

**Transmission Access Standing Group  
Assessment of High Level Models**

**TEC Transfer**

**Principles**

- Facilitate the transfer of physical system capacity between generators
- Exchange rates set to achieve cost neutrality. [This is an assessment against the SQSS operational criteria and must be performed against a base-case and therefore non-compliance with the SQSS planning criteria is ignored?]
- [Restrict transfers to zones which are electrically proximate]
- TEC donors retain rights and obligations for access in the longer term (i.e. still has to pay TNUoS charges, still in SQSS planning criteria study background, gets full access back at end of trade)
- No assets will be installed to facilitate usable exchange rates

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**Eligibility**

- Anyone that holds current (rather than future) TEC can donate all or part of it.
- Anyone that has sufficient CEC can accept a TEC transfer

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**Process**

- In September, TEC holders indicate MW they are prepared to surrender and associated price (£/MW) in Y+1 and Y+2
- In October, National Grid publish capacity available in each zone as a result of the surrendered capacity together with a reserve price (for each tranche of capacity in each zone) for Y+1 and Y+2
- In November, National Grid host pay-as-bid auction for surrendered capacity
- In December, National Grid assess bids, identify users that have successfully surrendered and acquired capacity and notify
- From January to March, National Grid make the necessary changes to users' bilateral agreements

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Attribute	Pros	Cons
Ease of use for new entrants	Concept fairly simple;	Shortage of sellers; Lack of transparency, certainty and stability of exchange rates; <u>More difficult for new entrants because they also need to establish a connection</u>
Ease of use for existing parties	<u>Does not increase the amount of capacity available</u>	Gives additional value to a current parties' TEC; Allows existing users to extract SRMC from something for which they pay LRMC, which may be problematic when capacity is scarce ( <u>i.e. may encourage capacity 'hoarding'</u> ); Multi-year trades allow existing generators to transfer something they

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<#>National Grid provides exchange rates between different zones or nodes¶  
<#>The exchange rates are calculated to achieve cost neutrality for all transmission customers, but this calculation is based on forecast data only, and therefore involves risk¶

		haven't paid for.
Flexibility of usage within-year	<u>Not applicable for proposal outlined above.</u>	
Level of charge for participants	<u>Existing generator with an outage could be considered to be a 'distressed seller'</u>	Bilaterally negotiated - seller may be in a strong position when capacity is scarce; <u>Transaction cost may be significant due to level of SO study work required.</u>
Level of Risk for participants	<u>Bankable once obtained</u>	High, until a seller is found; Unlikely to provide bankability required to finance new projects
Level of cost for all transmission customers	Near-zero (provided exchange rates can avoid increase in constraints)	
Level of risk for all transmission customers	Low or Moderate (if existing low load factor generator trades to higher load factor generator)	
Degree of discrimination	None? <u>Facilitates early entry for new generators?</u>	Arguably discriminates in favour of existing TEC holders? <u>Existing generators less likely to close -barrier to entry?</u>
Signal for TO Investment	<u>No change?</u>	Barely. (Only to the extent that existing TEC is slightly heavier used)
Overhead for GBSO		Depends on time-periods sold since exchange rates must be calculated; Complex systems (access exchange) may be required to calculate exchange rates and track capacity holding

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Further work required

- Consider impact on embedded generation
- Consider how TEC transfer would interact with other models (e.g. ETEC) and what it means for TEC

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**Extra TEC**

- Extra TEC (MW band by zone and boundary) is identified by National Grid
- Extra TEC bands are allocated in either an annual or three monthly pay as bid auction with a reserve price set by National Grid to equal the forecast constraint costs the Extra TEC would cause
- Extra TEC provides the user with the same rights as TEC for the time period purchase
- Extra TEC price corrected depending on load factor of generation (e.g. 100% price for conventional generation, 40% price for wind generation)
- Extra TEC price subject to a cross-subsidy factor,  $\gamma$ , to be debated
- The revenue from the release of Extra TEC is fed back into BSUoS as a negative term
- [To be eligible to apply for ETEC, the “wider” transmission reinforcements identified in Construction Agreements must have received Section 37 consent]
- ETEC holders will have bid prices collared at £0/MWh
- No assets will be installed to facilitate the release of ETEC

