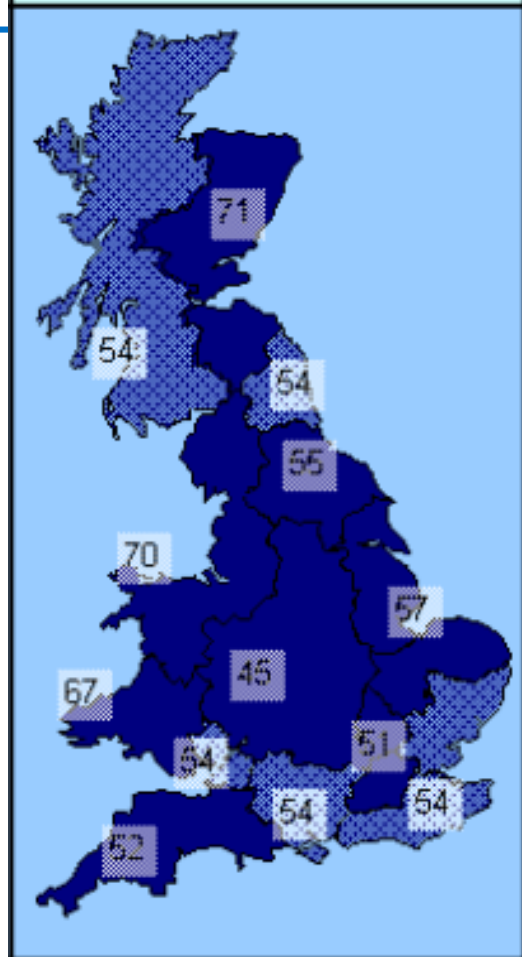
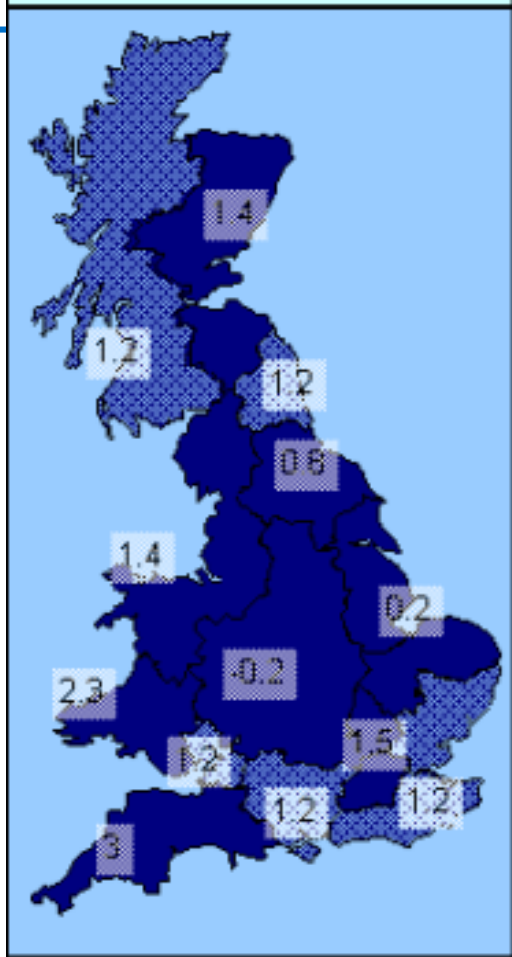
## Winter Peak Demand, Normal - 53.3 GW



- Effective Temperature  
4 to 8.2 °C  
Average 5.9 °C
- Cooling Power  
15 to 47

