


I&C DSR experience from the Customer-led Network Revolution

LCNI conference 2014
Breakout Session 2.4

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NORTHERN POWERGRID

Introduction

The CLNR I&C DSR trials consisted of:

- Initial trials with 3 customer sites in 2012
- Further trials with 14 customer sites in 2014
- The trial of different contract forms and payment methodologies
- Recruitment via aggregators as well as direct
- Two types of dispatch - Manual
  - Automatic, initiated by primary transformer RTTR

We were aiming to learn about:

- Ease of recruitment / methods of recruitment
- Cost of service
- Contract forms
- Speed, depth and duration of response
- Reliability

Engagement

Types of companies recruited:

Mining (1)

- Contracted DSR: 2 MW
- DSR Type: **CHP Generation**

Water treatment (3 sites)

- Contracted DSR: 3MW total
- DSR type: **Diesel generation**

Supermarkets (2 chains)

- Contracted DSR: 0.36 & 3.6 MW
- DSR type: **Diesel generation**

Telecomms (5 sites)

- Contracted DSR: 3MW total
- DSR type: **Diesel generation**

Web-Hosting (1)

Contracted DSR: 0.8 MW

DSR Type: **Diesel Generation**

ICE production (1)

- Contracted DSR: 0.6MW
- DSR type: **Load reduction**

Hospital (1)

- Contracted DSR: 0.5MW
- DSR type: **Diesel generation**

Gas production (1)

- Contracted DSR: 5MW
- DSR type: **Load shifting**

Ease of recruitment / mobilisation

- Customer identification and recruitment is a challenge but it is possible.
- 10 primary substations
- 251 I&C customers
- 15 potentially interested

Engagement	Total
Sought to engage	251
Managed to speak	107
Initially interested	52
Still interested	21
Still interested (> 200kVA)	15

- The whole process from initial identification to the signing of contracts can easily take a year or more

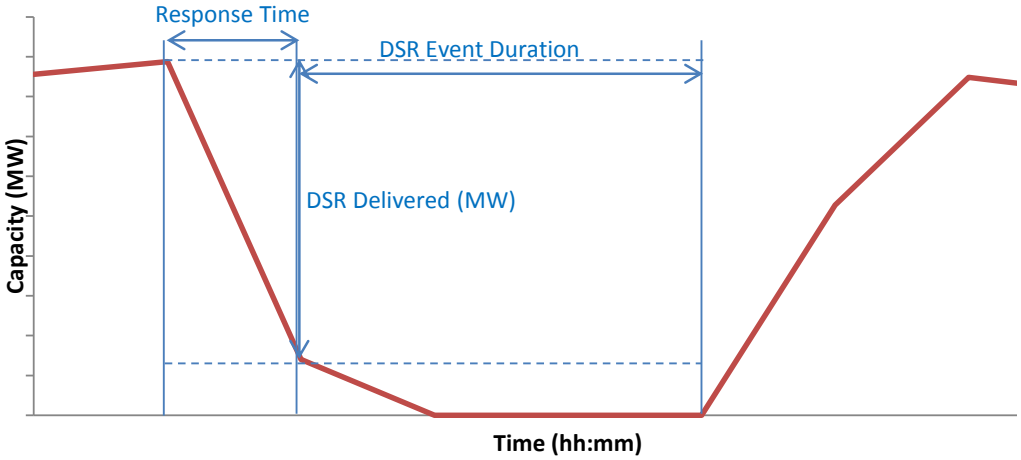
Solutions

- We now have better access to customers' details to help us contact named individuals
- We have developed experience of working with aggregators
- We have trialled a range of contract options
- We are supporting the development of a DSR sharing framework

