Exit Capacity Substitution and Revision

Workshop 2: 23rd February 2010

nationalgrid

The power of action.

Agenda

- Workshop 2 - Objectives
- Potential benefits of exit substitution - data
- Exit Capacity Revision.
    - Licence, Initial thoughts.
- Summary of Exit Capacity Substitution debate
- IT issues
- Review timeline / next workshop

Workshop Objectives

What are the aims of workshop 2?

- To better understand the basis for exit capacity substitution and revision
  - Present data on exit investment
  - Theoretical savings potential from exit capacity example
  - Consider availability of unallocated system capability
- To understand what Exit Capacity Revision means.
- To further develop an exit capacity substitution [and revision] methodology.
- Review IT requirements and to identify any potential IT issues.
- Identify requirements for workshop 3.

Potential Benefits of Exit Substitution

Workshop 1 – action 1: National Grid to provide information on the level of exit driven investment relative to entry investment.

Puts exit substitution into context of entry substitution.

National Grid investment by driver (exit/entry only)			
£m	2007/8 actual	2008/9 actual	2009/10 forecast
Entry	609	224	75
Exit	76	42	22*

Avoiding exit capacity investment results in avoided increases:

in SO allowed revenue, for 5 years, to the value of the revenue driver (not stated above). £1m equates to about 0.0001p on SO commodity charges.

*in TO allowed revenue, from year 6, to the value of 6.25% * actual investment spent.*

* The £22m forecast spend is required to meet 1 in 20 obligation. Hence NG believes it is unlikely that any of this could be avoided through substitution.

Potential Benefits of Exit Substitution: Marchwood

- Workshop 1 – action 2. National Grid to produce an example indicating cost savings from exit substitution.
- Marchwood Power Station considered because
  - Recent large incremental load;
  - revenue driver established in the Licence.
- However, National Grid believes that large loads, such as Marchwood, connected at the extremes of the NTS will not be candidates for substitution.
- Figures used are approximate.

Potential Benefits of Exit Substitution: Marchwood

- Marchwood Power Station revenue driver is £4.5m / year plus indexation for delivery of 45 GWh/day.
- Revenue driver applies for 5 years from delivery of capacity and is indexed to that year.

- For each year 2008/09 to 2012/13 inclusive:
  - Allowed revenue in respect of Marchwood = £5m
  - Avoided price increase = 0.0005p/kWh on SO commodity charges
    - Current SO commodity charge = 0.0362p/kWh (entry + exit).
- For each year 2013/14 onwards
  - Allowed revenue is based on actual investment (assuming economically and efficiently incurred).
  - Avoided revenue increase = £5m x 5 x 6.25% = £1.6m
  - Allowed TO revenue ~ £600m, so 0.25% saving.

Note: all figures approximate; actual investment assumed to be 5 x revenue driver

Theoretical Substitution Analysis

- Consider a new load connecting in the middle of the system where substitution is more likely to be feasible.
  - E.g. Staythorpe – new load of 76 GWh/day (baseline value used).
  - No revenue driver available. Example considers only the potential impact on donor exit points.
  - Unsold capacity that is substituted is assumed to have an impact on expected flows and hence releases system capability.
- Network Analysis has not been carried out to confirm suitability of any exit point for substitution.

Theoretical Substitution: Staythorpe

Impact on potential donor exit points

Substitutable capacity required = 76 GWh/day

Exit Point	Baseline GWh/d	Unsold baseline Oct 2014 as at Oct 09	Capacity substituted Assumed exchange rate of 1:1
Downstream donor exit points considered first. Should give better exchange rates			
Various DN Offtakes	N/A	1.7	1.7
Corby PS	21.1	0	0 Fully allocated as firm capacity
Various DN offtakes	N/A	22.3	22.3
Whitwell	161.9	22.1	22.1
Peters Green	151.9	19.0	19.0
Didcot PS	137.8	55.4	10.9 Part ex-interruptible, but assume firm obligation.
Upstream exit points not required as there is sufficient capacity downstream			

What is “spare” capacity?

Workshop 1 – action 3: National Grid to consider whether information can be provided on the extent of “spare” capacity.

- NB – Some new demands are satisfied without the need for an ARCA, i.e. uses spare capacity.

- Why might additional exit capacity become available?
  - Investment is mainly entry led, creates exit capability
    - Accounted for by the exit capacity revision methodology
  - Exit reinforcement driven by general load growth not specific projects
  - Marginal plant sizing; oversize rather than undersize.
  - Locational reductions in demand.

What is “spare” capacity?

- Why is National Grid unable to quantify and locate unallocated capacity?

