

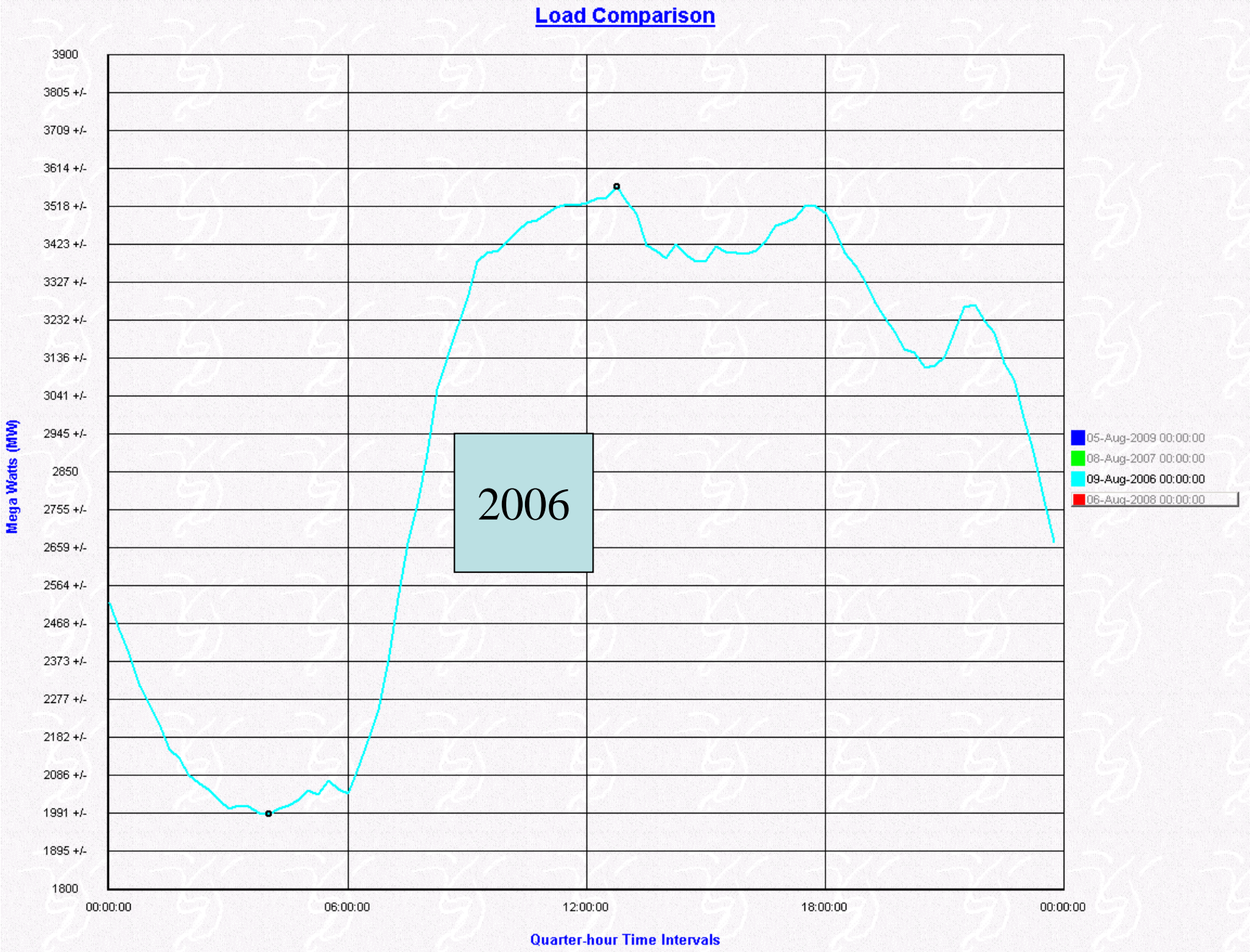
# Review of Power System Operation

2009

Michael Kelly



# Daily Load Shape



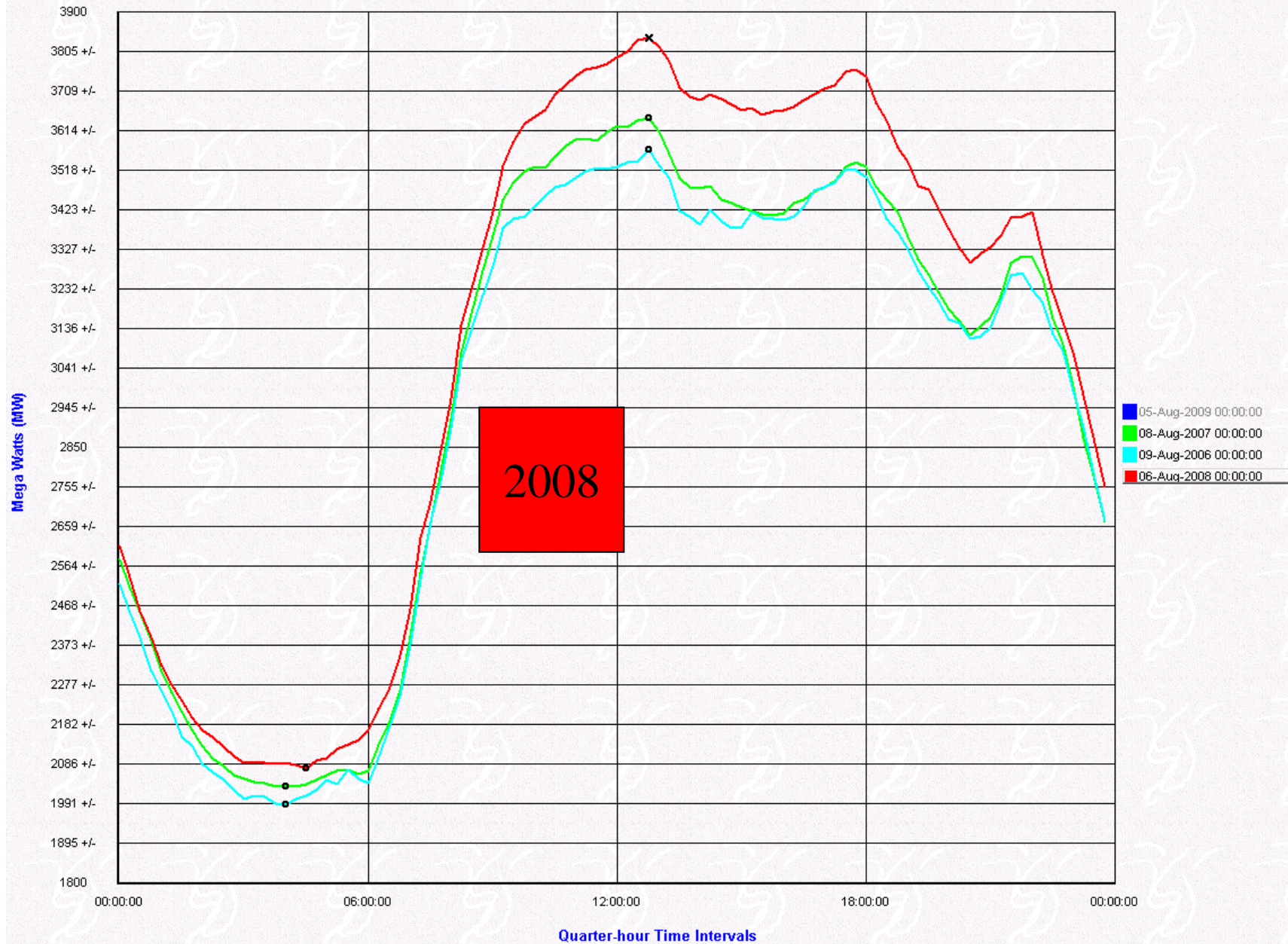
