

Update on winter 2003/04

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Key messages for winter 2003/04

- Messages have been consistent for past six 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
- Potential gas/electricity interactions
- Market has responded - some plant has returned

Agenda

- SYS margins
- Operational margins
 - how they are calculated
 - figures for 2003/04
 - what do they mean
- Procurement of reserves
- What is happening for this winter

Latest Seven Year Statement View Plant Margins

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

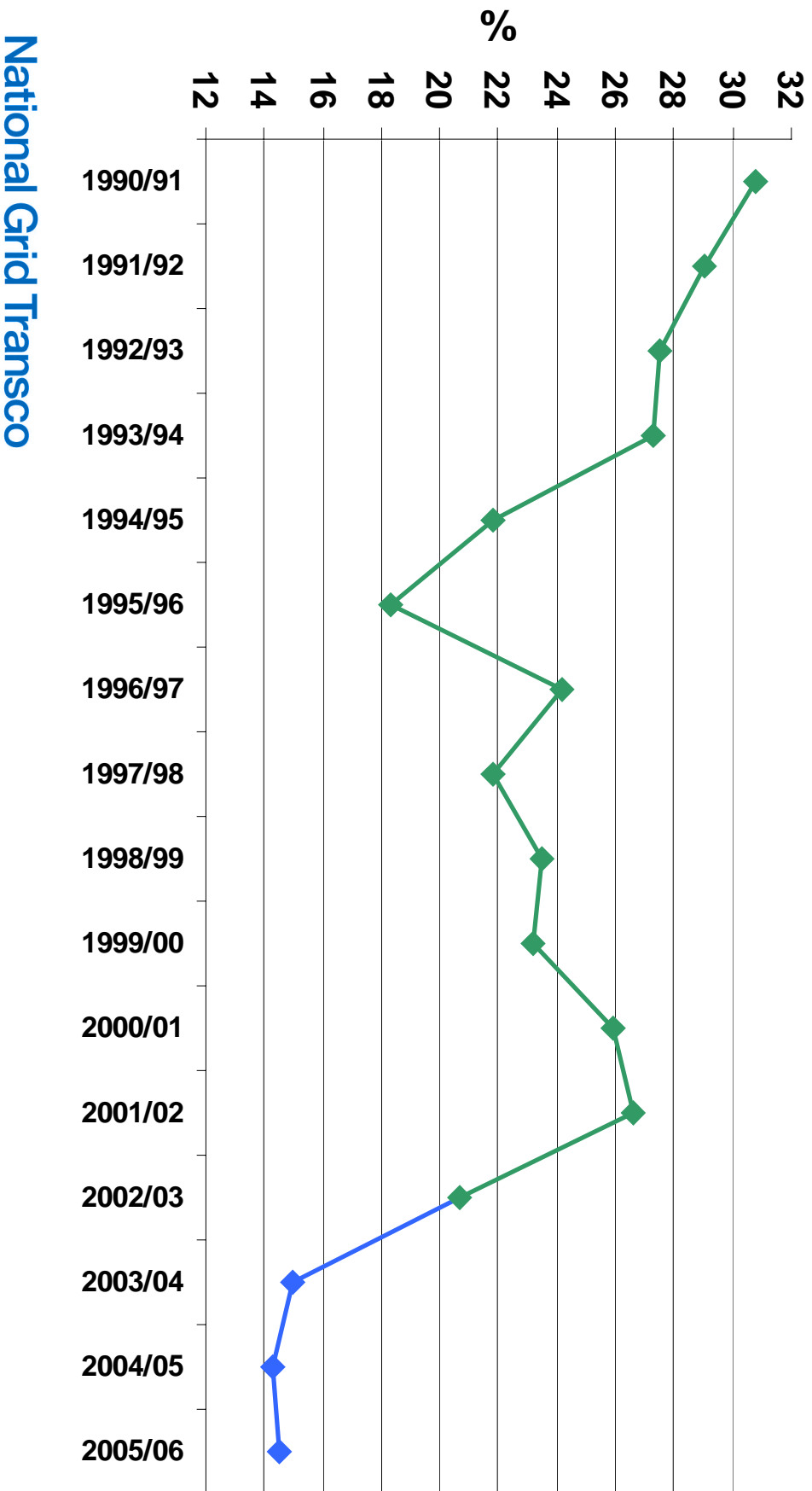
SYS Plant Margin figures based on ACS demand provided by DNO's

