

Operating Margin & NISMs

Gavin Brown

Introduction

- ◆ **What is the Operating Margin?**
- ◆ **What is a Notice of Insufficient Margin (NISM)?**
- ◆ **Example of a NISM**

Operating Margin - what is it?

- ◆ **Level of available MWs above those required to meet demand**
- ◆ **Required to cover**
 - ◆ **Plant loss**
 - ◆ **Plant shortfall**
 - ◆ **Demand forecast error**
- ◆ **Optimised from day ahead to real time**

Operating Margin - what is it?

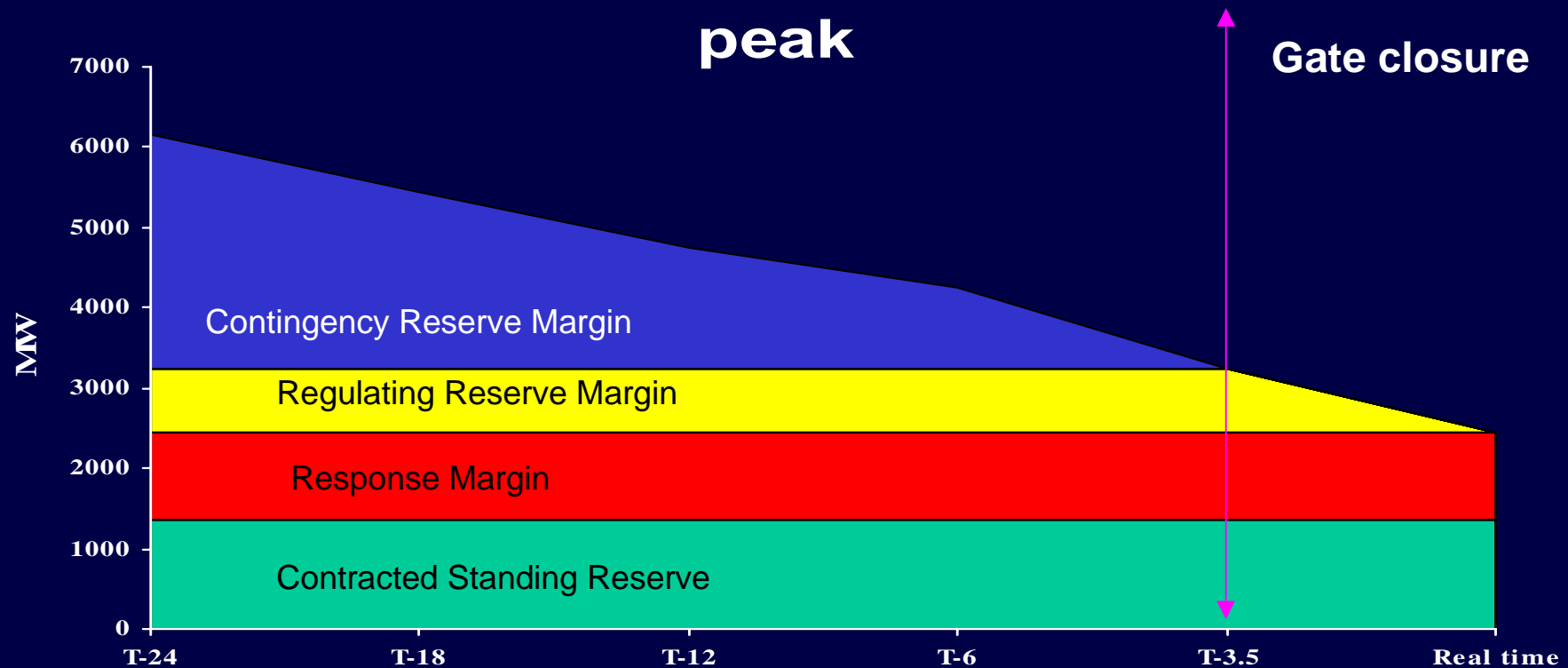
- ◆ **Contingency reserve**
 - ◆ Level of plant identified by National Grid that may be required from 24hrs before real time to gate closure
 - ◆ Requirement is reduced as real time approaches
 - ◆ Contingency reserve required to manage uncertainty

Operating Margin - what is it?