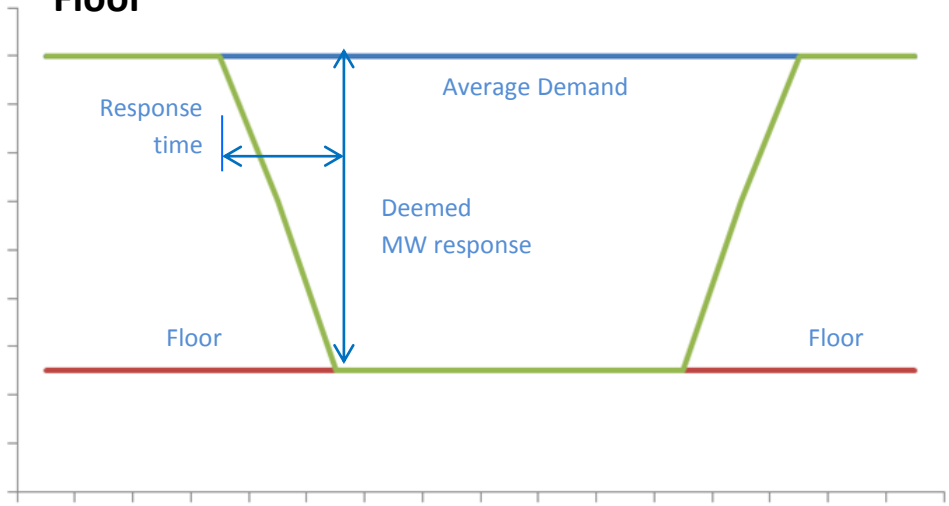
Pricing / contracts

Two performance verification methods

Benchmarking



Floor



Two pricing options

Availability and utilisation

Availability Price of **£10/MW/h**

paid for each day the response is notified as being available during the Availability window

PLUS

Utilisation Price of **£300/MW/h**

Paid for the No. of hours each MW is delivered.

