

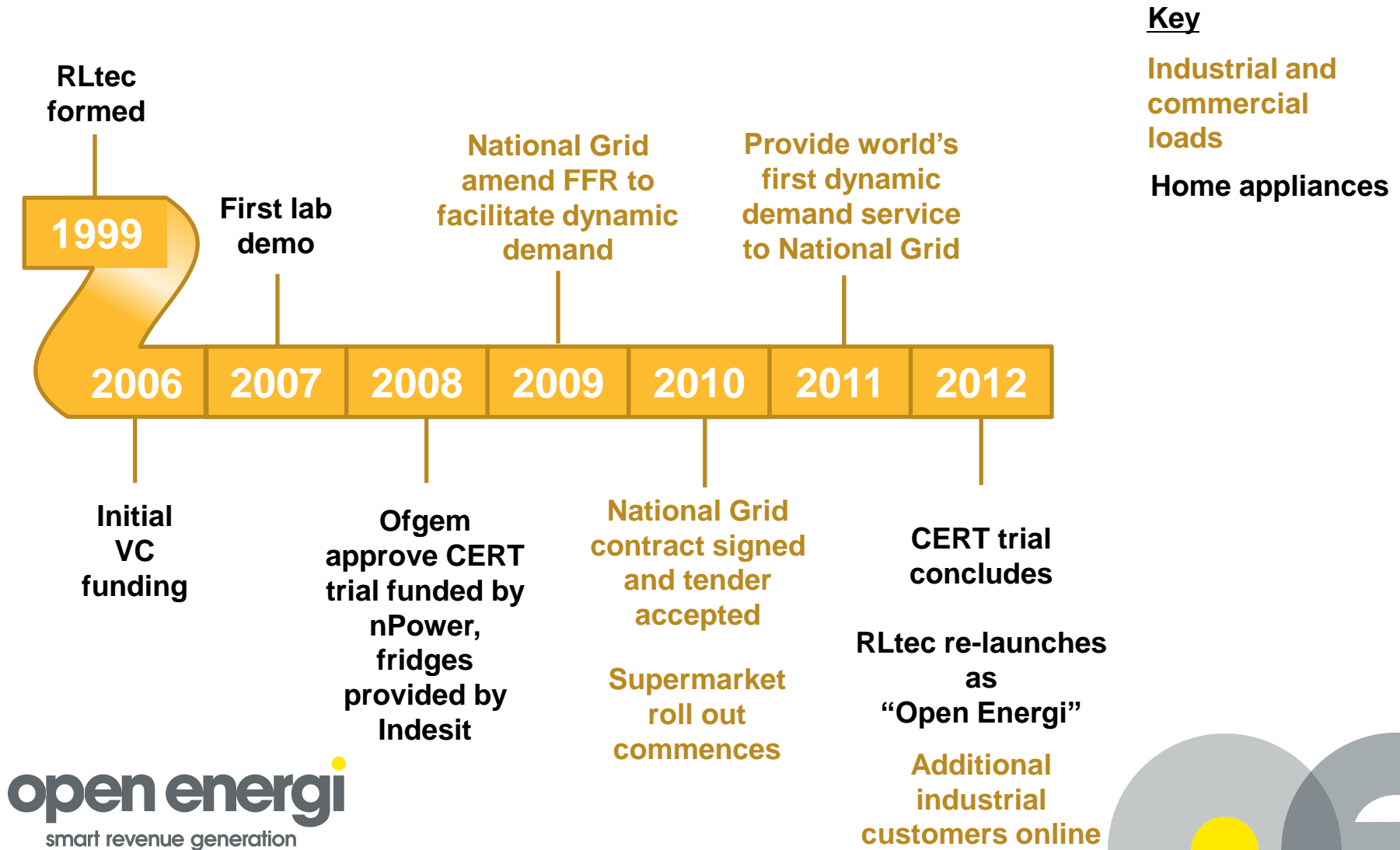
ENTSO-E Demand Connection Code Meeting

Joe Warren

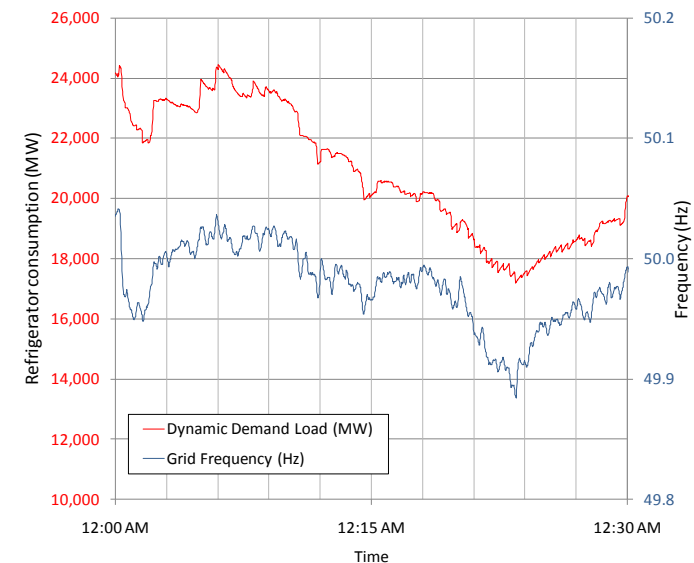
9th August 2012



Background

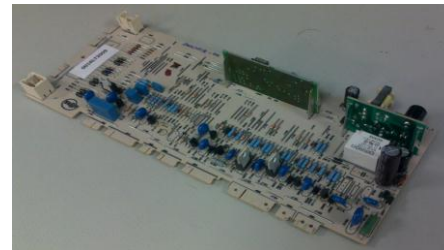


- Provides dynamic frequency response from demand side loads
- Under supply
 - Frequency decreases
 - Appliance switches **OFF**
- Over supply
 - Frequency increases
 - Appliance switches **ON**