- ◆ **Regulating & Standing reserve**
 - ◆ To cover losses within BM window and demand variations
- ◆ **Reserve for Response**
 - ◆ MWs held that will automatically respond to system frequency
 - ◆ Response margin must be maintained at all times

Operating Margin - what is it?

Operating Margin for Winter morning peak



Operating margin is demand dependant and varies throughout the day.

The above chart does not include 'expected plant loss' from, say, commissioning or returning plant.

Operating Margin - what is it?

- ◆ Requirement calculated statistically
- ◆ Margin continually reviewed
- ◆ National Grid will maintain Operating margin to
 - ◆ ensure security of supply
 - ◆ minimise costs of balancing
(consistent with incentive scheme)
- ◆ Operating margin will be procured through BM or Balancing Services contracts

Notice of Inadequate System Margin (NISM)

- ◆ **Insufficient Operating Margin will trigger issue of a NISM warning**
- ◆ **National Grid manage “trigger values” in light of experience**
- ◆ **NISM requires participants to review availability**
- ◆ **We are looking at publishing Operating Margin data on our website**

Thursday 15th November

The first winter NISM.....

What was the problem?

- ◆ **A number of generators on maintenance ~ 15GW (cf “typically” ~ 4GW)**
 - (Heys, Hinp, Dung, Didc1&2, Fidf, Tilb9, Eggb1, Wbur4, Rats4, Littd1, Conq, SP (900MW))
- ◆ **Very few available offers below oil plant that were not:**
 - ◆ **Part of the response & reserve margin or**
 - ◆ **Contracted standing reserve**
- ◆ **NISMs were issued**

Demand forecast

- ◆ **Forecast demand for Thursday
Darkness Peak (DP) anticipated to be
higher than previous day**
 - ◆ **Similar “day-types”**
 - ◆ **Forecast to be colder**
 - ◆ **320MW of Customer Demand
Management (CDM) notified and
taken into account**
- ◆ **No other indication of CDM**

Outlook on 14th/15th Nov

◆ NISM Summary

Time	Demand forecast	Identified shortfall
1500	49860 MW	2000MW
1830	49860 MW	2000MW
2230	49900 MW	2000MW
0500 (15th)	49900 MW	2700MW
1015	50000 MW	1400MW