- Winter 01/02... Installed Capacity 68.0 GW, ACS Demand 53.7GW
Plant margin = 26.6%
- Winter 02/03.... Installed Capacity 66.8GW, ACS Demand 55.3GW
Plant margin = 20.7%
- Winter 03/04... Installed Capacity 65.1 GW, ACS Demand 55.9GW
(July update) **Plant margin = 16.5 %**

NGT Internal View

- SYS October 03 update up to 17.7% (from 16.5%)
- However, current NGT internal view:
 - commissioning plant
 - 'commercially' unavailable
 - other adjustments
 - 1.5GW of SYS capacity not expected at winter peak
 - internal view of margin is 15.1%
- This internal view has upsides and downsides
 - assumes full interconnector imports
 - assumes no further returns

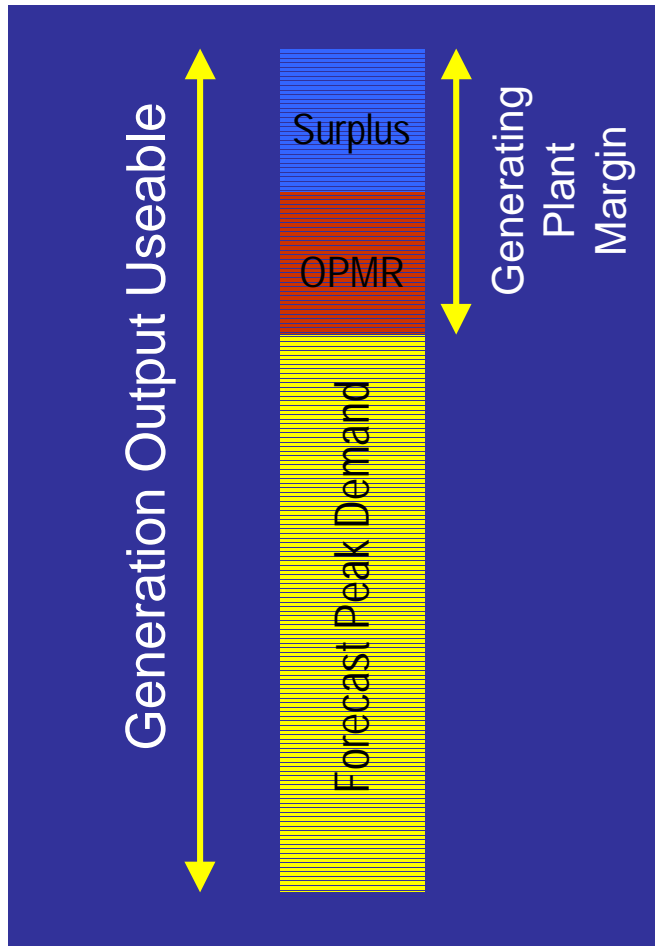
Plant margin since 1990



SYS vs 'operational' data

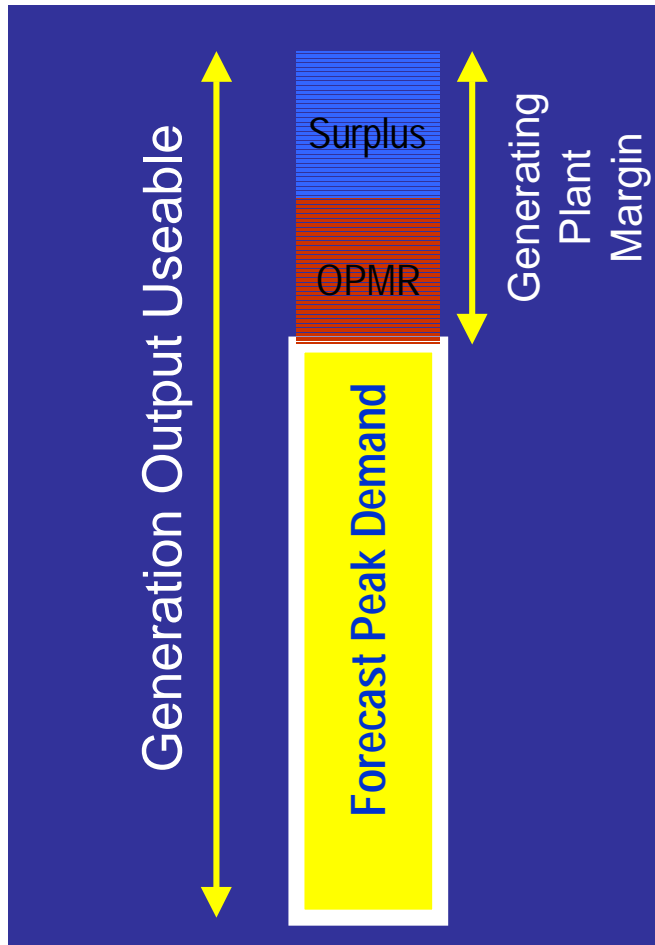
