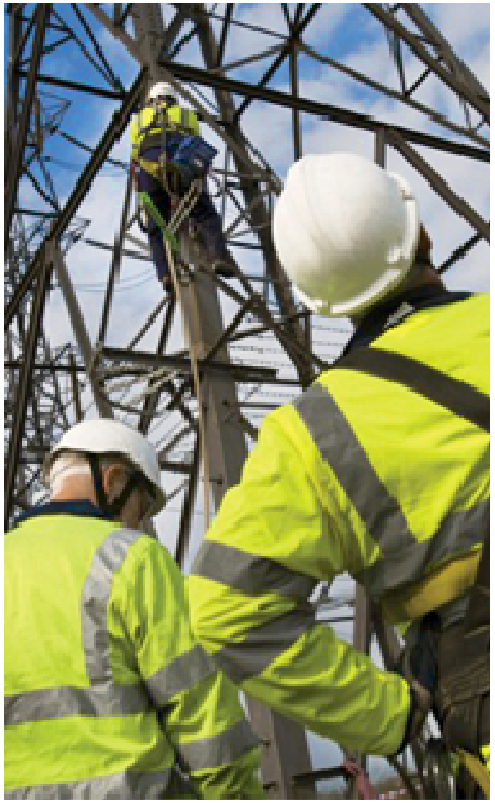
Exit Capacity Substitution and Revision

Workshop 1: 27th January 2010



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Agenda

- High level introduction (Ofgem)
    - Objectives of substitution and revision.
    - Key requirements any proposals must satisfy.
- Workshop 1 - Objectives
- Objective of substitution.
- Lessons from entry substitution.
- Concerns and issues.
- Data presentation.
- Initial brainstorm of high level options for substitution.
    - Industry alternatives / thoughts.
- Review timeline / workshop agendas

Workshop Objectives

What are the aims of workshop 1?

- To understand the potential impacts of Exit Capacity Substitution.
- To agree a framework and parameters for an Exit Capacity Substitution methodology.
- Consider high level options.
- Allow drafting of initial proposals for workshop 2.

Substitution Objectives 1

What is the goal?

- Avoidance of capital expenditure on new infrastructure by;
- Targeting of capacity to where it is needed; i.e. avoid sterilisation.

What is the scope for exit capacity substitution?

- Consider the entry capacity market:
  - Declining UKCS supplies,
  - Diverse new supplies, including storage,
  - Competition (multiple Shippers) at ASEPs,
  - Competition (to supply gas) across ASEPs.
- Compare to exit connections:
  - DC peak demand rarely decreases,
  - DN peak demand shows only a very slow decline,
    - But pressure / flex requests are increasing
  - Limited competition across exit points,
  - Most exit points are single Shipper,
  - System designed economically and efficiently to meet 1 in 20 obligations
- What does this mean for the opportunities for exit capacity substitution?

Substitution Objectives 2

How is exit capacity substitution to be achieved? What is the obligation?

- "substitute unsold NTS baseline exit flat capacity between NTS exit points……such that the level of NTS obligated incremental exit flat capacity is minimised";

  where NTS obligated incremental exit flat capacity means "NTS incremental exit flat capacity …… for which a long term signal has, at any time, been received consistent with the [ExCR]."

How will success be identified?

- Licence obligation satisfied;
- Exit Capacity Substitution Objectives satisfied;
  - Substitution effected in a manner compatible with the physical capability of the NTS;
  - Avoids ***material*** increases in the costs (*including* ***exit constraint management costs***) reasonably expected to be incurred; and
  - Facilitating competition.
- Substitution opportunities are realisable;
- No significant increase in cost / risk to DNO's, Shippers, connected parties, and/or consumers;
- A workable solution without excessive implementation and operating costs.

Lessons Learnt

What can we learn from development of the entry capacity substitution methodology?

- Early clarity on essential elements.
  - Keep under review.
  - National Grid will submit ONE methodology proposal to the Authority for approval.
- Awareness of interacting activities; i.e. credit proposals
  - Potential interaction with TPCR5.
- Demonstration of potential adverse impacts.
  - Concerns must be backed up by appropriate data, preferably at the workshops or informal consultation.
- Focus on methodology.
  - The substitution principle has been agreed and accepted. Time is best spent developing processes and assessing potential impacts.

Concerns Raised / Identified

What are the concerns? What do we need to be wary of?

Those identified can be grouped into four areas

- Substitutable Capacity
- Interactions
- Obligations / Analysis
- Timing / Frequency