# Winter 2004/05 Demand Forecasts

## Winter Peak Demand, ACS (NGT) - 55.4 GW

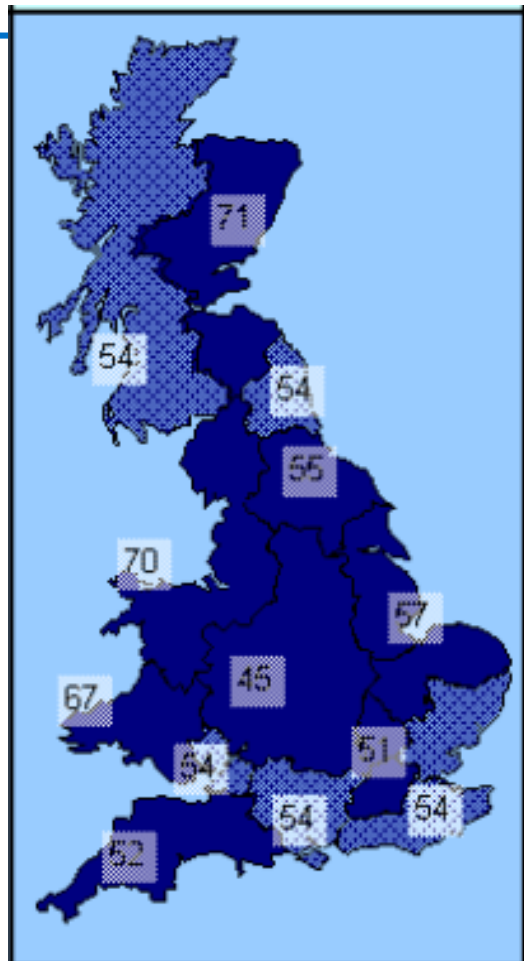
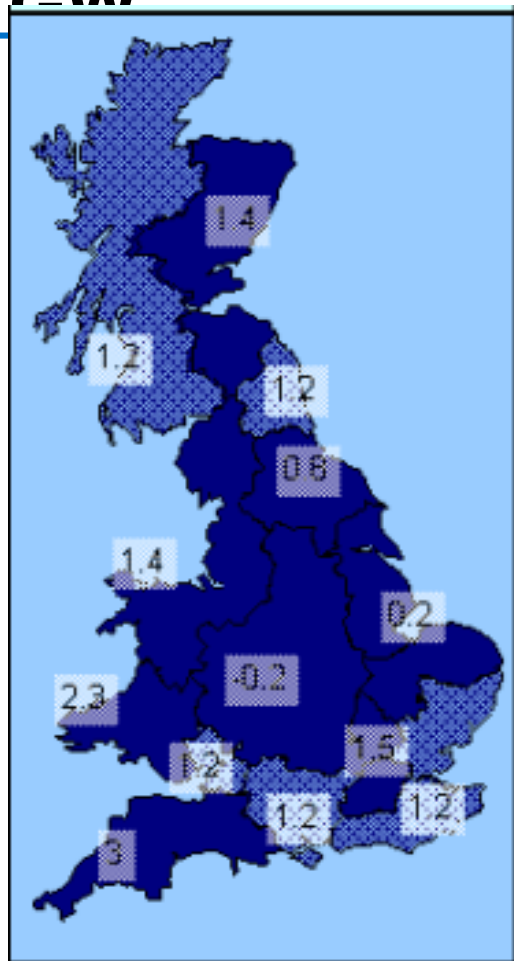


- Effective Temperature  
-0.2 to 3 °C  
Average 1.1 °C
- Cooling Power  
45 to 71

