

Commercial Interfaces Workgroup

4th April 2004

Offtake Code

Offtake Rights and Diurnal Storage

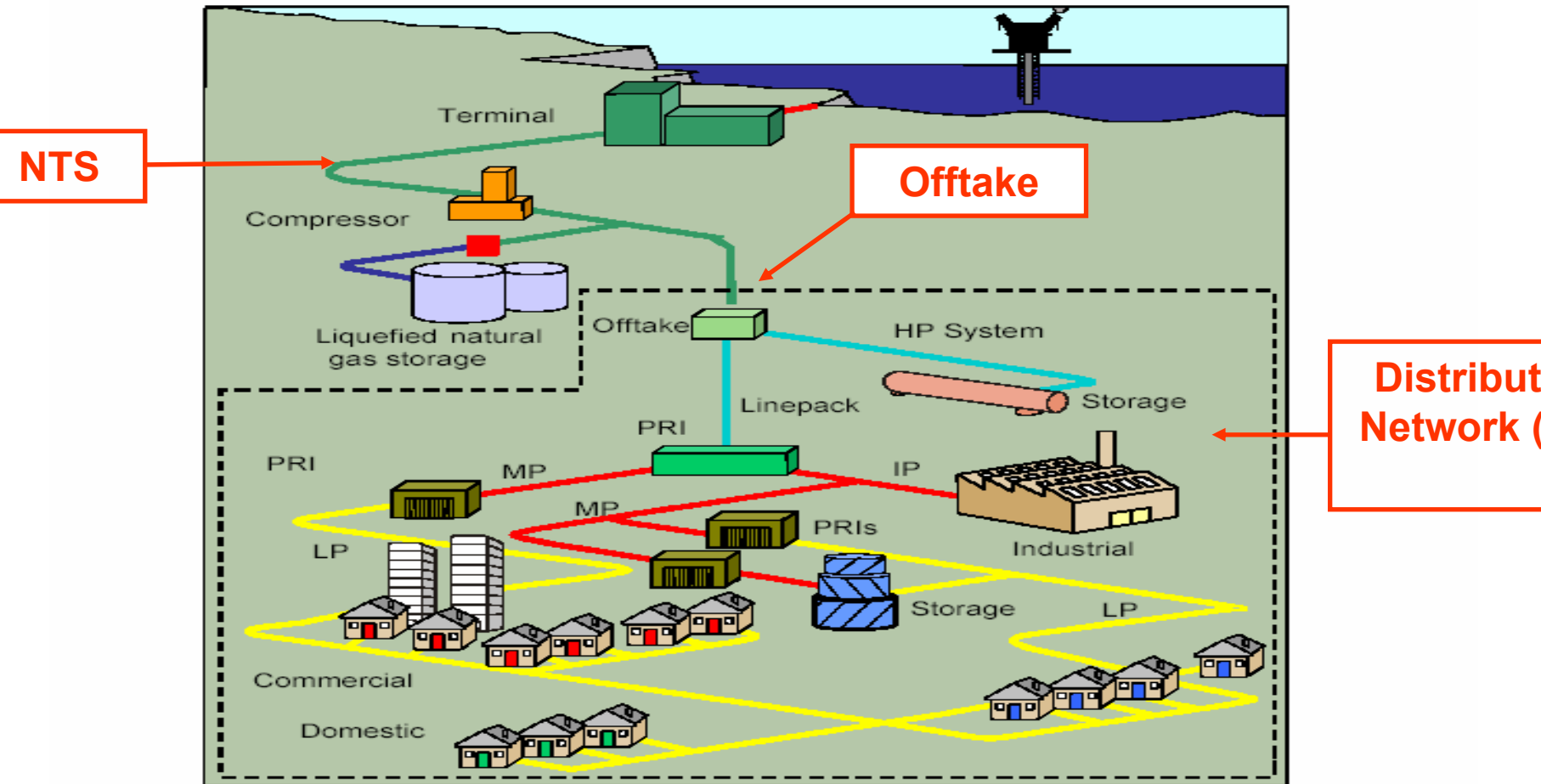
Mark Sutton

Offtake Rights and Diurnal Storage

Outline

1. Offtake Code Context
2. Recap on Offtake Rights Planning (section 8)
3. Application of planning rules in practice
4. Recap on Operational Flows (section 9)
5. Application of operational flow rules in practice

Offtake Code Context



Offtake Code Purpose and Design Principles

Operator to operator agreement covering the operational and commercial arrangements at the NTS/ DN interface

(1) Physical aspects of interface

- Capacity planning and operational flows
- Equipment and site sharing

(2) Information aspects of interface

- Ensuring Uniform Network Code can operate

Design Principles

Builds on existing internal procedures

Designed to operate consistently with today's balancing and exit regime

Assumes no change to price controls

Ensures no undue discrimination by NTS in treatment of DNs

Offtake and Capacity Rights at NTS/DN Interface

Physical Offtake Rights for DNs under Offtake Code

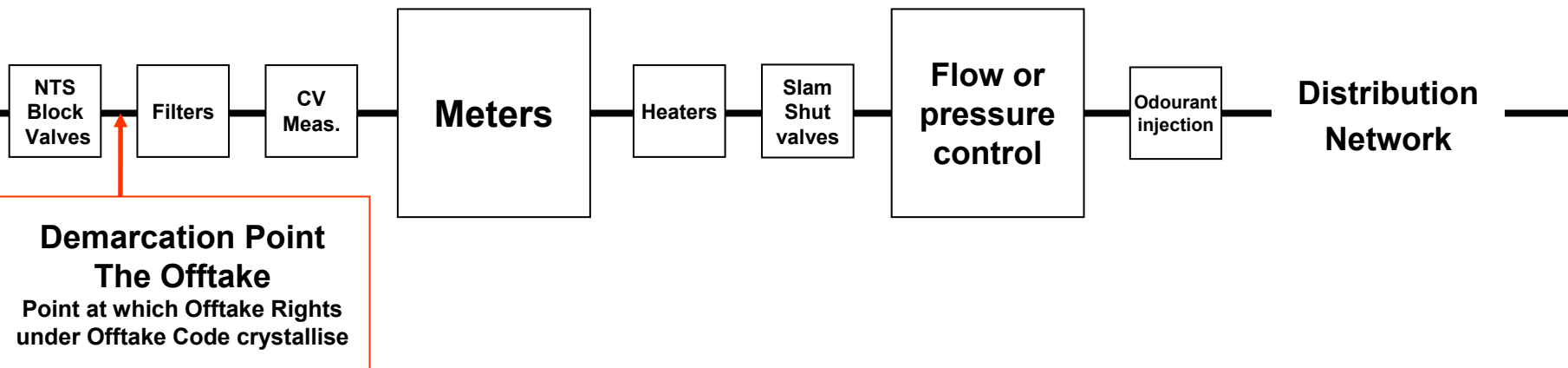
Commercial NTS Exit Capacity rights for shippers under the Uniform Network Code

Mapping of Distribution Networks to Local Distribution Zones and Offtakes

Distribution Networks (DNs) (8)	Offtakes (114)	Local Distribution Zones (LDZs) (13)	Offtakes (114)
Scotland	15	Scotland	15
North of England	24	Northern	15
		North East	9
North West	11	North West	11
Wales and the West	15	Wales North	1
		Wales South	3
		South West	11
South of England	10	Southern	6
		South East	4
North London	4	North Thames	4
East of England	24	Eastern	10
		East Midlands	14
West Midlands	11	West Midlands	11

Offtake Site

Typical Offtake Configuration



Feeder

Majority of equipment at Offtake Site owned and operated by DN.