# Daily Load Shape

## Load Comparison



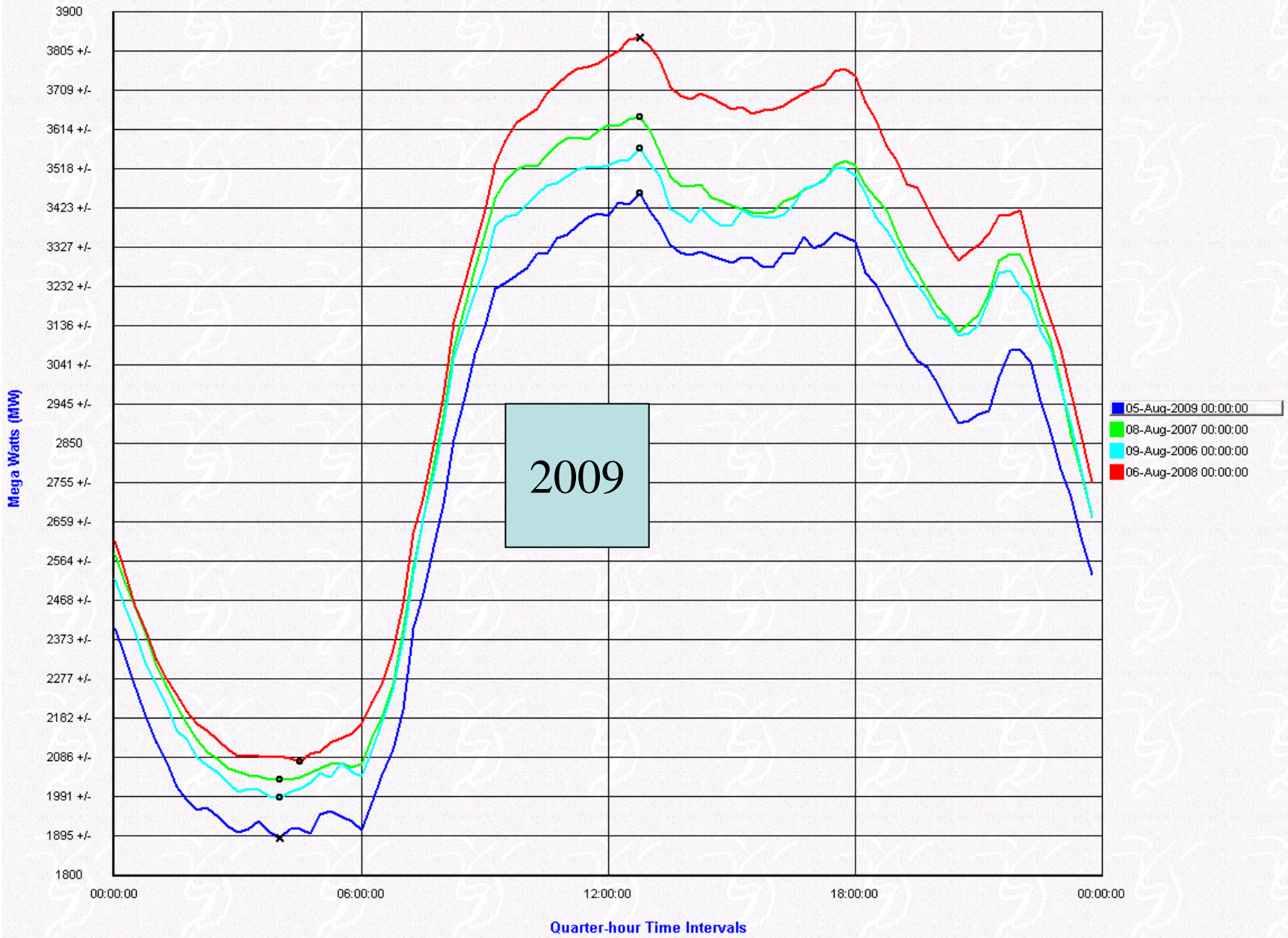
# Daily Load Shape

## Load Comparison

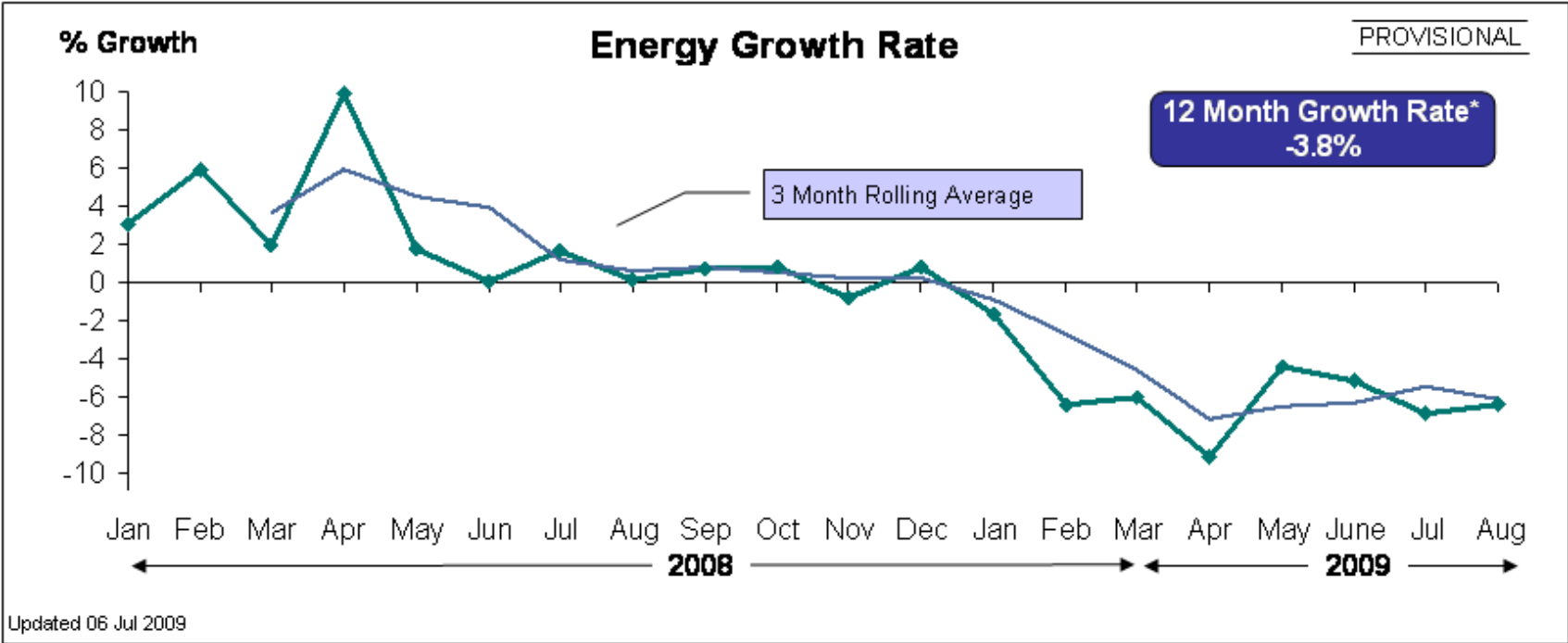