# Winter 2004/05 Demand Forecasts

## Winter Peak Demand, ACS (Customer) - 55.9

GW

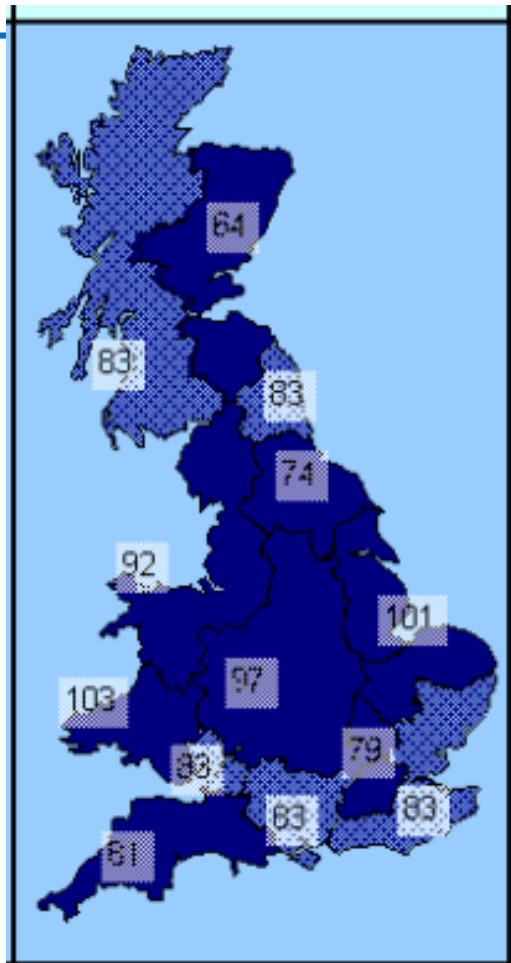
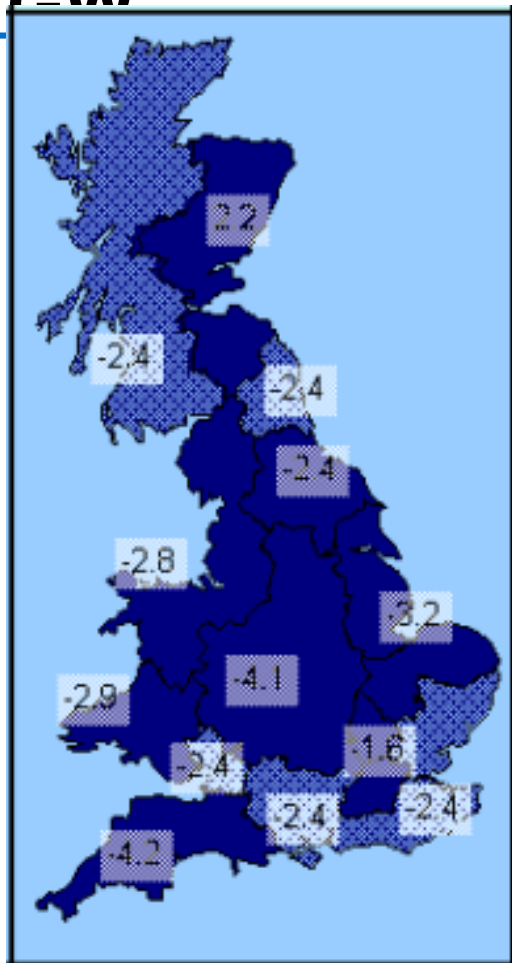


- Effective Temperature  
-0.2 to 3 °C  
Average 1.1 °C
- Cooling Power  
45 to 71

