

Options for Energy Buyers Bloomberg Offices

8 November 2006

Centrica Storage Limited

centrica

taking care of the essentials

Rough Storage use for Winter 06 and beyond

1. **Introductions to CSL**
2. **The role of storage in GB**
3. **Rough Recovery**
 - **Options for Energy Buyers (1) – Rough Update**
4. **Storage Outlook for Winter 06**
5. **Options for Energy Buyers (2) – Use storage information**
6. **Options for Energy Buyers (3) Valuing Rough Storage**
7. **Operating with Rough Storage in your portfolio**

An introduction to Centrica Storage

- Centrica Storage Limited is a wholly owned subsidiary of Centrica plc
- Centrica Storage is a ring-fenced part of Centrica plc, separated from the supply side legally, physically and financially (Chinese walls). Undertakings agreed with Secretary of State December 2003 governing operation of Rough



Introduction to CSL - Facilities overview



Hedon, near Hull
Administration/engineering



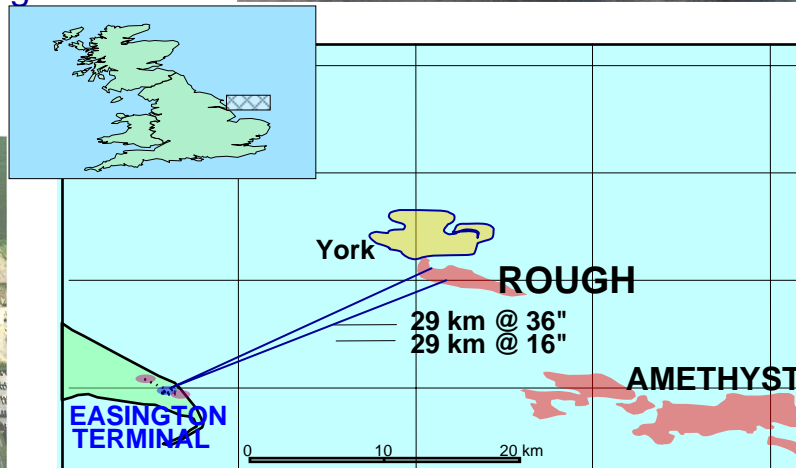
47/3B
Installed 1983
24 wells
24/7 Operation



47/8A
Installed 1977
6 wells
24/7 Operation



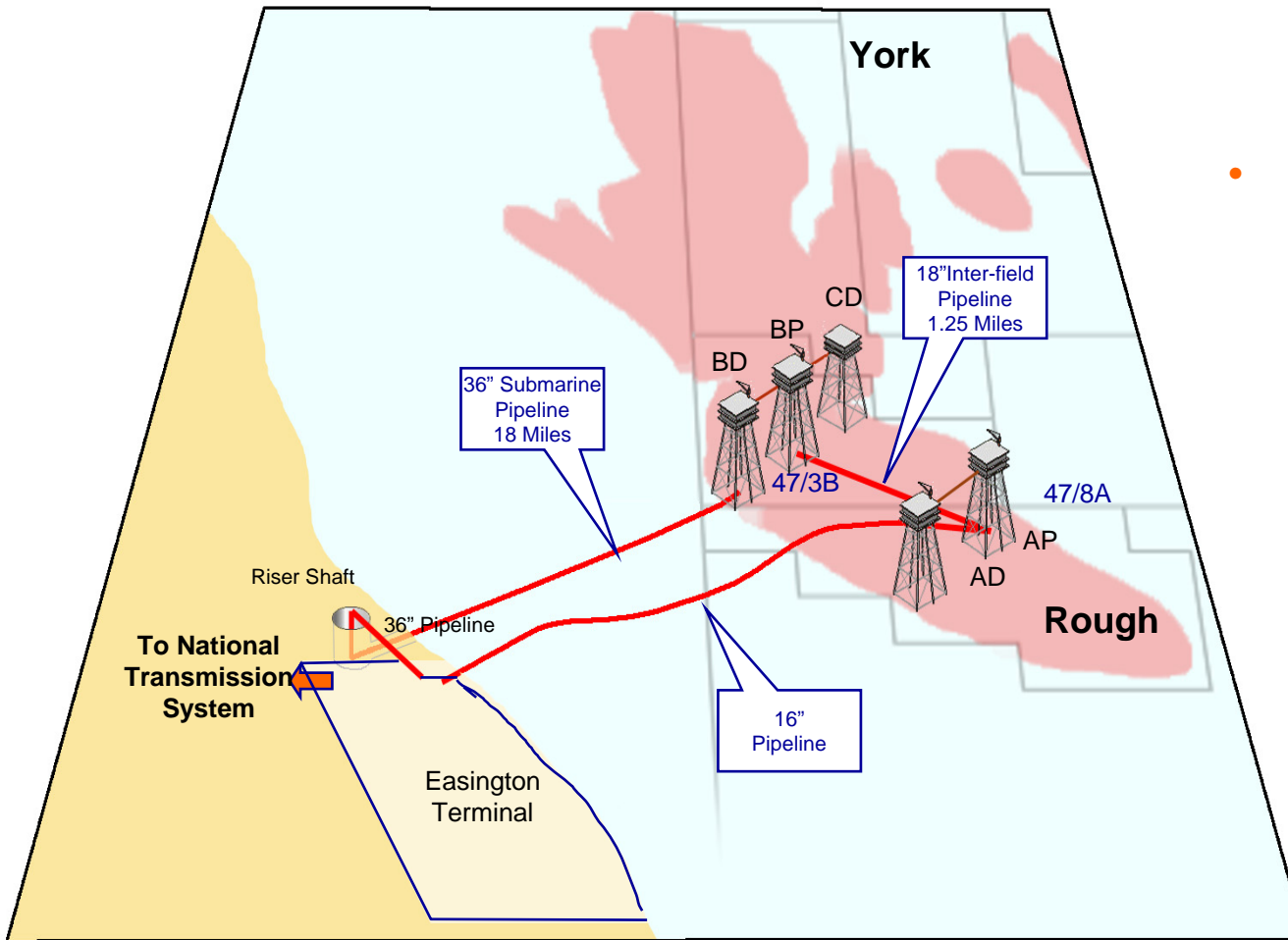
Easington Terminal
Rough gas processing
Amethyst gas processing
Tie in to National Transmission System
24/7 Operation



