Review of the Power System

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15th October 2008

EIRGRID

Presentation Structure

- System statistics
- Challenges for system operation
  - Frequency Excursions
  - Wind and Transmission Outages
  - Winter Peak and Moyle

System Statistics

Summary System Statistics

Generating Plant (excl. wind)	6200 MW
Generating Stations	21
Energy 2007	28 TWh
Energy Growth 2007 over 2006	2.6%
Energy Growth to August 31st	2.7%
Load variation from	1786 to 4906 MW

Max/Min ratio of 2.7

(See 'System Records' under 'System Operations' on WWW.EirGrid.Com)
All figures are exported MW/MWh

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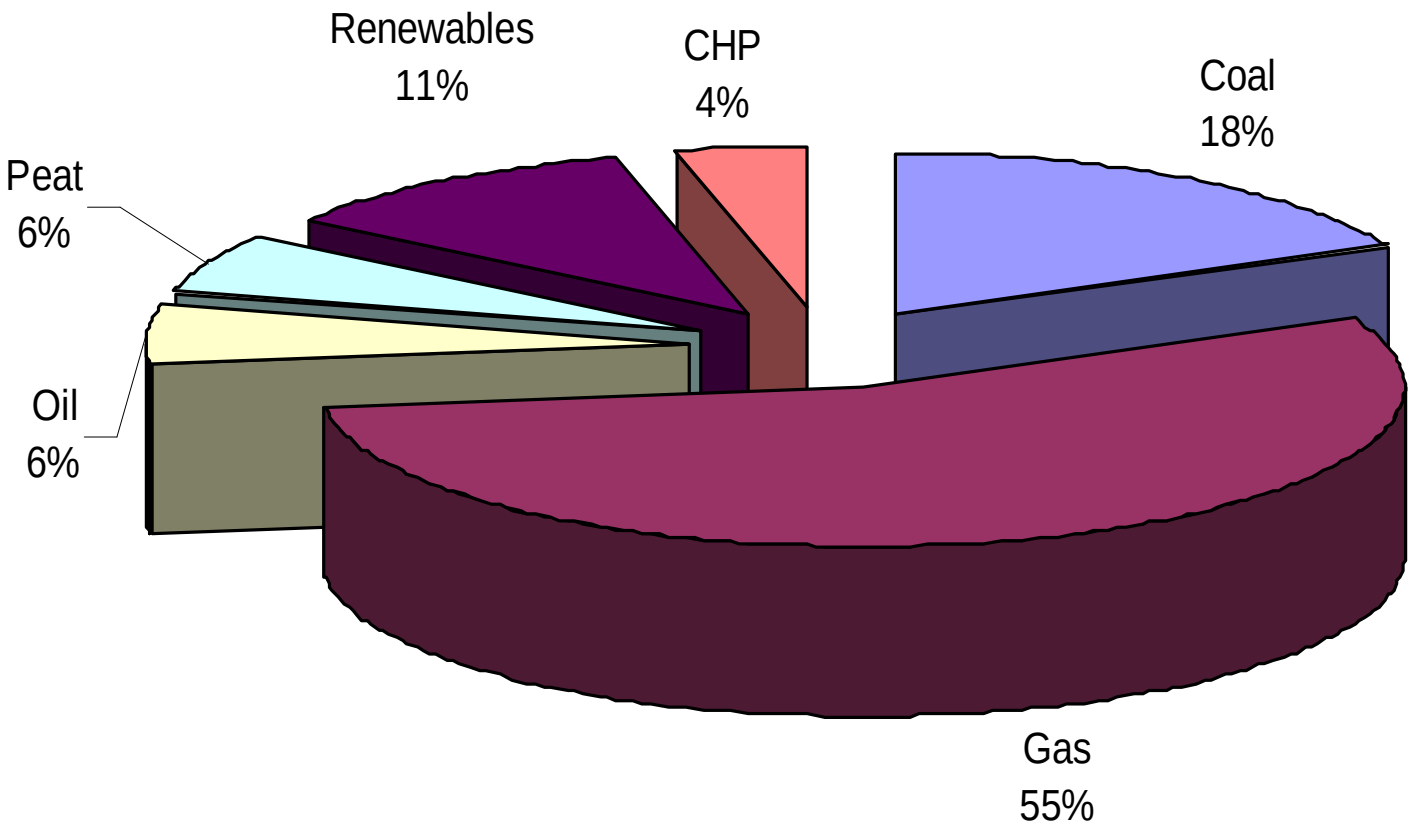
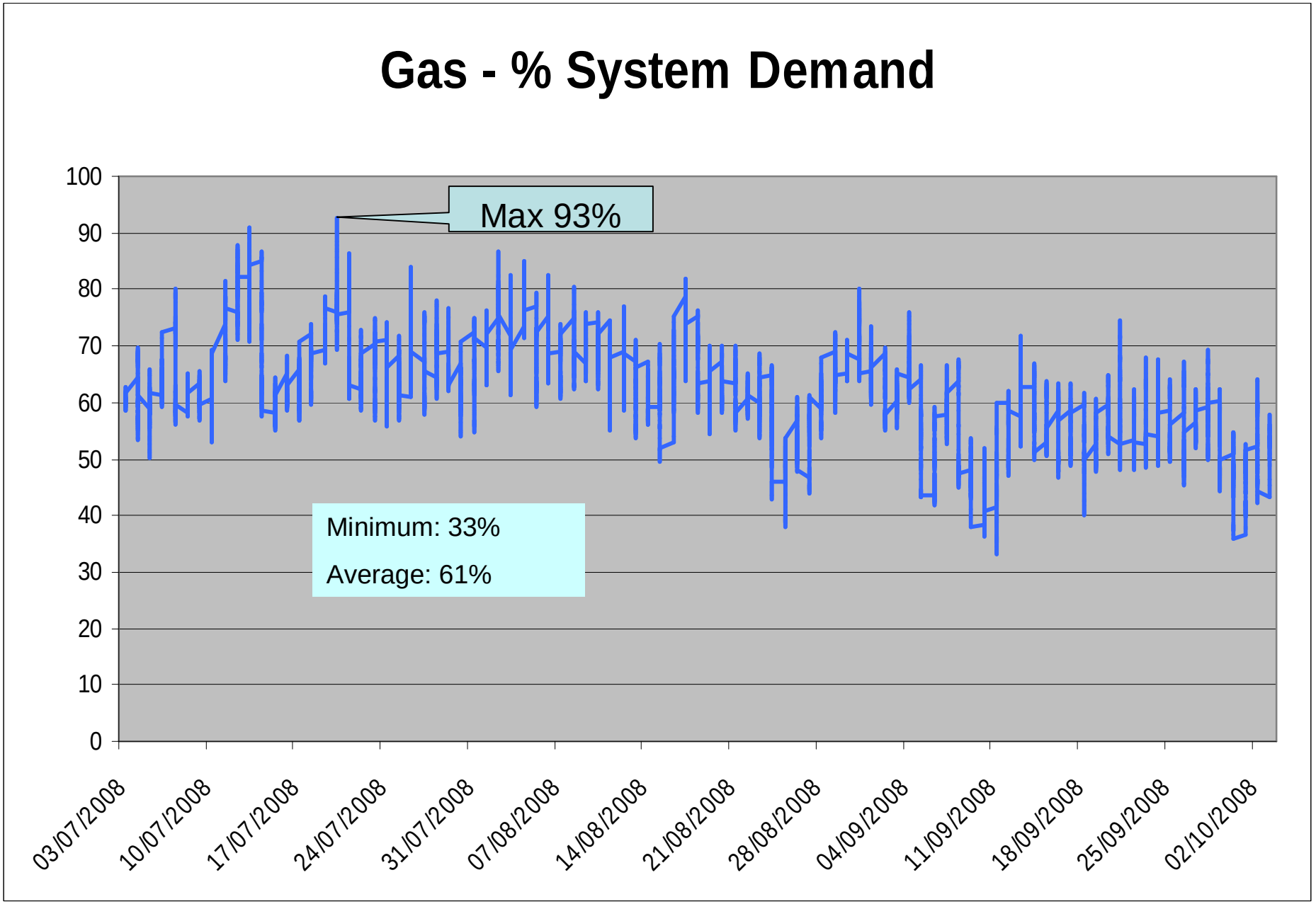
% Fuel Mix 2007