# Winter 2004/05 Demand Forecasts

## Winter Peak Demand, Very Cold Spell - 57.5

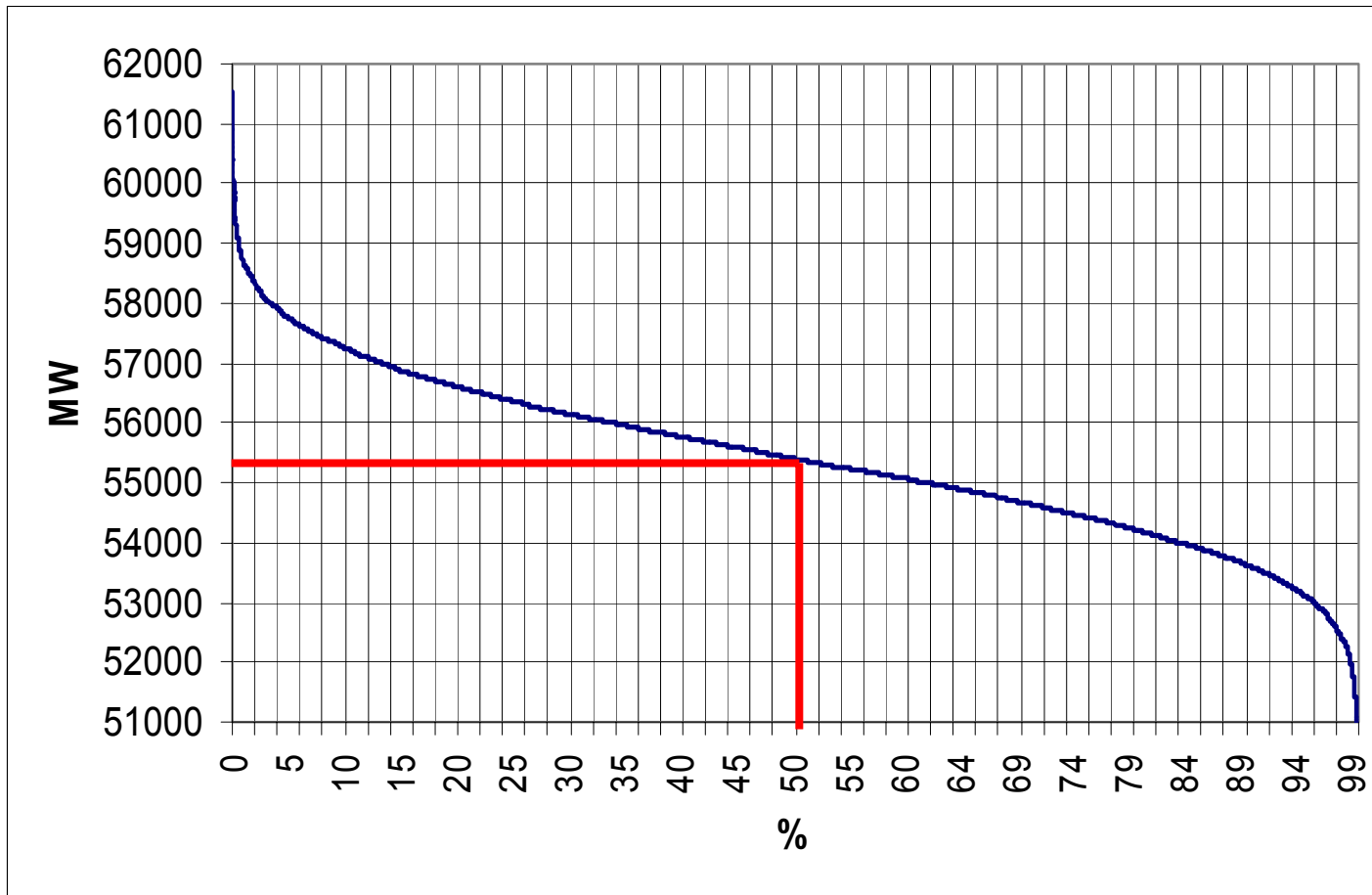
GW



- Effective Temperature  
-4.2 to -1.6 °C  
Average -2.0 °C
- Cooling Power  
61 to 103