- OC2 is prescribed process from Grid Code for information sharing:
 - allowance for plant breakdown
 - plant outages (weekly)
 - commissioning details
- Provides a more detailed view than 'headline' SYS position

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

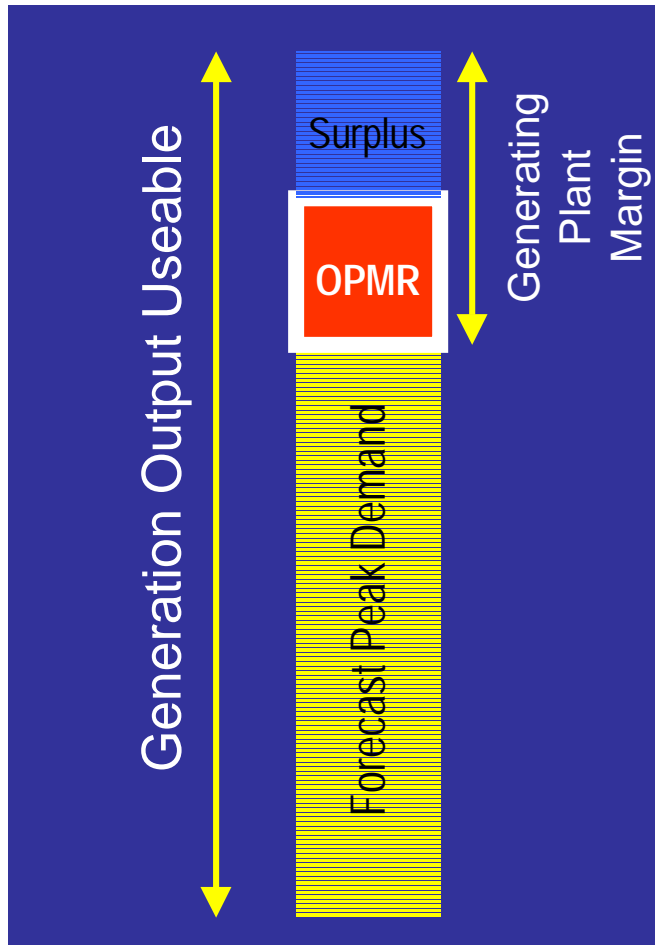
OC2 Plant Margin Process



- 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 forecasts have a 12% chance of being exceeded in any one week in Dec/Jan and typically occur at temperatures of 1°C
- Annual ACS demand has 50% chance of being exceeded in any winter

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

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
 - French Interconnector is assumed as zero
- Information also published on ELEXON web site

Current view of plant surplus (BMRS as of 03 October)