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Offtake Rights Planning

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Offtake Rights Planning Summary

Assume NTS and each DN have licence obligations to provide capacity to meet 1 in 20 peak day demands

DN investment plans depend on long term commitments from NTS for daily quantities, diurnal storage and pressure (Offtake Rights)

Offtake Code planning rules are a codification of the existing planning process

Transparent rule-based Offtake Rights allocation process initially, with DN protection via minimum commitments from NTS

Expect charging arrangements to be introduced, with appropriate price control adjustments, from next price control period

Offtake Rights Planning Process

Planning Process

DNs provide detailed demand information for next 5 years (with indicative information for following 5 years)

NTS reviews demand data, determines its statutory obligations and produces Ten Year Statement accordingly

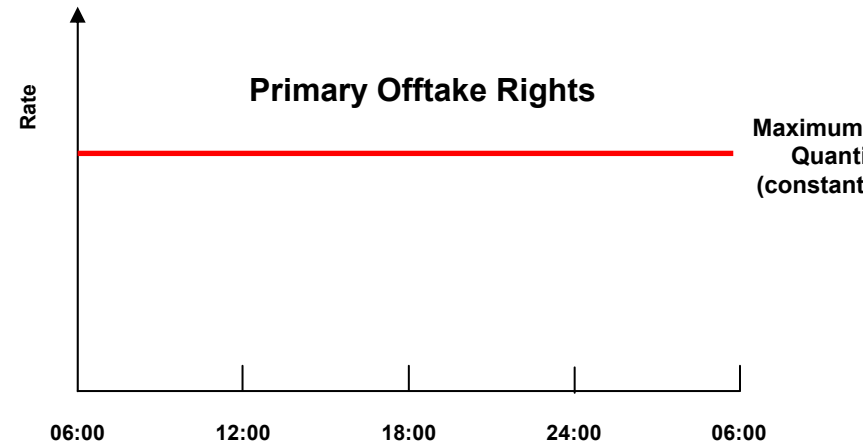
NTS allocates Offtake Rights to DNs consistent with Ten Year Statement via a transparent process

**Reflects existing internal
planning process**

Primary and Secondary Offtake Rights

Primary Offtake Rights

the maximum daily quantity to be taken at an offtake
in 20 obligation
TS will invest to provide Primary Offtake Rights

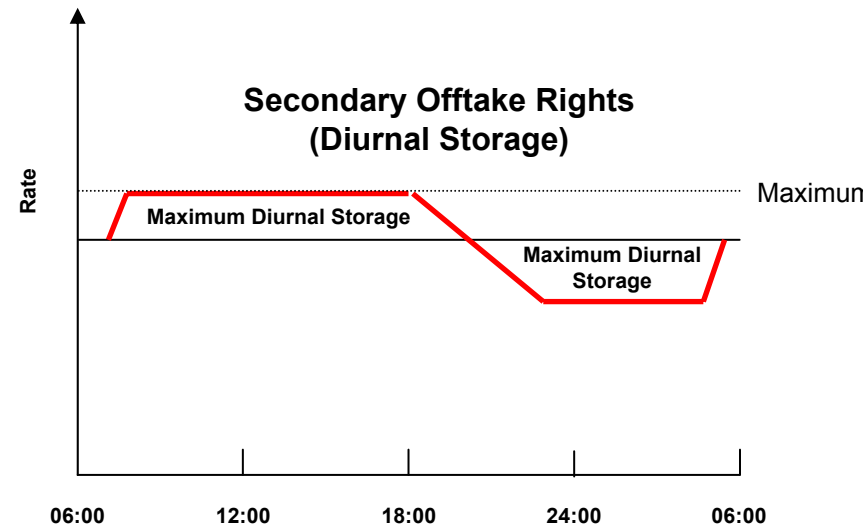


Secondary Offtake Rights

defined through the parameters

- Diurnal storage quantity, profile and maximum rate
- Pressure commitments

TS will make Secondary Offtake Rights available to the
extent NTS capable, but will not invest or incur additional
operating cost to provide



Offtake Rights Commitments

For each year for each offtake NTS will allocate primary and secondary offtake rights to be applied each day according to demand conditions.

Offtake Rights variation with demand								Year 1	Year 2	Year 3	Year 4	Year 5
								1	2	3	4	5
Offtake [name]	Demand Condition											
Primary Offtake Rights												
Maximum Daily Quantity	100	90	80	70	60	50	40					
Secondary Offtake Rights												
Maximum Diurnal Storage	100	75	50	25	0	0	0					
High Pressure	47	45	43	41	39	37	35					
Low Pressure	45	43	41	39	37	35	33					