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Attribute	Pros	Cons
Ease of use for new entrants	Concept fairly simple	Timescales of 1-2 years ahead may not fit with project development timescales; Volumes <u>at acceptable prices</u> may be too small to be used by potential buyers; Only likely to be useful to new project developers if there is a right to convert to TEC in a fixed time period
Ease of use for existing parties	Concept fairly simple	
Flexibility of usage within-year	Good. Down to month-ahead	
Level of charge for participants		<u>Set by NGET; relatively high (depends on <math>\gamma</math>); May be too high to be used by potential buyers</u>
Level of risk for participants	<u>Low, once signed</u>	<u>High, until signed up to a ETEC tariff; Uncertainty beyond defined period; Collared bid-price not appropriate. Non cost reflective bid-prices are a competition issue and should be referred to the relevant authorities</u>
Level of cost for all transmission customers	Depends on $\gamma$	Depends on $\gamma$ ; $\gamma < 1$ represents cross-subsidy from all transmission customers;

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		Charges based on SRMC ignore the cost of “local” infrastructure works and would represent a further cross-subsidy from all transmission customers
Level of risk for all transmission customers	Some opportunity, if NGET over-prices constraints or auction bid > reserve price; <u>Limited by ETEC collared bid-price</u>	High risk, when NGET under-prices constraints; The practicality of accurately forecasting constraint costs 2 or 3 years ahead of time is questionable; Could undermine TEC and the signals this provides to the market through the its usage of the transport model
Degree of discrimination	None	
Signal for TO Investment	A charge for “local” infrastructure works would signal that they are required.	Low; No signal for “wider” infrastructure works.
Overhead for GBSO		Fairly high – need to identify constraint prices ex ante

**Further work required**

- Consider impact on embedded generation
- What is the availability and price of ETEC at volumes beyond those identified in PHP presentation (5 June 2007)?
- Will National Grid have an obligation to provide a quote for ETEC?
- Need to explore issues around the fact that BSUoS is being used to provide transmission access

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**Overrun**

- Generation above TEC (+STTEC+LDTEC) will be charged ex post at the short run cost caused
- [Generation cannot overrun power station CEC]
- Prices are calculated and posted 1 or 2 days after real time
- Prices are calculated for predefined zones using an agreed process, which will involve a degree of engineering judgement
- The revenue from overrun charges are fed back into BSUoS as a negative term
- If users are required by the System Operator to overrun, then a charge will not be levied
- No assets will be installed to manage overrun charges

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Attribute	Pros	Cons
Ease of use for new entrants		Unknown liability; Only likely to be useful to new project developers if charges could be hedged, or capped to a multiple of TNUoS; <u>Possible hedges include TEC, traded TEC and ETEC but, TEC may not be available in the required timescales and traded TEC and ETEC each have different durations (i.e. not half hourly);</u> Lack of transparency associated with price calculation.
Ease of use for existing parties	<u>May be suitable</u> for last few MW of low load factor station	Unknown liability; Lack of transparency associated with price calculation.
Flexibility of usage within-year	Very flexible	
Level of charge for participants	Set ex-post by NGET; Very low (zero?), for the periods when you use it in parts of the transmission system with spare capacity	Set ex-post by NGET; Relatively high, for the periods when you use it in capacity restricted parts of the system.
Level of risk for participants		Very high
Level of cost for all transmission customers	<u>Low?</u>	Charges based on SRMC ignore the cost of "local" infrastructure works and would represent a cross-subsidy from all transmission customers; <u>TNUoS is not just LRM, but includes element of revenue recovery (residual</u>

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Level of risk for all transmission customers	Low?	<u>element</u> <u>TEC could be undermined;</u> <u>Market could be distorted</u> <u>by incentive to reduce</u> <u>TEC holding where</u> <u>LRMC&gt;SRMC and by lack</u> <u>of access product for</u> <u>demand side;</u> <u>May make constraints</u> <u>more volatile and therefore</u> <u>make BSUoS more</u> <u>volatile</u>
Degree of discrimination	None	
Signal for TO Investment	A charge for "local" infrastructure works would signal that they are required.	No signal for "wider" infrastructure works; If existing TEC users migrate to overrun, sunk investments may be stranded.
Overhead for GBSO		High / Very High (depending on degree of accuracy, and if priced ahead)