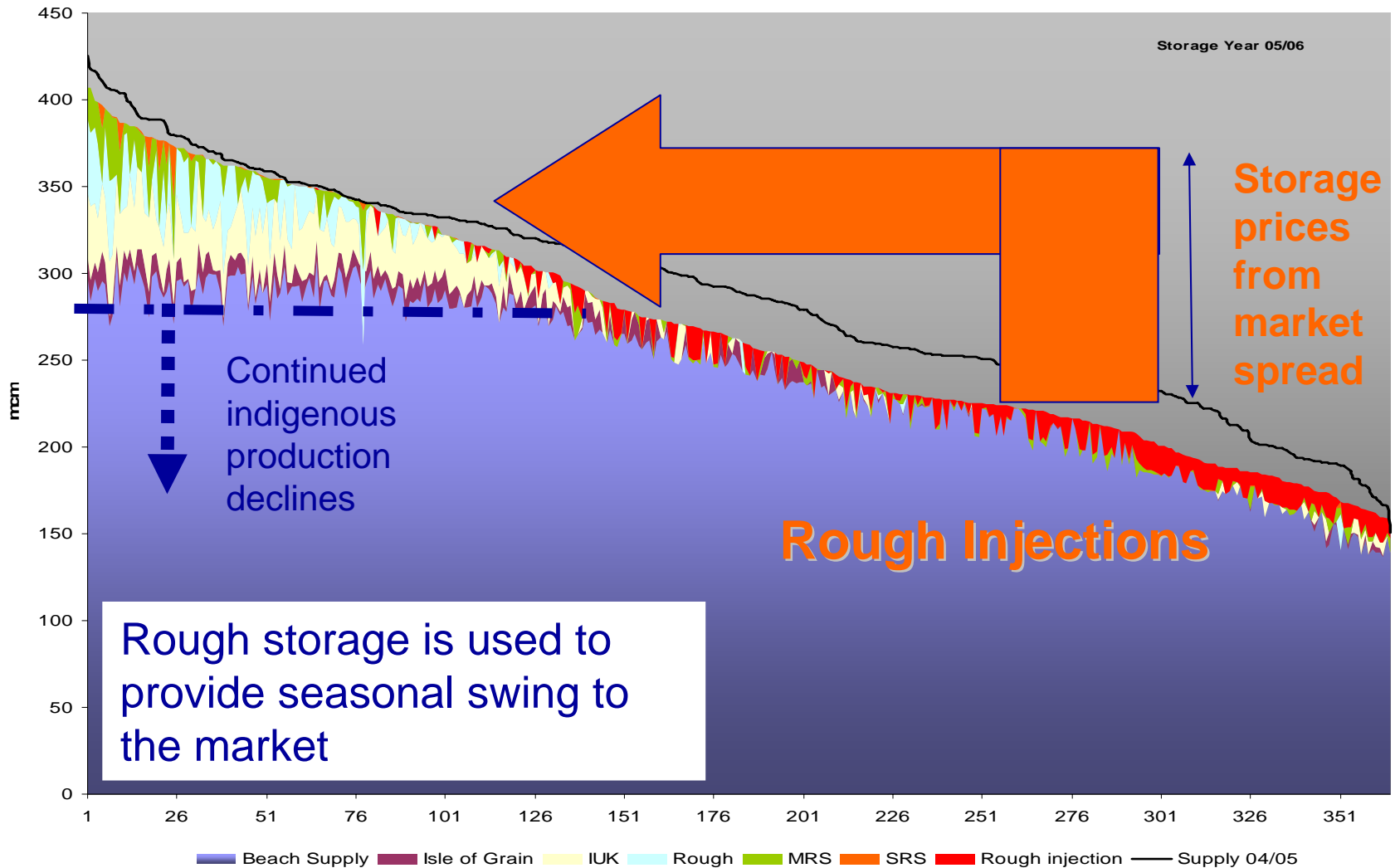
Venture House, Staines
Headquarters and
Commercial
office
24/7 Operation