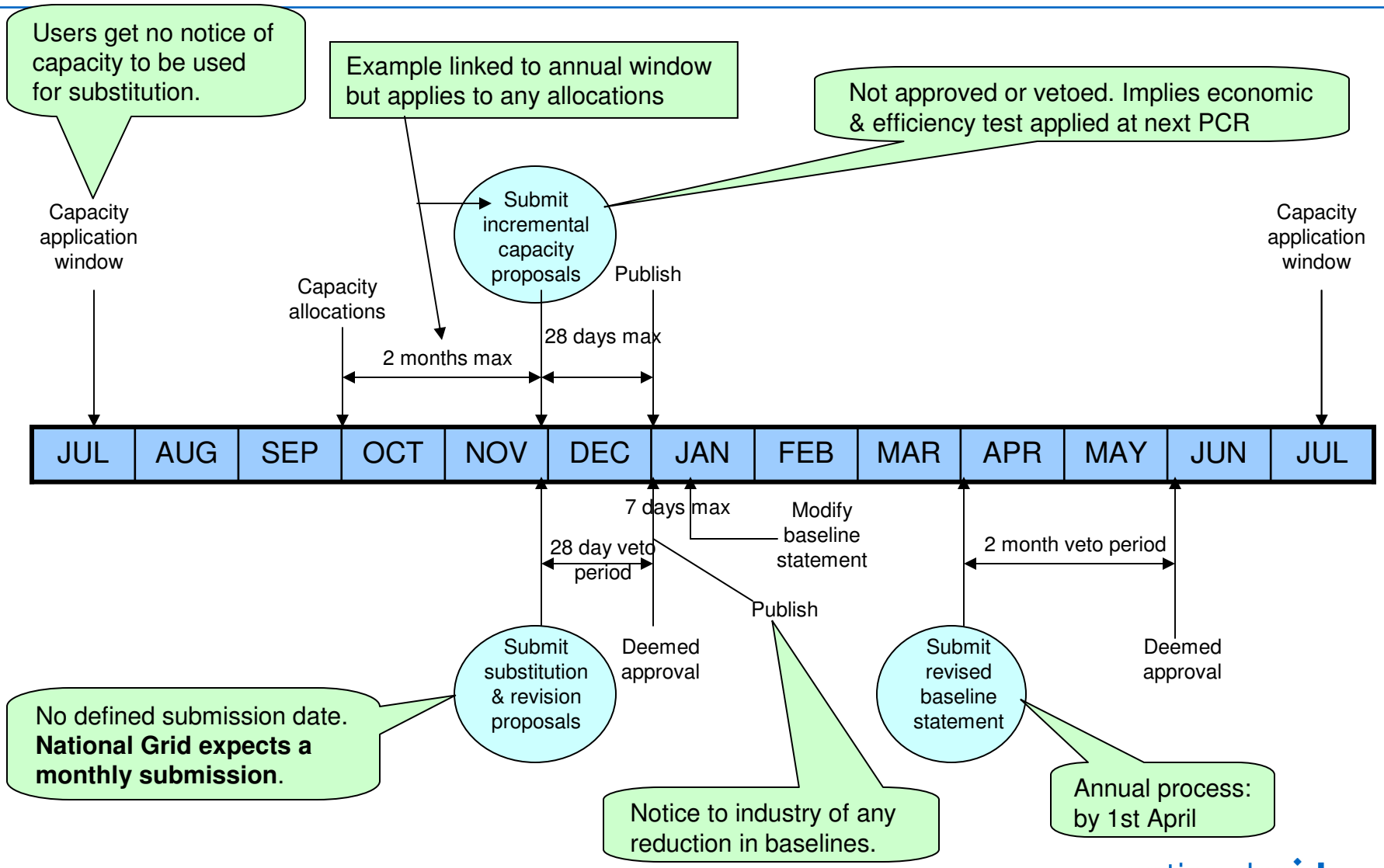
Potential Concerns1

Area of Concern	Specific Issue	Risk
Substitutable Capacity	DN flow swapping.	NG's and DNOs' ability to manage their networks.
	User Commitment…….to what extent?	Licence compliance
	Effect on current interruptible supply points, storage. Case for special treatment?	Consumers, IUK: access to capacity. Security of supply.
	Exchange rate cap.	Loss of network capability
	Ofgem / National Grid discretion.	Loss of transparency.
	Impact on donor exit points	Loss of access to short term firm capacity. Lead-time to recover baseline
Interactions	Buy-back regime. Should be no change to the risk profile of NG.	Increased restriction of gas flow. Affects all parties.
	Surrender / reduce initialised rights in 2011.	Shipper portfolio management
	Over-runs, deemed applications	Inappropriate investment / substitution
	Entry substitution / investment	

Potential Concerns2

Area of Concern	Specific Issue	Risk
Obligations / Analysis	Flex availability (Assured Offtake Pressure - P_{0600} and P_{2200}) & ramp rates	Ability to manage network, plant.
	Pressure commitments. Anop, AOP.	Ability to manage network, plant.
	Baselines to reflect capability / how to quantify spare capacity.	Unrealistic obligations Loss of network capability
Timing / frequency	Process timelines for analysis and approvals;	NG workload dependent upon complexity
	Annual process?	NG workload; Stable regime.

Substitution Timeline



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Where do these concerns lead us?

Aims -

Allow existing gas flows and processes, whilst consistent with exit capacity regime.

Minimise the risk of unforeseen consequences.

External influences, interactions.

Acknowledge additional complexity of multiple exit points, external factors.

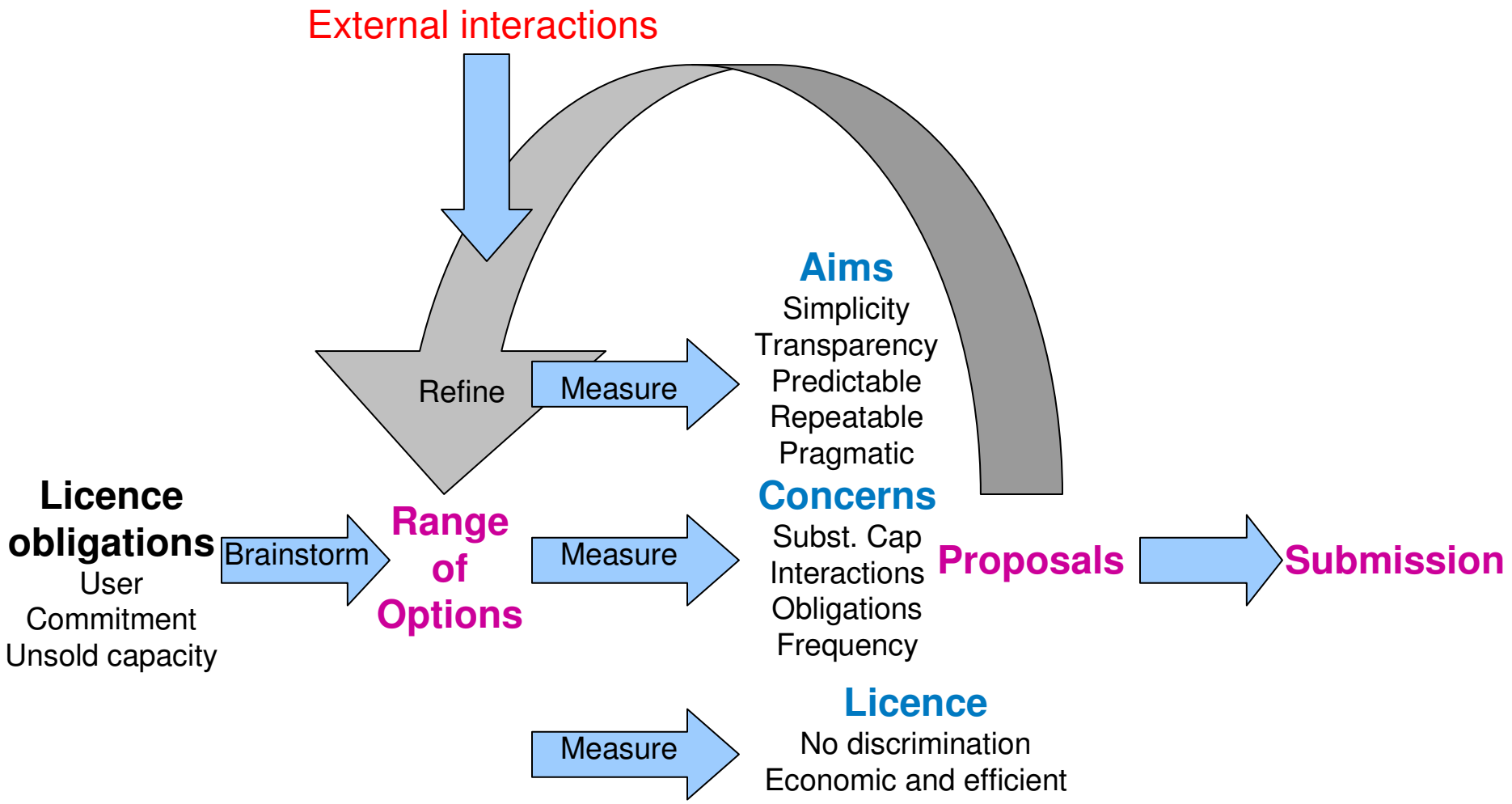
Easy to understand: considers range of understanding / involvement of connected parties.

Recognises limited scope for exit capacity substitution opportunities.

So what should be the key features of the exit capacity substitution methodology?

>>> Simplicity, Transparency, Predictability, Repeatability, Pragmatic.