Daily charge

£306 per MW per day for HV customers

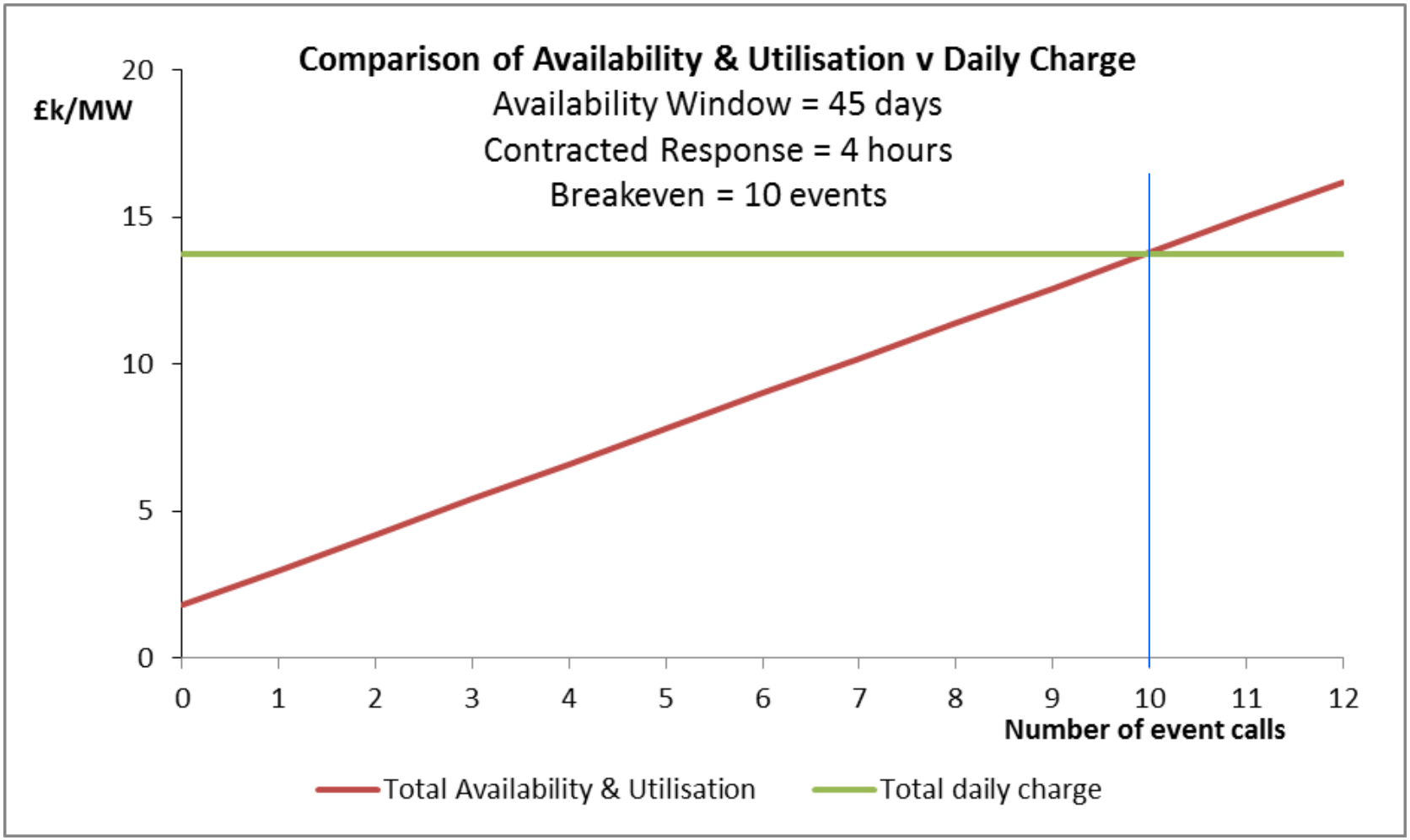
£150 per MW per day for EHV customers

Paid for each MW /day of the Availability Window

10 chose Benchmarking / Availability & Utilisation
4 chose Floor / Daily charge

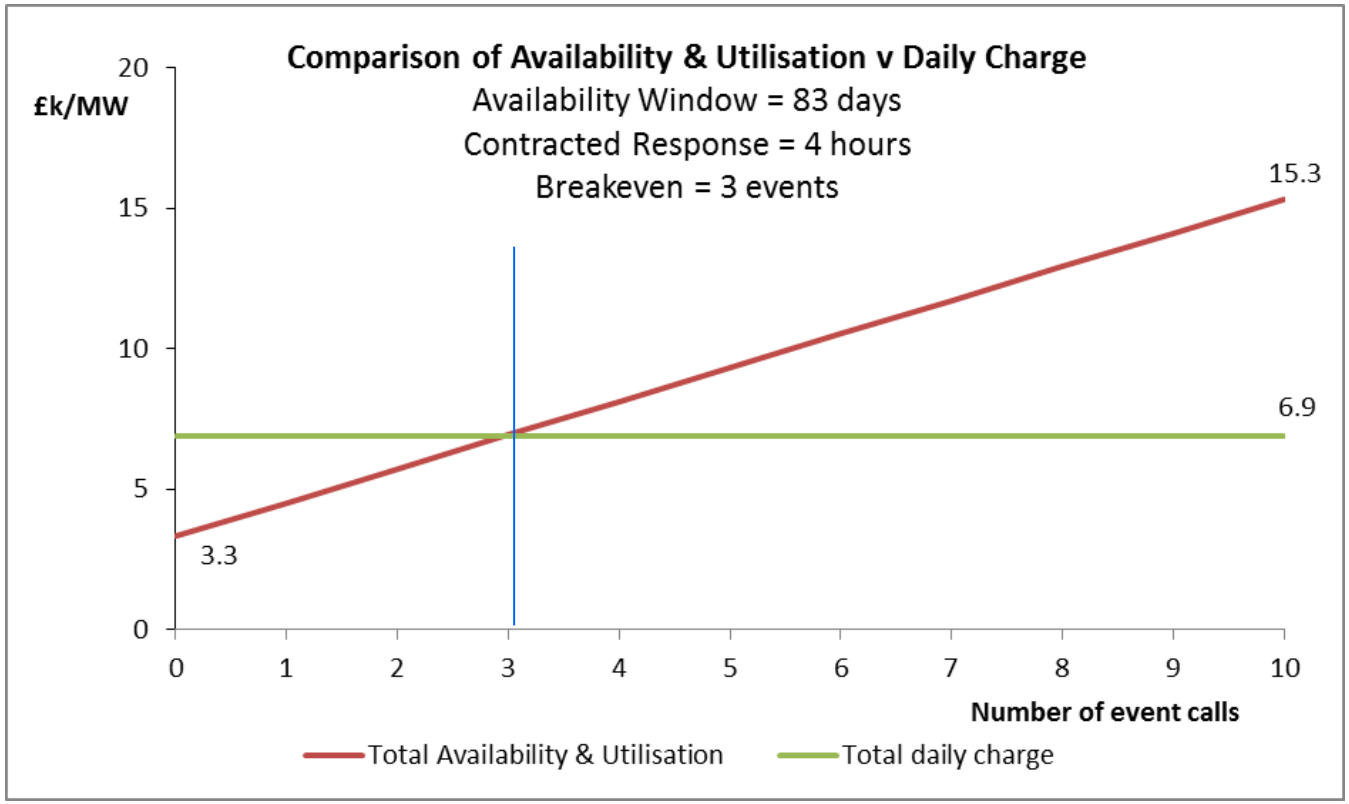
Pricing / contracts

- The trial was designed to pay the same to participants for 10 events during a 45 day availability window, no matter which contract they chose.



Pricing / contracts