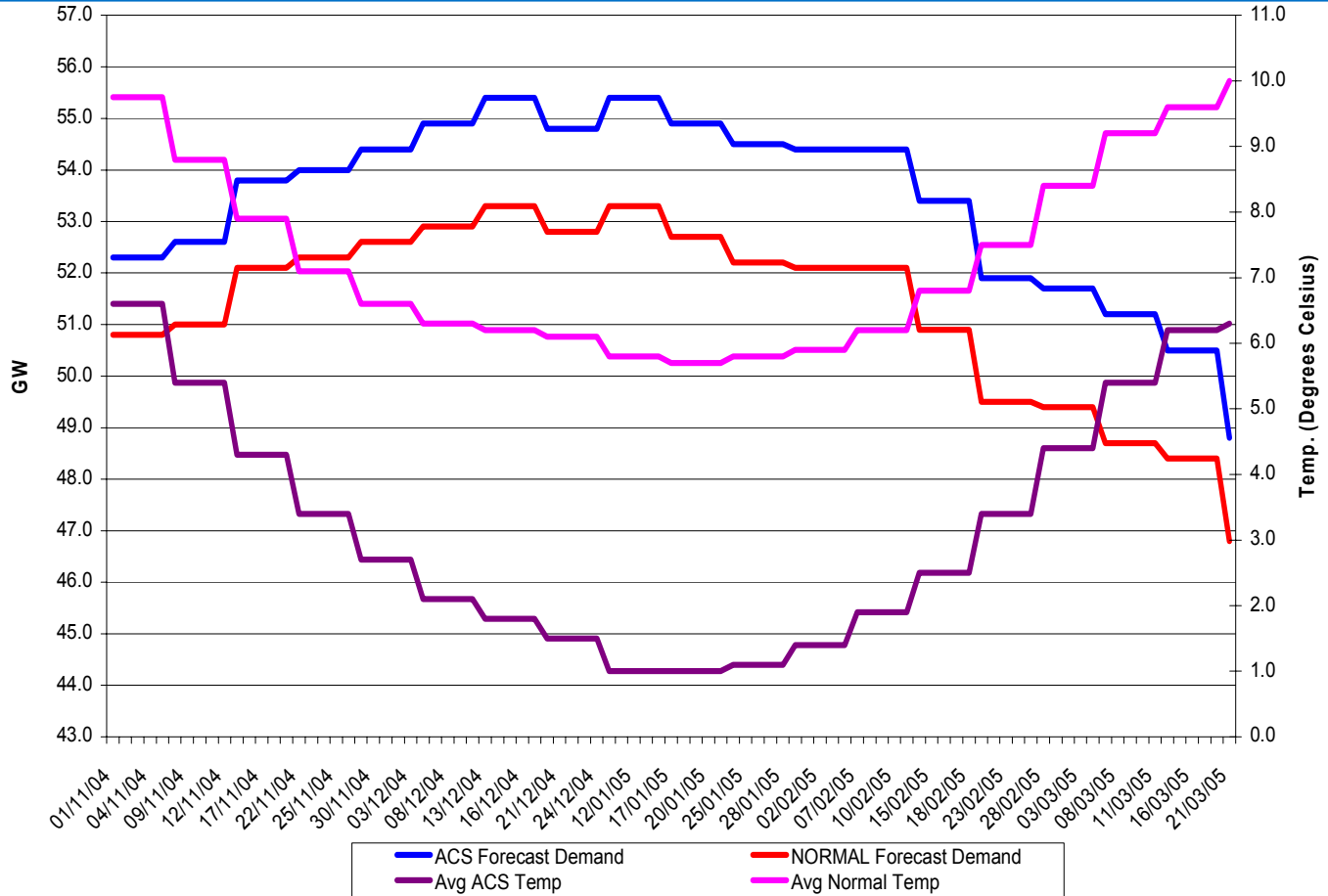
# Winter 2004/05 Demand Forecasts

## Winter Peak Demand Probability Distribution



# Winter 2004/05 Demand Forecasts

## Winter Peak Demands and Temperatures



# Winter 2004/05 Demand Forecasts Summary

- Winter Peak Demand Forecast (Unrestricted)
  - 53.3 GW Normal
  - 55.4 GW ACS - NGT
  - 55.9 GW ACS - Customer
  - 57.5 GW Very Cold Spell
- Uncertainty over very high demands
  - Demand management over mild winters
    - Up to 800 MW observed, 200 MW Notified
  - No experience of market response under very high demands / prices
    - difficult to assess how the market will respond based on the observable behavior to date

