DS3 Auction Design - A New Entrant Perspective

DS3 System Services Auction Design Industry Workshop

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Project CAES, Larne- NI
Project Info

- Siemens Dresser-Rand;
  - 330MW Generation, 250MW Demand
  - both sources of inertia.
- Grid Secured, Planning submitted Dec 2015.
  - Project designated strategic infrastructure in N.I.
- Designated as a Project of Common Interest (PCI) by the European Commission
  - Awarded grant funding of €6.5mln from Connecting Europe Facility
- Currently progressing Front End Engineering Design (FEED)
- Shovel Ready: Dec 2016

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Project CAES, Larne- NI

Project CAES, Larne- NI
DS3 Performance

- Generator & Compressor provides full range of DS3 services.

- Independent DS3 performance assessment complete

- CBA indicates significant consumer saving

- Strategic Partnership with Siemens Dresser-Rand

- Power Generation Mode
  - 10% - 100% rated power output in 5 minutes
  - 0% to 100% rated output; 10 minutes
  - Flat heat rate
  - Exceptional Load following capability

- Compression Mode
  - 65% to 110 % of rated output
  - High system efficiency over the operating range

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Project CAES, Larne- NI
Innovative use of Existing Technology

- 2 CAES plants in operation worldwide;
  - Huntorf, Germany: 1978
  - McIntosh, Alabama: 1991
    - >97% Generation Running Reliability since COD
    - >99.5% Compression Running Reliability since COD
- Over 1,200 compressors supplied
- Over 300 LP Expanders installed
- Salt Caverns used for storage over 50 years. >500 storage caverns throughout the world, primarily for gas storage

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Auction Design
A New Entrant Perspective

- New Entrants require the following to secure finance;
  - Stable Revenues
  - Long Term Contracts
  - Clear auction design and unambiguous contract allocation
  - Appropriate allocation of risk

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Auction Design
A New Entrant Perspective

- Challenges to date with the current structure;
  - Extensive work leading to impasse
  - Confusing Auction Design
  - Inappropriate allocation of risk
  - Risk of resorting to regulated tariff seems high
    - Tariffs as designed are not investable
  - TSO discretion for new entrants
  - Revenue clawback

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How to Move Forward?

- Separate existing participants and new entrants
  - Existing participants: 1 year tariff
  - New Entrants: 15 year contracts

- New entrant procurement
  - (a) Simpler Auction format –clear winners and losers
  - (b) tendered **value** based tariffs
  - (c) Separate Pots as per GB CfD

What is the selection criteria??

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How to Move Forward?

- Selection criteria for new entrants in non-auction format;
  - Prioritise providers who provide the highest volume of service, at lowest relative cost and weighted by the value of the service.

- **Example:**

Unit		Service A	Service B	Service C	Service D
	System Tariff (€/Unit)	80	50	60	40
	Required Qty	200	80	90	110
A	Offered P/Q	50 / 100	35 / 50	30 / 60	40 / 80
B	Offered P/Q	35 / 110	35 / 55	NA	NA

$$Priority = \sum_{services} \left(\frac{System\ Tariff}{Offer\ Price} \times \frac{Offer\ Quantity}{Required\ Quantity} \right)$$

$$Unit\ A = \left(\frac{80}{50} \times \frac{100}{200} \right) + \left(\frac{50}{35} \times \frac{50}{80} \right) + \left(\frac{60}{30} \times \frac{60}{90} \right) + \left(\frac{40}{40} \times \frac{80}{110} \right) = \mathbf{\underline{3.75}}$$

$$Unit\ B = \left(\frac{80}{35} \times \frac{110}{200} \right) + \left(\frac{50}{35} \times \frac{55}{80} \right) = \mathbf{\underline{1.7}}$$

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How to Move Forward?

- Minimum Annual Revenue Requirement (MARR) only for DS3 revenue
  - Must be re-established
  - Where contractual availability decreases below an agreed threshold, MARR pro-rata reduces to protect consumer
- Profit Capping
  - Profits should be capped for new entrants
  - Non-Profit Distributing Model is a commonly utilised structure

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Conclusion

- Gaelectric proposal ensures;
    - Consumer is protected
    - New entrants remain incentivised
    - Renewable targets will be met securely & curtailment reduced
    - Investment opportunity is clear

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