- Fault rate analysis shows that the number of calls for a Monday to Friday availability window of 83 days (i.e. November to February) is more likely to be an average of 3 up to very infrequent but potential maximum of 10.



Availability and Utilisation

Availability Price of £10/MW/h

PLUS

Utilisation Price of £300/MW/h

Daily charge

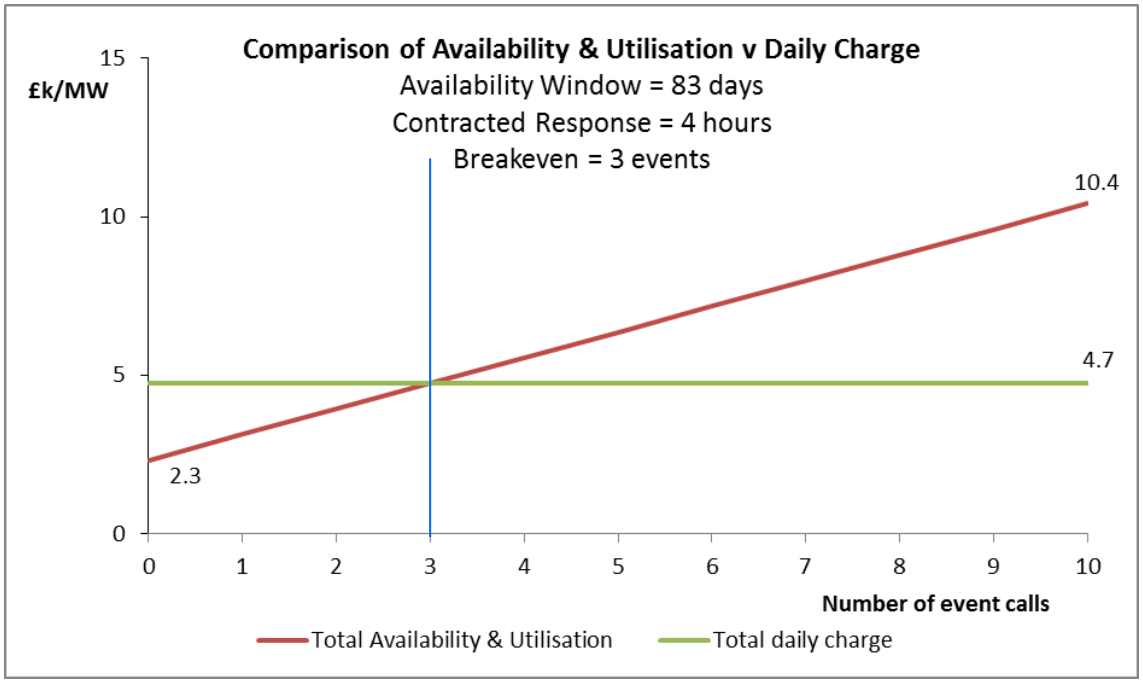
£83 per MW per day

Pricing / contracts

- STOR prices have been steadily reducing

£/MW/h	2010/11	2011/12	2012/13
Average availability price	9	9	7
Average utilisation price	252	232	202