Introduction to Centrica Storage – Process Overview

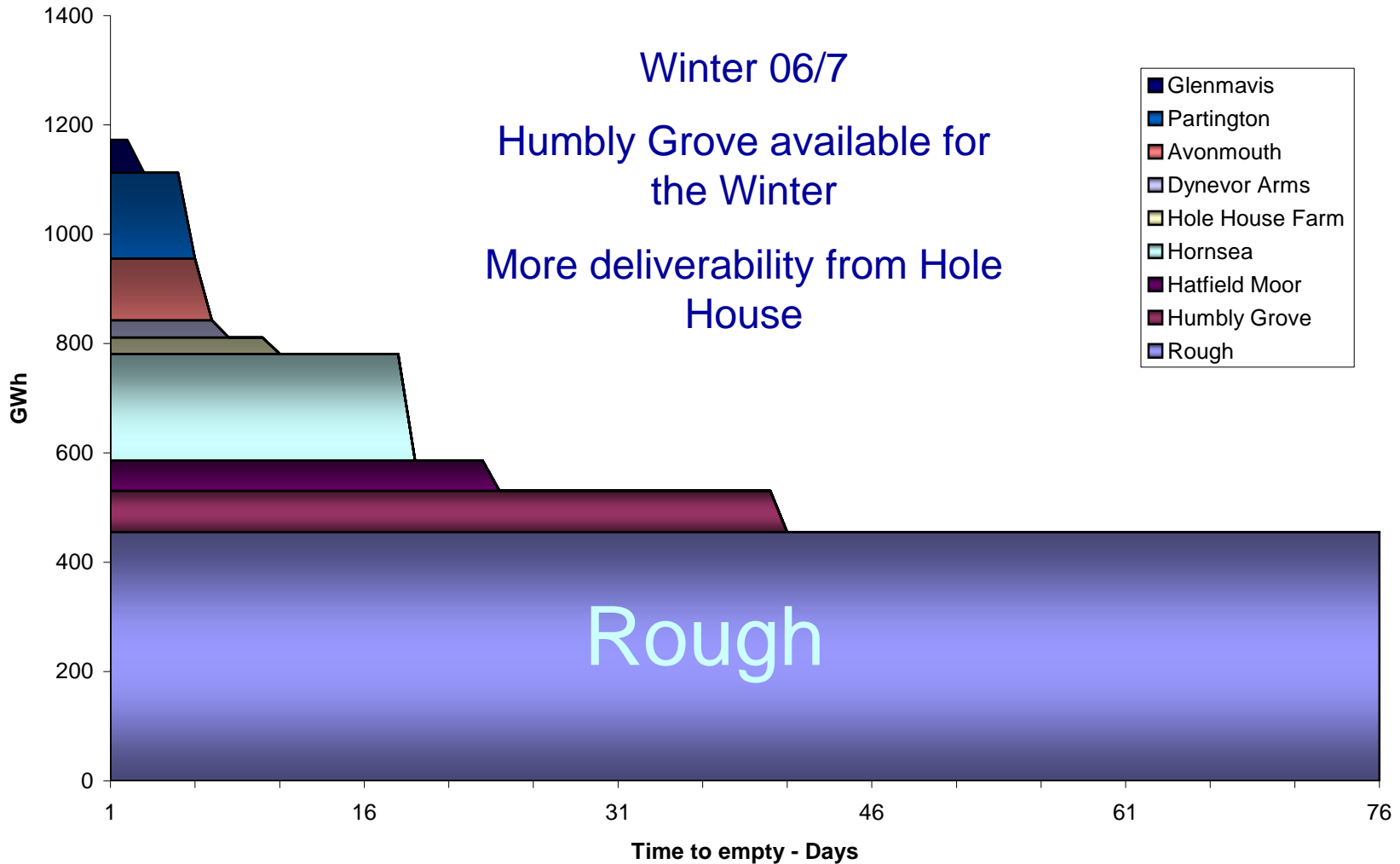
- Represents 74% of UK storage and supplies 10% of UK peak winter demand
- Largest offshore gas storage facility in Western Europe (strategically important).
 - 185 billion cubic feet (bcf) cushion gas
 - ~118 bcf storage capacity
 - Deliverability max 44.8mcm/day
 - Average Injection ~15mcm/day
 - Onshore processing terminal at Easington for Rough, Amethyst, Rose and Helvellyn processing (third party gas).



Actual GB Load Duration Curve 05/06

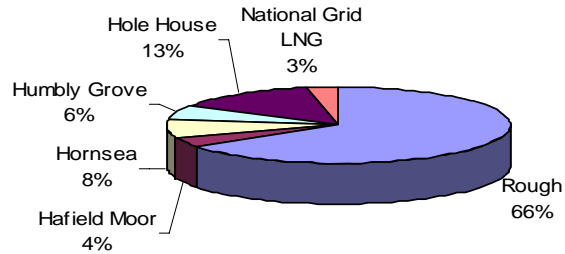


Existing UK Storage Facilities Winter 05/06

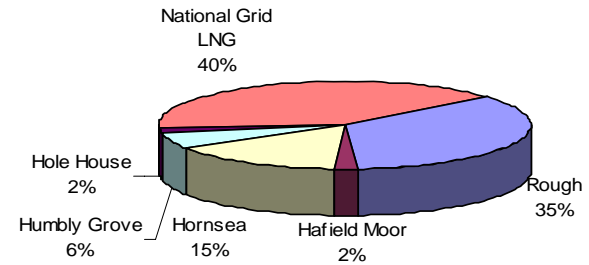


Rough's place in the storage and gas market

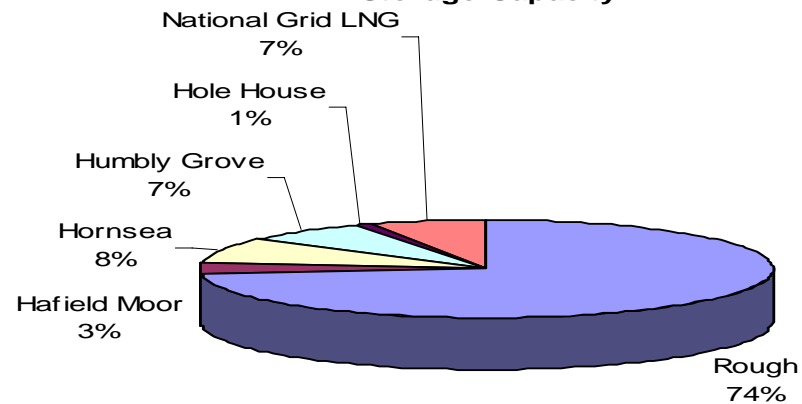
Average Injection - Summer 06



Deliverability



Storage Capacity



Recovery Program - Statistics

Phased Recovery completed to plan

- Phase 1 – remanning: full extent of damage unknown, installations ‘black’
- Phase 2 – reinstatement of injection operations
- Phase 3 – reinstatement of production operations
- Potential for reoccurrence eliminated