Development Process



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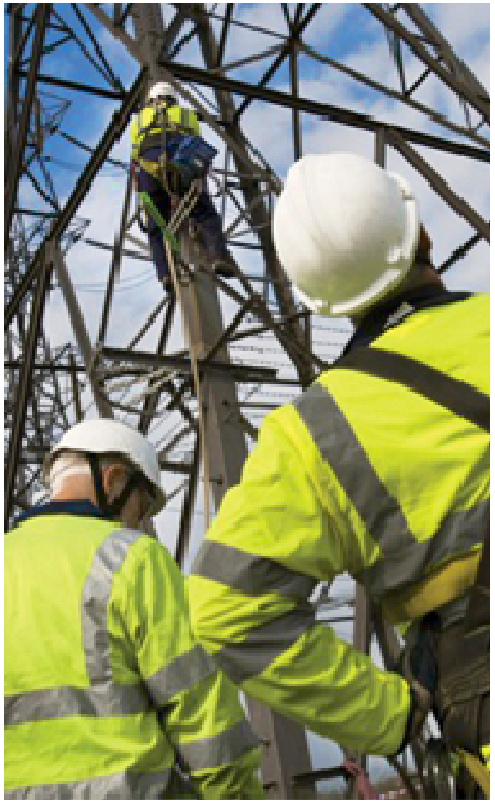
Potential for Exit Capacity Substitution: Example Data

Lesley Ramsey





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Reports

Example Exit Point		kWh/d at Oct -12
DNO Exit Point	**Release Obligation**	128,480,000
	Aggregate Quantity sold	94,581,877
	Quantity unsold	33,898,123
Power Station	**Release Obligation**	68,012,169
	Aggregate Quantity sold	68,012,169
	Quantity unsold	0
Storage	**Release Obligation**	145,790,000
	Aggregate Quantity sold	138,972,403
	Quantity unsold	6,817,597

Potential capacity available for substitution ?

Baseline 66,500,000 hence incremental of 1,512,169 kWh/d

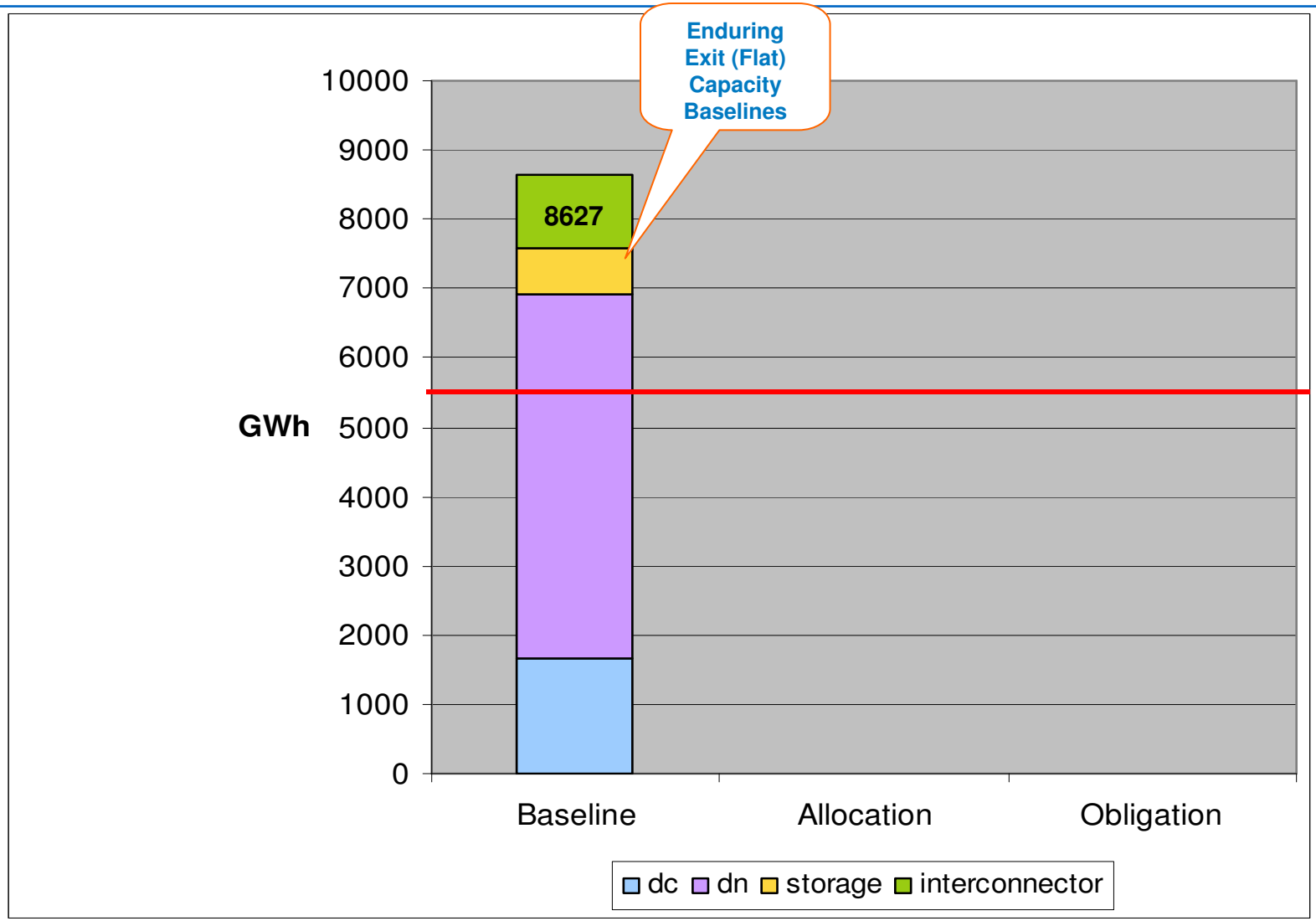
Baselines found in licence

The table above shows an example of data used on later slides obtained from:

- Long term exit (flat) capacity summary report can be found at http://www.nationalgrid.com/uk/Gas/Data/excap/
- 10 year statement

Data for specific sites can be obtained from these references.

Capacity Obligations vs Requirement



1:20 Peak Demand 5546 GWh

(as at 12/13)

(2009 TYS)