* National Grid - STOR Annual Market Report



Availability and Utilisation

Availability Price of £7/MW/h

PLUS

Utilisation Price of £202/MW/h

Daily charge

£57 per MW per day

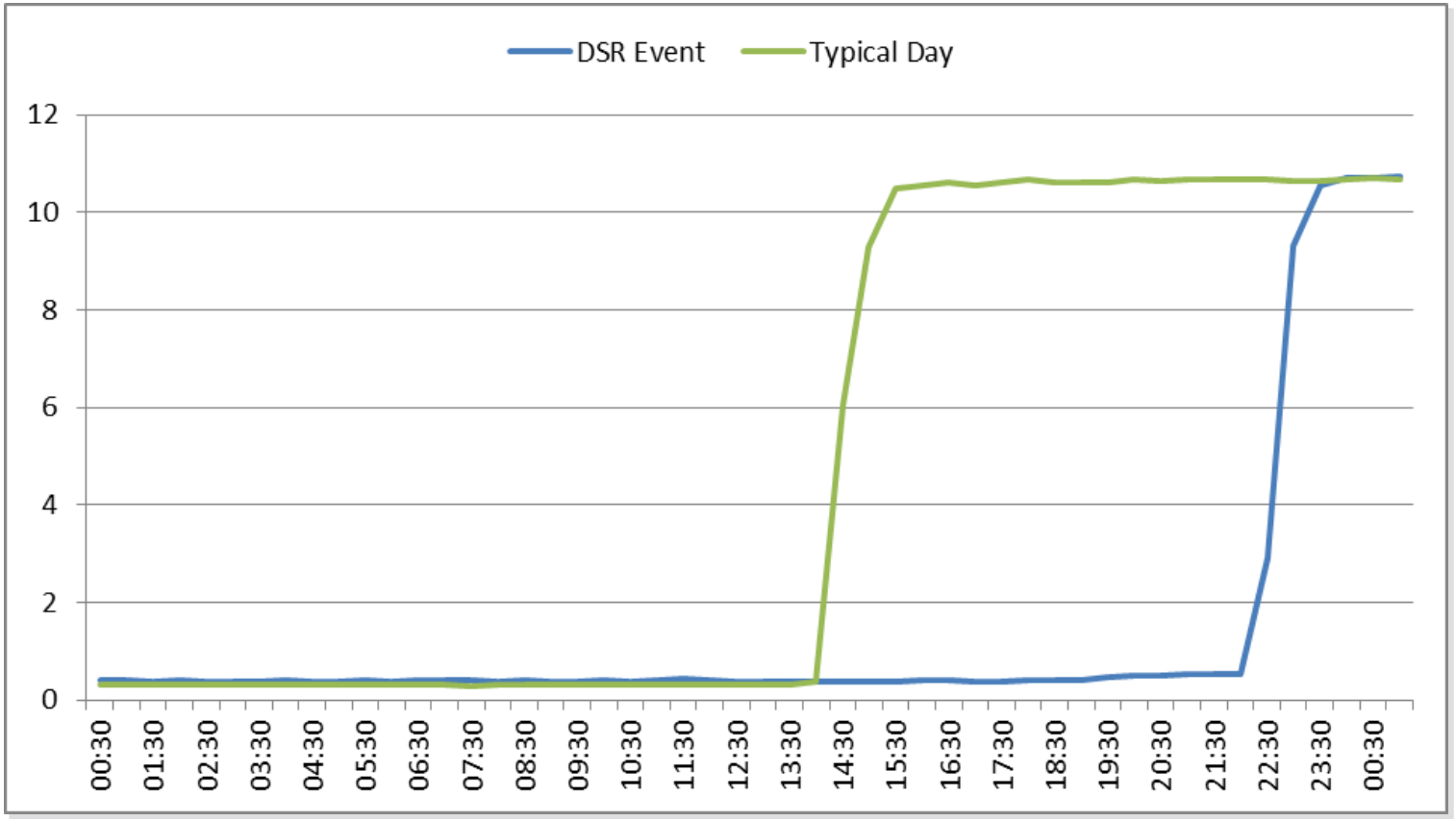
Pros & Cons of contract options

Contract Type	DNO perspective		Customer Perspective	
	Pro	**Con**	**Pro**	**Con**
Benchmarking **Availability & Utilisation**	DSR availability was notified & visible each week Lower cost (if not called as often as contracted)	More complicated to operate and validate	Pays more if utilized more	Requires weekly notifications. Only the availability payment is guaranteed
Floor **Daily Charge**	Simple to operate and validate Costs are fixed (subject to performance when called)	Higher cost option if not called as often as contracted Availability notification was not a contract requirement	Simple - No availability notification required Guaranteed income to cover costs	No additional revenue if called more than the base case