- Commercial Capacity is not the same as physical capability:
  - Capability is dynamic, it changes over time
  - Capacity is fixed values
  - The two cannot be directly equated to each other.
    - To try to do so would result in minimum capability being used and would remove National Grid’s ability to later respond to specific customer requests for increased flat / flex capacity.

What is “spare” capacity?

- Why is National Grid unable to quantify and locate unallocated capacity?

- Physical capability is dynamic:
  - Spare capability can vary due to:
    - plant down time,
    - within day flex usage,
    - OPNs and pressure requests.
    - changing supply / demand patterns
      - Short term and long term forecasts
      - Operating patterns / reliability, e.g. LNG import, storage, can vary considerably.
  - Spare capability can manifest as flat capacity or flexibility or a combination. Allocation as baseline flat removes ability to release as flex.

Lessons Learnt

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

- Clarity on essential elements.
  - User commitment.
- Awareness of interacting activities.
  - European issues……Ofgem update on workshop 1 action 6
- Demonstration of potential adverse impacts.
  - DN Flow Swapping…..considered later; workshop 1 action 5.
- Focus on methodology.
  - Licence changes may be considered after methodology proposals have been developed, but not before.

Exit Capacity Revision Objectives

What is the capacity revision obligation?....(workshop 1 – action 4)

- "revise the level of NTS baseline exit flat capacity …… in the event that the release of incremental obligated entry capacity changes the availability of NTS exit capacity"
- *Revise – i.e. can go up or down.*
- *Incremental obligated entry capacity can be*
  - "funded" – i.e. generally met through investment.
    - In the event NG builds new infrastructure for entry this is likely to create exit capability, "spare" capacity. Baselines may be increased.
    - In the event NG adopts contractual solutions to meet entry capacity obligations this is likely to have no impact on exit capability. Baselines likely to be unaffected.
  - "non-incremental obligated" – i.e. substituted.
    - In the event that entry capacity is substituted to an ASEP it is possible that additional exit capacity could be made available in the location of the recipient ASEP but this would be at the expense of exit capacity in the location of the donor ASEP. In effect "spare" capacity is moved. Baselines may be increased or decreased.

Exit Capacity Revision Objectives

How will success be identified?

- Licence obligation satisfied;
- Exit Capacity Revision Objectives satisfied;
  - Compatible with the physical capability of the NTS
  - Avoid material increase in costs to be incurred by National Grid
  - Facilitate effective competition
  - These are identical to the substitution objectives.
- No significant increase in cost / risk to all,
  - i.e. in meeting revision objectives risks are not unreasonably passed to other parties.
- A workable solution without excessive implementation and operating costs.
- Other licence and legislative obligations not compromised; e.g. the “1 in 20” and “economic and efficient” obligations.

Exit capacity revision and exit capacity substitution methodologies use the same principles and are, therefore, essentially the same process.

Thoughts on Exit Revision

Exit capacity created through release of entry capacity should be used to meet actual requests for additional exit capacity first, i.e. it is allocated.

No added complications through need to consider donor points.

Analysis is undertaken in the same way as for investment and substitution

- Consistent with Planning code

Treatment of additional capability (that cannot be allocated)

- Increase baseline at ASEP triggering entry investment if bi-directional sites.
  - Provided the exit point is established
  - Capacity could be allocated if simultaneous entry / exit applications (Mar > Jul) are made.
- Otherwise increase baselines at extremes of the system.
  - Capacity can be substituted upstream if/when needed.

Thoughts on Exit Revision

Exit capacity may be lost through release of entry capacity, e.g. as a result of entry substitution.

- Entry substitution will be consistent with existing exit obligations (sold capacity).
- Entry substitution will reduce National Grid's ability to meet entry capacity requests at a donor ASEP. There may be an additional impact on exit points in the same locations.
- Exit capacity baselines may be revised downwards as a result.
  - Will only occur if baseline is unsold and cannot be made available, if subsequently bought, without investment.

Summary of Substitution Workshop

What did we conclude about exit capacity substitution methodology?

- Limited scope for benefits.
  - Additional data provided
- Simple, Transparent, Predictable and Repeatable, Pragmatic.
- User Commitment required.
  - If not sold, capacity may be substituted
  - Little support for retainer due to complexity
- No special rules for specific sites
  - No discretion for National Grid or Ofgem (except as Licence allows).
  - But DN flow swapping remained an issue (see next slides)
  - Existing obligations maintained, e.g. pressure, flex.
- Apply from Y+3. Consistent with investment lead-time.
  - Monthly cycle, but unsure how this will work due to misalignment of process steps; e.g. allocate Sept, but Ofgem can veto substitution up to Dec.
- Substitution analysis, to be consistent with aim of simplicity.

Issues: DN Flow Swapping

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?

Workshop 1 – Action 5; Transporters to provide historical information on DN flow swapping activities.

