

Generation – Strawman Assessment against Criteria/Questions

18 November 2002

| Criterion/Question | Response | Comments |
|--|---|---|
| 1) How should rights be defined | | |
| a) Type of rights | Financially firm commercial right | |
| b) Explicit/Implicit | Explicit defined ex ante as a fixed volume | Implicit defined as ex post measured with limitation only physical, e.g. capacity of a gsp t/f (analogous to CEC) |
| c) Definition of right | i) Right to export (import) 1 MW for one year at an entry point on the transmission system | On a station basis Ideally metered at the entry/exit point, otherwise metered elsewhere and adjusted to that entry/exit point. |
| | ii) Right to compensation in the event of breach of provision of right | BSC P80/87 offer progress on this but do not solve problems for supply, LEG, or Interconnectors |
| | iii) Subject to reasonable control of the operator | For example, SO action in either system can affect flows between systems. |
| d) Obligations | i) Pay TNUoS | |
| | Prudent operator responsibility not to exceed max of the defined right | |
| | Pay overrun charges | Overrun, is just additional TNUoS charges. |
| e) Duration | 1 year or multiples of one year, but issues re i) optional extension, ii) price structure iii) risk, & iv) discrimination | See Appendix 4 on Duration issues. |
| f) Variation of Rights | i) When? <i>Suggest at any time, but financial commitment for rest of period</i> | Change at any point in the period, or only at say year-ends? |
| | ii) By how much? <i>Suggest by any multiple of 1MW, limited by physical capacity of system</i> | Is 1 MW the minimum, and is there a maximum? |
| | iii) With what notice? <i>Suggest immediate effect downwards, subject to process upwards</i> | |
| 1g Initial Allocation | How done? | <i>On basis of current connection agreements</i> |
| 2) Who buys and sells and trades these rights | | |
| | Party-Party possible at a node Party-NGC possible at a node Trading between nodes requires NGC facilitation | <i>Will non-physical players want to trade? Access is location specific. Scope for trading very small. NGT administered trade price anyway.</i> |
| | | <i>Demand side how would it work, given unlimited</i> |

| Criterion/Question | Response | Comments |
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| | | <i>consumption rights of customers?</i> |
| 3) What are the consequences of breaching? | | |
| a) Breach by service provider | Compensation for loss of access, based on TNUoS | Energy issues dealt with in BSC. Note consequential losses for customers not dealt with. What about physical damage to gensets? What about loss of opportunity to provide ancillary services? Dealt with by bilateral with NGT? |
| b) Breach by Party | i) Additional TNUoS ii) 'Endorsement/loss of Licence' | BSUoS effect not considered |
| | | <i>Note asymmetry: 1 year's TNUoS additional for over export, versus 1 hour's TNUoS for loss of system</i> |
| 4) Who are the players? & What are their contractual relationships? | | |
| | NGC- Licensed Party | CUSC Licenses |
| | NGC-Unlicensed party | CUSC directly, or indirectly via licensed party (e.g. Supplier & embedded LEG) |
| 5) NGC Investment Decisions | | |
| | i) Facilitating mechanism whereby NGC trade access short/long term as means to optimise use of the system. | Effect on the planning standard? Is it needed? |
| | ii) Alternative/complement to capital investment. | |
| | ii) How are NGC rewarded for squeezing more capacity out of existing system without capital investment? | Duration of reward? Link to costs incurred, or equivalent capital cost of access increment? |
| | | <i>If planning consent for station or connection, or infrastructure is delayed who bears the risk?</i> |
| Appendix 2 | | |
| 1 Improved short-run efficiency of operation of transmission system | | |
| | Potentially yes, | Is this any more than the bilateral contracting options that can already deliver this? |
| 1a Constraint and losses costs | System will probably become more potentially constrained with time, but overall sum of BSUoS + TNUoS should not increase so quickly | |

| Criterion/Question | Response | Comments |
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| 1b Reduction of risks of failure | Planning standard n/a, therefore actual risk of system failure increased, but operational standard is adequate | |
| 1c Choice of Firmness | This does nothing to facilitate or prevent choice of firmness as all pay one rate of TNUoS, | Choice of firmness achieved by: |
| | | a) Choice of Connection agreement |
| | | b) Possibility of overlaying bilateral contract with NGC |
| 2 improved long term Investment efficiency | | |
| | Yes see 1a above | |
| 2.1 Incentives to network reinforcement | Range of options for new access leads to more cost-effective reinforcement decisions. | |
| 2.2 Incentives to locate | Nothing specific | |
| 2.3 Improve incentives to decommission | Stiffening of monetary obligations. | <i>Sharpens decision to decommission</i> |
| 3 Other Criteria | | |
| Undue discrimination | Implicit vs. explicit rights | |
| Benefits concomitant with complexity | Little increase cost/complexity Possibility of earlier connection, earlier release of moribund access | |
| Appendix 3: CUSC Criteria | | |
| Efficient discharge of Licence obligations | Access is made available more cost-effectively & more quickly? | |
| Competition in supply and generation | i) Little effect on supply ii) May encourage earlier market entry/exit of generation. | |

