

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

TEC Transfer

- More flexible arrangements to transfer transmission access from one user to another
- 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

Attribute	Pros	Cons
Ease of use for new entrants	Concept fairly simple;	Shortage of sellers; Lack of transparency, certainty and stability of exchange rates;
Ease of use for existing parties		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; Multi-year trades allow existing generators to transfer something they haven't paid for.
Flexibility of usage within-year	Depends on time-periods sold	Depends on time-periods sold
Level of charge for participants		Bilaterally negotiated - seller may be in a strong position when capacity is scarce
Level of Risk for participants		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?	Arguably discriminates in favour of existing TEC holders?
Signal for TO Investment		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
- [Insert bullet points – to be agreed at meeting 150607]

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 purchased
- 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, γ , to be debated
- The revenue from the release of Extra TEC is fed back into BSUoS as a negative term

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 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	Set by NGET; relatively high (depends on γ); May be too high to be used by potential buyers	
Level of risk for participants	High, until signed up to a ETEC tariff	
Level of cost for all transmission customers	Depends on γ	Depends on γ ; $\gamma < 1$ represents cross-subsidy from all transmission customers; 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	High risk, when NGET under-prices constraints; The practicality of accurately forecasting constraint costs 2 or 3 years ahead of time is questionable;

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		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
- [Insert bullet points – to be agreed at meeting 150607]

Overrun

- Generation above TEC (+STTEC+LDTEC+ETEC) will be charged ex post at the short run cost caused
- 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

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 (does ETEC provide a hedge?) or capped to a multiple of TNUoS; Lack of transparency associated with price calculation.
Ease of use for existing parties	Suitable 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	Low	Charges based on SRMC ignore the cost of “local” infrastructure works and would represent a cross-subsidy from all transmission customers
Level of risk for all transmission customers	Low	
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

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- Consider impact on embedded generation
- Better understanding of how it will be used by new and existing generators
- [Insert bullet points – to be agreed at meeting 150607]

Connect and Manage

- Allocation of transmission access guaranteed within 3 years provided “local” connection is in place
- Firm commitment to TNUoS charges
- TNUoS charges are offset against additional constraint costs caused

Attribute	Pros	Cons
Ease of use for new entrants	Attractive package for new renewable entrants	
Ease of use for existing parties		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), maybe with some extra up-front commitment? Participants get short term access at long run marginal cost	
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; Extra constraint costs left for NGET to manage and pass on; Additional TNUoS revenue will be offset against additional constraint costs caused; Difference between SRMC and LRMC picked up by all transmission customers; This also ignore the cost of “local” infrastructure works and would represent a cross-subsidy from all transmission customers
Level of risk for all transmission customers		High risk, particularly if subject to planning; All transmission customers pick up risk of further constraint costs.
Degree of discrimination		Favours new entrants; Effectively subsidised entry.
Signal for TO Investment	Large. (To the extent that firm 3–4 year-ahead commitment is made)	
Overhead for GBSO		Fairly high – need to

		manage large constraint exposures; SQSS change may be required.
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Further work required

- Establish costs and benefits of this approach
- Consider impact on embedded generation
- [Insert bullet points – to be agreed at meeting 150607]

Deemed TEC

- 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 renewable 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		High; Extra constraint costs left for NGET to manage and pass on, although they would be limited by the administered bid price arrangements; Without Licence change, additional TNUoS revenue will reduce charges paid by other generators only (demand customers will see no reduction in TNUoS but will be exposed to increased BSUoS costs)
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

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		reflective charge
Degree of discrimination		Strong discrimination in favour of renewable generation
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
Overhead for GBSO		Fairly high – need to manage large Constraint exposures

Further work required

- The case for (and alternatives to) administered bid prices requires further attention
- Consider impact on embedded generation
- [Insert bullet points – to be agreed at meeting 150607]