Forward Offtake Rights Commitments

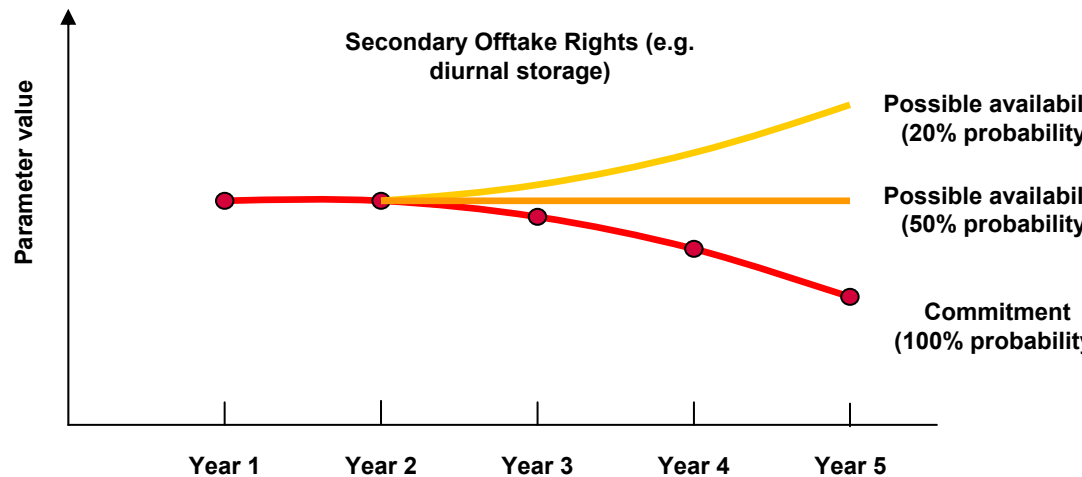
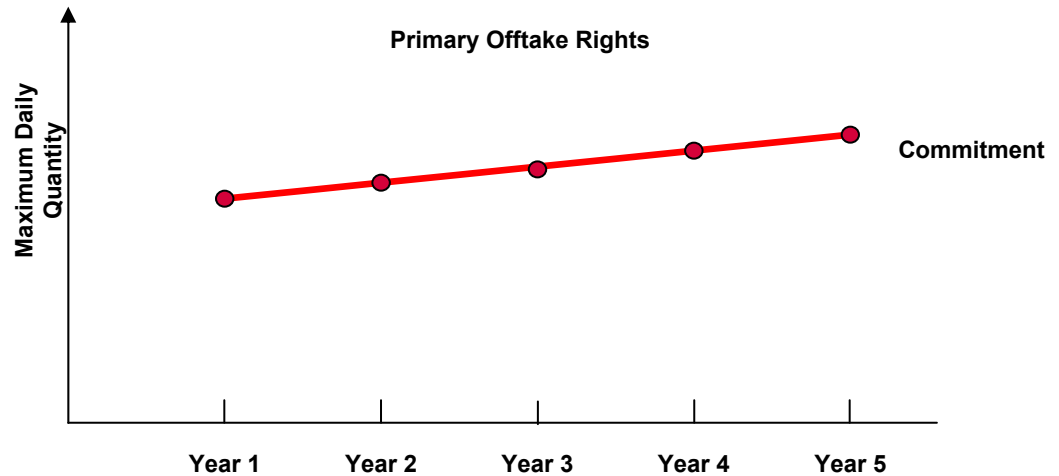
Primary Offtake Rights Allocation

Allocate MDQs consistent with statutory obligations to provide capacity
 Implied investment obligation

Secondary Offtake Rights Allocation

Indication of probable availability
 Allocate parameter values based on capability of NTS (given MDQs) up to requested amount
 No investment or additional operating cost
 Rationing between based on existing committed values
 Allocations not lower than existing commitment
 Year 3 not less than 90% year 2

Key protections for DNs



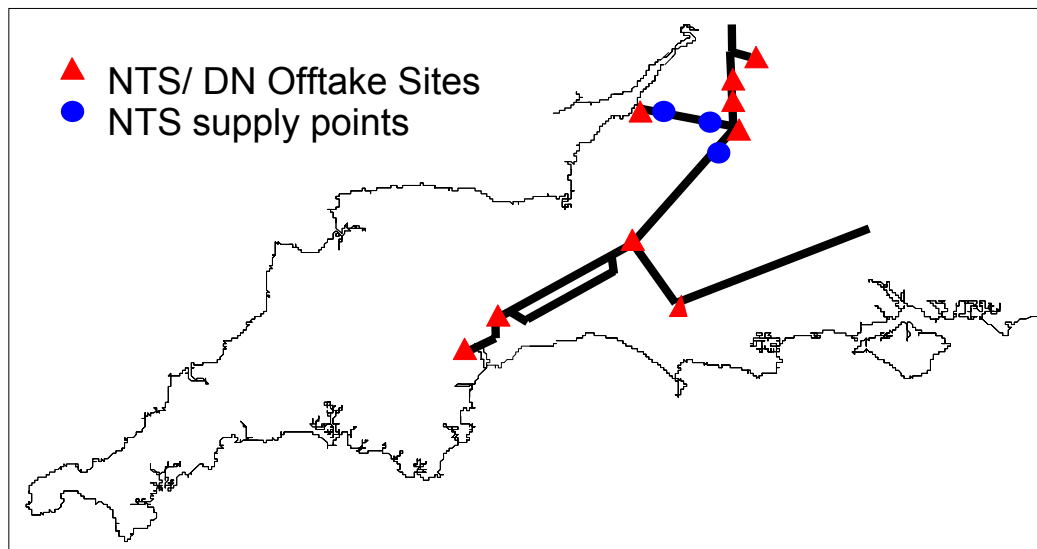
Planned Primary and Secondary Offtake Rights provision to Distribution Networks

GWh/day requirements, based on 1:20 peak day

Network	2002/3		2003/4		2004/5		2005/6		2006/7	
	Demand (MDQ)	Diurnal Storage	Demand (MDQ)	Diurnal Storage	Demand (MDQ)	Diurnal Storage	Demand (MDQ)	Diurnal Storage	Demand (MDQ)	Diurnal Storage
East	811	17	822	15	833	18	846	22	858	23
London	492	0	495	12	499	11	504	11	511	0
North	539	8	545	8	554	7	562	7	568	6
North West	525	5	532	14	537	15	550	17	555	17
Scotland	341	30	347	36	354	40	361	24	368	21
South	876	12	886	17	896	13	914	15	925	16
Wales and the West	508	8	515	7	522	8	531	9	538	10
West Midlands	454	14	458	0	464	0	471	1	476	2
Totals	4546	94	4600	109	4660	112	4738	106	4798	95

South West Peninsula Example: Offtake Rights Planning Process

- Based on South West Peninsula
- Subset of South West LDZ (Wales & The West DN)
 - 87.5% of total SW LDZ load
 - 8 of 11 SW LDZ offtakes
 - A single “NTS Zone” for secondary Offtake Rights allocation purposes

