# Update on winter 2003/04

John Greasley

National Grid Transco

# Key messages for winter 2003/04

- Messages have been consistent for past few months
- Plant Margins are tightening
- Forecast for this winter indicates that operational planning margin requirements may not be met
- If we see exceptional circumstances this winter then:
  - demand control may be required
  - likely to be in the form of voltage reductions
- Market needs to respond

# Agenda

- SYS margins
- Operational margins
  - how they are calculated
  - figures for 2003/04
- What could happen this winter

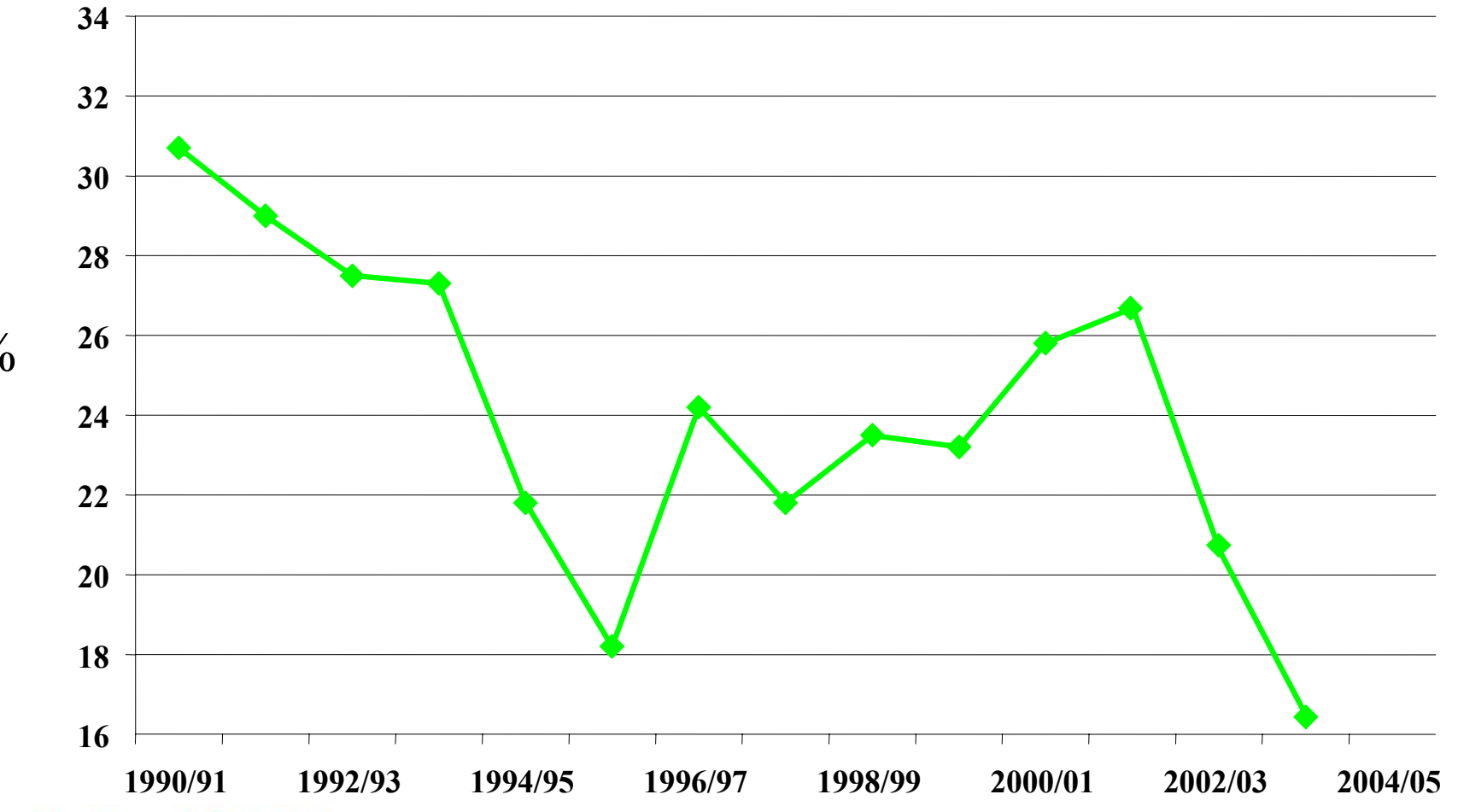
# Latest Seven Year Statement View
# Plant Margins

$$\text{Plant Margin} = \frac{\text{Generation Capacity - ACS peak demand}}{\text{ACS peak demand}} \ (\%)$$