# Daily Load Shape

## Load Comparison



# Demand Reduction

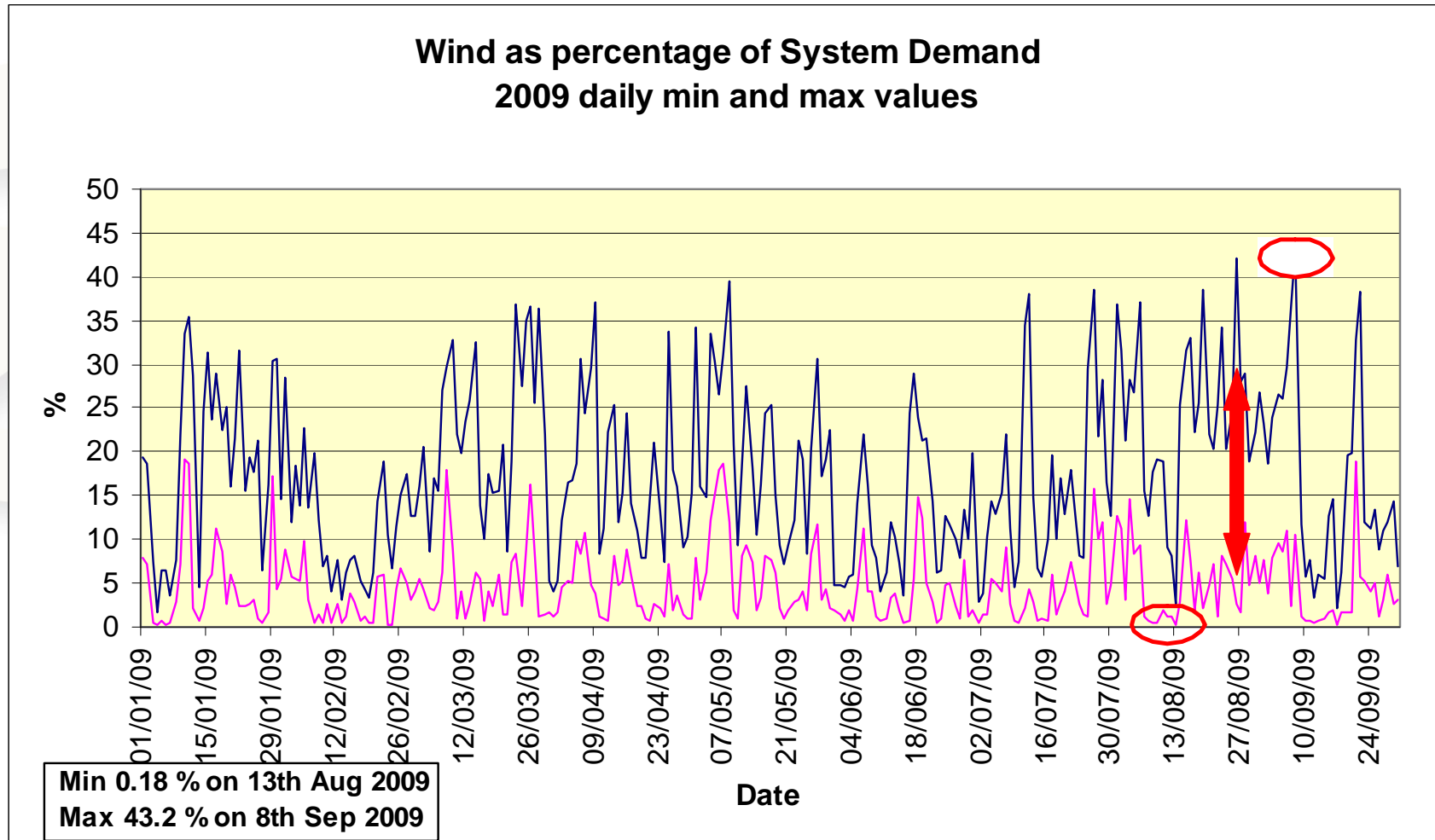


# Wind Stats

- **1161 MW installed** (30/9/09)
  - 16% of total capacity installed 7,174 MW(6,013+1,161)
- **999 MW max output** (12/8/09)
  - 43% of system demand (8/9/09)
- **0.1% of energy dispatched off** (year to 30/9/09)