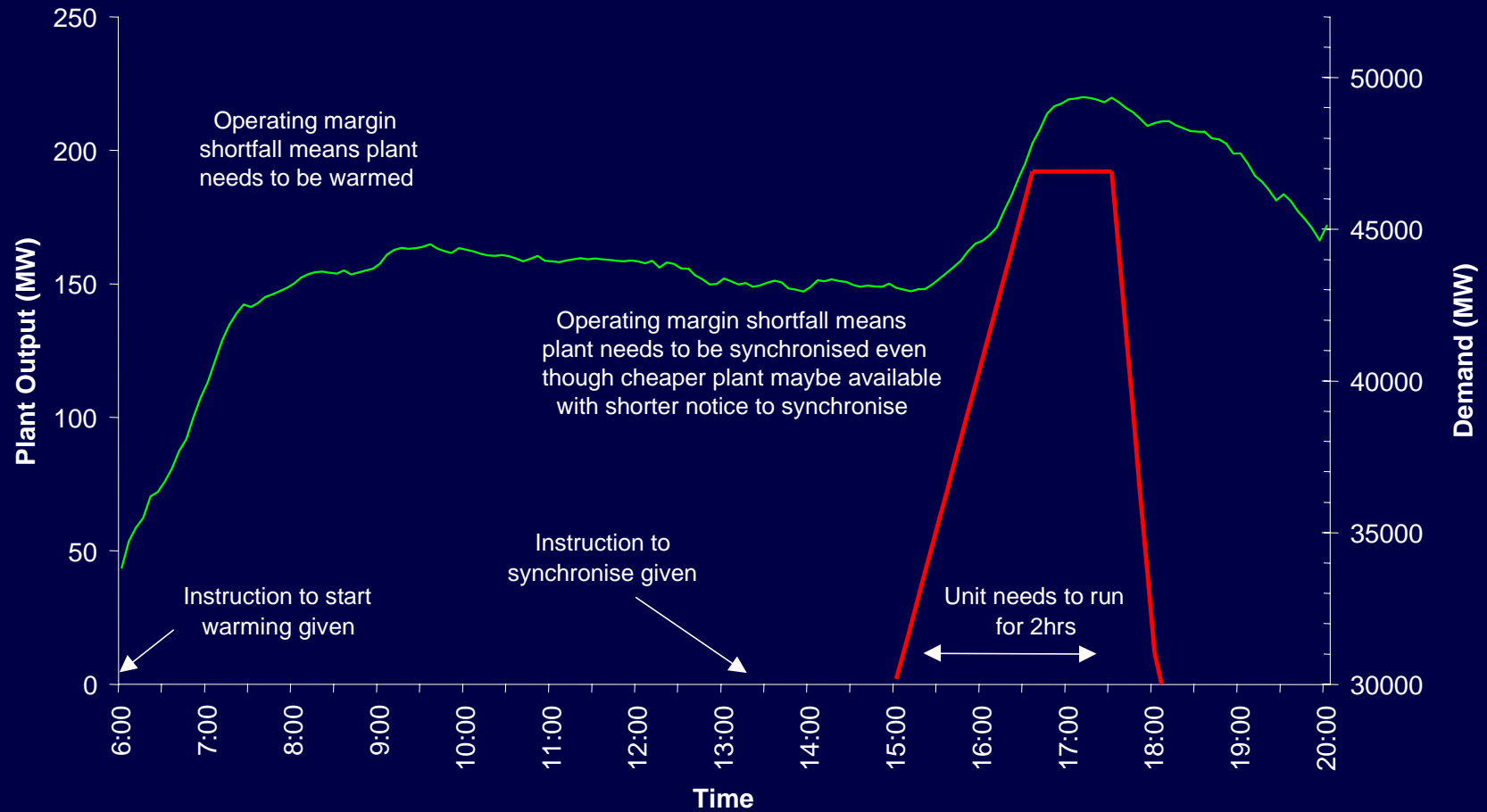
What were our actions?

- ◆ **Insufficient contingency reserve available**
- ◆ **Actions:**
 - ◆ **NISM issued. Little additional plant was made available**
 - ◆ **The Operating Margin was maintained by warming plant**

What we did....

- ◆ **Warming instructions were issued to sets with long NDZs**
 - Grain 1
 - Littlebrook 2
 - Fawley 3
- ◆ **Anticipated offer prices ~ £300/MWh**
- ◆ **Warming & commitment decisions had to be made well before peak demand**