*SYS Plant Margin figures based on ACS demand provided by DNO's*

- Winter 01/02… Installed Capacity 68.0 GW, ACS Demand 53.7GW
  **Plant margin = 26.6%***
- Winter 02/03… Installed Capacity 66.8 GW, ACS Demand 55.3GW
  **Plant margin = 20.7%***
- Winter 03/04… Installed Capacity 65.1 GW, ACS Demand 56.0GW
  **Plant margin = 16.2 %***

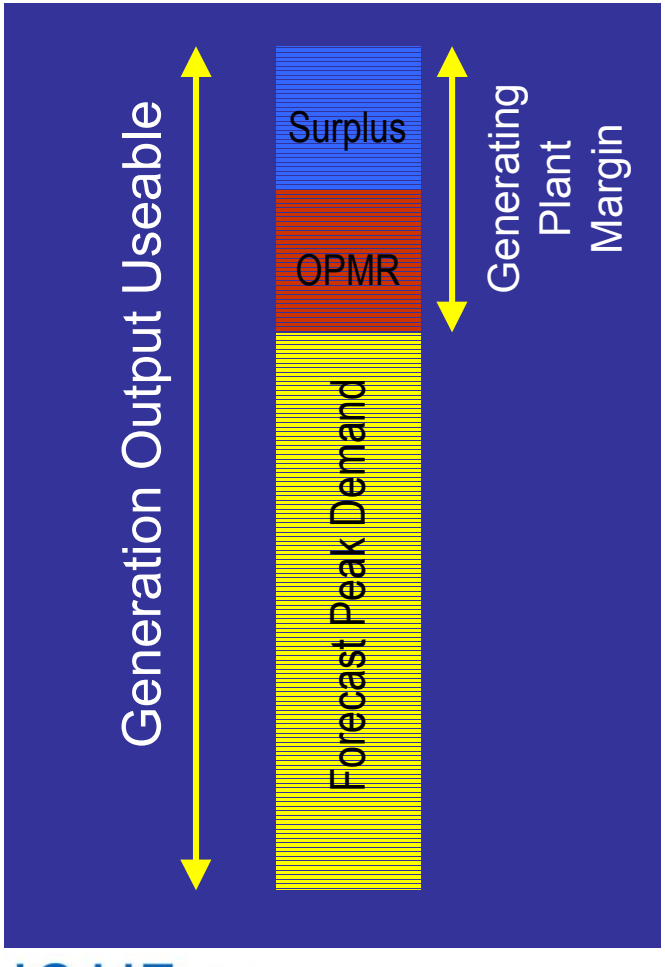
# Plant margin since 1990



# SYS vs ‘operational’ data

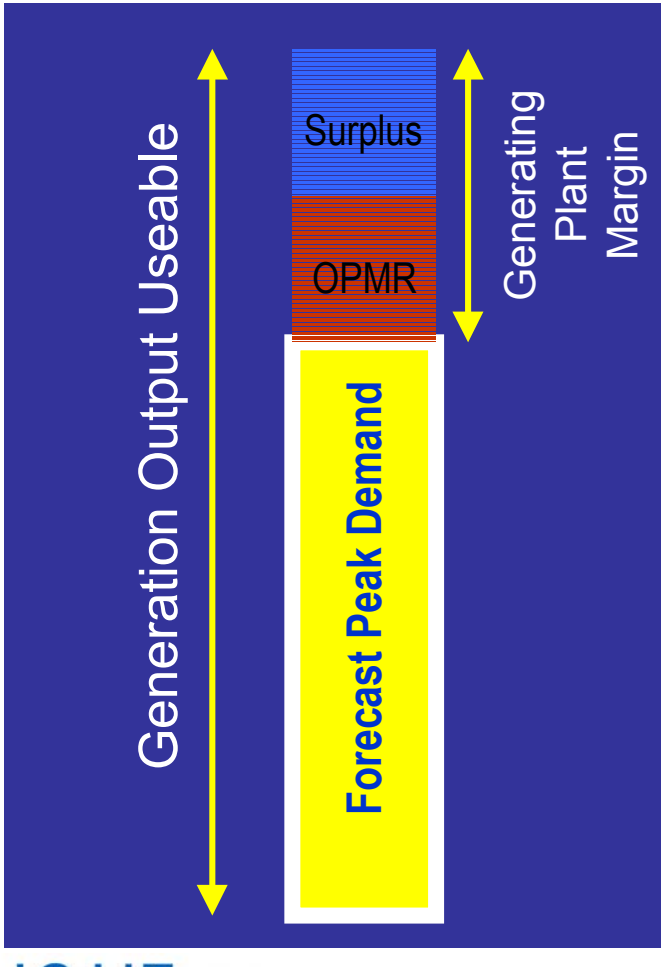
- OC2 is prescribed process from Grid Code for information sharing:
  - allowance for plant breakdown
  - plant outages (weekly)
  - commissioning details