Appendix 4: Duration of Access - Issues

The duration of access is a knot of interconnected issues:

- 1 yr or multi-year: If there is choice, then there are problems of choice of period and price risk for the connected party. How would the party exit and trade their remanent access period?
- Cost recovery: If NGT is allowed to always recover costs then there is a problem of discrimination between connected parties if they are charged differing amounts depending on when they commit to buying access.
- Renewal Optionality: The automatic option to renew year on year prevents volume access risk. Removal of optional renewal would increase pressure to buy multi-year access. However, even at the end of the multi-year access, the problem of judging renewal period, timing and price would remain.
- Price Structure:
 - Current Price Structure: Connected Parties currently have small annual price risk. Regulatory oversight and the structure of charging means that on average there will be small smoothed annual changes in price. This is consistent with the nature of the asset base that underpins the service. Note, however, that a rapid change in the volume of connected power stations would produce lumpy changes, albeit smoothed a little.

- Fixed prices: If NGT were to offer fixed prices for access this is likely only to be attractive, compared with the current system, if parties perceive volatile access prices, or if their valuation of future price trends suggests that this will be a cheap price. By offering fixed prices alongside current price structures, NGT risk charges of undue discrimination between parties.
- Fixed Structure prices: A variant of fixed prices would be prices with a pre-determined rate of change, such as in line with an inflation index. This has the same problems as fixed prices

Interconnectors – Strawman Assessment against Criteria/Questions
(assumes current NG Interconnectors Business separation and structure)

25th November 2002

| Criterion/Question | Response | Comments |
|--|---|---|
| 1) How should rights be defined | | |
| a) Type of rights | Financially firm commercial one-way transfer/access right given to I/C owner. Owner can reassign to IUs. | Physically non-firm for I/C or transmission outage. [Desire from IUs - Financially non-firm rights for IUs should be negotiable and Charges to IUs should only be auction fee, BSUoS and CBT ie no Connection or TNUoS.] |
| b) Explicit/Implicit | Explicit (defined ex ante as a fixed volume) for transfer capability <u>to</u> E&W. Implicit (defined as ex post) for transfer capability <u>from</u> E&W. | Similarly, these would/should be passed to IUs when obtaining the I/C transfer rights. I/C treated as per H/H demand. Implicit rights imply no compensation and hence different charge rate? |
| c) Definition of right | iv) Right to transfer to or from E&W 1 MW for one year or more (up to life of project) at the I/C entry/exit points on the transmission system | On a station basis or across the whole interconnection. Ideally metered at the entry/exit point(s), otherwise metered elsewhere and adjusted to that entry/exit point(s). |
| | v) Right to compensation in the event of breach of provision of right | BSC P80/87 offer progress on this but do not solve problems for supply, LEG, or those IUs not in Balancing Mechanism or for IU demand (export from E&W). |
| | vi) Subject to reasonable control of the operator | SO action in either system can affect flows between systems. Also SOs use the I/C for own use (without charge?). |
| d) Obligations | i) Pay TNUoS | Capability payment made by IO, actual usage paid by IUs to IOs presently through Use of Interconnector Agreement. |
| | Prudent operator responsibility not to exceed max of the defined right | Actual flows on I/C controlled by SOs. |
| | Pay overrun charges | Overrun, is just additional TNUoS charges. Interconnector Error Administrator determines faulty party and recharges. Test of reasonableness required (bandwidth?), especially for AC I/Cs as errors can be for E&W reasons. |