# Wind Penetration



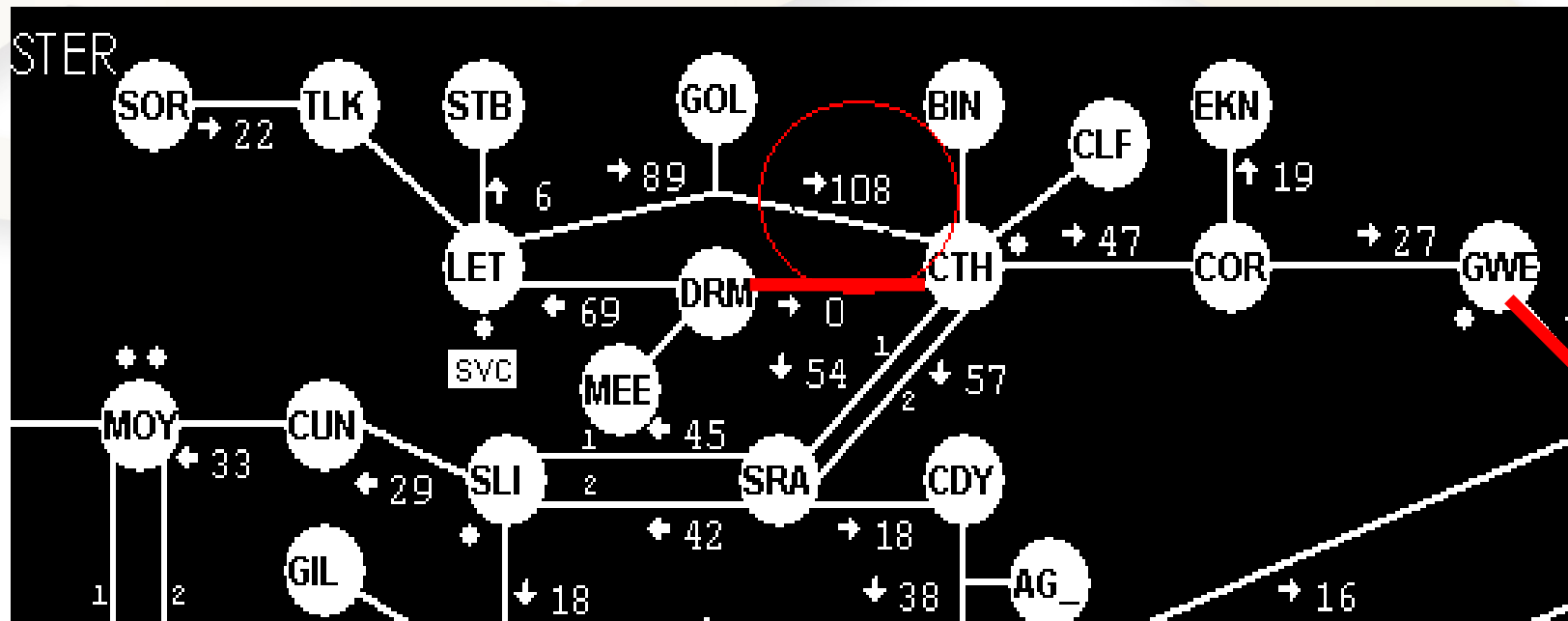
# Impacts

- Lower risk of supply shortage
  - Greater opportunity for transmission and generation maintenance
  - Amber alerts 2008 = 33, 2009 = 2 (to date)
- Changed running regimes
  - Base load to mid merit
  - Mid merit to peaking
- Greater Opportunity for transmission maintenance
  - Localised transmission restrictions



# North West Transmission System

- 2<sup>nd</sup> Oct 13:29
  - 2 110kV lines on maintenance
  - high wind and low demand
  - 110kV Line from Golagh to Cathleen's Fall is over loaded



# Increasing Cycling of Generators

No of starts	2008	2009	% Increase
Base Load units	149	188	26%
Total Starts	5882	7254	23%



# Performance Monitoring *Why?*

- Need to know capability of system:
  - Existing: Performance vs Standard
  - Impact of Changes e.g. Generation Portfolio
- Grid Code
  - Non Compliance of one user can result in lack of access for another user and / or cost to end customer