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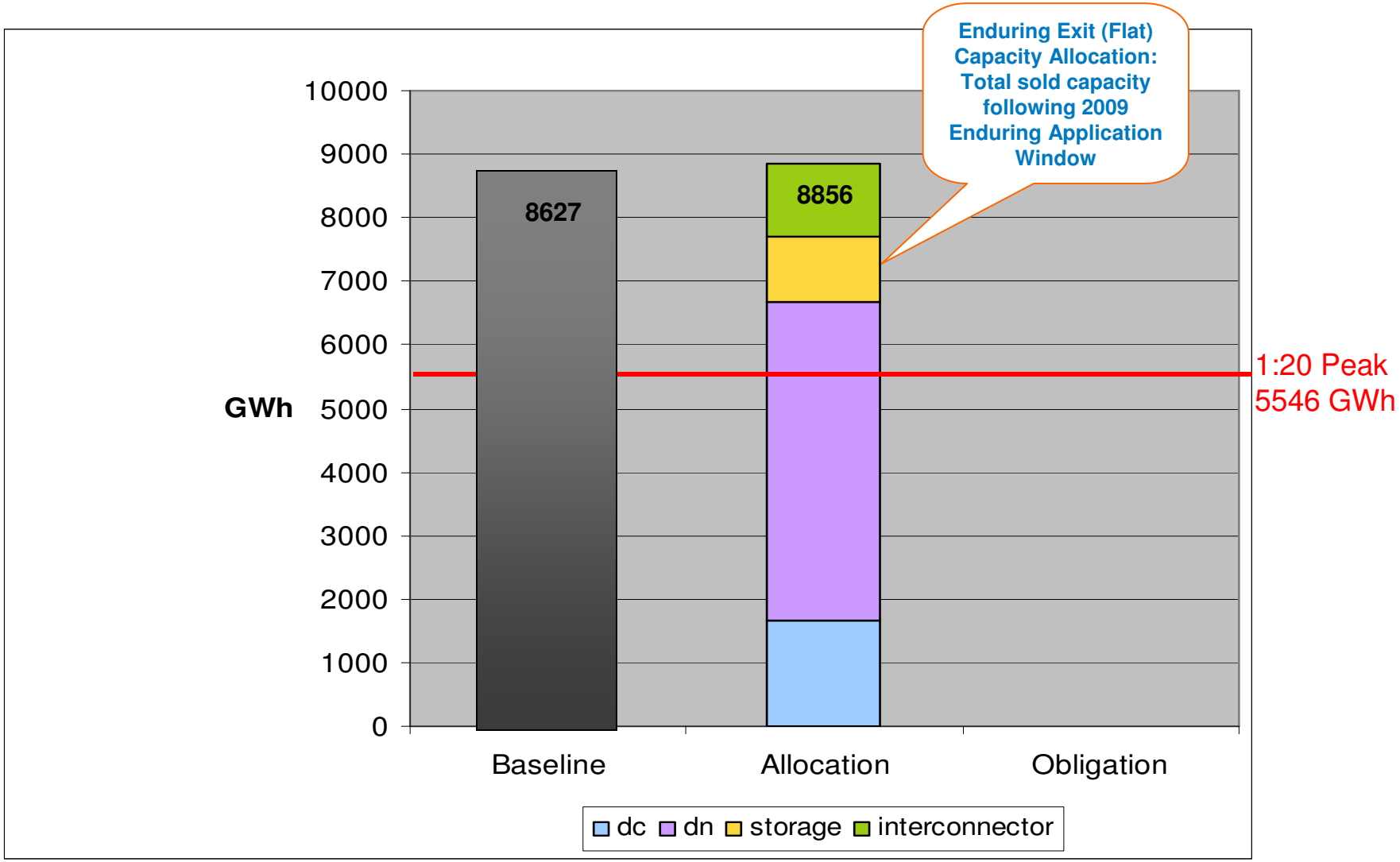
Capacity Obligations vs Requirement



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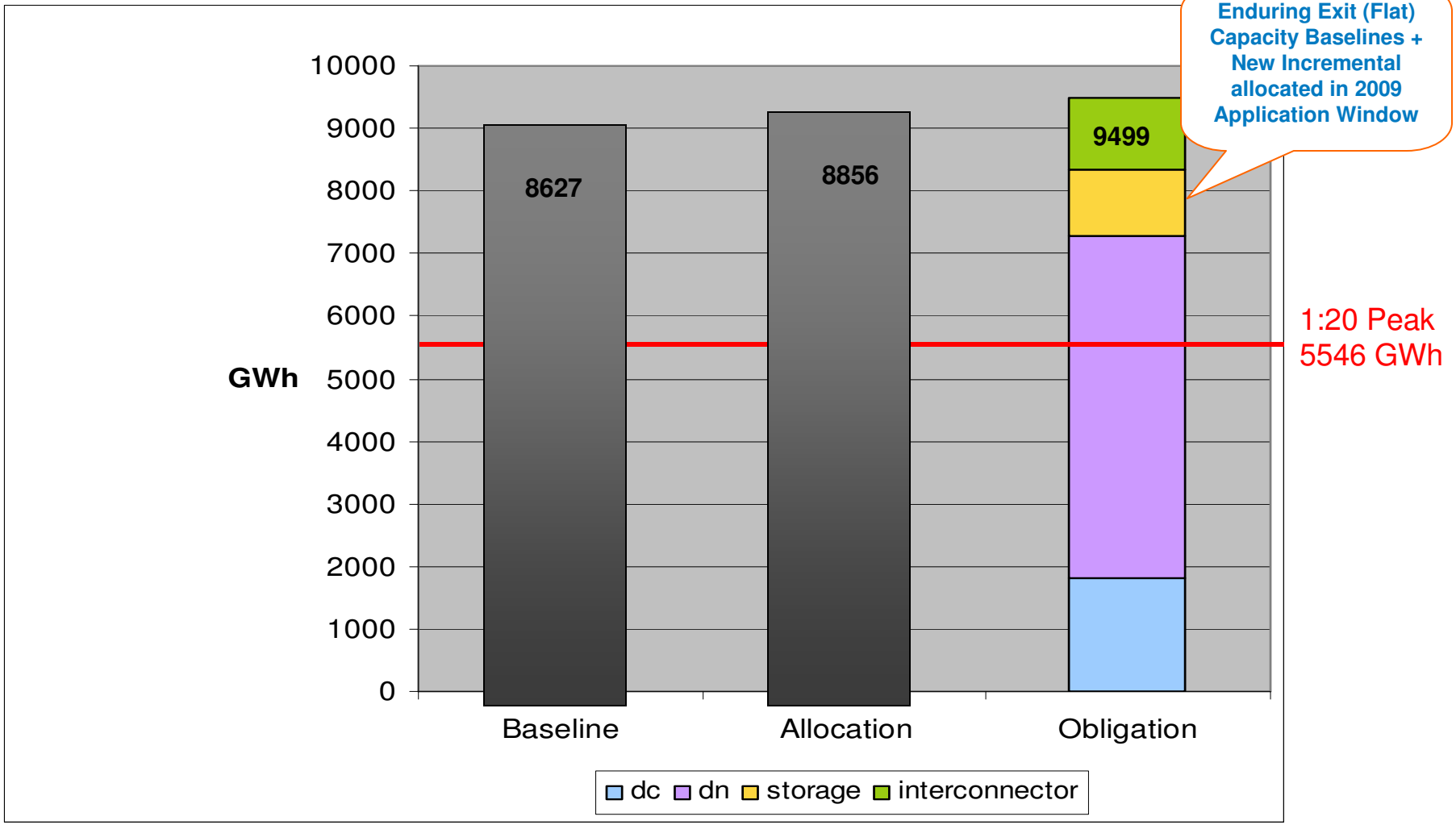
Capacity Obligations vs Requirement