**Further work required**

- Consider impact on embedded generation
- Better understanding of how it will be used by new and existing generators
- Impact on cash-out prices, BSUoS and TNUoS charging base (particularly during construction timescales) to be investigated
- Investigate transmission charges for windfarms and conventional generators with TEC and overrun

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**Connect and Manage**

- Allocation of transmission access guaranteed within [3] years provided “local” connection is in place
- Firm commitment to pay TNUoS charges for [6] years from firm start date

Attribute	Pros	Cons
Ease of use for new entrants	Attractive package for new entrants	
Ease of use for parties <u>already connected</u>	Not applicable	
Flexibility of usage within-year	Not applicable; Does not offer within-year flexibility	
Level of charge for participants	As per current TNUoS (based on LRMC), with <u>commitment to pay [6] years TNUoS charges;</u>	<u>If transmission reinforcements cannot be completed in time, participants are causing short term costs but are being charged at long run marginal cost</u>
Level of risk for participants	Moderate risk of project commitment	
Level of cost for all transmission customers	Extra constraint costs may be limited by the effects of a marketplace with a very high plant margin	High <u>if transmission reinforcements cannot be completed in time;</u> Extra constraint costs left for NGET to manage and pass on; <u>If transmission reinforcements cannot be completed in time, the difference between SRMC and LRMC will be picked up by all transmission customers,</u>
Level of risk for all transmission customers		High risk, particularly if subject to planning; All transmission customers pick up risk of further constraint costs; <u>Difficult for suppliers to pass volatile BSUoS costs through to customers,</u>
Degree of discrimination		Favours new entrants; Effectively subsidised entry.
Signal for TO Investment	Large. (To the extent that firm commitment is made)	
Overhead for GBSO		Fairly high – need to manage large constraint exposures; SQSS change may be required.

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This also ignore the cost of “local” infrastructure works and would represent a cross-subsidy from all transmission customers

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Further work required

- Establish costs and benefits of this approach
- Consider impact on embedded generation



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**Wind Energy Strawman**

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- Allocation of transmission access guaranteed within 3 years
- Administered bid prices for all generation
- Postage stamp MWh charging with an exposure to transmission loss factors

Attribute	Pros	Cons
Ease of use for new entrants	Attractive package for new entrants	
Ease of use for existing parties		Administered bid price is a significant change from current balancing arrangements; This requires National Grid to make estimate of the costs of the generator concerned, which may change dynamically
Flexibility of usage within-year	Not applicable; Does not offer within-year flexibility	
Level of charge for participants		Significant change from the current arrangements
Level of risk for participants	None	
Level of cost for all transmission customers	<u>Extra constraint costs may be limited by the effects of a marketplace with a very high plant margin</u>	High?; Extra constraint costs left for NGET to manage and pass on, although they would be limited by the administered bid price arrangements;
Level of risk for all transmission customers		High risk; All transmission customers pick up risk of further constraint costs, although these are limited by the administered bid price arrangements; All transmission customers pick up the cost of transmission investments, the efficiency of which is not supported by a users willingness to pay a cost reflective charge
Degree of discrimination	<u>Not applicable</u>	
Signal for TO Investment		None Not clear how Transmission Licencees would be able to justify investments if users not exposed to the long run costs they cause

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Overhead for GBSO		Fairly high – need to manage large Constraint exposures
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Further work required

- The case for (and alternatives to) administered bid prices requires further attention
- Consider impact on embedded generation

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**TEC or BM**

- TEC provided to all users that request it and charged at TNUoS
- TEC does not allow access to the BM
- Users that do not have TEC have access to the BM and can submit PNs and Bid-Offer prices
- Users with TEC cannot be bid down in the BM (ancillary payment will cover extreme circumstances)
- Users without TEC, within BM can follow BOAs under unconstrained conditions

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<u>Attribute</u>	<u>Pros</u>	<u>Cons</u>
Ease of use for new entrants	Existing users would be incentivised to release capacity	Unclear what the incentive to hold TEC is (holders incur a charge but do not appear to offer any advantages over BM participants)
Ease of use for existing parties		
<u>Flexibility of usage within-year</u>	<u>Not applicable</u>	
<u>Level of charge for participants</u>		
<u>Level of risk for participants</u>		
<u>Level of cost for all transmission customers</u>		
<u>Level of risk for all transmission customers</u>		
<u>Degree of discrimination</u>		
<u>Signal for TO Investment</u>		
<u>Overhead for GBSO</u>		

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