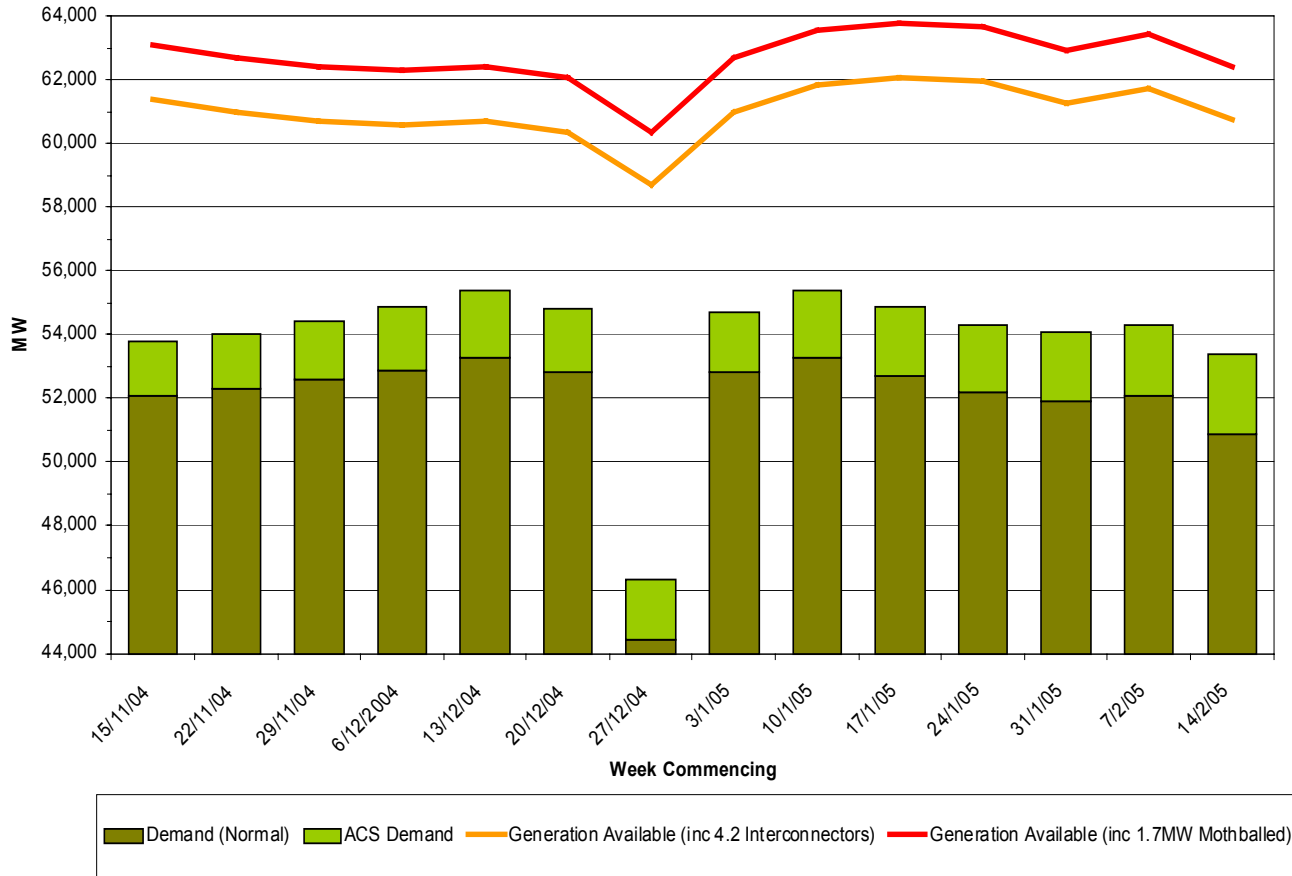
# Winter 2004/05 Generation Available to the Market

## Generation Capacity

- Current Transmission Contracted Generation Capacity is 67.2 GW
- Current Plant Margin (SYS 2004 March Update) 20.2%
  - These figures include 1 GW of plant that has been notified to NGT as being unavailable for the winter, but which can be returned without requiring an increase in Transmission Entry Capacity
- 1.7 GW of plant has been Mothballed (i.e. released TEC) but can choose to return by applying for TEC
- On this basis the Total Generation Capacity available to the Market is 68.9 GW, which would give a plant margin of 23.2%