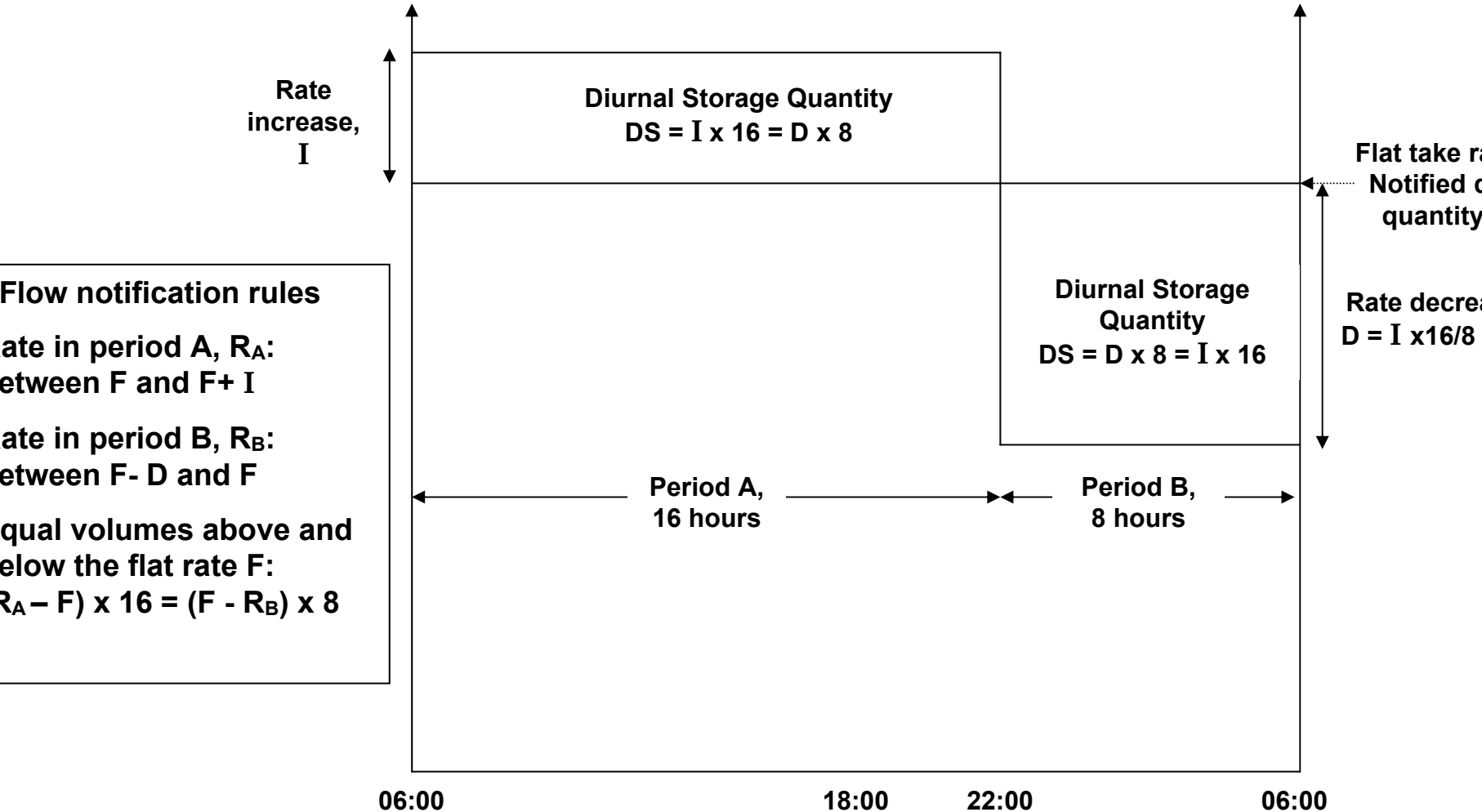


SW Peninsula Example: Offtake Rights request

Offtake			Primary Rights	Secondary Rights						
Name	Type	NTS Group	MDQ (mcm/d)	Diurnal Storage (mcm/d)	High rate (mcm/h)	Low rate (mcm/h)	High pressure (bar)	Low pressure (bar)	High pressure time	Low pressure time
Littleton Drew	P	25	0.243	0.036	0.012	0.006	38	38	06:00	22:00
Worcester	V	25	0.855	0.016	0.037	0.034	53.5	38	06:00	22:00
Wiston Grey	V	25	2.766	-0.037	0.113*	0.120*	36.1	38	06:00	22:00
Wheatbank	V	25	5.280	-0.071	0.216*	0.229*	36.1	38	06:00	22:00
Winklechurch	V	25	2.469	0.155	0.113	0.083	40	38	06:00	22:00
Worcester	V	25	2.762	0.174	0.126	0.093	40	38	06:00	22:00
Wylesbeare	P	25	1.952	0.241	0.096	0.051	41.5	41.5	06:00	22:00
Wynn	V	25	6.139	0.041	0.258	0.251	50	33	06:00	22:00

* Denotes an anti-diurnal profile

Diurnal Storage Profile



W Peninsula Example: Aggregate Primary Offtake Rights in mcm/d

Gas Year		2004	2005	2006	2007	2008
Commencing						
Demand Level	1	22.4	22.8	23.2	23.5	23.8
	2	20.5	20.6	21.2	21.4	21.4
	3	17.8	16.9	17.7	17.3	17.3
	4	14.1	14.4	14.7	14.7	14.7
	5	10.3	10.5	10.7	10.9	10.9
	6	5.5	5.6	5.7	5.8	5.8
	7	3.2	3.3	3.3	3.4	3.4

Demand level definitions

1. Day 1, 1 in 20 load duration curve
2. Day 1, average load duration curve
3. Day 46, 1 in 50 load duration curve
4. Day 50, average load duration curve
5. Day 150, average load duration curve
6. Day 250, average load duration curve
7. Day 365, average load duration curve

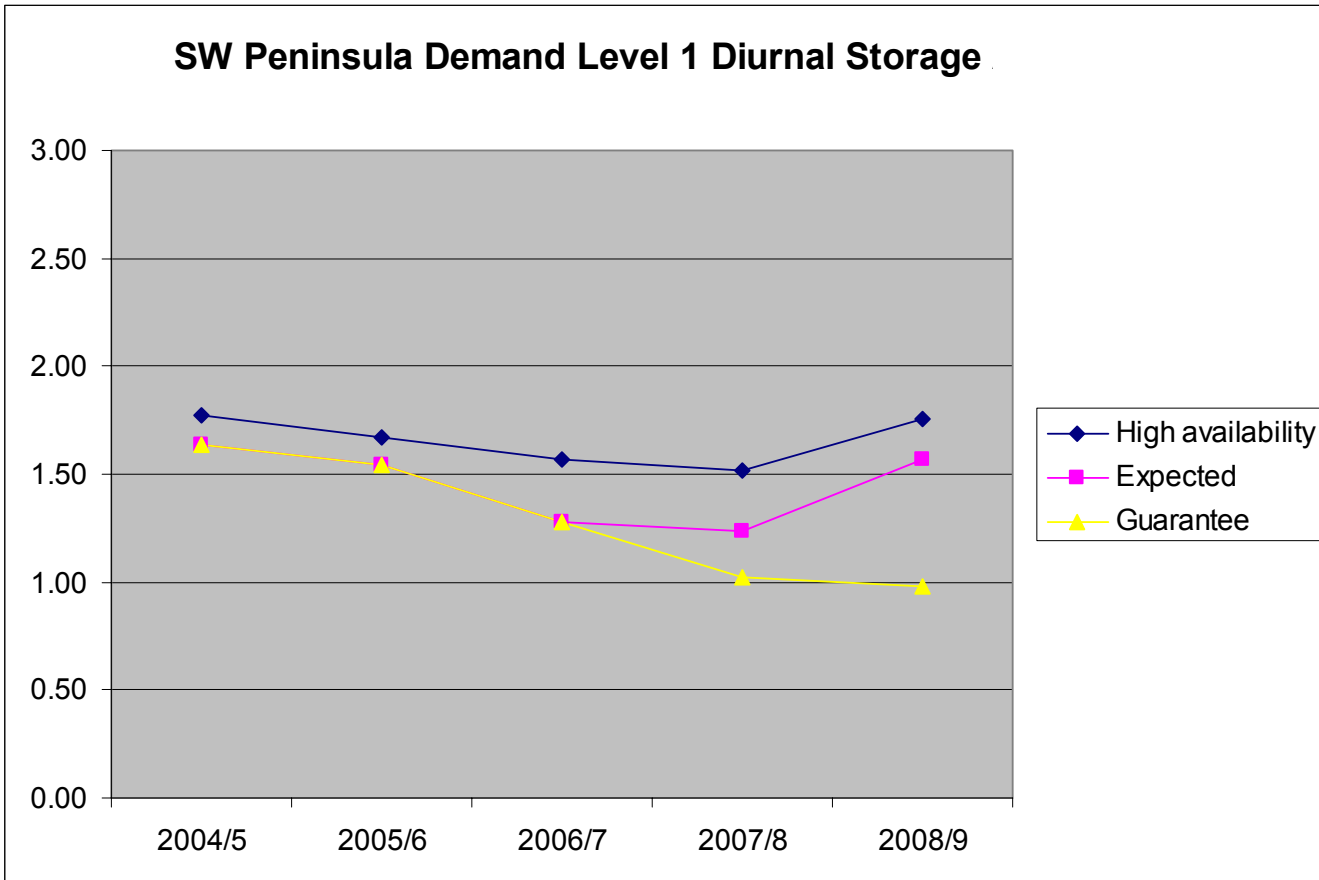
W Peninsula Example: Aggregate Diurnal Storage availability in mcm/d