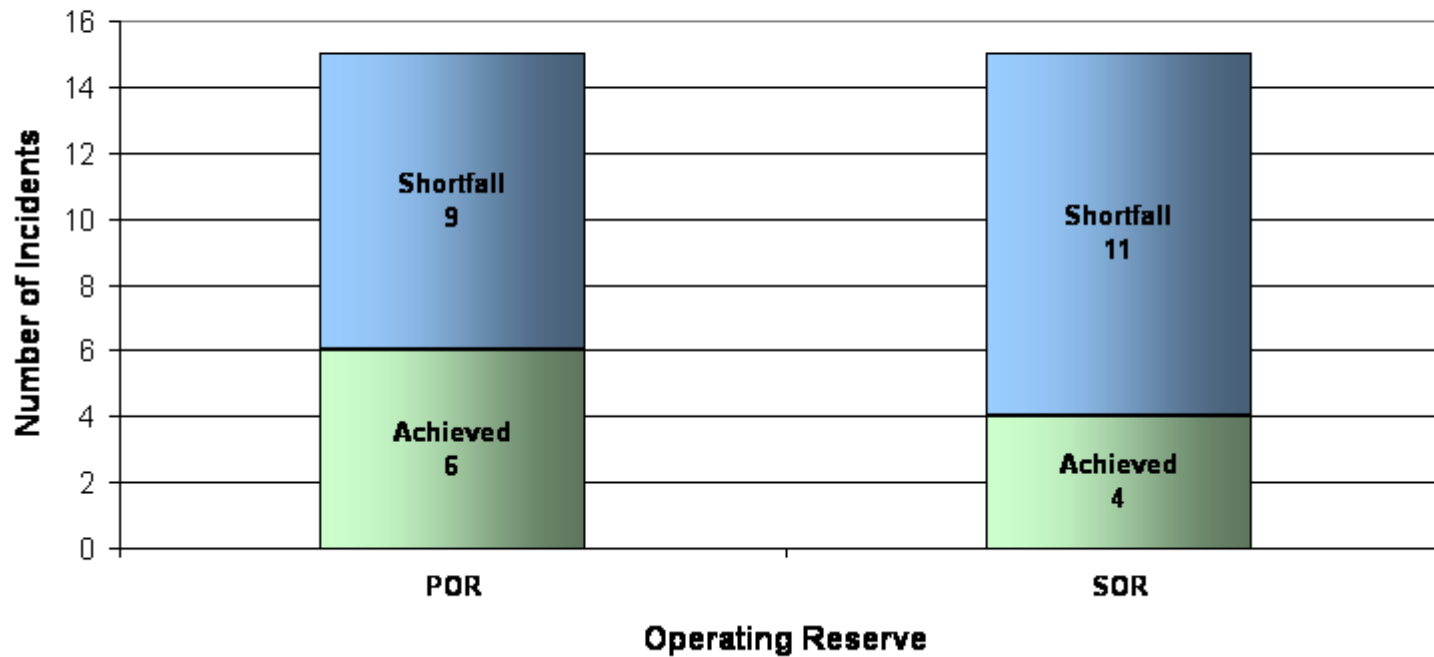
# Performance Monitoring *What?*

- Looked at some metrics from existing systems
- Will be discussing these with Users
- Developing a software system to produce regular reports
- Incentives...
  - Contact: [anne.trotter@eirgrid.com](mailto:anne.trotter@eirgrid.com)