- Provides a more detailed view than ‘headline’ SYS position

# OC2 Plant Margin Process



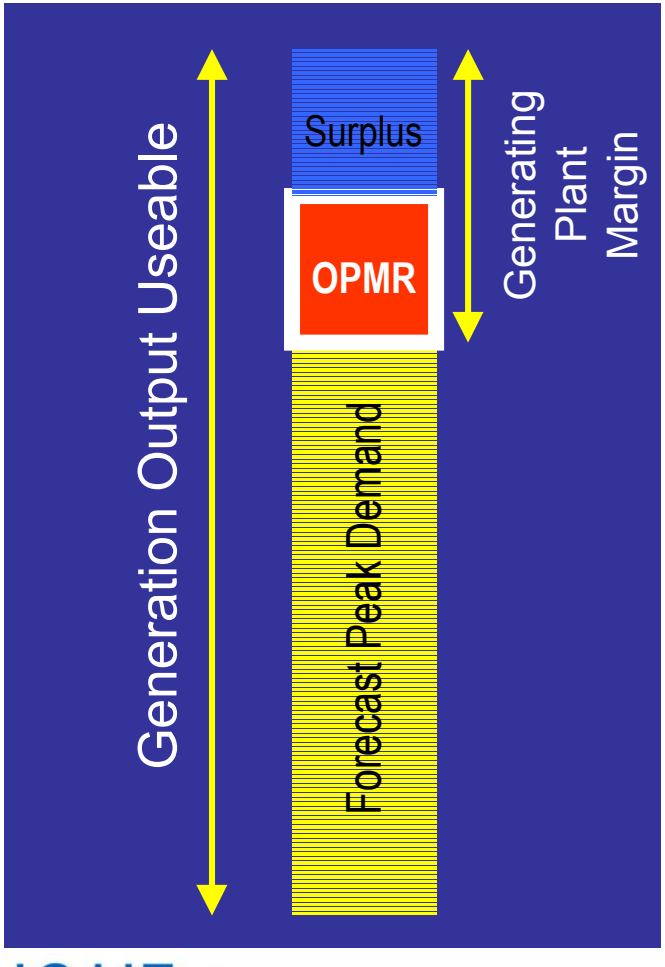

- OC2 process is an Information exchange
- Generators submit plant availability to National Grid from 2 days out
- “Surplus” and “Margin” is calculated
- Allows market to respond appropriately

# OC2 Plant Margin Process




- Peak Demand
  - Demand forecast is based on "normalised weather conditions" - based on average weekly temperatures over last 22 years - 50% chance of being exceeded
  - Average cold spell demand forecast have a 12% chance of being exceeded in any one week in Dec/Jan and typically occur at temperatures of $1^0$C