Outcomes – demand shifting

Customer A: **Gas Production & Distribution**
Contract Type: Floor
Payments: Daily Payments
Contracted DSR: 5 MW

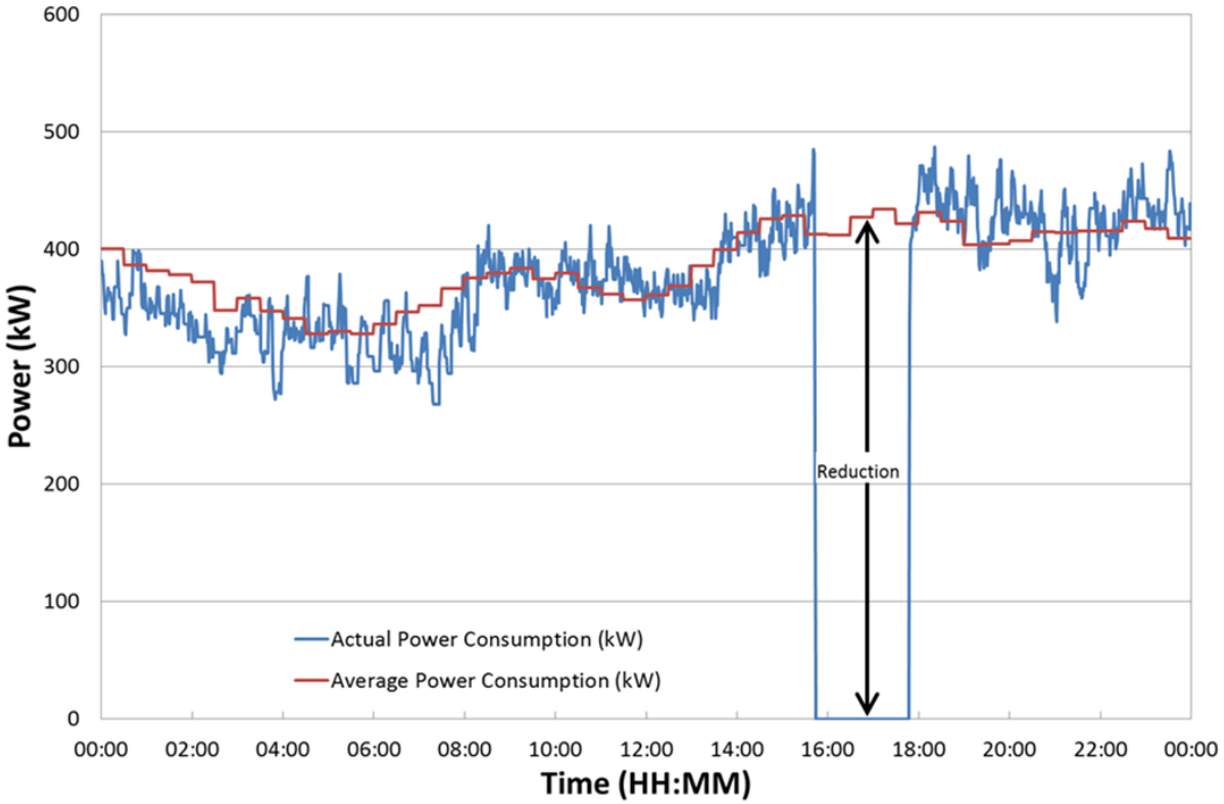
Availability: 3pm – 7pm, weekdays
Run hours cap: 4 hours
Response Time: 20 minutes
Season: March – April 2014



Outcomes – generation support

Customer B: **Supermarket**
Contract Type: Benchmark
Payments: Availability & Utilisation
Contracted DSR: 0.36 MW

Availability: 3pm – 6pm, weekdays
Run hours cap: 2 hours
Response Time: 20 minutes
Season: November – March 2014