Demand Level 1	2004/5	2005/6	2006/7	2007/8	2008/9
High availability	1.77	1.67	1.56	1.51	1.75
Expected	1.64	1.54	1.28	1.24	1.57
Guarantee	1.64	1.54	1.28	1.02	0.98
Demand Level 3	2004/5	2005/6	2006/7	2007/8	2008/9
High availability	1.93	2.00	2.06	2.01	2.78
Expected	1.79	1.86	1.73	1.80	2.59
Guarantee	1.79	1.86	1.73	1.60	1.67

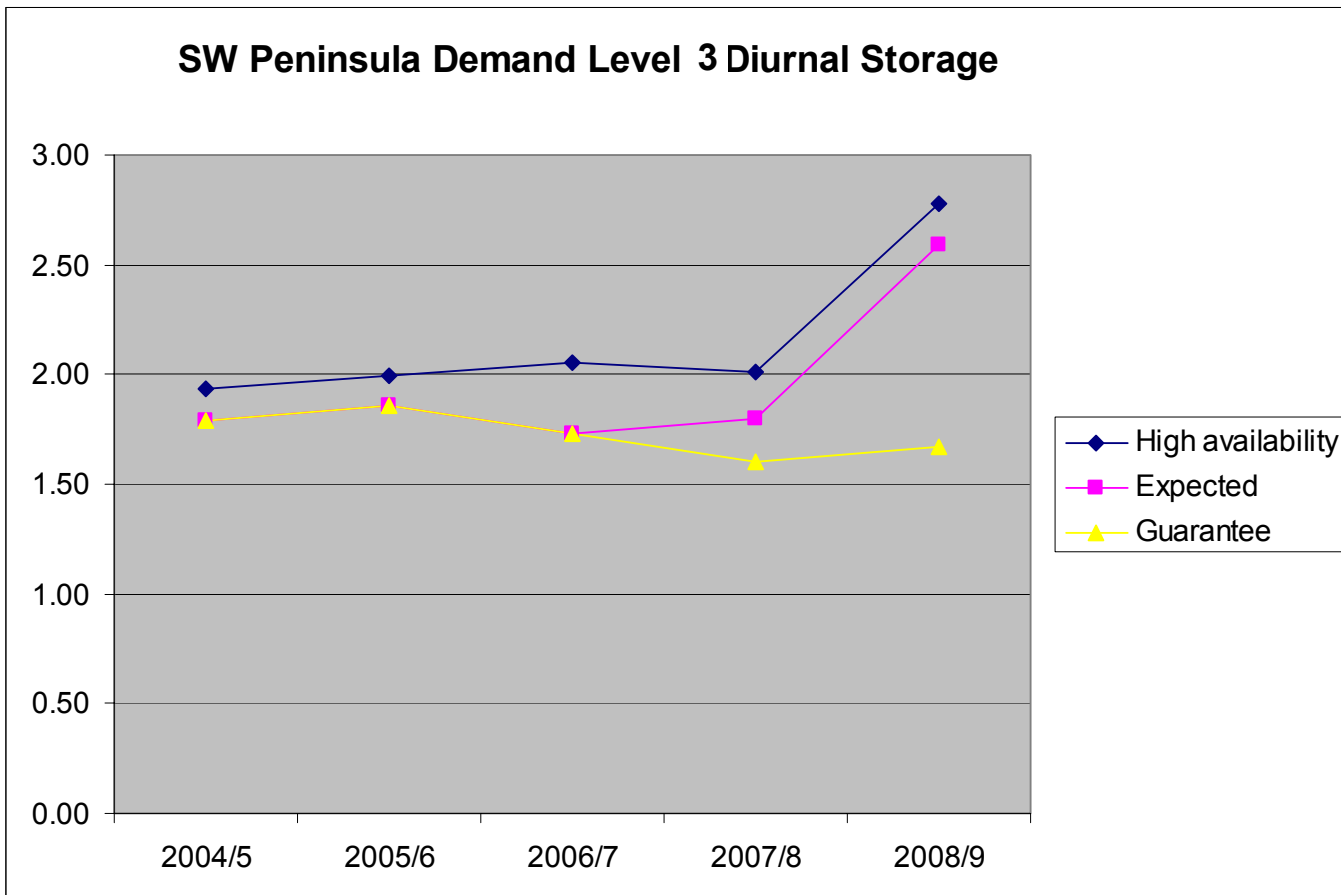
Demand level definitions

1. Day 1, 1 in 20 load duration curve
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4. Day 50, average load duration curve
5. Day 150, average load duration curve
6. Day 250, average load duration curve
7. Day 365, average load duration curve