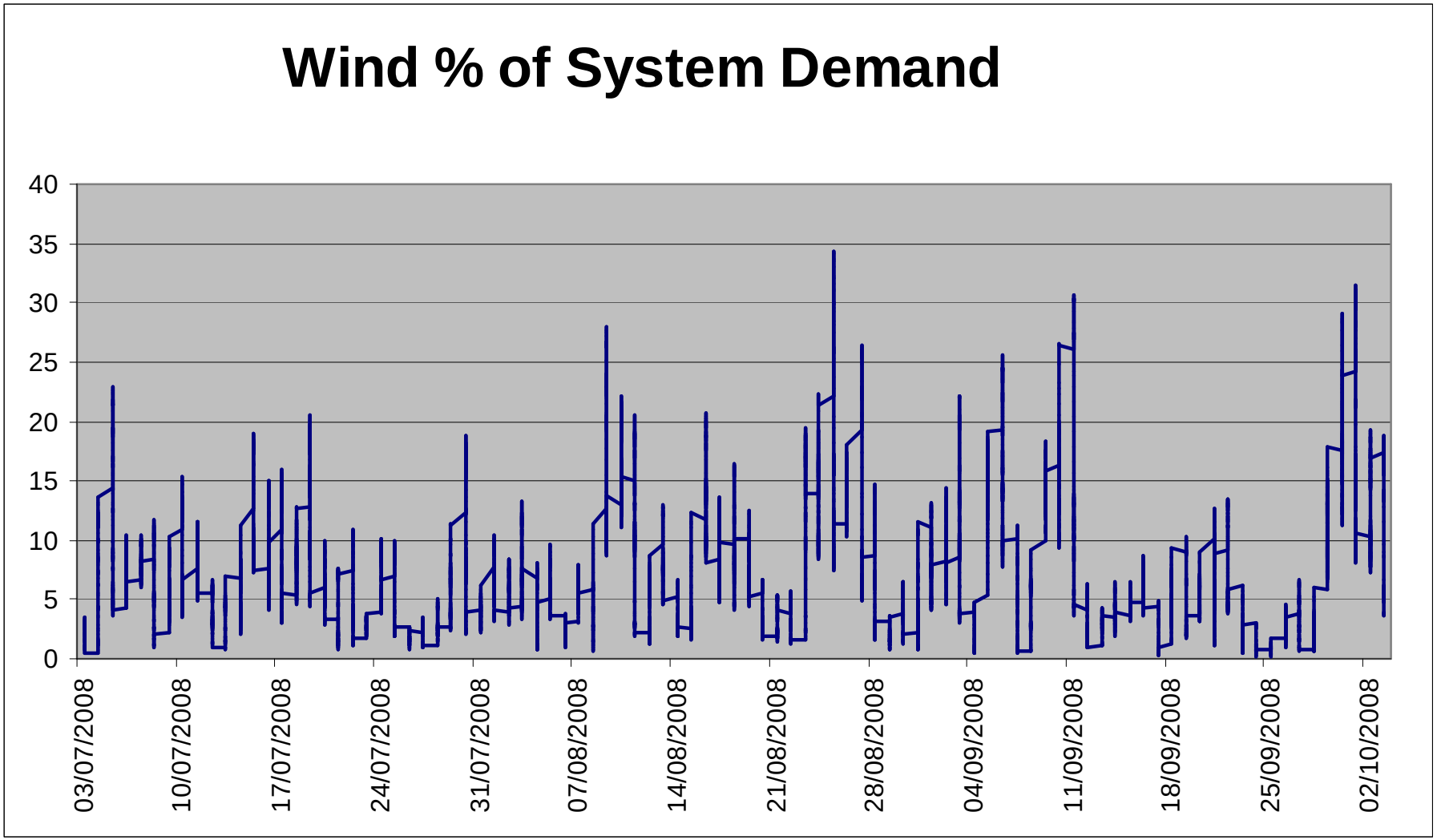


Gas - % System Demand



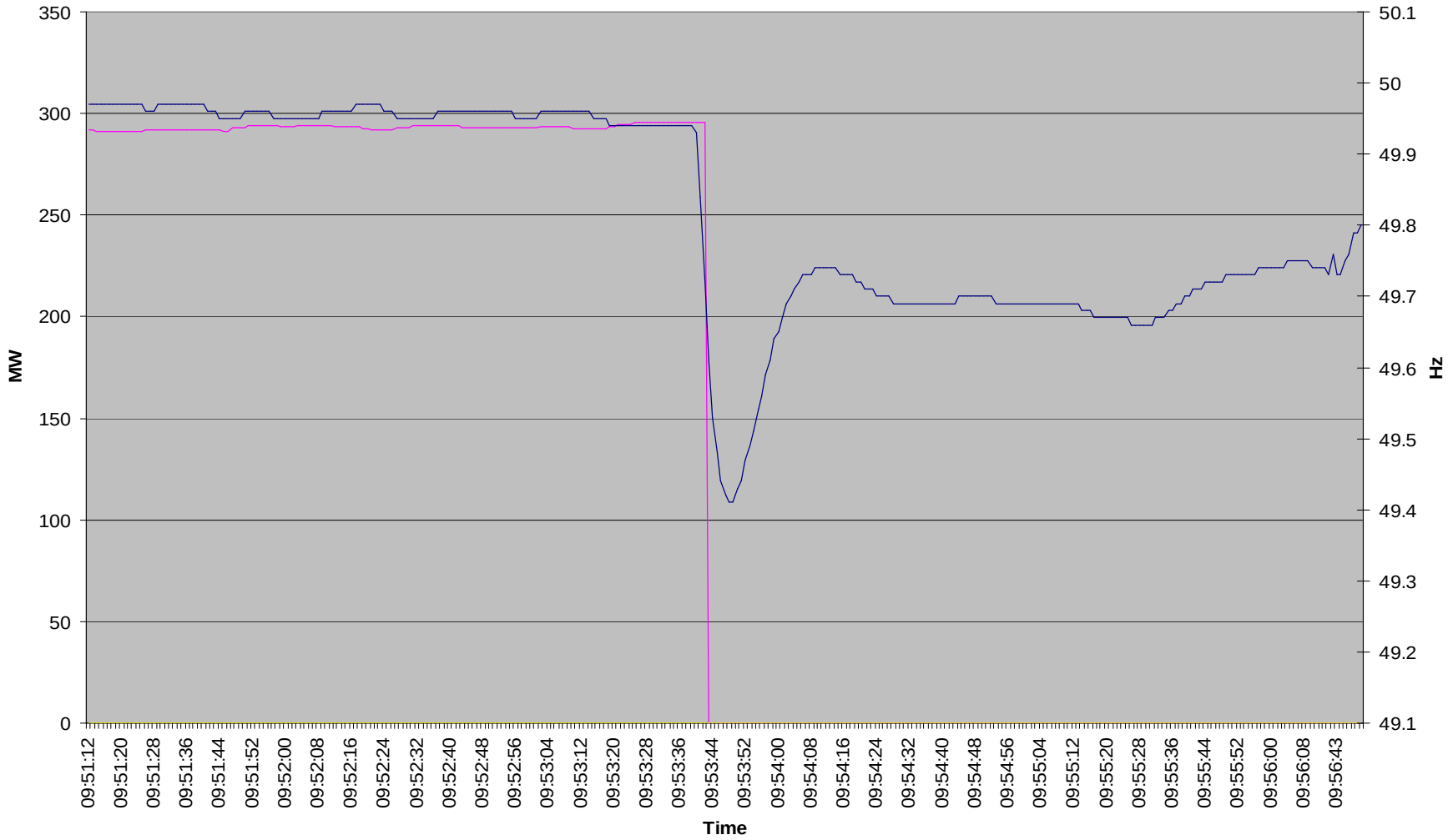
Wind Statistics

- Wind Generating Capacity 915 MW
- Wind farms 85
- Capacity by end 2008 ~1000 MW
- Peak wind output (Sept 10) 770 MW
- Approx. 48% are transmission connected