Over 400,000 man-hours worked

Safety

- Zero lost time accidents
- No Safety or Environmental incidents

Quality

- >500 Flange Joints made
- No hydrocarbon leaks, minimal rework - start up first time to plan

Time

- Phase 2 - 112 Days from incident to recommence injection
- Phase 3 - 217 Days from incident to become production ready

Cost

- Circa £30 million project

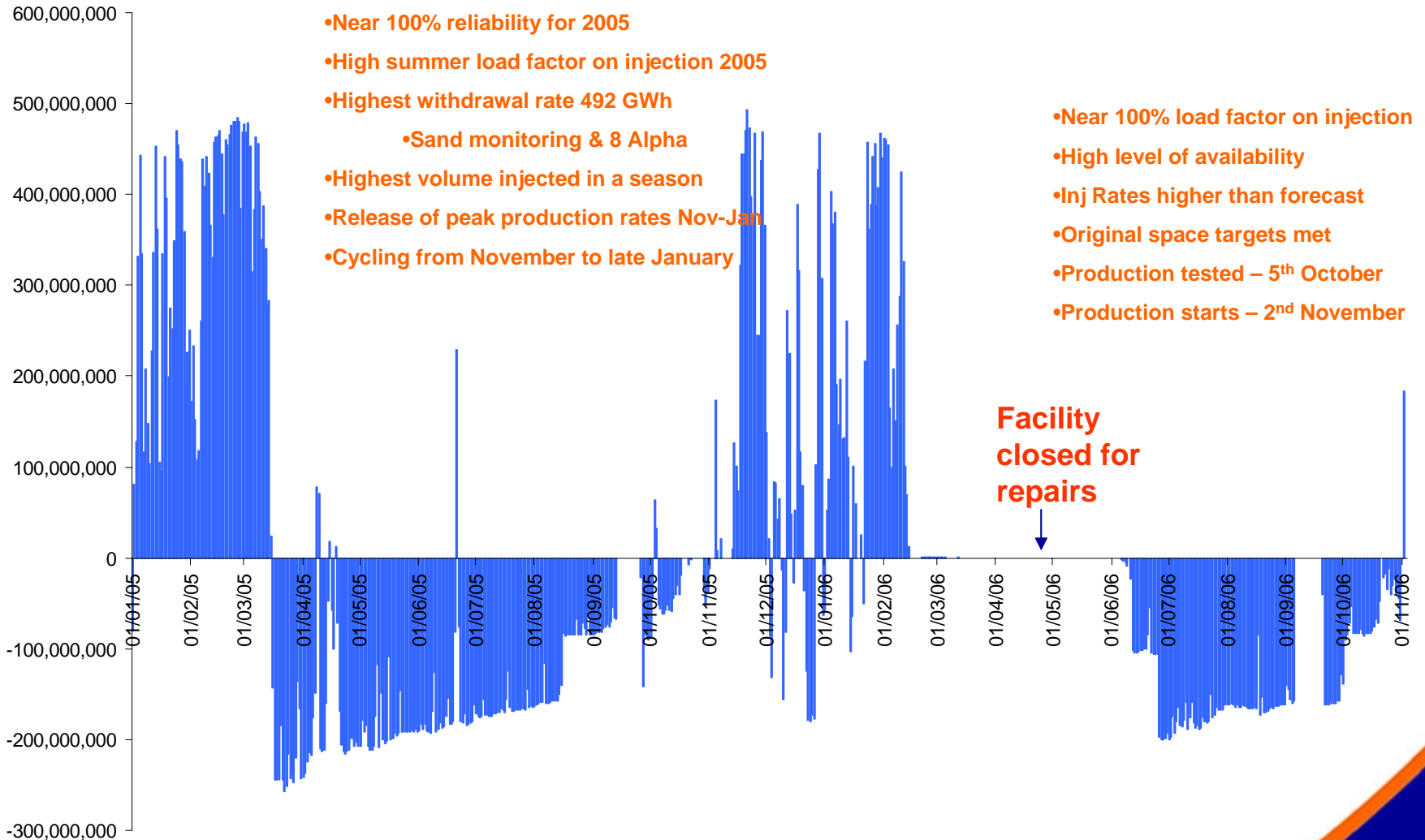
Execution

- Planned, resourced, managed and implemented by CSL

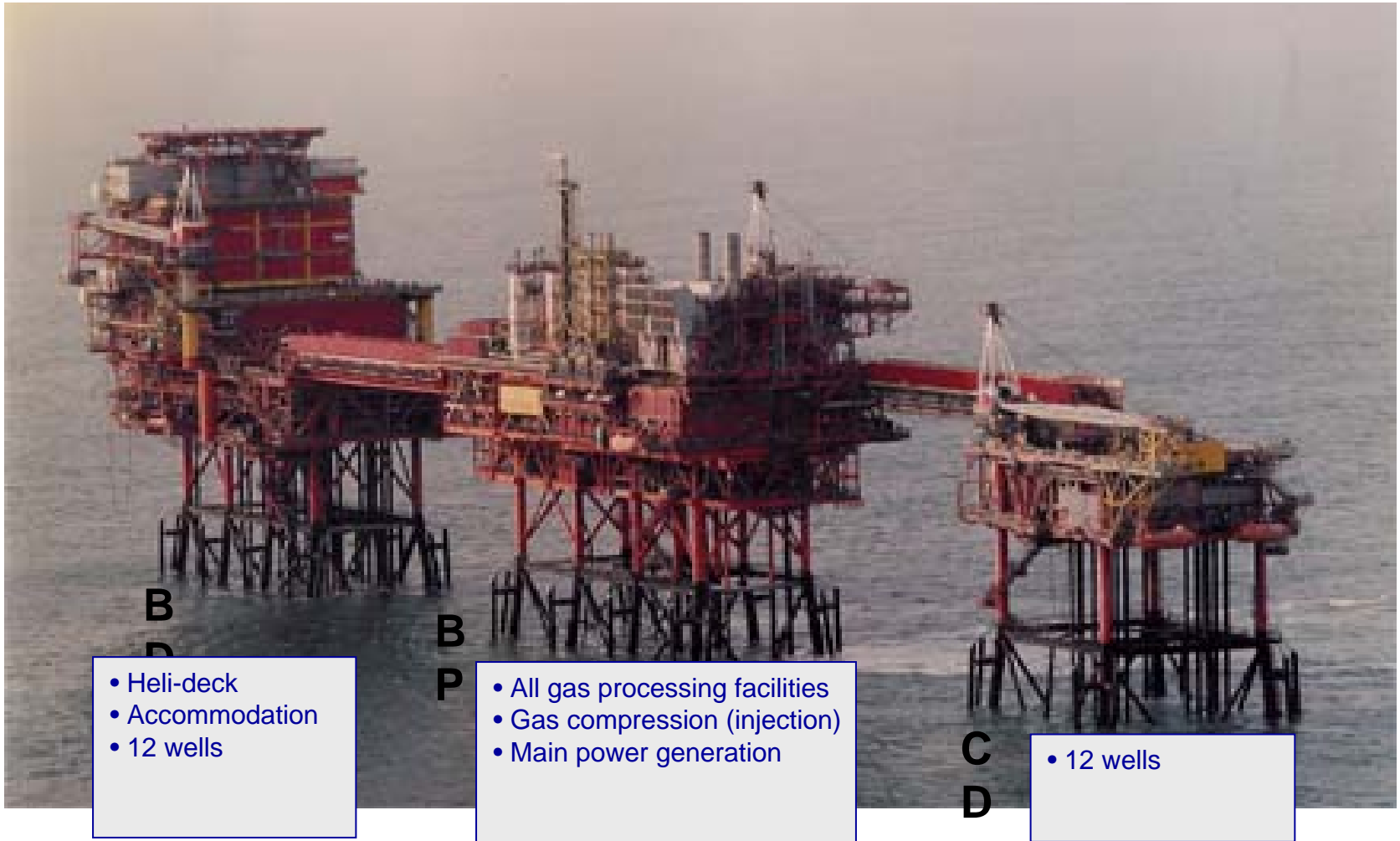
CSL – Rough Flows

£50> million spent on Rough by CSL to date!

Net Storage Movement



Centrica Storage Limited – New Production Process



Process Changes

Bypassing dehydration and running sealine wet