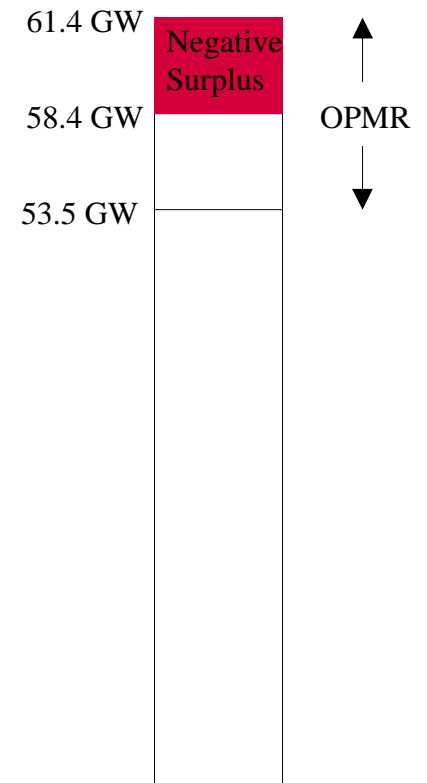
Operational View

Plant *Availability* Winter 03/04

- 16 'negative' weeks from w/c 17 November
- Forecast for week in early January
 - 53.5GW peak demand forecast (Normalised)
 - 7.9GW operational planning margin
 - 58.4GW plant currently available (OC2)