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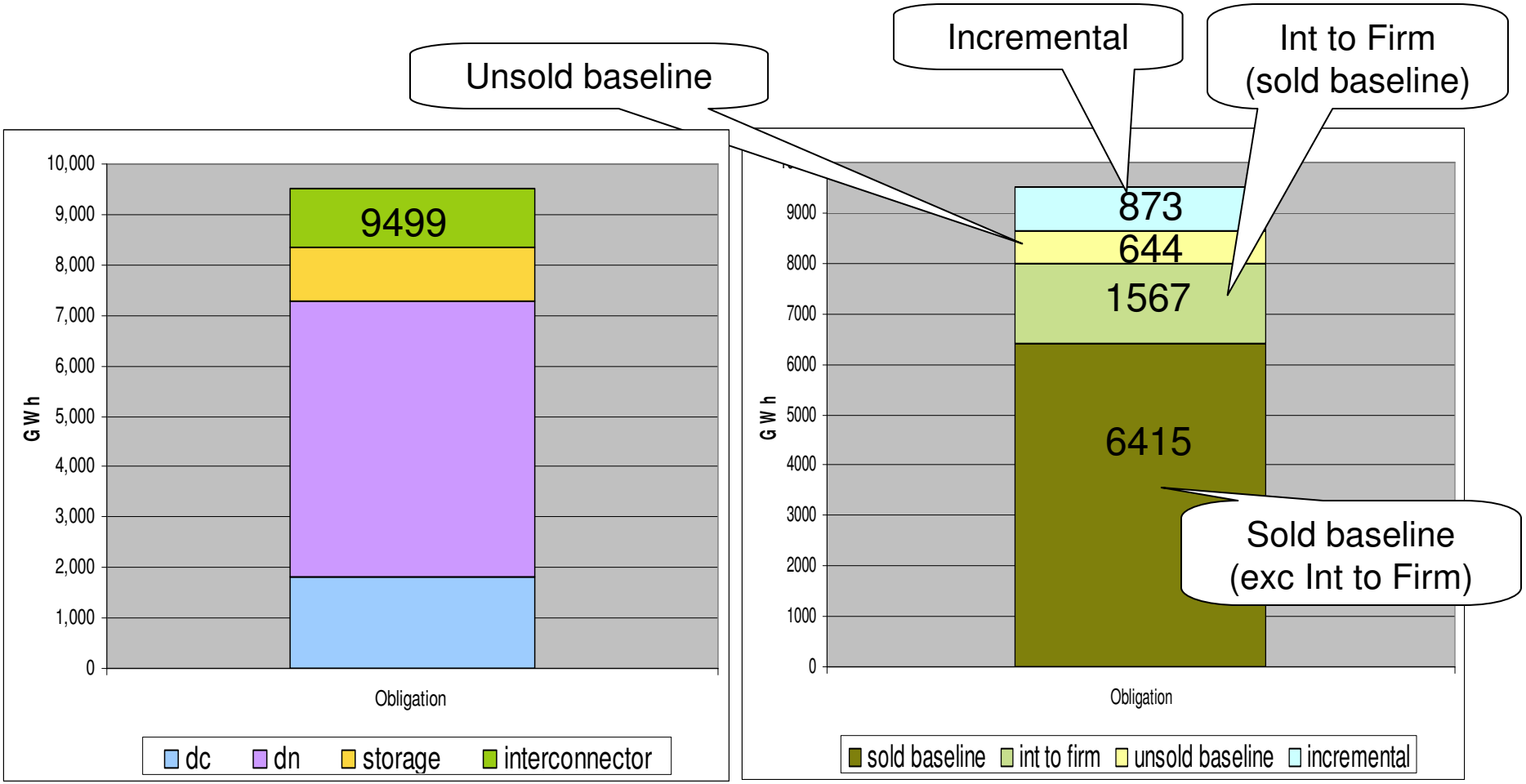
How much of the obligated capacity is likely to be used at peak demand ?



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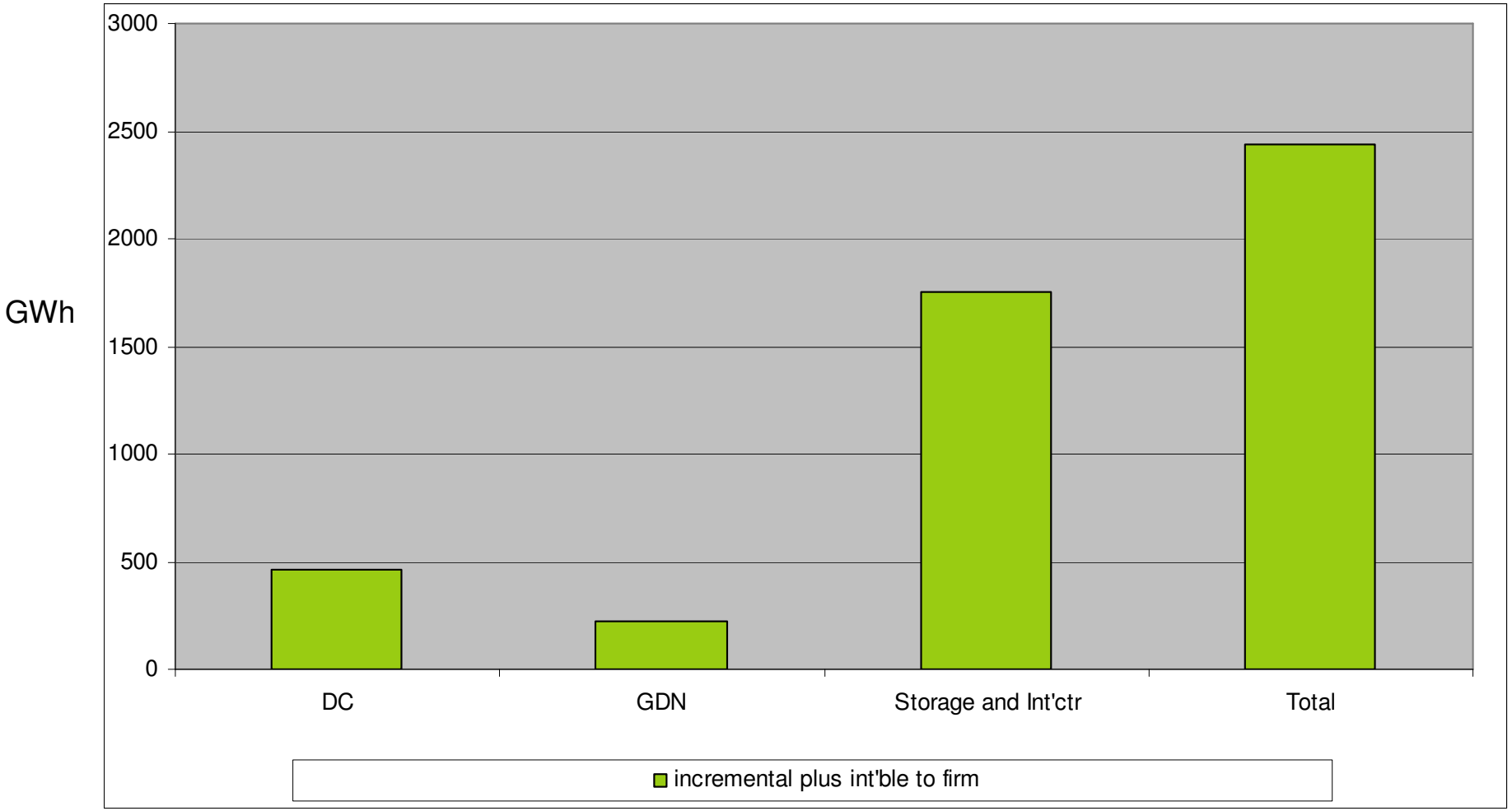
Incremental plus interruptible to firm sites