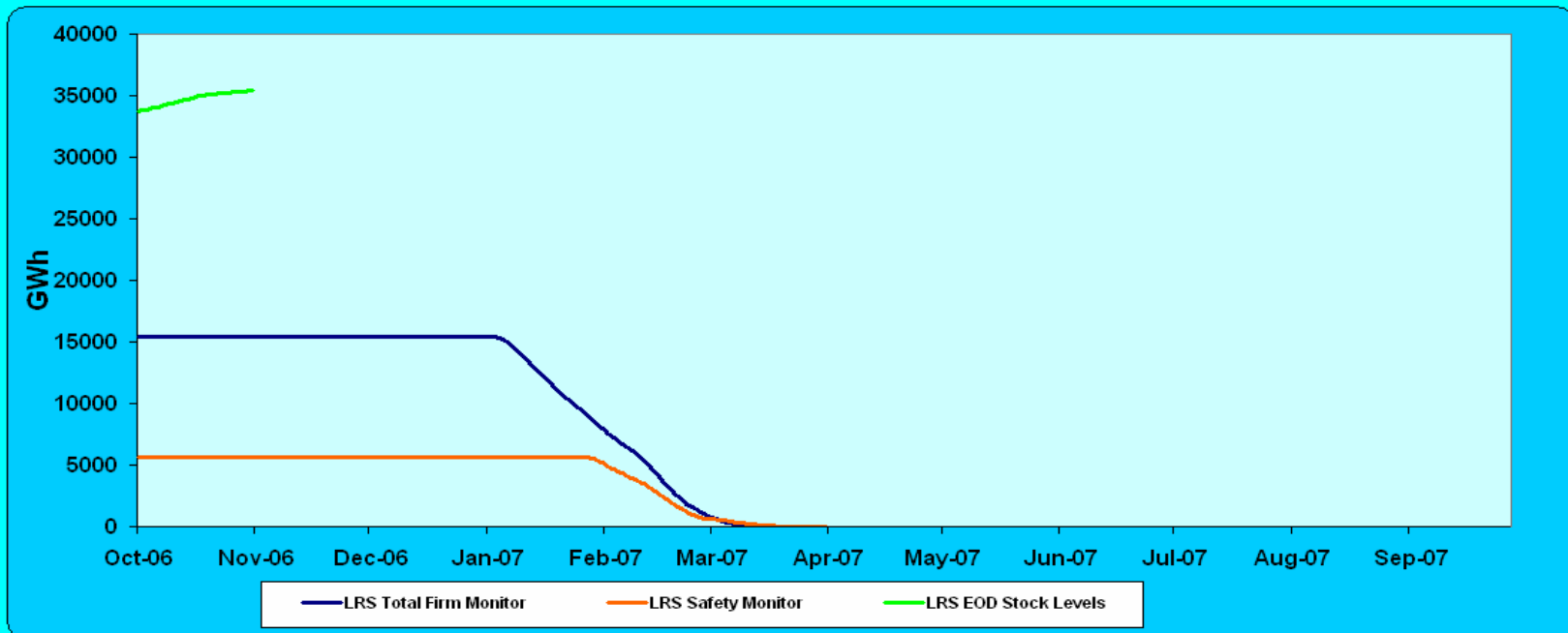
- Modifications based upon running the Rough 36" sea line 'wet'
 - Bypass the Rough 3B Glycol Dehydration Trains
 - Installation of large header and return pipework
 - Glycol Contactors, Production Separators and Glycol Regeneration Packages become redundant
 - ESD System extensively modified to reflect changes
 - Install new Hydrate / Corrosion Inhibitor Chemical Injection Skid on both Rough 8A and Rough 3B
- Two Injection aftercoolers modified to eliminate failure mode and return to four injection cooler operation
- Outcome:
 - Offshore production process simplified
 - Injection aftercooler duty improved
 - Pipeline corrosion management regime enhanced