DSR called at 15:40:27

Generator started 15:43:28

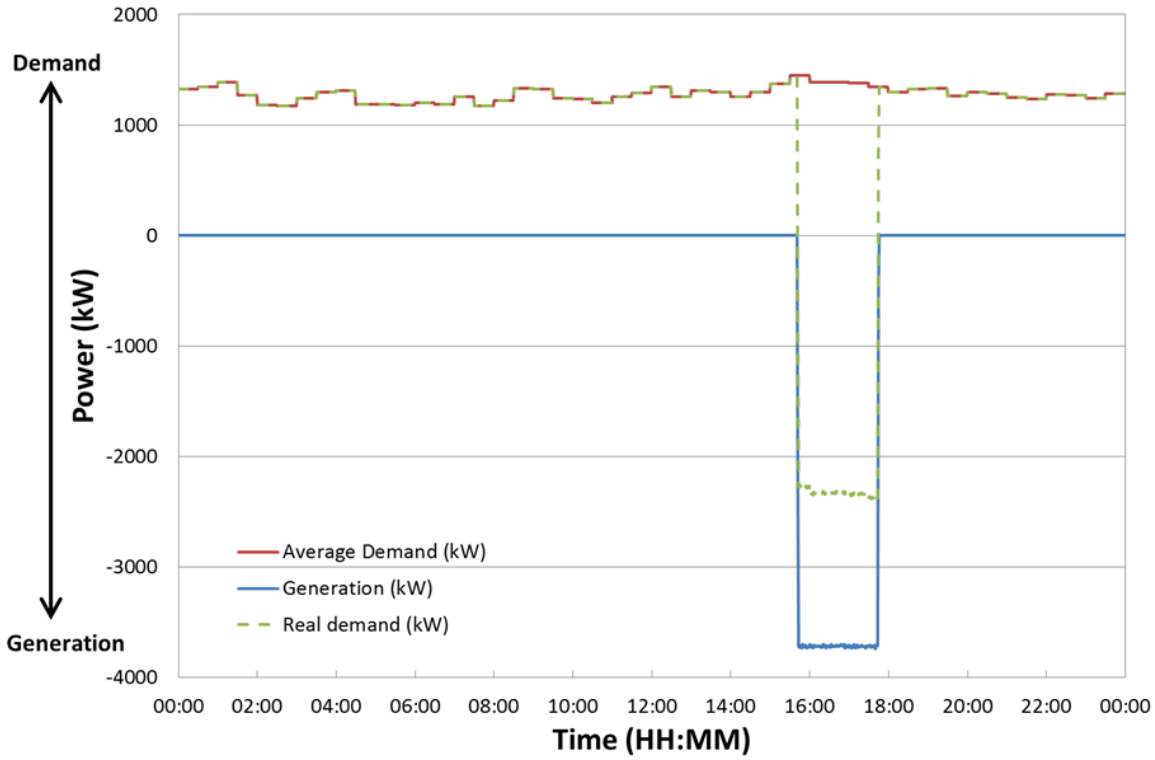
Zero kW reached at 15:43:49

Consumption restored at 17:48:19

Outcomes – generation support

Customer C: **Supermarket**
Contract Type: Benchmark
Payments: Availability & Utilisation
Contracted DSR: 3.6 MW

Availability: 3pm – 6pm, weekdays
Run hours cap: 2 hours
Response Time: 20 minutes
Season: November – March 2014