SW Peninsula Example: Aggregate Diurnal Storage availability in mcm/d



SW Peninsula Example: Aggregate Diurnal Storage availability in mcm/c



W Peninsula Example: Aggregate Diurnal Storage allocated in mcm/d

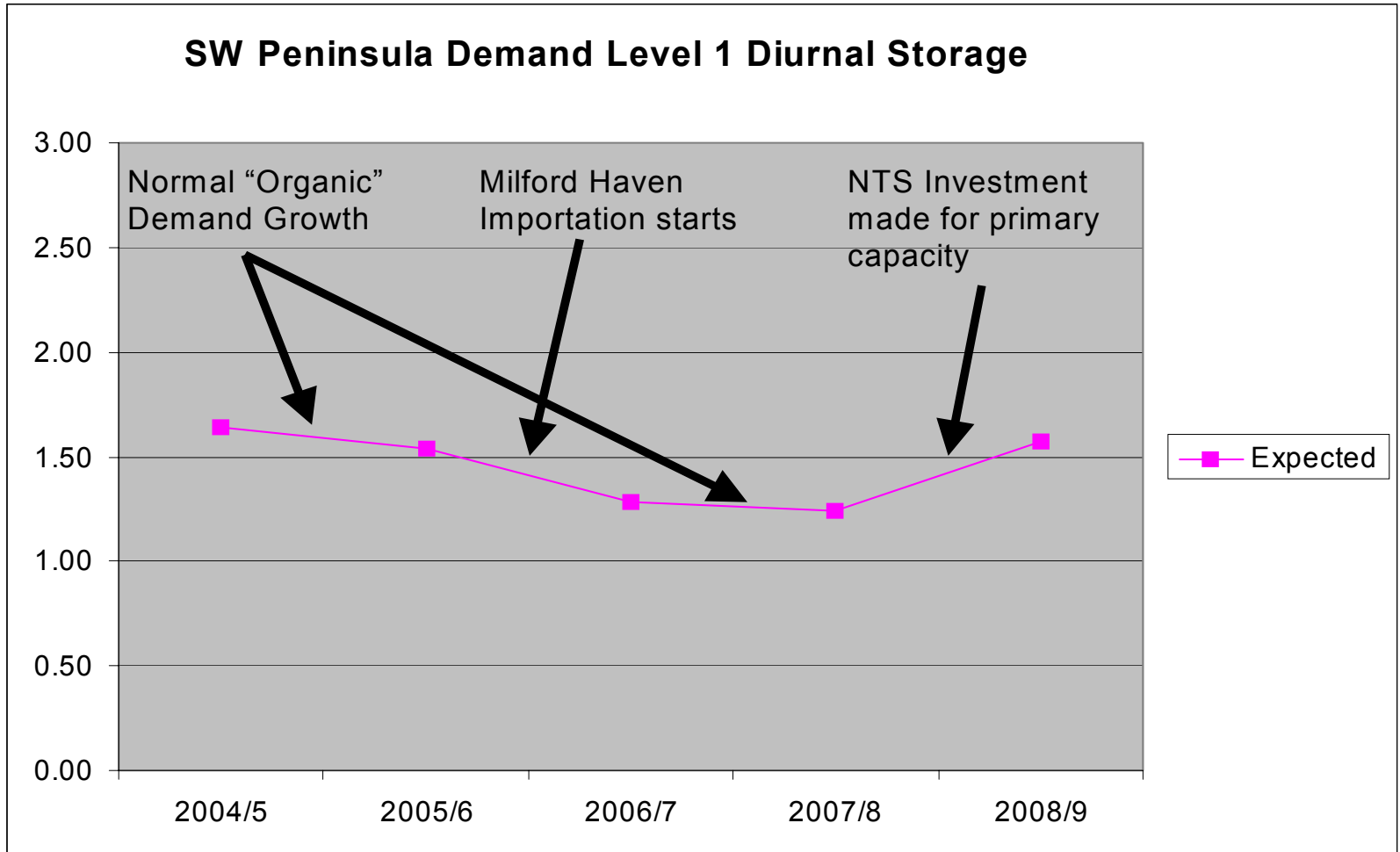
Gas Year		2004	2005	2006	2007	2008
Commencing						
Demand Level	1	0.553	0.665	0.710	0.798	0.846
	2	Data not available				
	3	0.339	0.410	0.457	0.529	0.567
	4	Data not available				
	5					
	6					
	7					

Demand level definitions

1. Day 1, 1 in 20 load duration curve
2. Day 1, average load duration curve
3. Day 46, 1 in 50 load duration curve
4. Day 50, average load duration curve
5. Day 150, average load duration curve
6. Day 250, average load duration curve
7. Day 365, average load duration curve

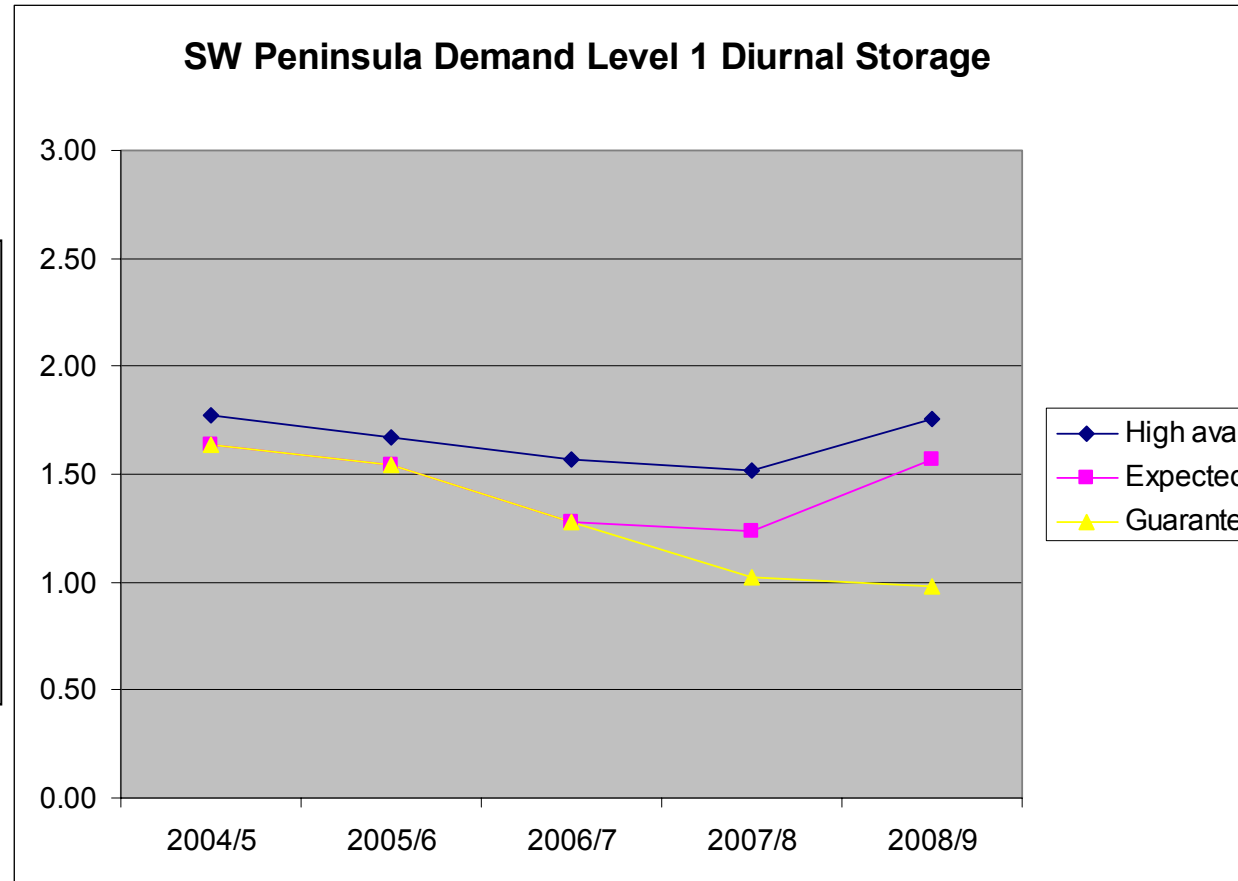
SW Peninsula Example: Aggregate Diurnal Storage availability in mcm/c