1st NOVEMBER – ROUGH STORAGE FULL 116.5 bcf! (78 day service)

- FM on Injection lifted from Gas Day 18th July 2006
- Rough returned to injection early June – 112 days after the FM
- Since the return to physical injection operations in June CSL has filled in excess of 58 bcf of space before the end of winter
- Full production rates available following the return from annual maintenance in September
- All production trains were tested in turn 5th October 2006
- Commercial withdrawals began 2nd November 2006!

Options for Energy Buyers (2) - Storage Information

LRS Storage Monitors

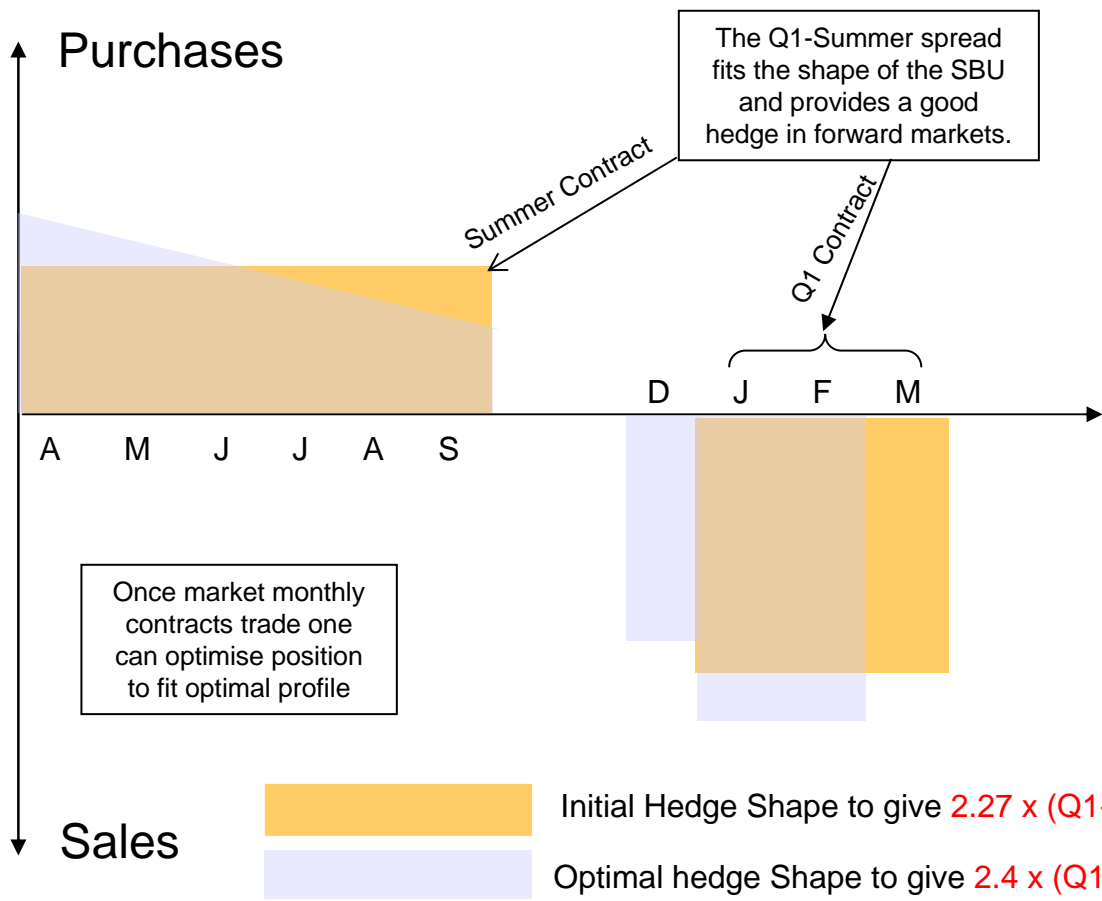


At 0600 hrs on :	31-October-2006	Stock Level =	35,404.2	GWh	(101.6%)
At 0600 hrs on :	01-November-2006	Stock Level =	35,472.2	GWh	(101.8%)
		Safety Monitor Level =	5,682.2	GWh	(16.3%)

- <http://www.nationalgrid.com/uk/Gas/Data/misc/>
- <http://storit.centrica-sl.co.uk> (aggregate site nominations within day)
- CSL supportive of attempts to drive forward transparency in the UK and Europe where appropriate

Options for Energy Buyers (3) – Book storage

Rough – SBU pricing and intrinsic value



Standard Bundled Unit (SBU)