Committing a BM Unit



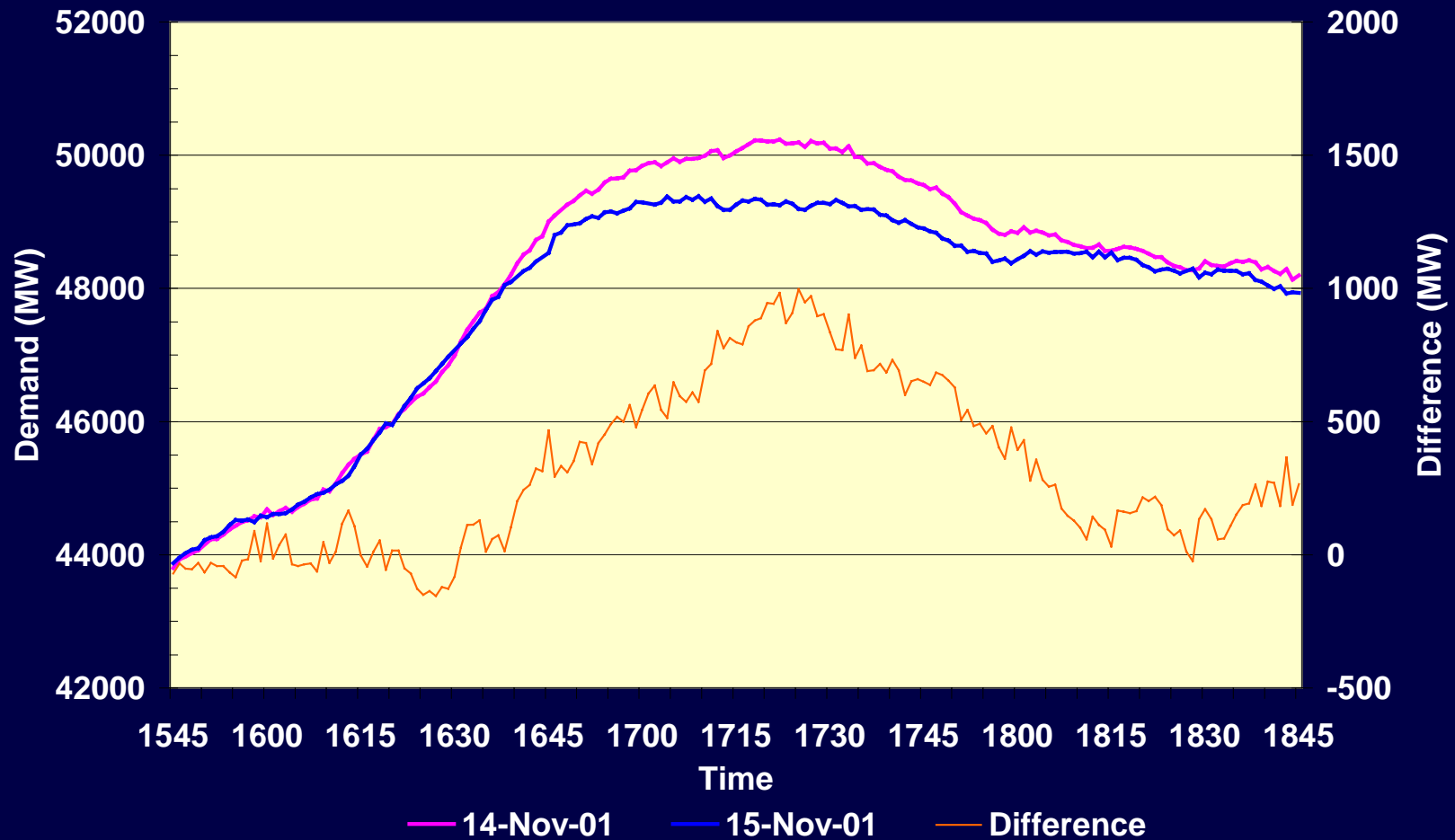
Outcome - Thursday 15th

- ◆ Oil plant was committed for operating margin
- ◆ Further NISM issued at 1500hrs, cancelled at 1605.
- ◆ Planned to use cheaper offers (than oil) to meet expected demand levels
- ◆ Demand did not reach forecast level but could have, outturn ~1GW less than forecast