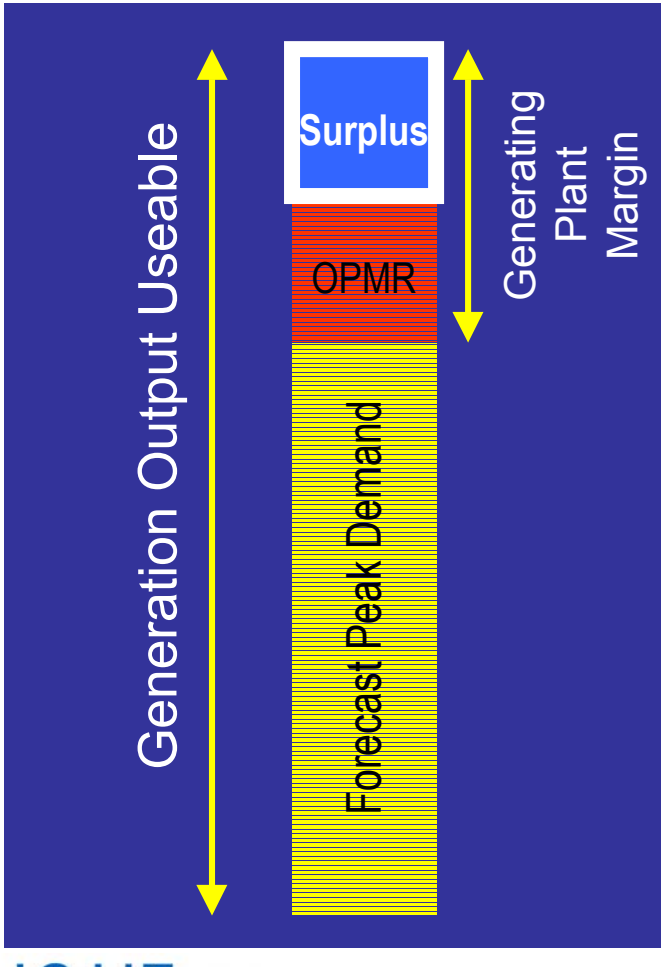
# Operational Planning Margin




- OPMR is the amount of extra generation over and above forecast demand required to meet a Loss of Load Expectation (LOLE) of one occasion per year

- It is based on
  - the day ahead forecasts supplied by generators and the standard deviation of these forecasts
  - our demand forecasts and the standard deviation of these forecasts