Withdrawal 1 kWh/day

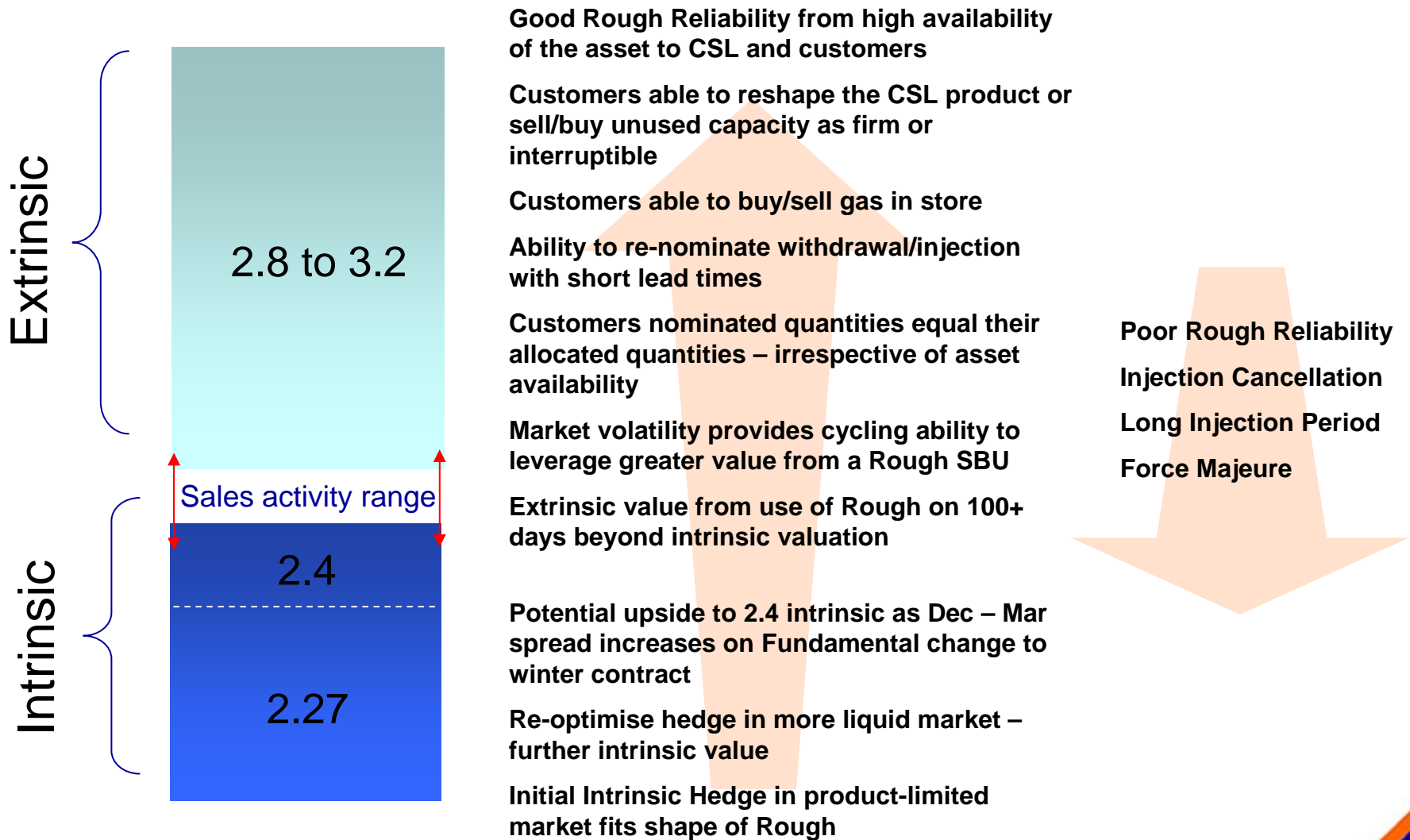
Space 67 kWh

Injection 0.35 kWh/day

455m SBU's sold

1 SBU provides space equivalent to 2.27 therms

Unlocking the extrinsic value



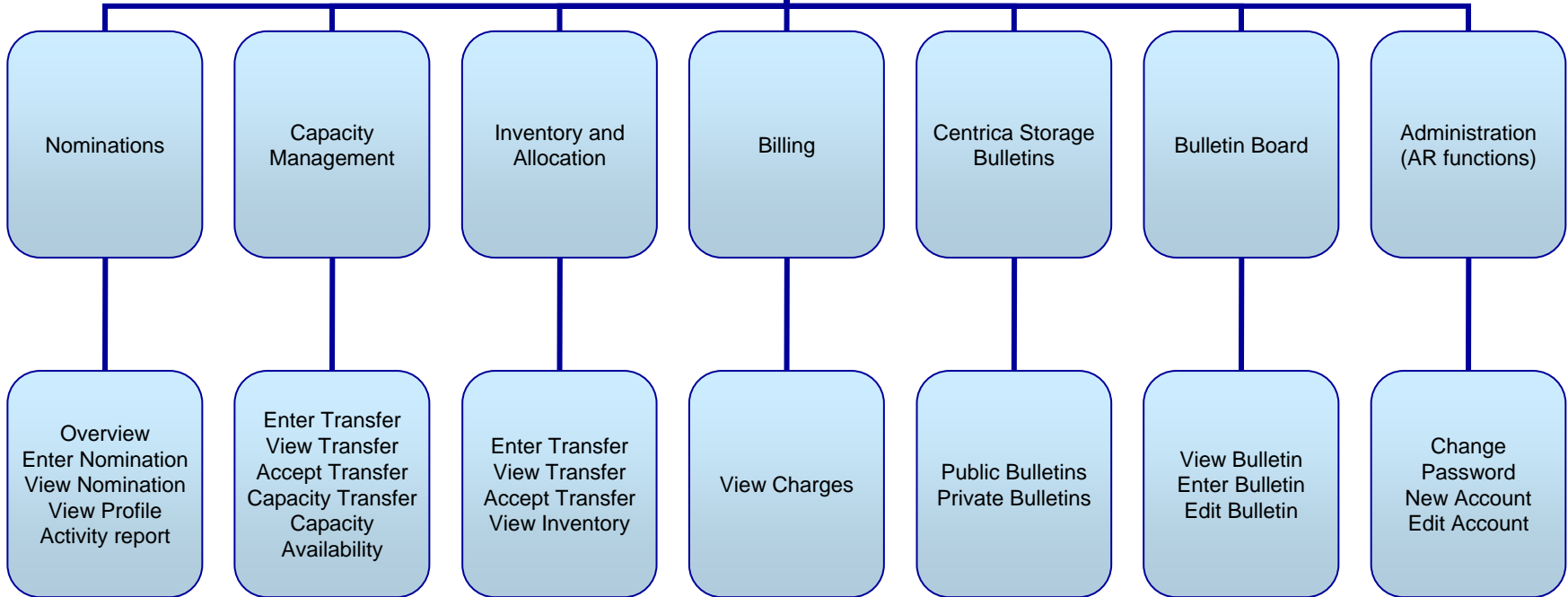
Note: Each SBU contains 2.27 therms, therefore to convert from pence/SBU into pence/Therm divide by 2.27