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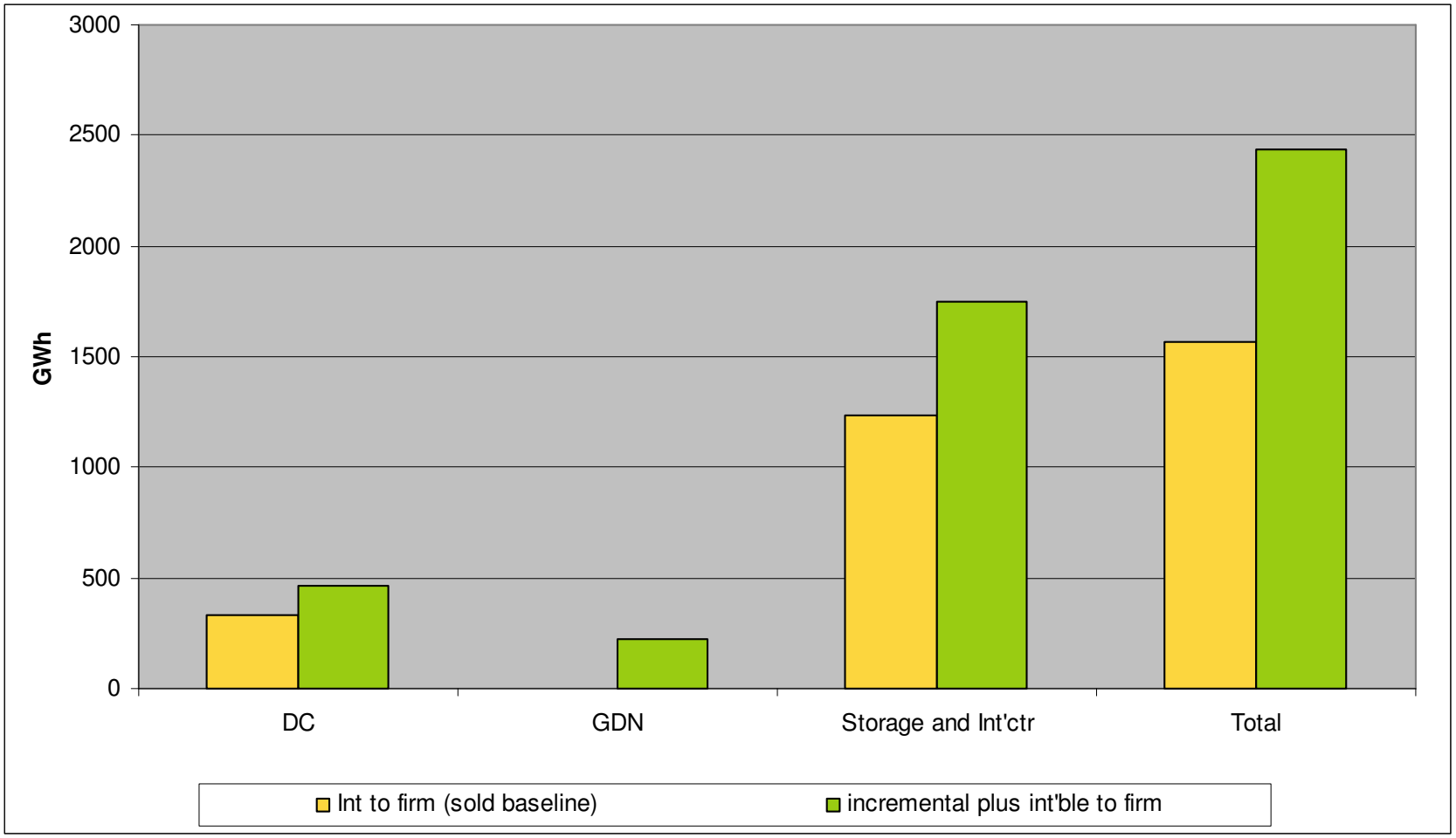
Interruptible to firm sites



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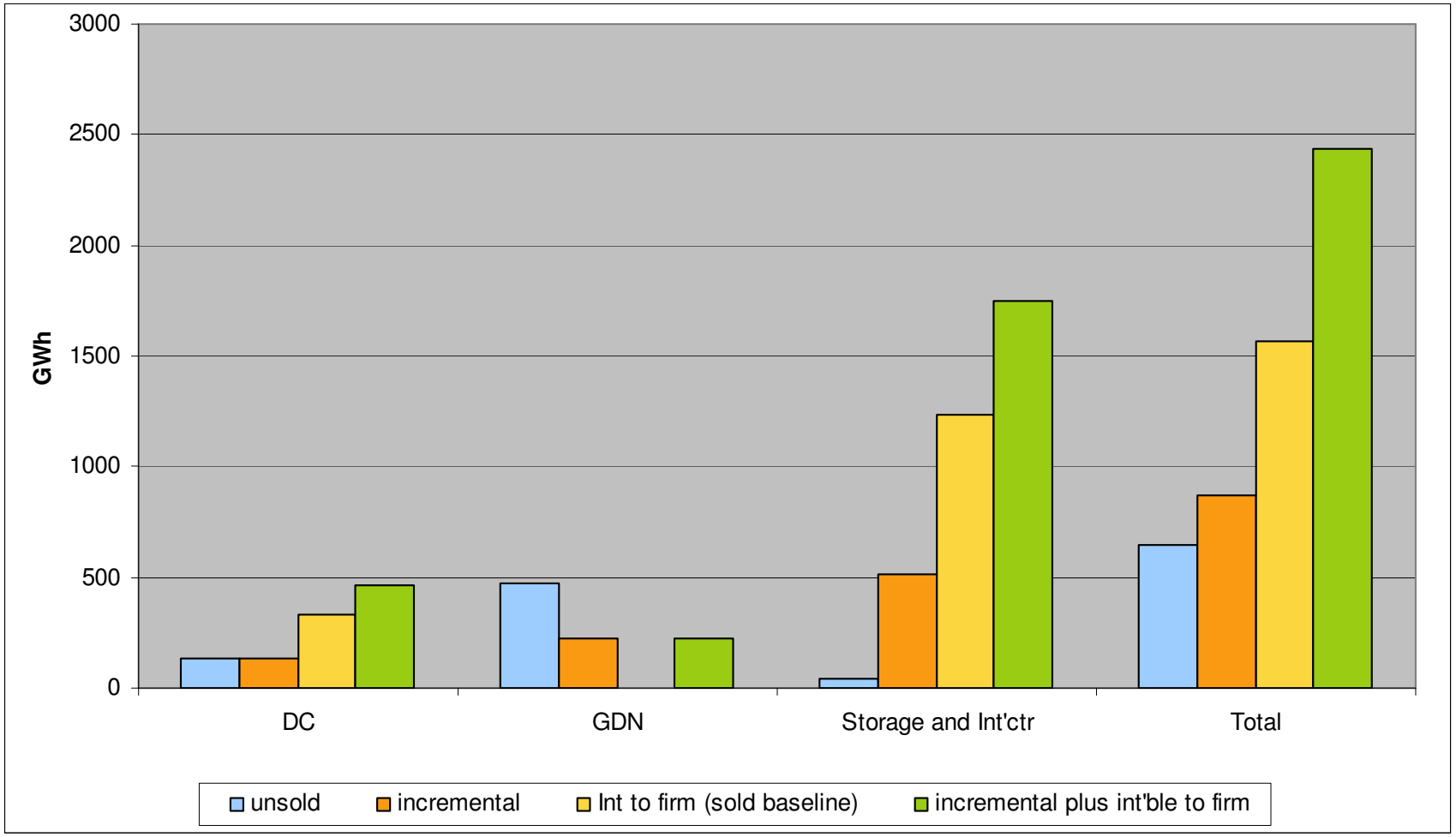
Unsold and Incremental