Negative surplus of -3043MW

- Comparable surplus in June 2003 was -3900MW



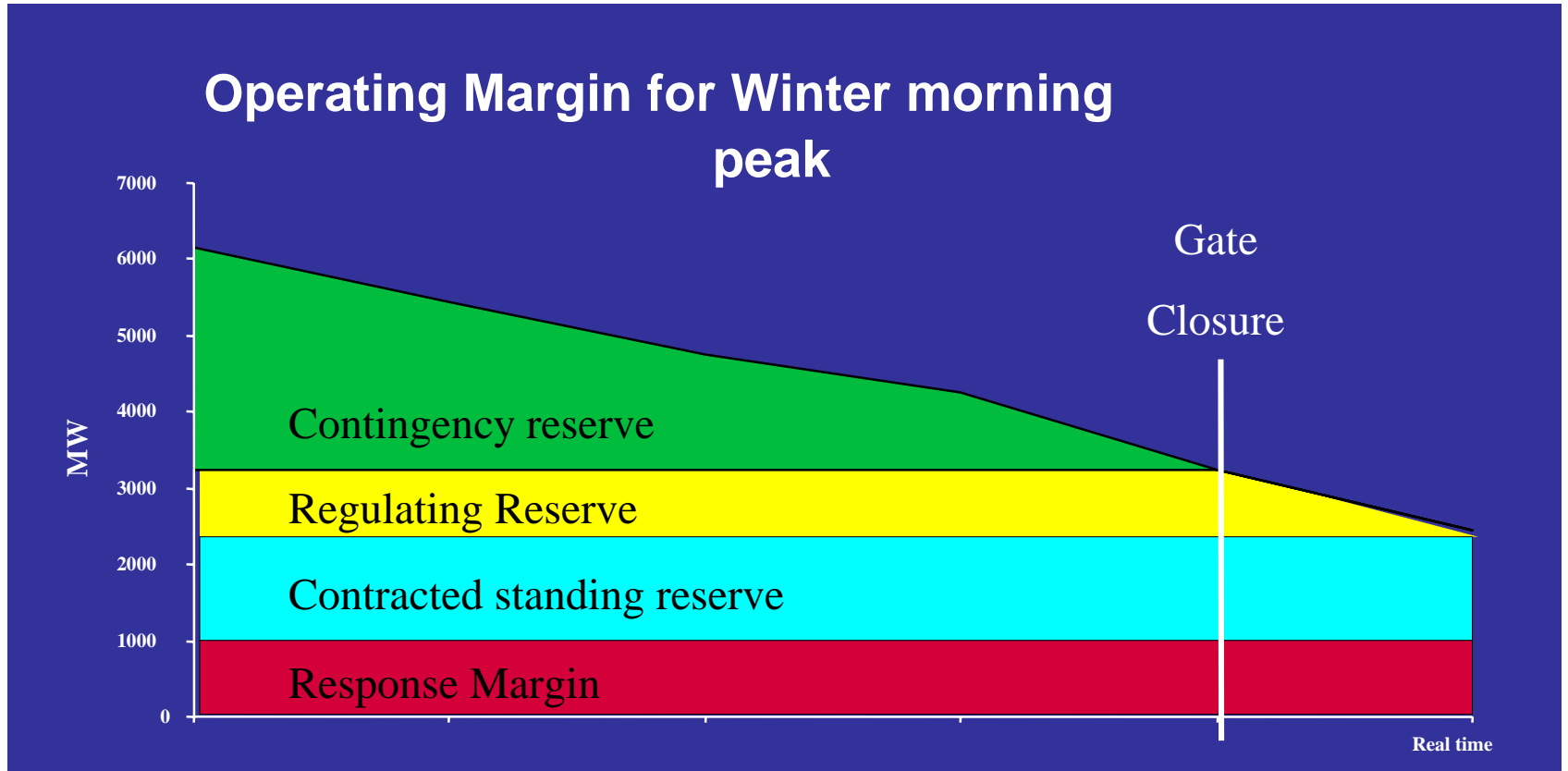
Operating Margin and Reserves

- At winter peak the 7.9GW (3 months ahead) of OPMR results in a requirement for ~6GW of operating margin at the day ahead stage
- Operating Margin is the level of available MWs above those required to meet demand
 - covers plant loss, plant shortfall, demand forecast error
 - optimised from day ahead to real time
 - consists of contingency reserve, regulating and standing reserve, and reserve for response

Operating Margin and Reserves

- Contingency reserve (typically 2.5GW)
 - level of plant that may be required from day ahead to gate closure
 - reduces as real time approaches
 - required to manage uncertainty
 - procured via warming/PGBTs
- Regulating and Standing Reserve (typically 2.5GW)
 - required to cover losses within BM window and demand variations
 - procured via BM, standing reserve tender
- Reserve for response (typically 1GW)
 - MWs that will automatically respond to system frequency
 - preserved at all times
 - procured via BM/Balancing Services contracts