# Surplus

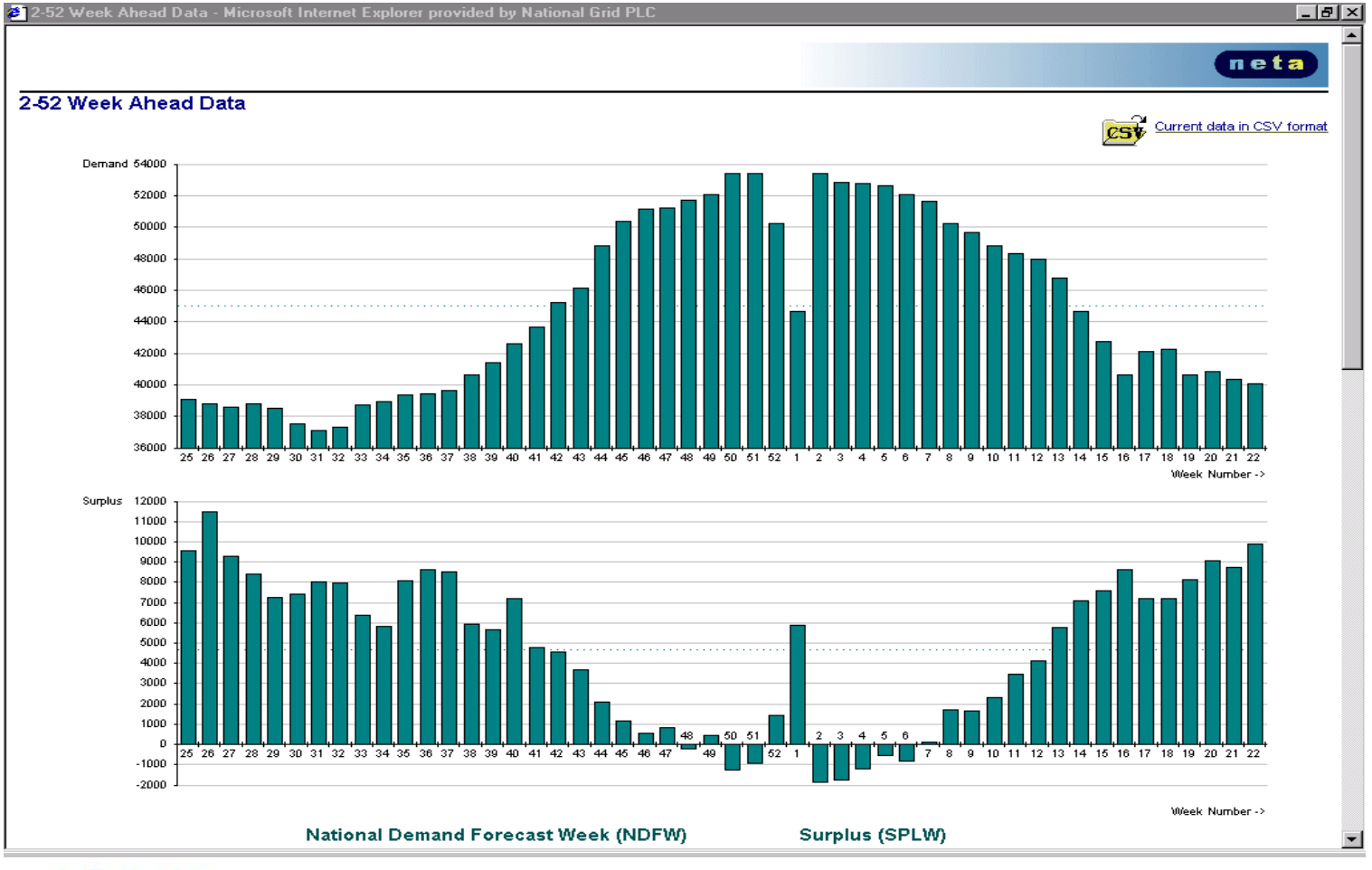



- Surplus represents the generation available over and above demand and OPMR
- Negative Surplus -
  - When the OPMR is not met, LOLE Increases

# Information publication

- OC2 data is published on BMRS
- 2 - 52 week data gives weekly surplus
  - OC2 generator availability submissions
  - Normalised weekly peak demand forecasts
  - OPMR based on statistical analysis
- Information also published on ELEXON web site

# Current view of plant surplus




National Grid Transco

# Operational View
# Plant *Availability* Winter 03/04

- Forecast for week in early January
- 53.5GW peak demand forecast (Normalised)
- 7.7GW operational planning margin
- 59.3GW plant currently available (OC2)

Surplus is -1900MW

- In March 2003, surplus was being reported as +560MW

# Key uncertainties

- Potential Upsides:
  - Plant can return from mothball
  - 7.5GW mothballed in total
    - 4.1GW pre-NETA
    - 3.4GW since 2001
- Potential Downsides
  - Interconnector flows
    - 2.0GW import from France?
    - 2.2GW import from Scotland?
  - Commissioning plant performance?
  - Further mothballing / unavailability?

# What does this mean?

- If this deficit materialises then OPMR would be eroded
- LOLE > 1
- Increase risk of System Warnings:
  - NISM/HRDR/DCI
- Increased risk of expensive balancing actions and associated high SBPs
- Increase risk of demand reduction:
  - voltage reduction
  - demand disconnection