# Winter 2004/05 Security of Supply Outlook

## Peak Demand / Notified Generation Availability



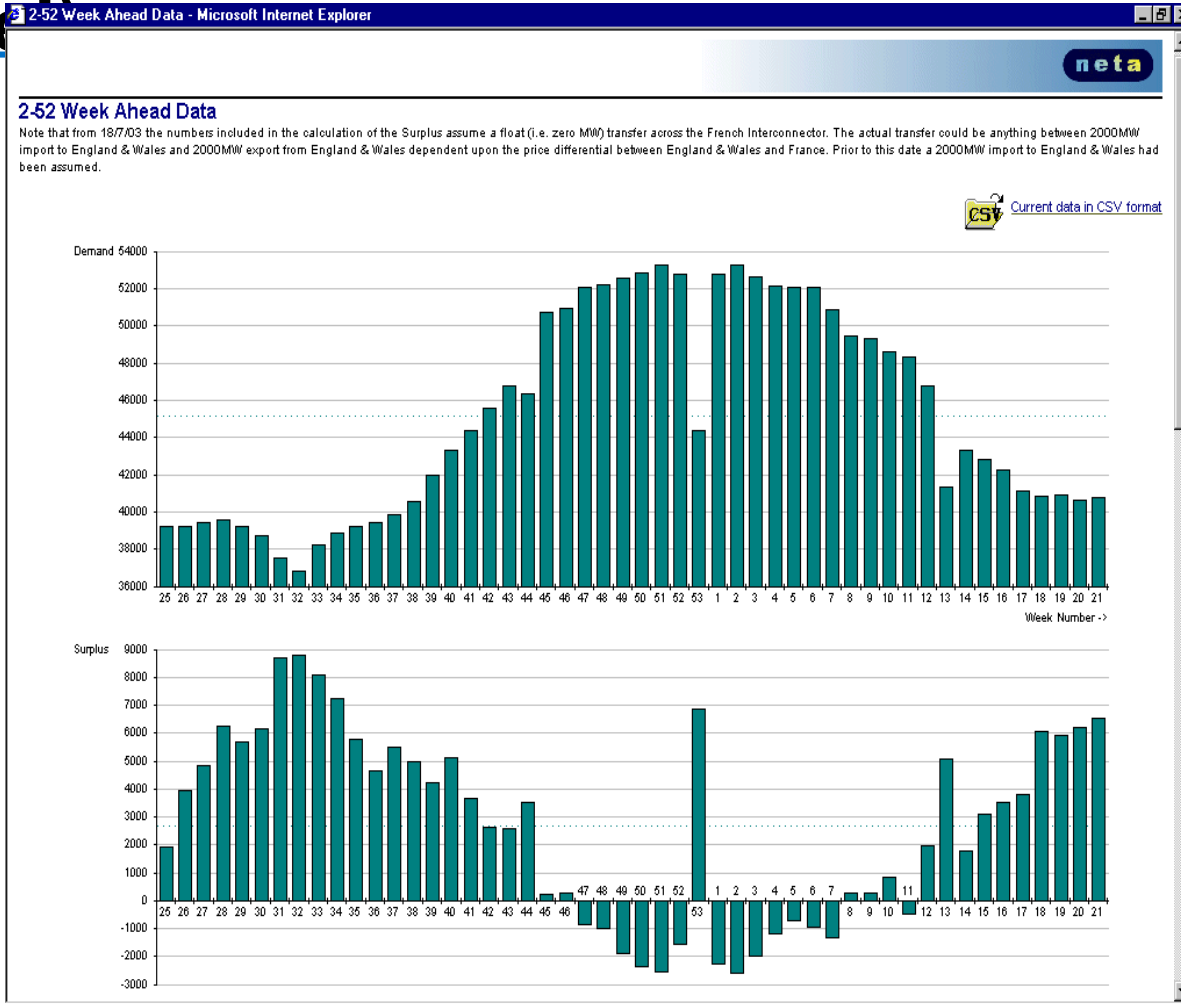
# Winter 2004/05 Security of Supply Outlook