- But only if device is within control temperatures
 - **No interruption to service**



Home Appliance Trial

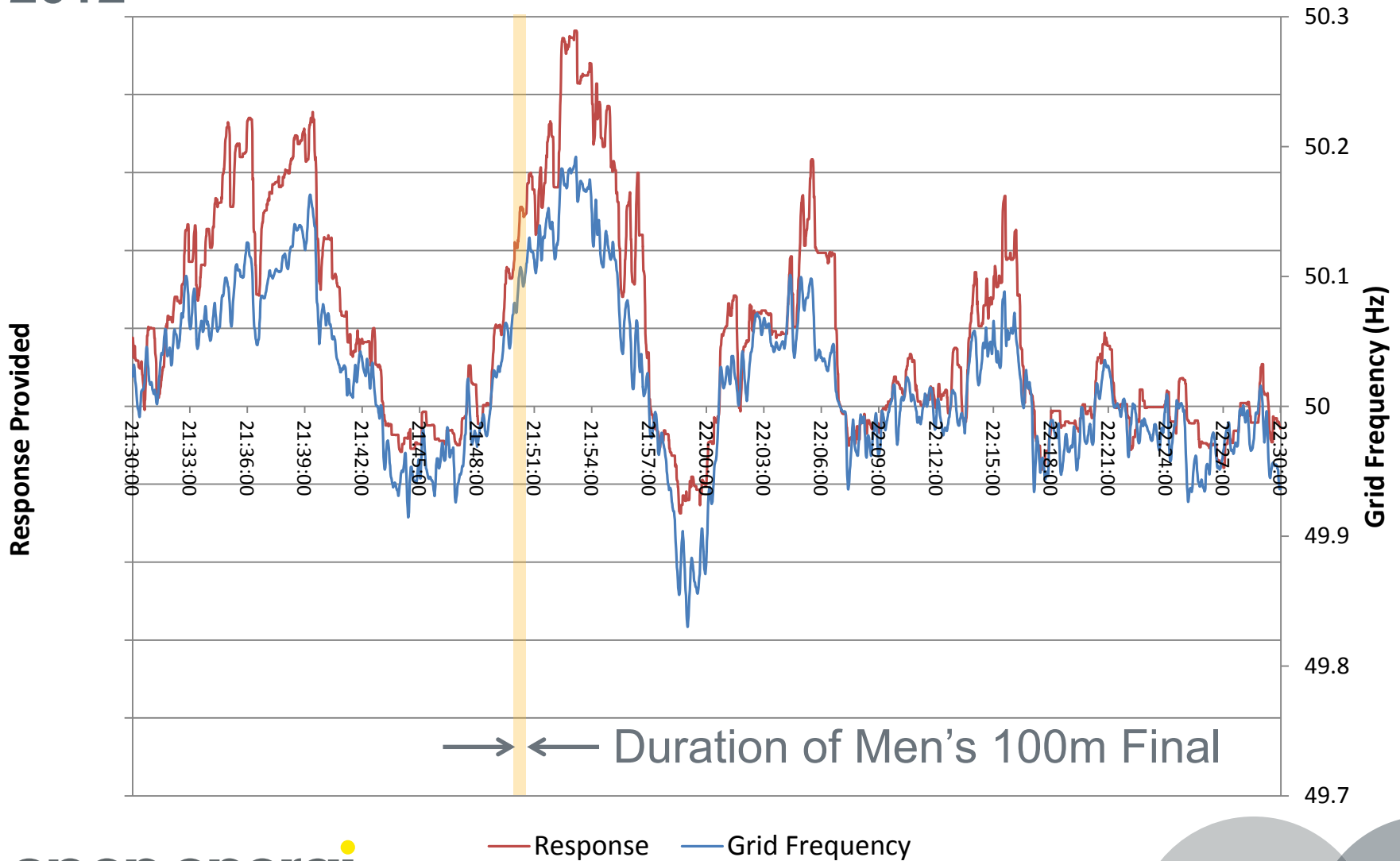
- Carbon Emission Reduction Target project
- Objective : determine CO₂ emissions reduction from Dynamic Demand in refrigerators
- Technology installed into fridge controller
- Remote data collection via smart meter device
- Trial concludes 2012