# Winter peak 2002

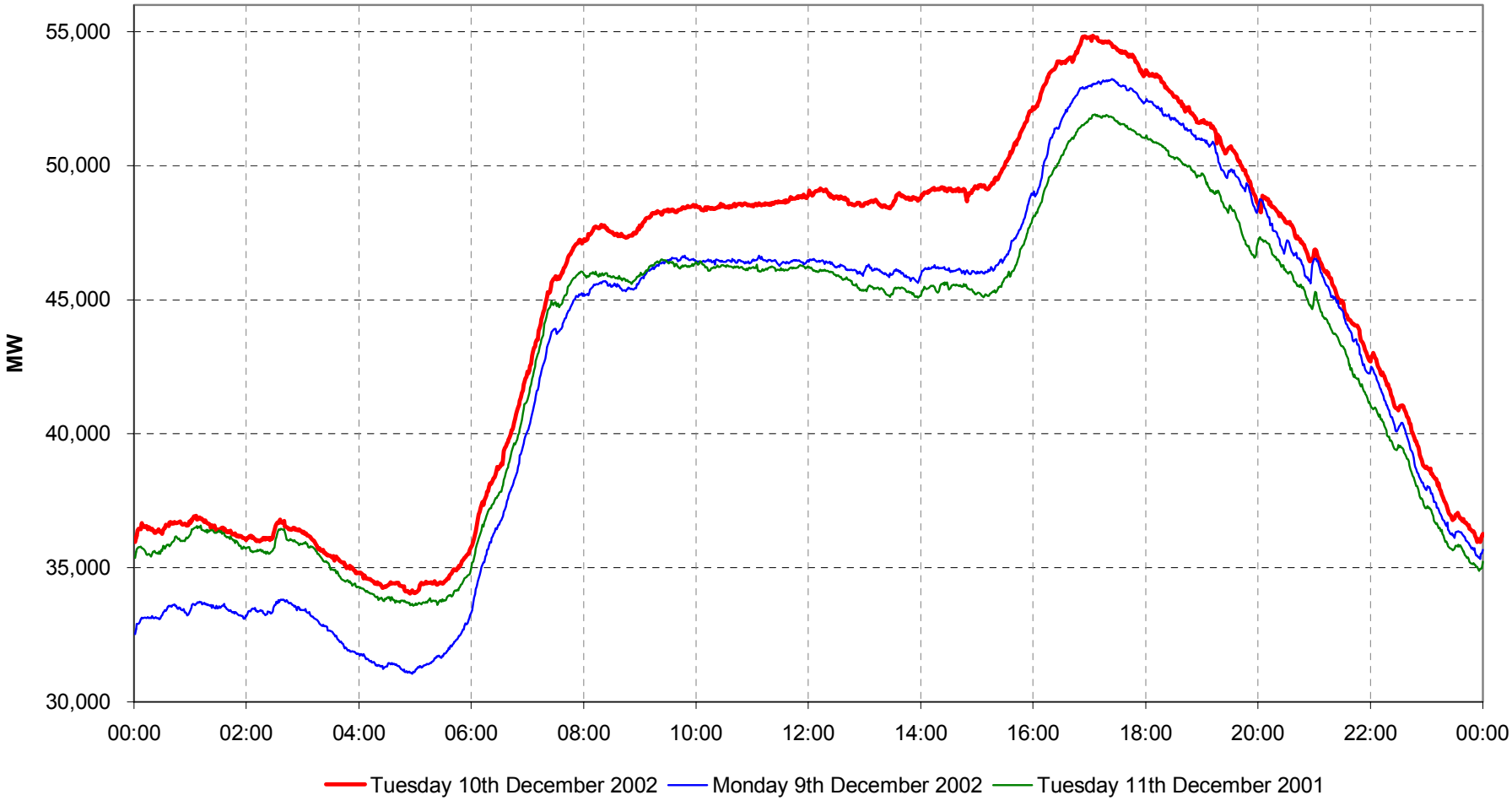
- Tuesday 10th December
- Position tight but manageable at 1400 (one unit stood down)
- Exceptional plant loss
  - 2.4GW during 3hrs up to peak
- ACS demand conditions
  - 54.8GW - 400MW above forecast
- All reserve committed
- All feasible offers taken (up to 10,000 £/MWh)

# 10th December 2002

- No further generation available at peak
- Next step to reduce demand
  - Stage 1 - ~5% by voltage reduction
- Demand Control Imminent warning effective 16:55 -18:00
- Generation with technical problems continued to operate
- Further loss of 500MW generator at 17:34 - 20 minutes after peak

# Electricity Demand December 10th 2002

**(Comparison with Other Days)**



# Key Messages - Winter 03/04

- Plant margins are tightening in SYS
  - forecast to be at lowest since 1990
- Sufficient plant are not currently available to meet operational planning margin requirements
- Risk of disruption this winter
  - 10th Dec 2002 conditions with 16% plant margin would result in demand reduction
- Market needs to respond