Drivers for availability changes



SW Peninsula Example: Aggregate Diurnal Storage availability in mcm/d

- Normal “organic” growth degrades diurnal storage availability
- High availability assumes
- No Milford Haven supplies
- Guaranteed availability assumes
- Double Milford Haven supplies
- No NTS investment made in yr 5



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Offtake Code

Operational Flows

Mark Sutton

Offtake Rights

Primary Offtake Rights

- Maximum Daily Quantity (MDQ)

Secondary Offtake Rights

- Maximum Diurnal Storage Quantity
- Associated Diurnal Storage Profile and Maximum Rate
- High Pressure (minimum pressure at start of profile)
- Low Pressure (minimum pressure at profile crossover time)

Other Parameters

- Minimum rate (driven by metering specification)
- Maximum Rate of Change (fixed at 50MW/min)

Offtake Rights apply:

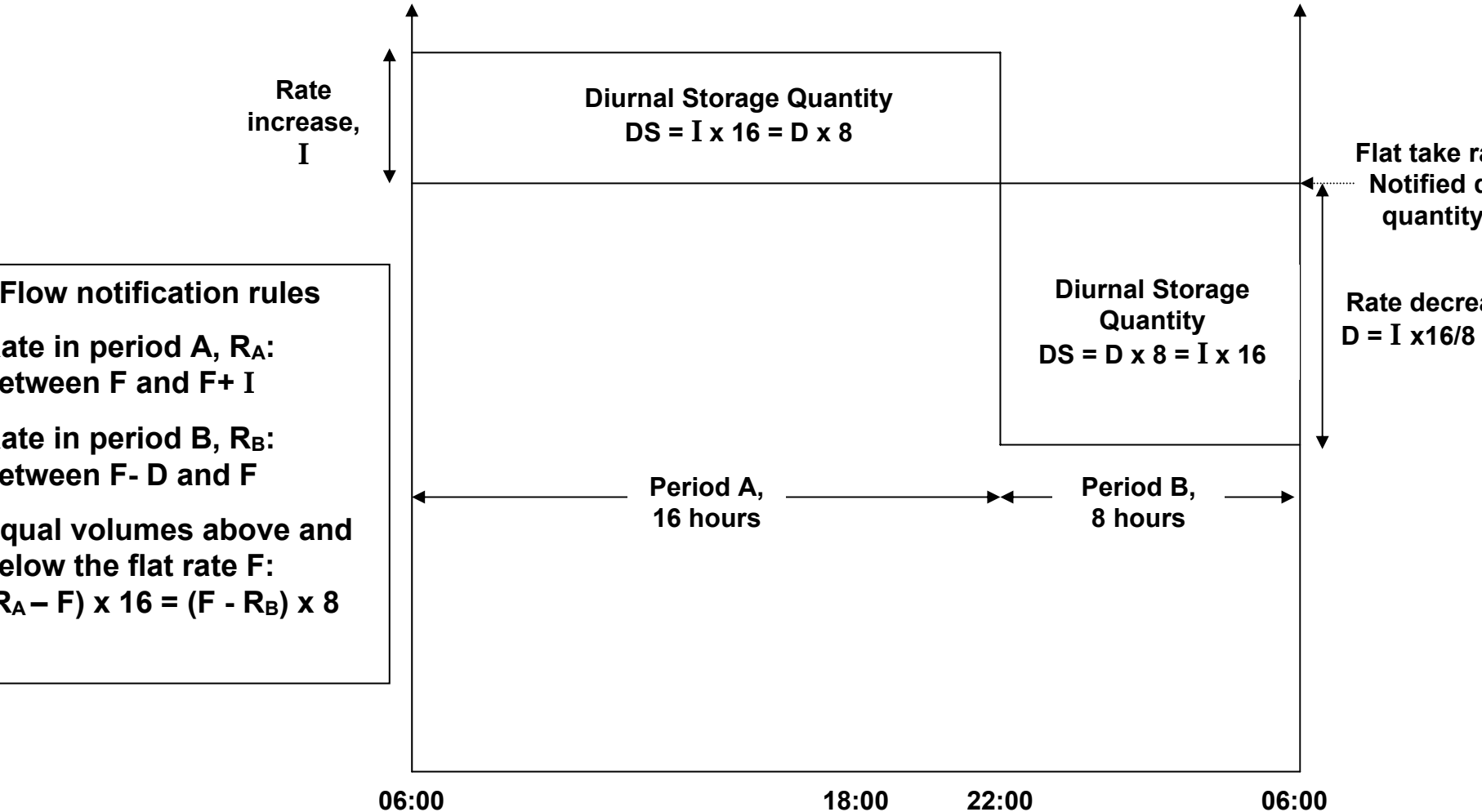
- For each offtake
- For each LDZ
- For each year (going 5 years out)
- For each demand condition (i.e. different limits depending on throughput)

SW Peninsula Example: Offtake Rights request

Offtake			Primary Rights	Secondary Rights						
Name	Type	NTS Group	MDQ (mcm/d)	Diurnal Storage (mcm/d)	High rate (mcm/h)	Low rate (mcm/h)	High pressure (bar)	Low pressure (bar)	High pressure time	Low pressure time
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* Denotes an anti-diurnal profile

Diurnal Storage Profile



Operational Flows

Notification Process

Initial notice 1300 D-1

All profiles to be within restrictions unless agreed otherwise

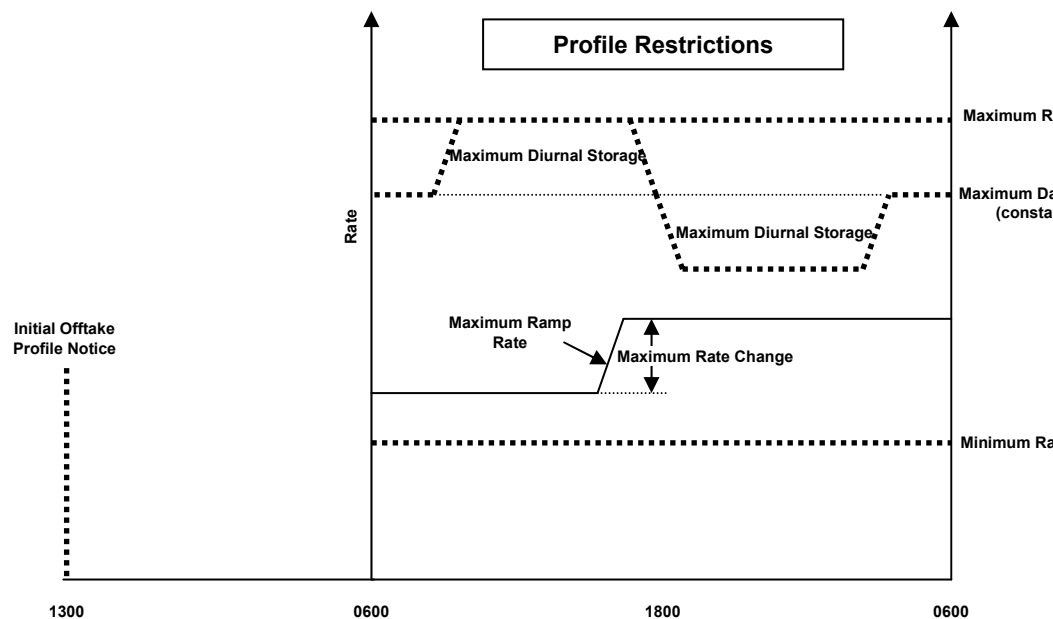
Revisions at any time subject to variation rules