## Notified Generator Availability (subject to change!)

- Minimum margin of Notified Generation Availability above Forecast ACS Demand is around 7 GW (Week 51)
- NGT securing 3 GW of Operating Reserve from this capacity reduces the margin to 4 GW
- Does not include the 1 GW of plant currently declared unavailable but which can be returned without requiring an increase in Transmission Entry Capacity
- Does include the 1.7GW of mothballed Plant and full interconnector imports
- The Notified Generation Availability does not include a full allowance for breakdowns
- Availability updated weekly by Generators - subject to change!

# Winter 2004/05 Security of Supply Outlook

## Notified Generator Availability (subject to change)



# Winter 2004/05 Security of Supply Outlook

## Generator Capacity

- Maximum Generation Capacity available to the Market of 68.9GW
- Provides a maximum margin of 13.5 GW over the 55.4 GW ACS Forecast
- NGT Securing 3 GW of Operating Reserve from this capacity reduces the margin to 10.5 GW
- Typical Winter 03/04 Generator Outages (planned and unplanned) was around 7 GW
- If low probability, high generation failure rates were co-incident with winter peak demand then the existing Grid Code OC6 Demand Reduction (Stage 1 would be Voltage Reduction) will provide a short term additional margin of 3 -4 GW. This should not be discernible to end customers.

# Winter 2004/05 Security of Supply Outlook

## Extreme Conditions

- Low probability severe winter conditions (say, a national average of  $-2^{\circ}\text{C}$  at 17:00, compared to  $+1$  or  $2^{\circ}\text{C}$  for ACS temperatures in mid-winter)
- Under these conditions demand may increase by 2 GW above ACS
- Demand Reduction (Voltage Reduction) will provide a short term additional margin of 3 - 4 GW
- Increased reliance on CCGTs running on either gas or distillate
- High gas demands - increased likelihood of CCGT Interruptions to support the gas market
- Under these extreme conditions Electricity Security of Supply relies upon appropriate response from both the electricity and gas markets

# Winter 2004/05 Security of Supply Outlook Summary

- Current Plant Margin is 20.2%, which can increase to 23.2%
- Sufficient Generation is available to the market to meet ACS demands (based on the additional 2.7 GW of plant that is either currently declared unavailable or mothballed)
- In a cold winter (near ACS conditions), low probability high generation failure rates may require use of the existing operational arrangements for voltage reductions to be instructed to maintain security of supply
- In low probability severe winter conditions security of supply relies upon appropriate response from both the electricity and gas markets

# Code Developments to improve Security of Supply

- Connection and Use of System Code
  - Short Term Transmission Access
  - Maximum Generation Service
- Grid Code
  - Alternative Fuel Capability - L/03 - Approved
    - Additional information on mothballed plant
    - Additional information on CCGT alternative fuel capability
- Balancing & Settlement Code
  - Cashout review
- Network Code
  - Partial (Volume) Interruption Service

# Winter 2004/05 Preliminary Outlook Summary

- Winter 2004/05 Demand Forecasts
  - ACS Demand Forecast - 55.4 GW
- Winter 2004/05 Generation Available to the Market
  - Transmission Contracted Generation - 67.2 GW (Plant Margin 20.2%)
  - Total Generation Capacity available to the Market - 68.9 GW (23.2%)
- Winter 2004/05 Security of Supply Outlook
  - Under all credible scenarios, including ACS conditions, security of supply can be maintained on the basis of the generation capacity available to the market
  - Under low probability extreme conditions security of supply is dependant upon appropriate response from both the electricity and gas markets
- Ofgem Cashout Review