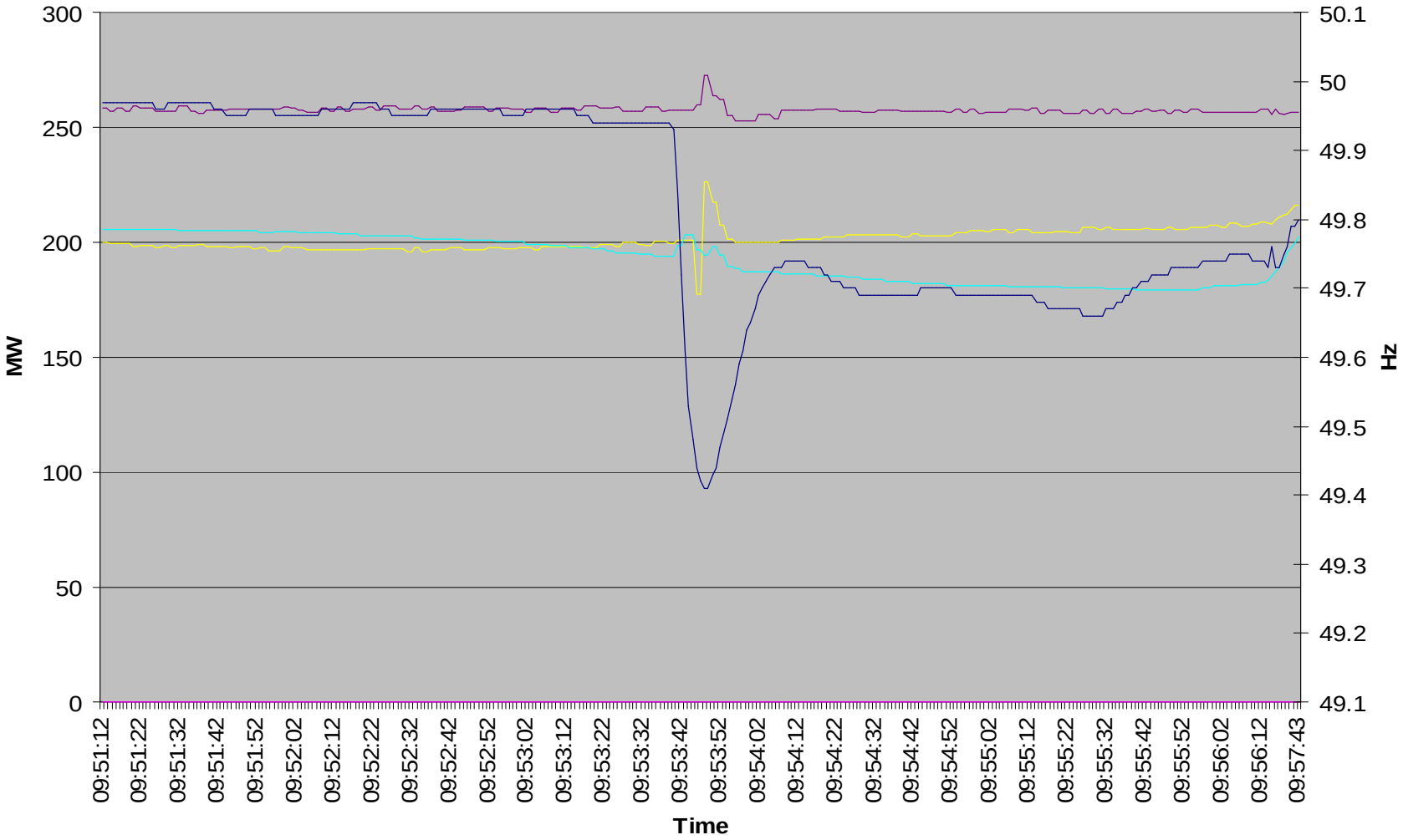

Wind % of System Demand
40
35
30
25
20
15
10
5
0
03/07/2008
10/07/2008
17/07/2008
24/07/2008
31/07/2008
07/08/2008
14/08/2008
21/08/2008
28/08/2008
04/09/2008
11/09/2008
18/09/2008
25/09/2008
02/10/2008