Outcome - Thursday 15th

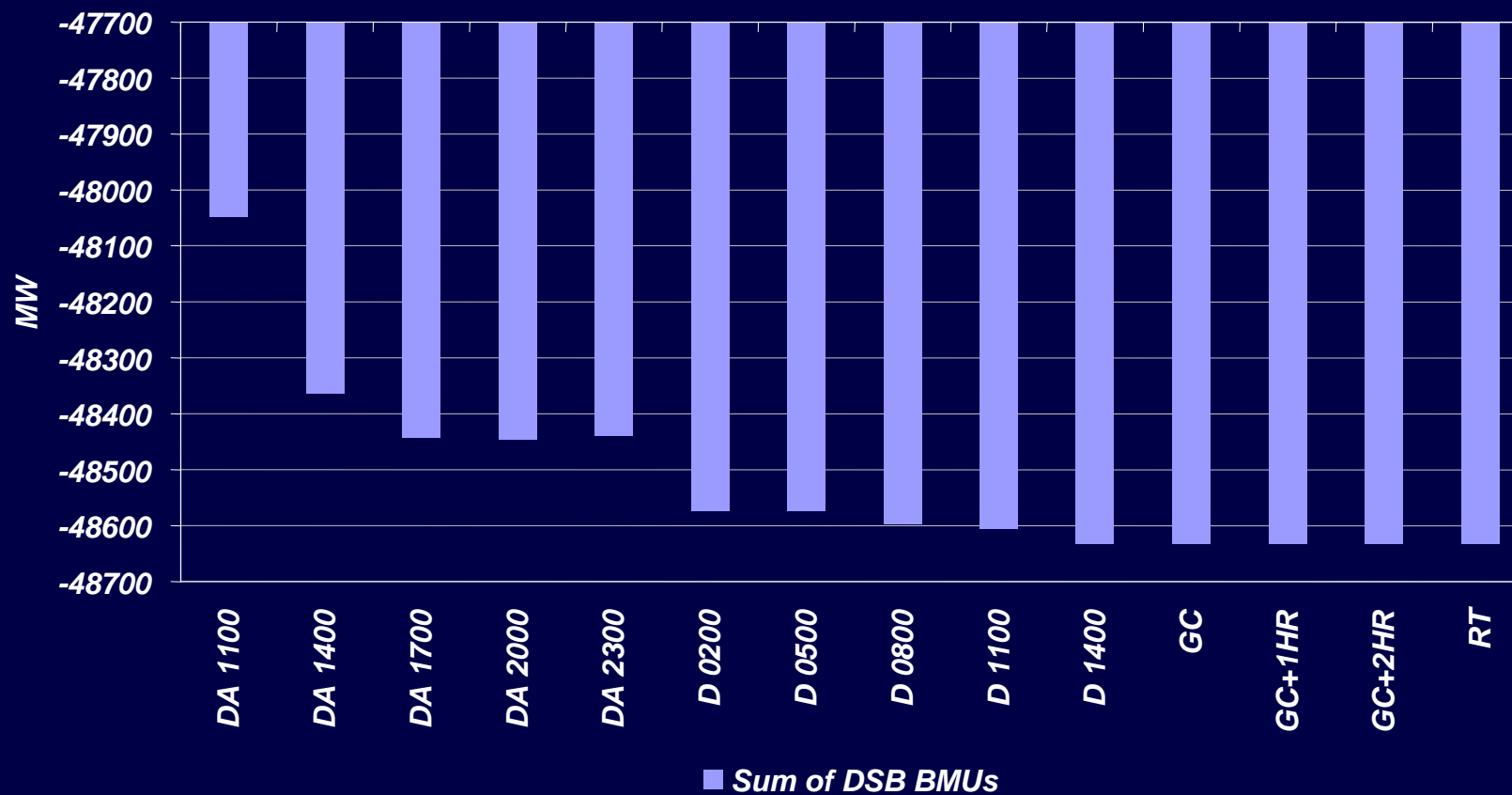
- ◆ **Response holding was optimised**
 - held on oil plant
 - released cheaper offers that were used
- ◆ **Plant loss “unexceptional”**
- ◆ **Inevitably in real time cheaper offers than oil were available (£100-300/MWh)**

Demand outturn - 14th & 15th



Demand PNs

Total BMU -ve PN PROFILE @ 3hr Intervals from Day Ahead to Real Time for Period
36 15th Nov 2001



What could have happened?

- ◆ If demand had been higher than forecast or generation was lost
 - ◆ Cheaper feasible offers committed
 - ◆ Oil plant would have been fully utilised
 - ◆ Potential impact on SBP....?

– Demand	Potential SBP
– +500 MW	£180/MWh
– +1000 MW	£220/MWh
– +1500 MW	£250/MWh
– +2000 MW	£300/MWh
– +2360 MW	£550/MWh

Conclusions

- ◆ **System security maintained throughout the period**
- ◆ **Reduced demands resulted in “surplus capacity”**
 - ◆ **Operating Margin/NISM triggers under review**
 - ◆ **Demand management not reflected in demand submissions**
 - ◆ **Plan to work with demand side over demand side data issues**