- Data obtained suggests DN flow swapping is occurring regularly; i.e. every day.
- The reason for these swaps is often unclear.
  - But many of the requests are:
    - Managed via OPNs;
    - Within allocated quantities; and/or
    - requested by National Grid NTS.

DN Flow Swapping

- It is difficult to quantify the potential impact of removing the facility to flow swap.
  - Exit substitution should only marginally increase flow swap rejection rates.
  - Alternatives are available;
    - DNOs can buy additional capacity to cover requirements,
    - National Grid NTS can access buy-backs.
- No obvious method to protecting capacity used for flow swapping from substitution without risk of discrimination.
- Propose no special rules at this stage.

Exit Capacity Substitution & Revision

Where do conclusions lead us?

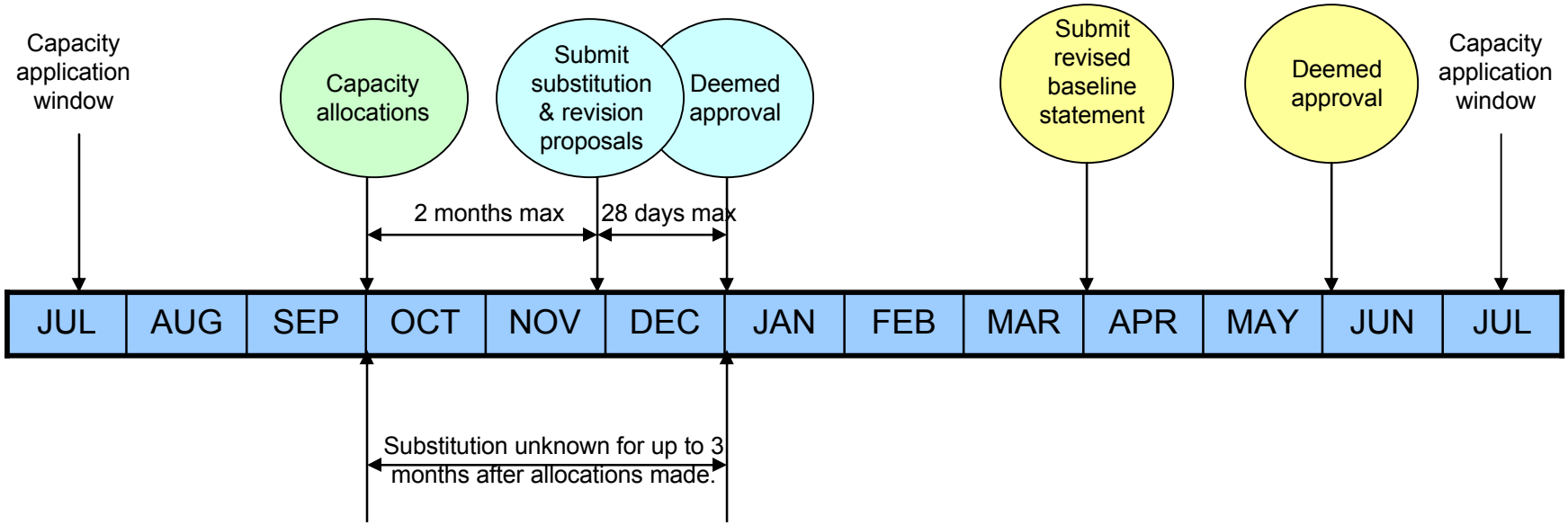
Simplicity is key.

- Revision.
  - Review (increase/decrease) baselines when substituting entry capacity.
  - Allocate new exit capacity to meet incremental exit capacity requests where possible.
  - Then add to baseline at bi-directional sites and system extremities.
- Substitution
  - Allocate spare capacity.
  - Then consider substitution.
  - Then consider investment.

Exit Capacity Substitution & Revision

- No special rules
  - But DN swapping may be considered if need is proven; and a workable proposal identified.
- Monthly process, subject to capacity increase applications
  - Applying at Y+3
- Consistent with Transmission Planning Code
  - Maintain existing obligations
- User Commitment needed: unsold may be substituted
- Restrictions on donor capacity; e.g. exchange rate cap, limit substitution to same pipeline.
  - Subject to detailed examples to be undertaken for future workshop

Allocation and Substitution Timeline



- Revised baselines from substitution feed through to unsold capacity level.
- Allocations are made end Sept but substitution proposals may not be approved until end Dec.
  - For period Oct-Dec it is unclear how much capacity is available for ad-hoc applications.
  - Need to assume substitution proposals will not be vetoed.

IT Systems

Current systems work will enable exit baselines to be reduced and increased to reflect exit capacity substitutions.