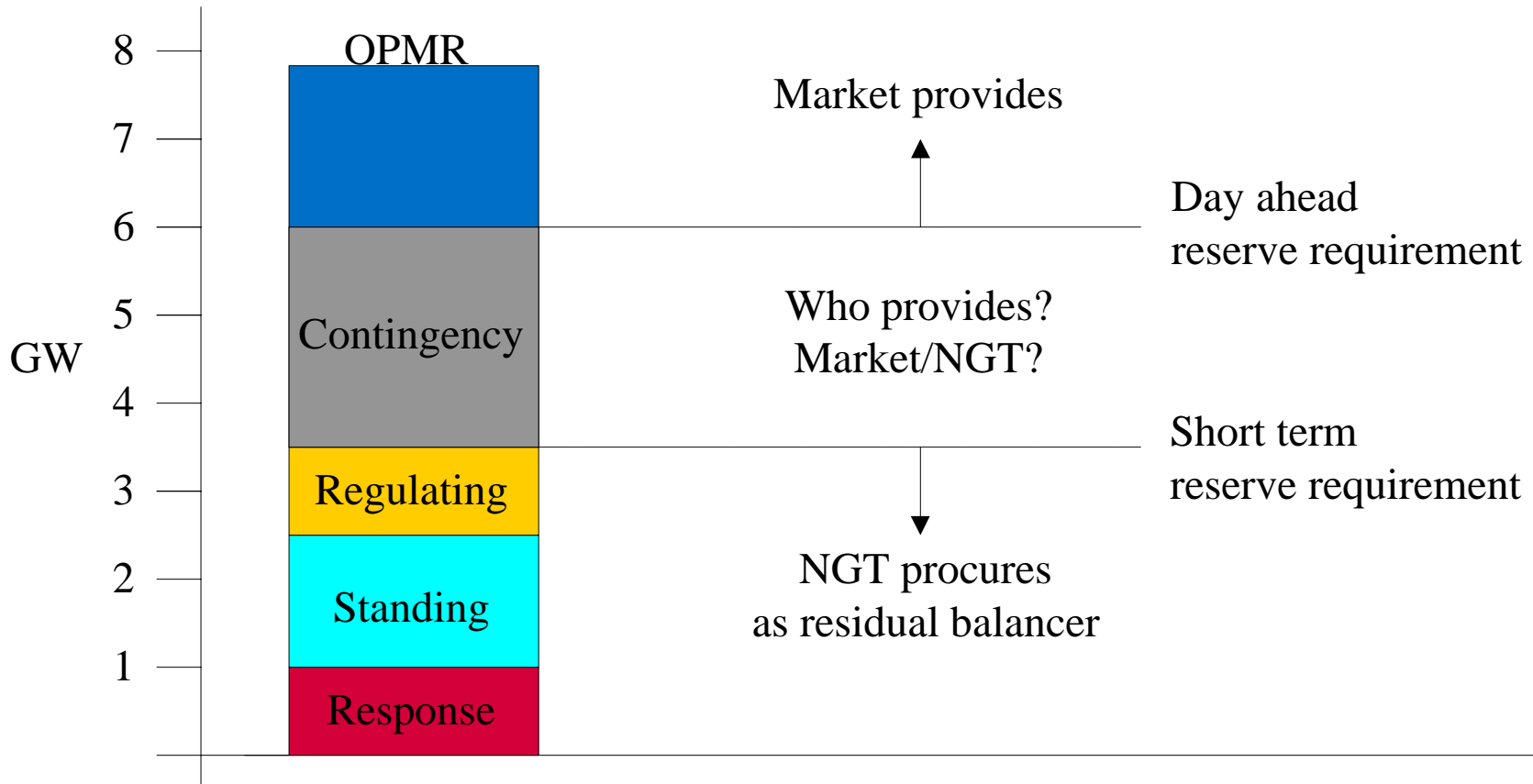
Operating Margin and Reserves



What does this mean operationally?

- OPMR represents the capacity that we would like to see indicating an intention to be available
- OPMR levels do not translate into short-term reserve that we actually procure
 - Proportion of OPMR represents 'non short-term' uncertainty that market should be covering itself
- We procure reserve to cover uncertainties from a few hours ahead to real time
- In summary
 - 'non short-term' uncertainties - market should provide
 - Within day contingency - market or NGT?
 - short term requirements - NGT will procure

Reserve provision



Provision of reserves

- If market may not balance itself (due to low plant margins), should we buy extra reserve?
 - We can only buy what is available?
 - How much of OPMR can we cover with reserve without buying 'capacity'?
 - Risk that buying 'capacity' for the market will result in a 'single buyer'
- We believe market should provide bulk of OPMR
 - need correct price signals
- We believe BM price signals are not sufficiently strong
- We believe that marginal pricing is more appropriate
 - P135 - short term proposal for this winter
 - P136 - longer term enduring solution