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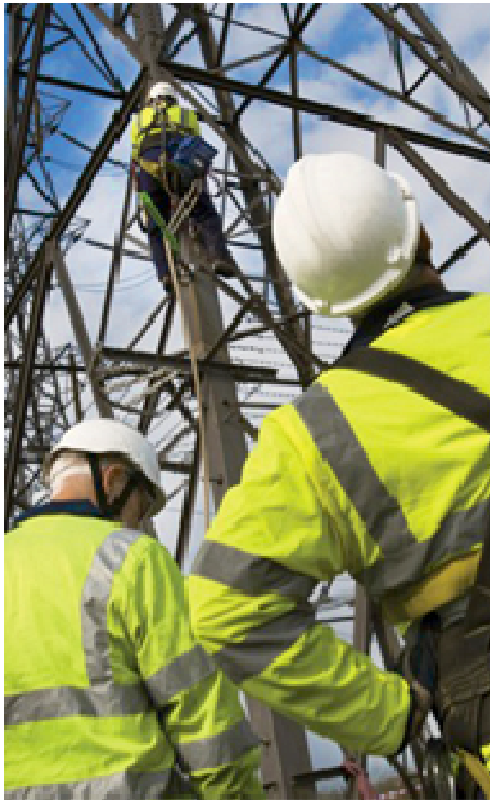
Trends…..GWh

Peak day demand					
	09/10	14/15	19/20	Trend (av. over 1st five yrs)	
DN	3964.82	3937.9	3861.2	-5.4	-0.14%
DC*	1536.8	1597.2	1862.2	+12.1	0.79%
Storage	0	0	0	0	0

* Including Moffat

A significant new quantity of storage capability is anticipated in the next 10 years. It is unclear whether this will be firm or off peak capacity and hence may/may not have an impact on peak day demand.

Review of Issues / Concerns



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Issues: Interruptible Sites

These sites will become firm (already initialised) or will rely on off-peak capacity.

The off-peak quantity derived from

- Firm booking minus actual used capacity (default);
- MSPOR minus actual firm capacity held (non-cold Day); and
- Discretionary amount.

Neither quantity is linked to baseline.

Hence exit capacity substitution:

- should not affect the amount of off-peak capacity available at an Exit Point except that National Grid may make less available on a discretionary basis, but
- may increase the likelihood of curtailment; and
- will reduce the availability of annual and daily firm capacity.

Does this justify special treatment for these exit points?

Issues: DN Flow Swapping

The aim of flow swapping is to better manage networks to avoid constraints and to ensure continued supplies to consumers.

- It works on the basis that downstream networks can (and need to) be supplied from more than one offtake.
- Flow swapping may be requested by either the DNO or NTS (UNC OAD section I).

Under a flow swap the DNO will increase its offtake at a particular exit point & decrease elsewhere.

- Overruns may occur if the DNO has insufficient capacity rights.
- NG considers this not an issue limited to substitution.

Substitution should tighten the system which may lead to:

- increased NTS initiated swaps (or curtailment and buy-back);
- decreased ability to accommodate DNO requests.

Is DN flow swapping an issue for substitution?

If it is, what, if any, special arrangements are appropriate to maintain sufficient flexibility in the system to accommodate flow swapping?

Issues: Exit Capacity Buy-backs.

What are the exit capacity buy-back arrangements?

prompt (i.e. capacity purchase by NG on the Day);
forward (like prompt but capacity is bought for a future date, e.g. week ahead); and
options (longer term, buy-back is not definite, but with an “inconvenience” payment in case it is required).

Buy-backs will be required irrespective of the introduction of exit capacity substitution. However, the likelihood of buy-backs being needed is likely to increase as the network becomes tighter (other actions will be taken first, e.g. off-peak curtailment).

How does this sit with the substitution objective?

“avoids material increases in the costs (including exit constraint management costs) reasonably expected to be incurred”.

Risk is balanced by undertaking substitution analysis of reduced physical flows rather than just by reducing baselines.

Issues: Flex and Pressures

National Grid's obligations in respect of the provision of flow flexibility are agreed through the OCS process and NExAs and are obtained through OPNs and Assured Pressures?

Substitution analysis will be undertaken to ensure that existing (and agreed) obligations can continue to be satisfied.

Analysis shall be in accordance with the Planning Code.

- It will be based on maintaining Assured Pressures and exit flexibility capacity rights to DNOs and ANOPs to DCs (as well as flat capacity rights)
- Analysis shall be undertaken at peak and off-peak demand levels.
- Ramp rates are not affected by capacity.

Issues: User Commitment

- How should baseline capacity be protected from substitution if it remains unsold?
  - Only way to protect is if **bought** (or sign ARCA).
    - Simple and transparent.
  - Protect via a **Retainer** (similar to non-Works ARCA).
    - For a fee of [one] years "P_{ind}" capacity charge, capacity will be excluded from substitution.
    - Can "off-peak" users use this as a means to low cost "near-firm" capacity?
    - Potentially complex.
  - Allow Shippers to take out an **Option**?
    - For a fee, Shippers are given an opportunity to purchase capacity identified for substitution [or bought by another Shipper].
    - Adverse impact on timelines.
  - Protect capacity based on **historical** and/or **forecast** flows.
    - No User Commitment, but relatively simple and transparent.

Issues: Limiting Substitutable Capacity

Should limits be placed on the way baseline capacity is used for substitution?

- Apply an exchange rate cap. Any value is arbitrary, but
  - 1:1 maintains obligated capacity level. Restricts excessive substitution,
  - 3:1 used on entry,
  - No limit recognises value of unsold capacity. Simple.
- Limit substitution to specific area

	Within Exit Zone.	Same feeder [upstream] to a recipient first	DN clusters / groups
Pros	Transparent, Exit Zones identified in ExCR Allows "share the pain".	Simple, repeatable process. Limits excessive capacity loss. Adds some predictability to donor operators. Availability of multiple potential donor exit points removes need for extended analysis Upstream maximises exchange rate, should be 1:1.	Facilitates baseline re-jigging within DNs. Allows "share the pain".
Cons	Designed for flex not flat. Investment is nodal not zonal. Investment is determine on a feeder not area. Creates sub-optimal outcome.	May restrict substitution opportunities. Defining upstream / downstream may not be straight-forward	Complex and opaque. Arbitrary Discriminatory?

Issues: Impact of Donor Exit Points

- What if capacity substituted from a donor Exit Point is needed?
  - Need to trigger incremental capacity.
    - 38 month default lead time.
    - Encourage capacity purchases; requirements should be known.
      - Aids planning.
  - Access to Daily Capacity and Annual Firm Capacity reduced,
    - Only unsold capacity that has not been substituted will be available.
  - The reduction in the obligated level is likely to be insufficient to create a noticeable reduction in exit capacity prices.
    - And there will be no impact on prices at the recipient exit point.