System Disturbances

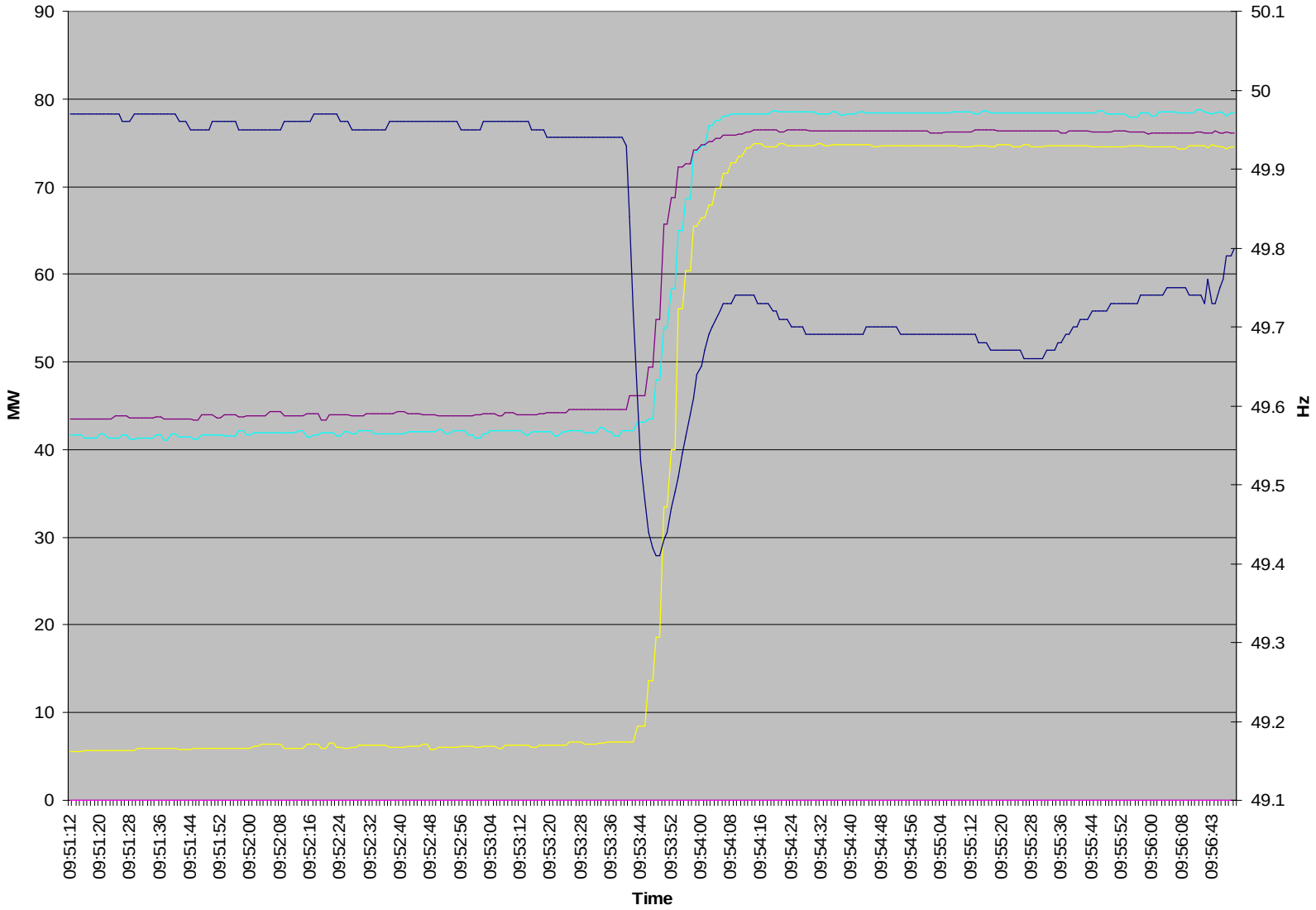
Loss of 400 MW Unit on July 10th



Example of Poor Response



Turlough Hill's Response



Observations on July 10th

- Did not shed load.
- Moyle reserve was triggered at 49.6Hz
- Poor delivery of reserve by main providers especially Tertiary Operating Reserve 1&2 (*90 – 1200 seconds*).
- Typical response - majority of reserve provided by Turlough Hill and OCGTs with minimal contributions from CCGTS and other thermal generators.