- DN rights to vary
- NTS rights to vary

Quantities notified to be consistent with DN demand forecasts, taking account of any required stock changes

Notifications at Offtake level via Offtake Profiler system

Profile notified determines obligations of both parties (Prevailing Flow Rate)



- **DN notifies flow profiles within parameters established through planning process**
- **Both DNs and NTS have operational flexibility change rates**
- **Rule-based rate changes initially, but scope for commercial factors to be introduced**

Interruption

Key Principle

- Maintain existing processes

NTS Interruption

- If interruption triggered under Network Code rules then NTS can interrupt DN supply points
- Equitability objective

DN Interruption

- If interruption triggered under Network Code rules due to circumstances within the DN then DN informs NTS, and NTS exercises rights on behalf of DN

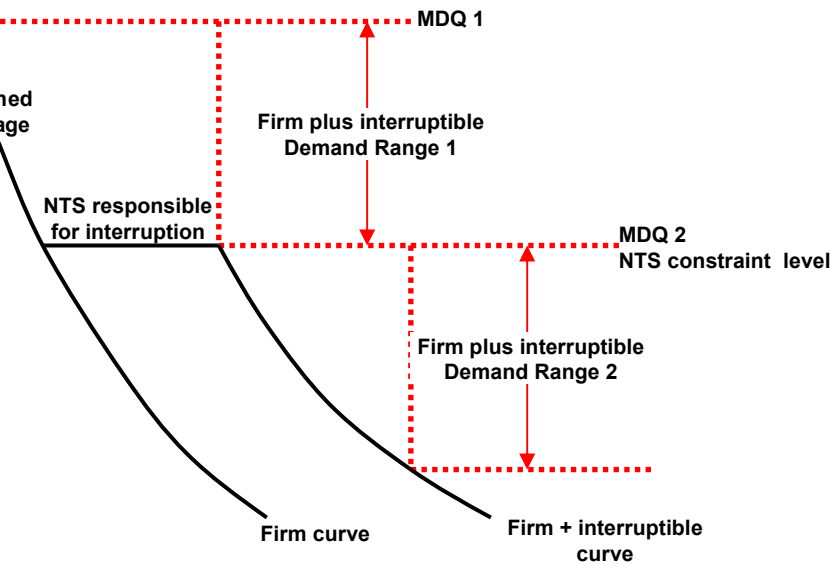
- **No change to existing processes for day 1**
- **Exit reform will determine process revisions**

9. Interruption, Offtake Rights and NTS constraints

Current Approach

NTS Responsible for Interruption

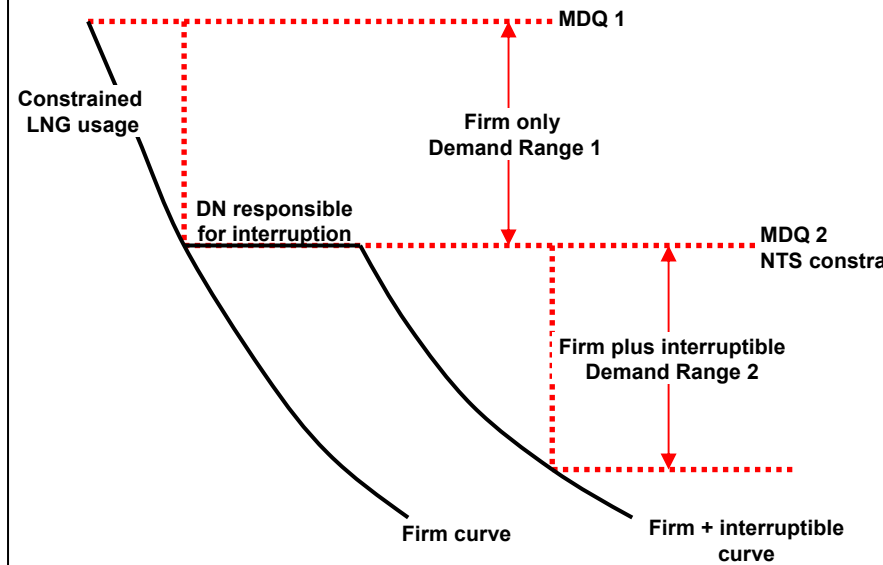
NTS owns interruption rights and interrupts to maintain demand levels within MDQ 1



Alternative Approach

DN Responsible for Interruption

DN owns interruption rights and interrupts to maintain demand levels within MDQ 2



Flow and Pressure Obligations

Obligations

Ensure gas flow rates at the Offtake are not greater or less than notified Prevailing Flow Rate (\pm tolerance)

Ensure ramp rate not exceeded

Failure to Comply

Licence and/ or Safety Case obligations

DN pays NTS costs in compensating shippers/ other DNs for NTS failure to supply

- **DN to control flow to notified profile**
- **No charges or “penalties” for non-compliance currently built in**
- **Reliance on licence/ safety case obligations**

Obligations

Ensure gas may flow at the Offtake at the notified Prevailing Flow Rate

Ensure pressure at High Pressure Time not less than High Pressure

Ensure pressure at all other times not less than Low Pressure

Failure to Comply

NTS pays DN costs in compensating shippers/ consumers for DN failure to supply

- **NTS to provide notified flows and committed pressures**
- **Pass through of failure to supply liabilities**

Potential Charges

Charging Regime Development

- No charges initially
- Charging regime expected to evolve as part of wider industry developments, to encourage economic and efficient investment and operations
- Allowable cost, with funding likely to be addressed through price control or incentive schemes
- Earliest introduction likely to be next price control

Potential Charge Types

- **Diurnal Storage** provided by NTS to DNs
- **Overtake and Undertake Quantities** provided by the DNs to NTS
- **Forecast Accuracy Incentives**
 - Daily demand forecasting by DN
 - Long term Offtake Rights forecasting by NTS
 - Long term demand forecasting by DN
- **Prevailing Offtake Rate Incentive**
 - The degree to which a DN deviates from its notified flows
- **Reduced Restriction Offtake Profile Requests**
 - The extent to which either party uses these flow flexibility provisions