As with Entry substitution, where exit capacity substitution is undertaken National Grid will not incur investment costs so will not benefit from the revenue drivers allowed when releasing incremental capacity. The avoided costs will be reflected in marginally lower costs at all exit points.

Does the impact on donor Exit Points necessitate any specific rules?

Issues: Adverse Consequences

What, if anything, should be done to prevent the substitution methodology leading to unforeseen and unwelcome outcomes?

- Allow National Grid discretion
  - Not favoured by NG, leads to lobbying and challenge,
- Allow Ofgem discretion
  - Not favoured by NG, but already allowed by Licence
    - veto of substitution proposals is not restricted to deviation from the methodology.
  - Ofgem discretion enables a simpler, more definite, methodology to be employed.
  - Lobbying could have an adverse impact on analysis timeline.
- Create special rules / exceptions for vulnerable / critical sites, e.g. storage, interconnectors.
  - Need to ensure capability to maintain security of supply.
  - National Grid has overarching obligations regarding economic and efficient system development.
  - Would this be discriminatory?

Are special rules needed when Ofgem veto is available?
If any, what rules are appropriate? Exclusion from substitution?

Issues: Timing

How often should exit capacity substitution be undertaken?

- Annually: aligns to annual application window, manageable process, predictable.
- At each Price Control: inconsistent with policy aims, but simplifies process as revised baselines would be agreed between Ofgem and National Grid.
  - Should substitution be used to revise poorly set baseline values?
- Ad-hoc/Monthly: aligns to agreement of ARCAs and/or (some) ad-hoc allocations and maximises opportunities for avoiding investment, but a less predictable process and more resource intensive.

When / how should substitution be applied?

- Allocation from Y+4 or later. Consistent with entry, consistent with investment lead times. Possible opportunity for donor capacity recovery.
- Allocations pre-Y+4. Allows earlier release of incremental capacity, but capacity at donor exit point takes time to recover. Would be less transparent process.

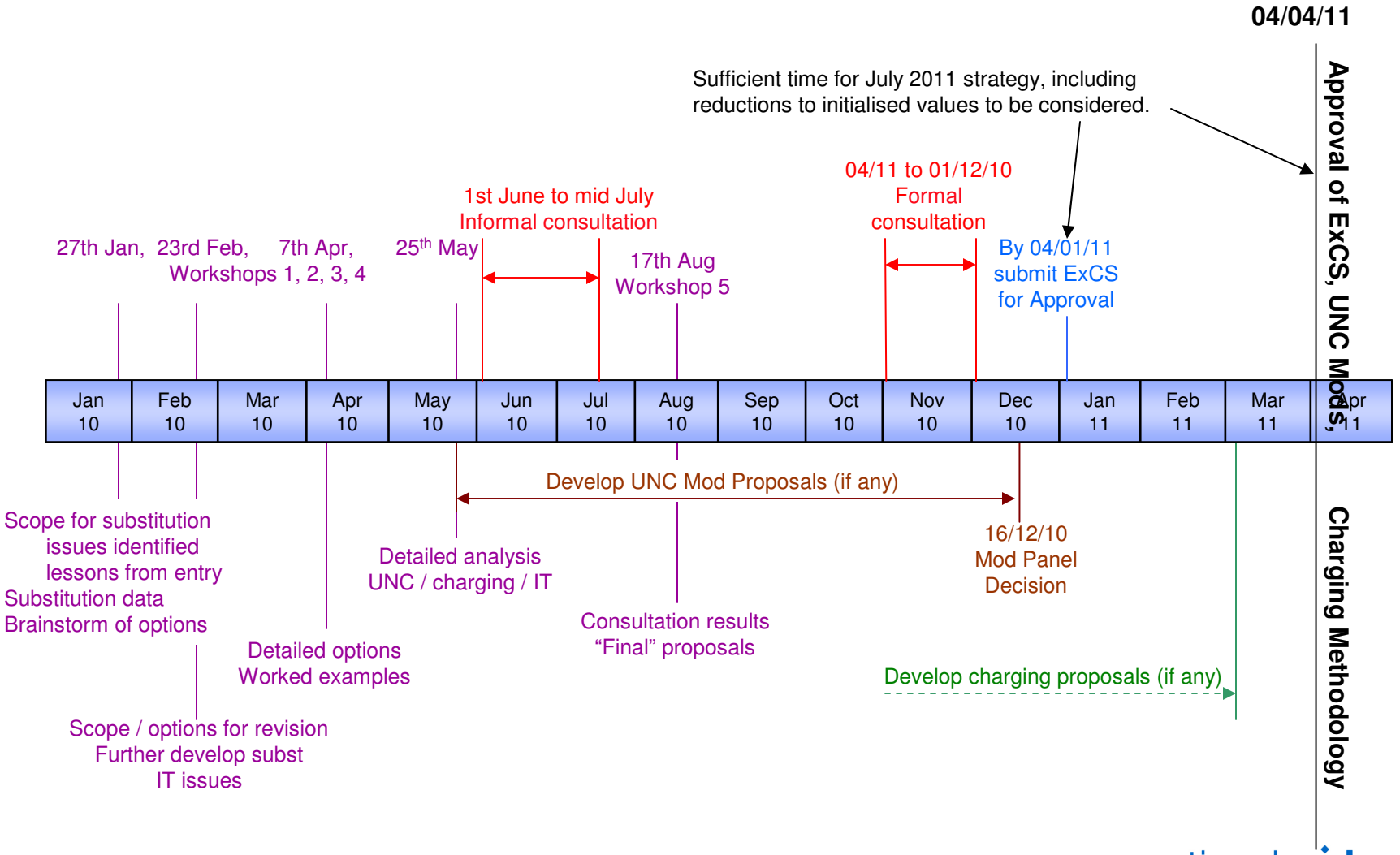
When will substitution apply from?

- 2011 application window. Methodology submitted for approval Jan 11.
- Surrendered initialised capacity may be available for substitution.
  - Shippers not aware of surrendered quantities in advance.

Issues: Analysis.

- The aim of Network Analysis in respect of substitution is to:
  - ensure that, under reasonably foreseeable conditions, after any proposed substitution all existing obligations can be satisfied, including
    - 1 in 20 peak aggregate demand;
    - P0600 and P2200 Assured Pressures;
    - ANOPs and Applicable Offtake Pressures;
    - Daily and hourly flow rates at booked flat capacity levels;
    - Flexibility capacity to DNOs:
  - Substitution is effected in the most efficient manner
    - E.g. lowest capacity exchange rates, most economic residual investment
- Network Analysis is undertaken in accordance with the Transmission Planning Code. Demands flows will be modelled on the basis of:
  - forecast flows for DN offtakes;
  - the assumed behaviour under specific scenarios for storage and interconnectors;
  - Firm capacity bookings for Power Stations and industrials.

Indicative Timeline: Development of Exit Capacity Substitution and Revision Methodologies.



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Next Workshop

Date:	23rd February 2010.
Venue	Ofgem.
Agenda	Capacity revision,
	Further develop substitution proposals,
	Systems impact.