Site Map

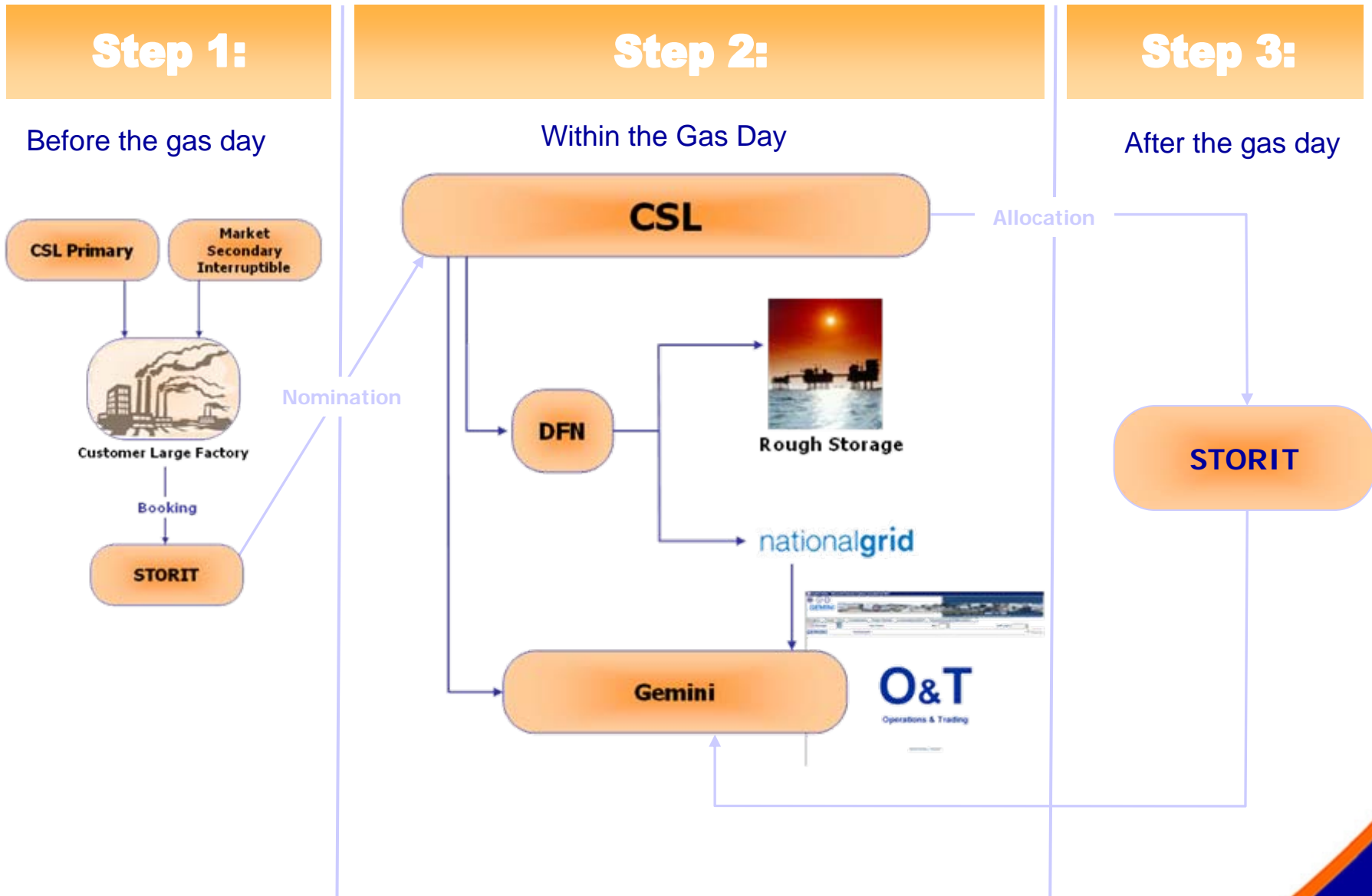
Centrica Storage | Main Menu | Help | Logoff

Centrica Storage Customer Access System

- Nominations
- Capacity Management
- Inventory & Allocation
- Billing
- Centrica Storage Bulletins
- Bulletin Board
- Administration



Operating with Rough Storage



Summary

- Storage has a key role to play in efficient gas market and balancing
- Market responding to need for more storage - duration still an issue but far better placed for demand/supply shocks in future
 - Subject to planning consents!
- Increased interconnection may increase the potential for storage cycling
- CSL has spent £50m> investing in Rough and plans to spend more
- Rough was full before the onset of Winter
- Rough back producing/storing our customers gas

Centrica Storage Limited

WHY SHOULDN'T LARGE GAS USERS BUY STORAGE CAPACITY..?

QUESTIONS...?

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