BSC Modification P135

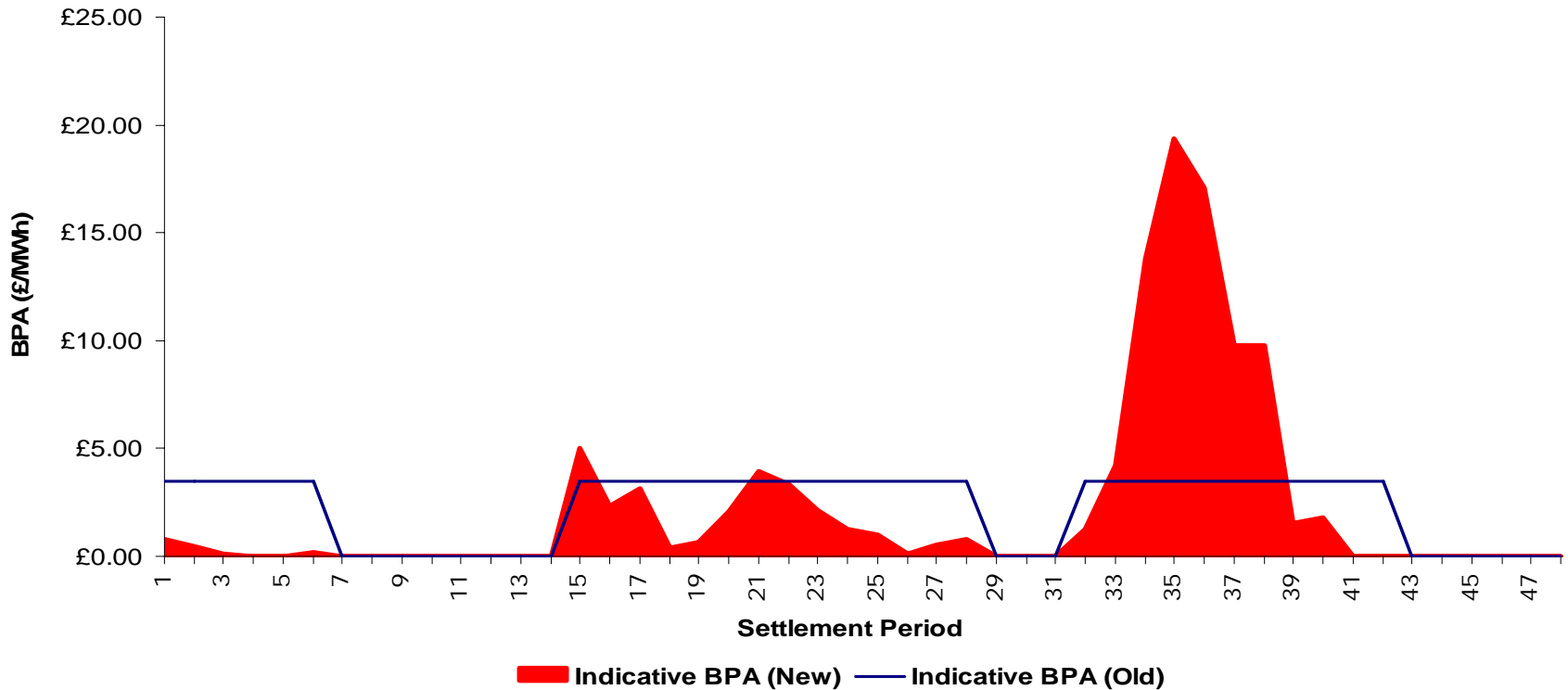
- P135: Marginal SBP during periods of demand reduction (NGT)
 - rejected by Ofgem on 26 September 2003
 - Ofgem concerns
 - perverse incentive to withhold generation
 - marginal price could be set on small volume not reflecting true balancing costs
 - two pricing methodologies (marginal and average)
 - RCRC mechanism could undermine intent of P135
 - Market could lengthen leading to increased costs through inefficient over-contracting
 - Ofgem's view that NGC consider tendering for additional reserve
 - We are considering holding an open tender for additional firm short-term reserve
 - As an economic alternative to buying on the day (via BM or PGBT)
 - To provide greater firmness that our required volume will be available
 - Not to buy extra capacity for the market

BSAD Modification

- Change to BSAD approved effective from 24 October 2003
 - Standing Reserve option payments to be targeted at settlement periods according to ex-ante profile of expected utilisation.
 - Effective cost of reserve services included in Imbalance Prices
 - Interim solution prior to enduring solutions developed as part of P136 and P137.
- Could add up to £20/MWh to SBP at winter peak

Revised BSAD calculation - indicative BPA addition

Working Day BPA



Key uncertainties for this winter

- Potential Upsides:
 - Further plant returning to service
 - BS Initiatives
 - Interconnector flows
- Potential Downsides
 - Interconnector flows
 - Commissioning plant performance?
 - Further mothballing / unavailability?
 - Gas interruptions?
- Weather

Status of mothballed plant

- Previously noted there was up to 7.5GW of mothballed plant
 - 4.1GW pre-NETA
 - 3.4GW since 2001
 - of this, 1.3GW already returned
- More accurate information on status of mothballed plant (& alternative fuel sources)
 - Information requested from Generators
 - return to service times
 - alternative fuel sources for gas fired plant
 - information being analysed
 - to be included in Winter Operations Report
- We will not tender for more reserve prior to publication of Winter Operations Report

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 higher than we would like it to be
- We are considering option of procuring additional firm short-term reserve
 - As an economic alternative to buying on the day (via BM or PGBTs)
 - To provide greater firmness that our required volume will be available