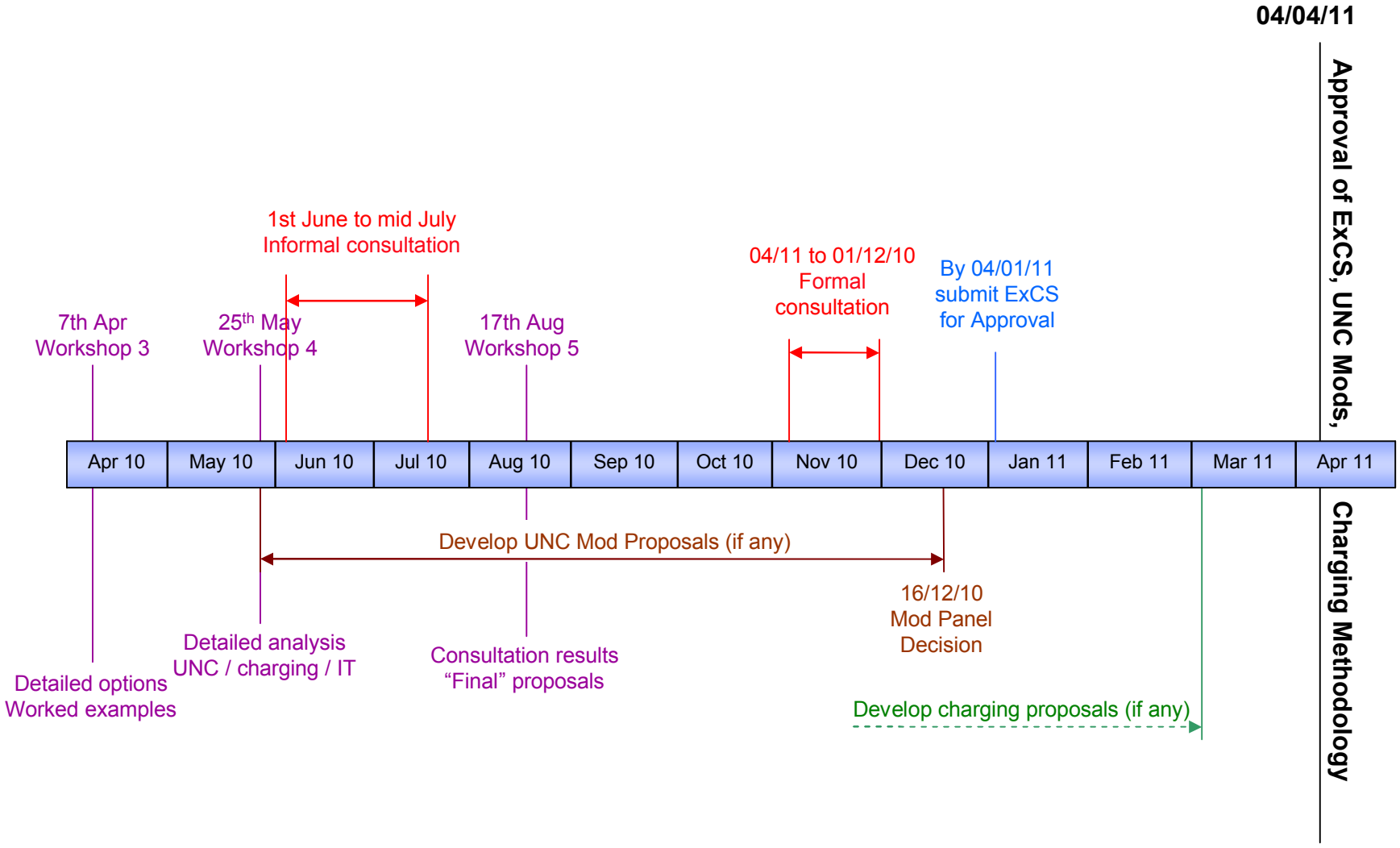
At this stage no issues have been identified that would affect implementation of exit capacity substitution in July 2011.

- This assumes simple methodology applied.
  - Substitution actioned after approval (or non-veto).
- Further testing to be undertaken
  - and potentially further development work as processes evolve.

Detailed Examples confirmed with Network Analysis

- Worked examples of new Power Station / DN increases to be provided at workshop 4 (25th May).
- Details of examples to be developed during analysis to enable key points to be demonstrated.
  - Variables to be considered
    - Location
    - Donor exit points limited to exit zone / relevant pipeline
    - No exchange rate cap
  - Results to consider potential impact on donor exit points
    - Impact on baselines
    - Exchange rates
    - Pricing

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



nationalgrid
The power of action.

Next Workshop

Date: 7th April 2010

Venue Ofgem.

Agenda Theoretical examples.