Wind and Transmission Outages

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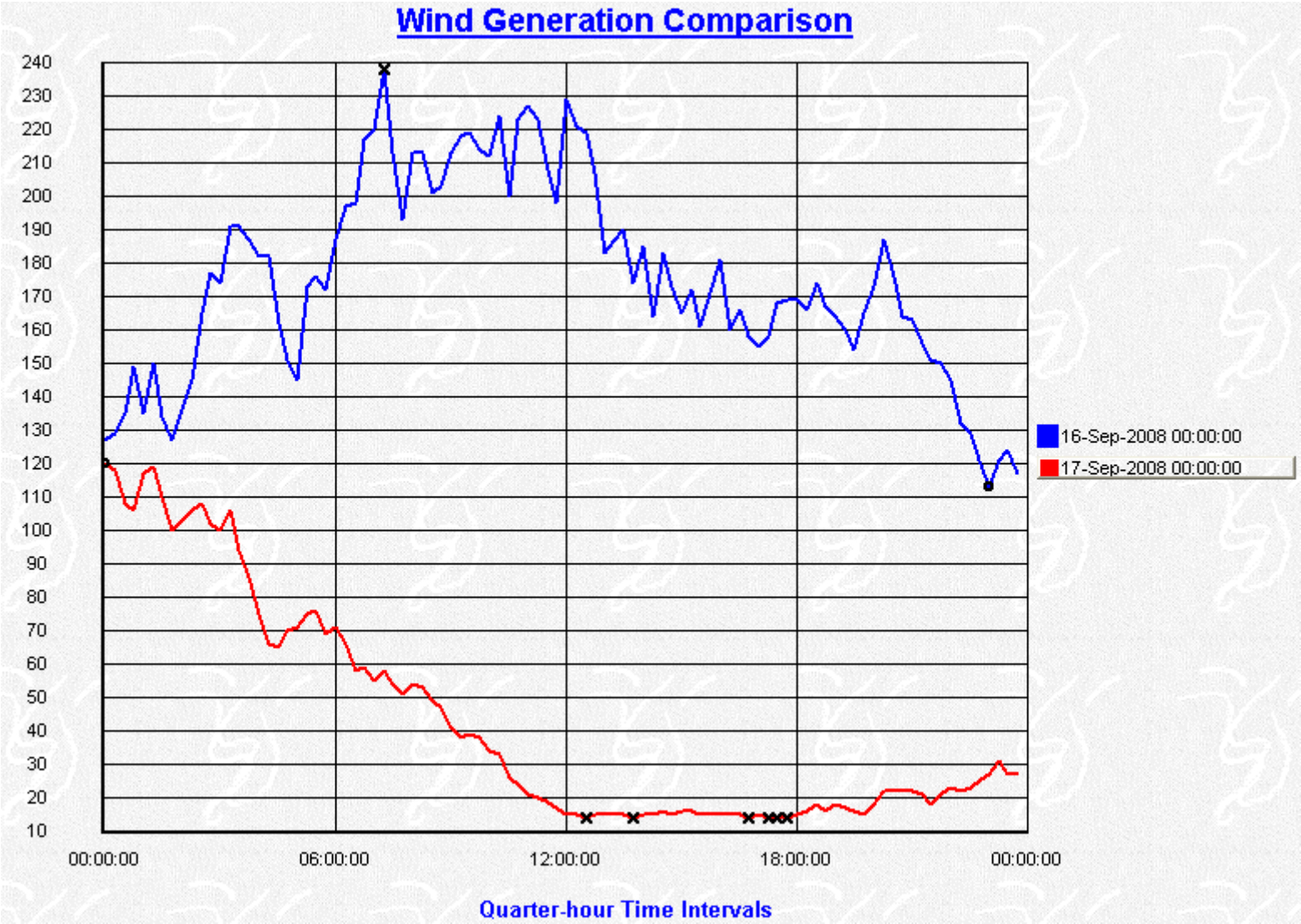
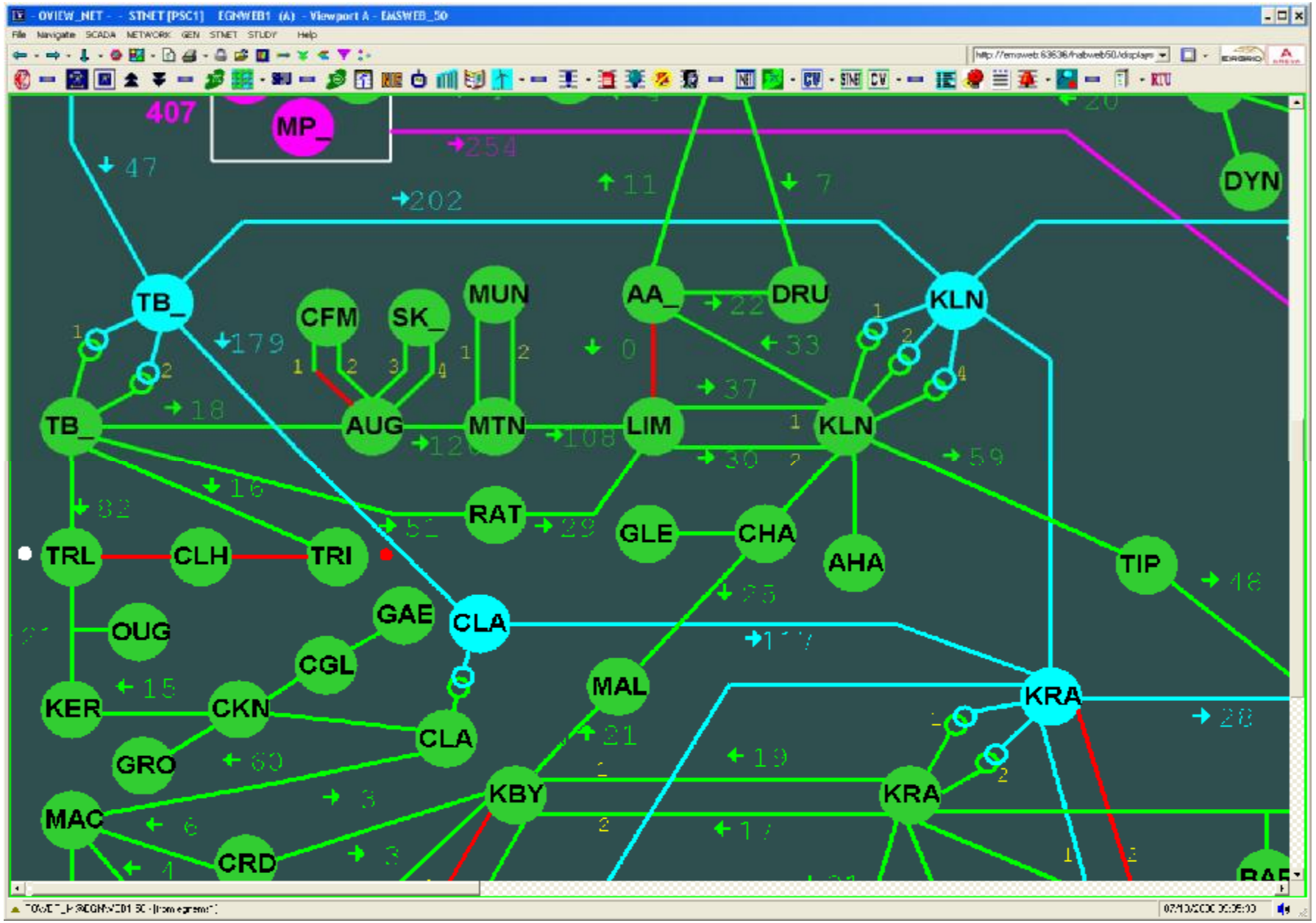
Wind – Sept 16 vs. Sept 17



Wind and Transmission Outages – Sept 16 & 17



Issues Arising

- 10% overload expected from studies on 16th. 25% overload in reality on day of outage.
- Outage had to take place overnight. This was only a 4 hour outage.
- Even with accurate modelling of every wind farm, it is impossible to study all generation scenarios, say, for a 4 week outage.
- Must have accurate wind forecasting for each region - cluster of wind farms.
- If installing generation to replace wind during low wind generation periods then site selection is critical.