DSR called at 15:40:27

Generators start at 15:41:36

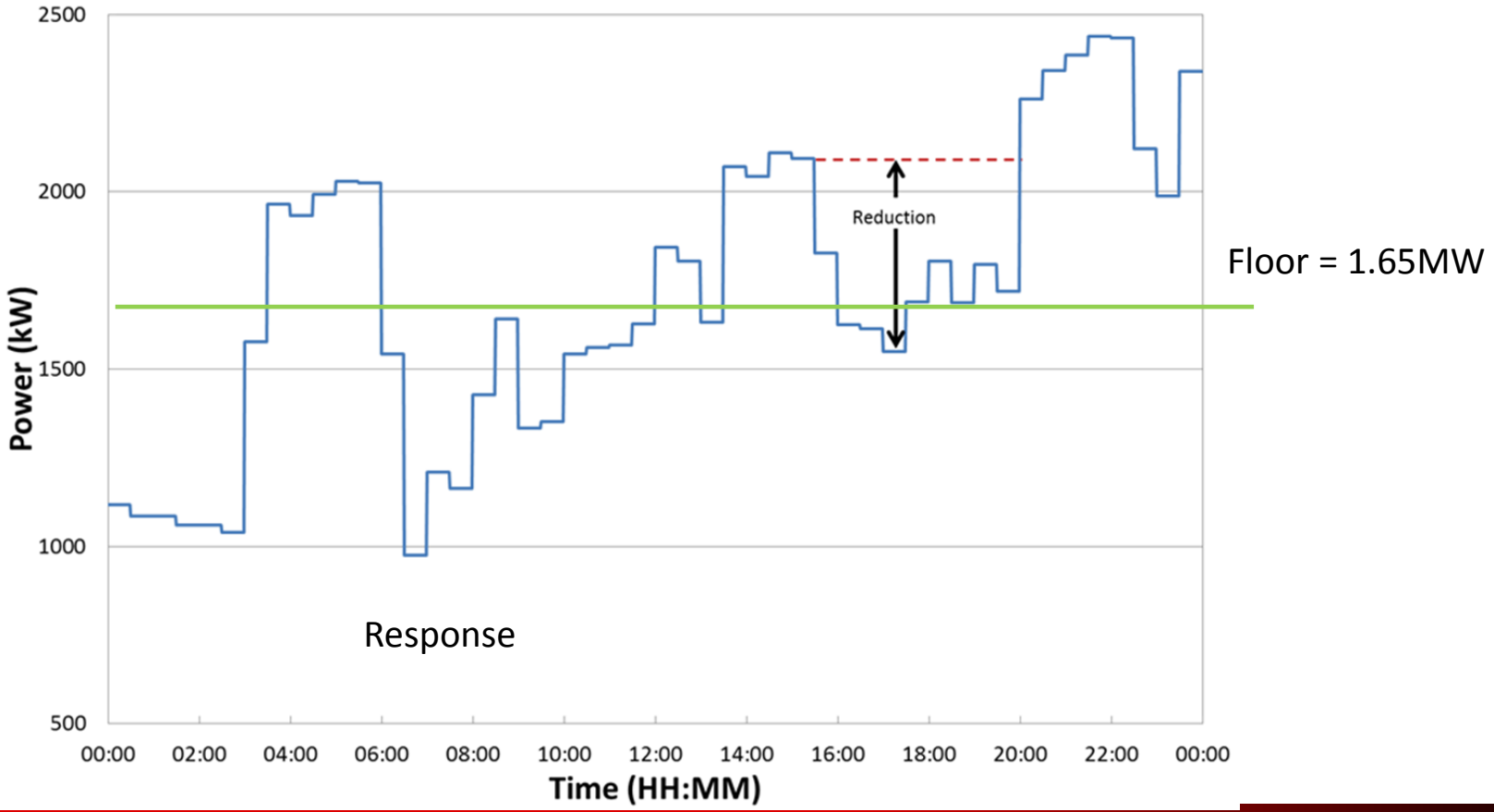
Full power output reached at 15:42:50

Generation reduce to zero at 17:49:56

Outcomes – demand reduction

Customer E: **Refrigeration**
Contract Type: Floor
Payments: Daily Payments
Contracted DSR: 0.60 MW

Availability: 3pm – 7pm, weekdays
Run hours cap: 4 hours
Response Time: 20 minutes
Season: February – March 2014



Outcomes – Overall learning

- Customers are willing to sign contracts with DNOs and can deliver the requirements
- Localised customer identification and recruitment is a challenge but it is possible
- Existing STOR participants are easier to recruit...
  …and sharing arrangements are needed to transition from trial to BAU
- Utilization reliability was 80%
- Taking this together with National Grid's STOR availability figures of 80% gives an overall reliability of 64%...
  ...so a probabilistic approach is needed when planning/pricing/purchasing.
- Existing STOR customers were happy to sign at STOR prices for the CLNR trial
- BAU pricing will be driven by supply and demand:
  - Customers are looking for bankable business cases
  - DNOs need to consider the deferred / avoided reinforcement costs, response reliability, benefit sharing between the DSR provider and all customers, etc.
- We intend to run I&C capacity auctions for DSR provision during RIIO-ED1 in areas of forecast reinforcement need

Any Questions?

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