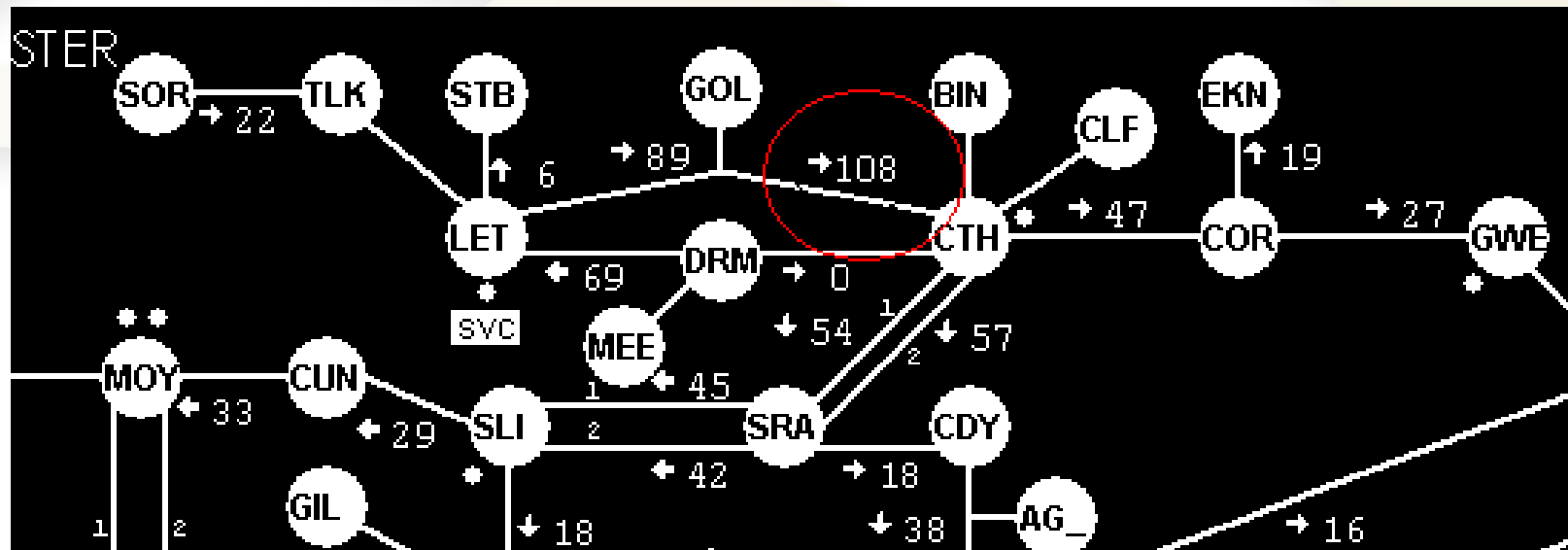
# Best New Entrant

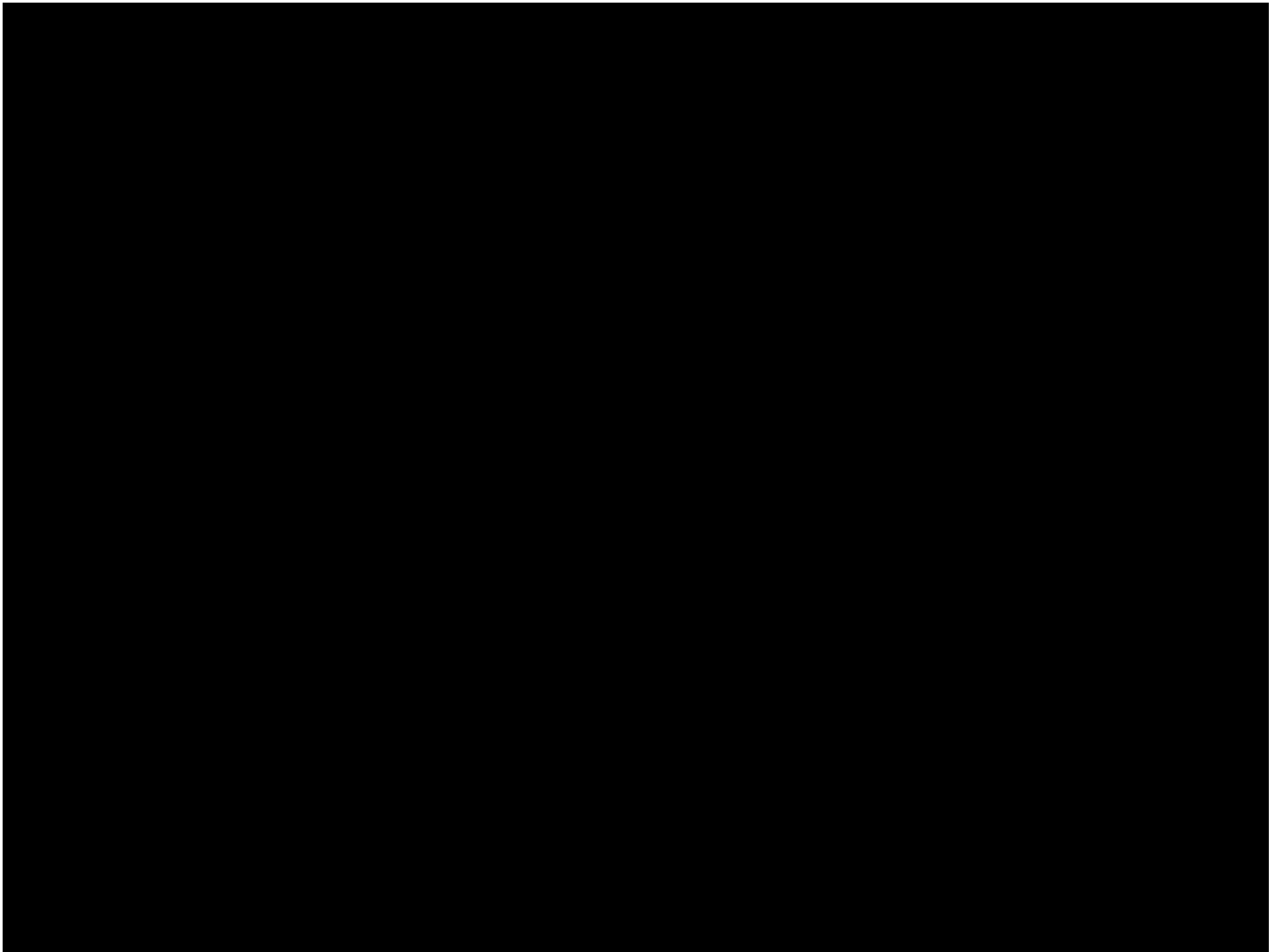
## Operating Reserve Performance



# Wind Farm Control

- Direct control of 457 MW of wind from NCC
- Example
  - 2<sup>nd</sup> Oct 13:29
  - 110kV Line from Golagh to Cathleen's Fall is over loaded





# Winter 2009/2010

- Available Capacity
  - Conventional 6,013 MW
  - Wind 1,250 MW installed, 250 MW reliance
- Peak
  - 4,680 MW
  - 226 MW below 4,906 MW in December 2007



End