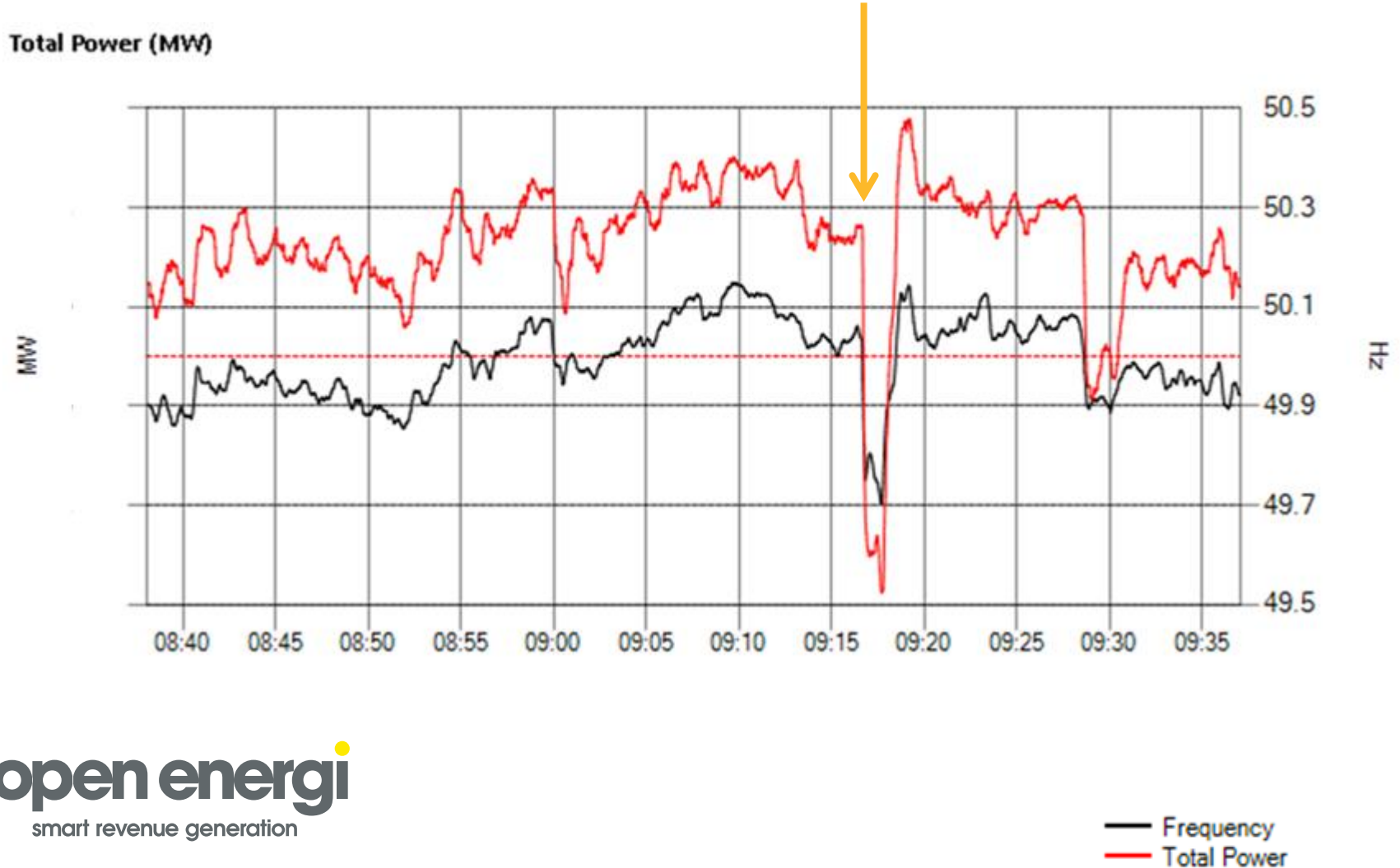
Industrial and Commercial Installations

- Open Energi operates the world's first dynamic demand frequency response service at a commercial scale
 - Providing dynamic demand frequency response to National Grid
 - Operating in 200 UK supermarkets for 18 months
- Business model
 - Install technology to control loads at large energy consuming sites
 - Open Energi contract to provide frequency response to National Grid
 - Open Energi share the grid revenue with the end user

Example 1 – Olympics Men's 100m Final – 5th Aug 2012



Example 2 – Response to 645 MW power station failure



Benefits

- No impact on appliance temperature or operation
- Provides dynamic frequency response service to National Grid
- Meets growing response requirement and facilitates introduction of low CO₂ generation
- Fault tolerant (distributed resource)
- Reduces CO₂ emissions from regulating plant

Thank you

Joe Warren

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