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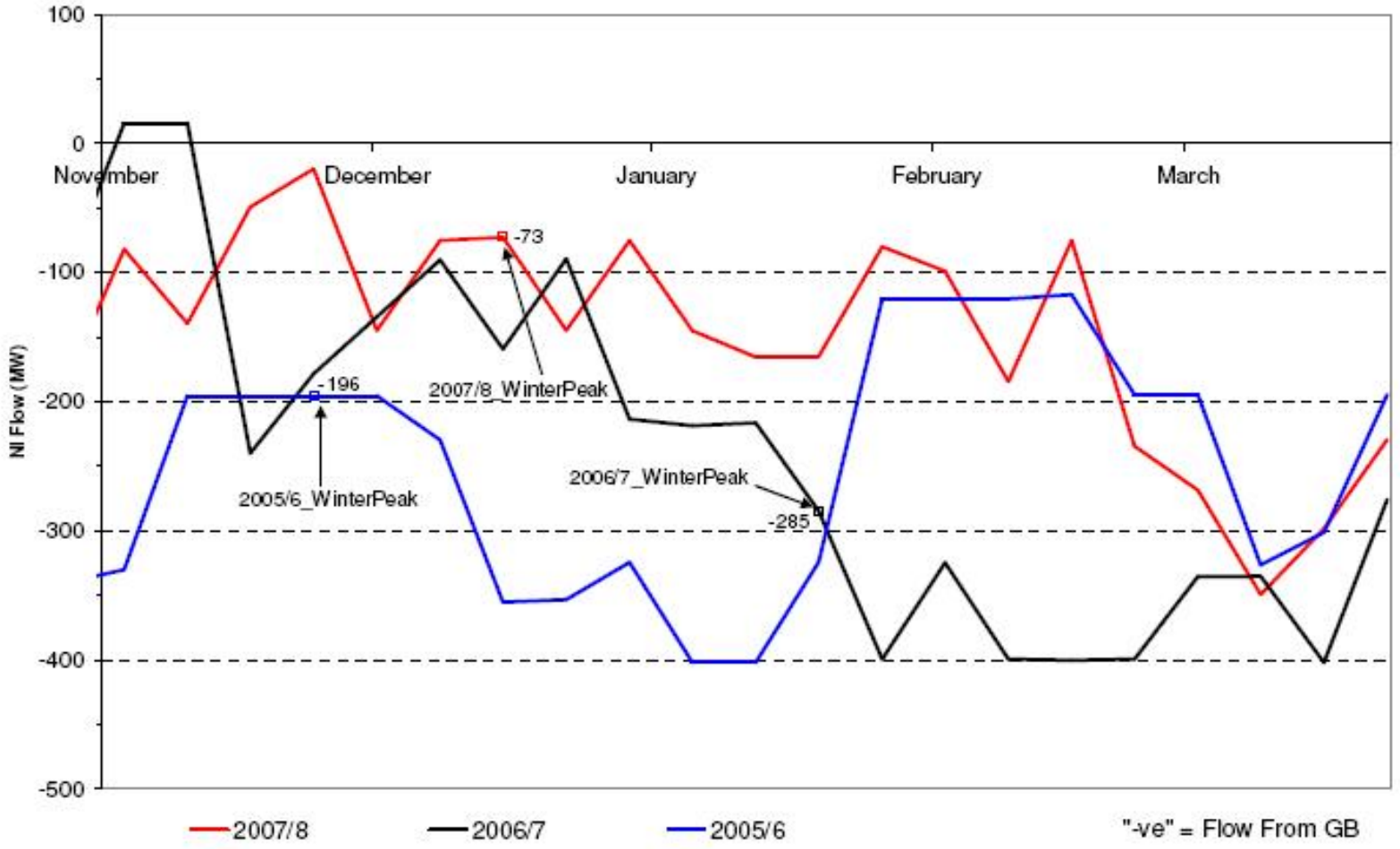
Winter Peak

Winter Peak 2008/9

- Estimate 5125 exported / 5305 generated
- Highly temperature dependent!
- Increase of 220 MW over 2007/8
- In comparison to last year's dispatch this would be covered by availability of MP3 or additional wind.
- No significant plant changes since last winter. AP5 has become TP3.

Moyle Interconnector Flow at Weekly Peak Demand for Last Three Winters (National Grid Winter Consultation Report (June) 2008/9)



Thank You.