| Criterion/Question | Response | Comments |
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| e) Duration | 1 year or multiples of one year, but issues re i) optional extension, ii) price structure iii) risk, & iv) discrimination | See Appendix 4 on Duration issues. Fixed period and financially firm would imply a risk premium being imposed. Customer choice of contract length would allow new project investment. 1yr multiples may be OK for IO but IUs can trade down to 1 day and in time maybe intra day. |
| f) Variation of Rights | i) At any time, but financial commitment for rest of period | Change at any point in the period, subject to agreement by both parties and Ofgem scrutiny and <u>ideally</u> in consultation with IUs. Subsequent changes to IU agreements to be made at same time. |
| | ii) By multiples of 1MW, limited by physical capacity of system and the I/C. | |
| | iii) With what notice? Suggest immediate effect downwards, subject to process upwards | |
| 1g Initial Allocation | How done? | For current IOs, based on current connection agreements and book life of I/C. TEC to be based on total I/C inc STs. Any existing IU contractees also given rights by IO. |
| 2) Who buys and sells and trades these rights | | |
| | NGT(TB)-I/C Owner possible at an interconnector node. I/C Owner-IU Party possible at an interconnector node. Trading between nodes requires NGC facilitation. Trading between IU Parties requires I/C Owner facilitation. | Need to give TA rights to IUs when I/C capacity booked. <i>Will non-physical players want to trade? Will they be allowed to trade? Access is location specific. Scope for trading very small. NGT administered trade price anyway. But the concept has to be allowed for I/Cs because the capacity has to be booked prior to any energy trades.</i> When might 'Use it or Lose it' apply and who can participate in the sale? |

| Criterion/Question | Response | Comments |
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| | | <i>Demand side - how would it work for Interconnectors? May be less of an issue than rest of system if it is treated as negative generation and only looked upon as a generator. Alternatively, if concept of Suppliers being the interface with NGT, then the corollary is that IUs are and with trading done at 1 day intervals or less, this causes internal anomalies. DNOs model is translatable.</i> |
| 3) What are the consequences of breaching? | | |
| a) Breach by service provider | Compensation for loss of access, based on TNUoS only. | Energy issues not dealt with here or in BSC. |
| b) Breach by Party | iii) Additional TNUoS iv) 'Endorsement/loss of Licence' | Need for equitable balance of risk/penalties between the service provider and the party. BSUoS effect not considered. Test of reasonableness req'd |
| | | <i>Note asymmetry: 1 year's TNUoS additional for over export in a half hour, versus reduction of one half hour's TNUoS for loss of system.</i> |
| 4) Who are the players? & What are their contractual relationships? | | |
| | NGC(TB)-I/C Owner | CUSC and/or other equivalent agreements. Licences |
| | I/C Owner-I/C User | Interconnector Agreements. Licence |
| | NGC(TB)-I/C User | CUSC Licence |
| | | Possible scope for introduction of an aggregator and allowing I/C to be a Trading Unit which would allow full superposition and avoid nonsensical application of charges (BSUoS). |
| 5) NGC Investment Decisions | | |
| | Existing I/Cs - based on view of likely activity on I/C and impact on constraint costs. New I/Cs - based on above or through application of planning standards, if continued. | All trading activity across I/C will be based on forward curves for both markets. Over-arching agreements may also allow a flexible approach to system reinforcement. |

| Criterion/Question | Response | Comments |
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| | | Internationally established practice is to treat I/Cs as pseudo-generators. Demand take would not be supplied if 'home' demand threatened with disconnection. This first line of defence would allow an extra degree of non-firmness to exist. |
| | i) Facilitating mechanism whereby NGC trade access short/long term as means to optimise use of the system. | Effect on the planning standard? Is it needed? |
| | ii) Alternative/complement to capital investment. | |
| | iii) How are NGC rewarded for squeezing more capacity out of existing system without capital investment? | Duration of reward? Link to costs incurred, or equivalent capital cost of access increment? |
| | | <i>If planning consent for station or connection, or infrastructure is delayed who bears the risk?</i> |
| Brief Consideration of Alternative Model | | |
| With NGT's I/C assets subsumed into Transmission and treated as infrastructure. | All costs of running the I/Cs in Transmission Business. I/Cs recognised as giving benefits to all system users. Trading Rights agreed by an appropriate mechanism ie Allocation, auction or bilateral agreements. Auction most favoured probably. All income set against NGT costs and regulated with feedback as necessary through Kt mechanism. | Radical solution. More equitable with rest of Europe. Allows application of CBT in due course. Still leaves option for 'merchant' interconnectors if wanted but avoids stranded assets in existing I/Cs. |

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| Appendix 2 | | |
| 1 Improved short-run efficiency of operation of transmission system | | |
| | Maybe yes, difficult to determine. | Is this any more than the bilateral contracting options that can already deliver this? Any changes to transmission charges will directly effect I/C auctions and I/C income. |
| 1a Constraint and losses costs | System will probably become more potentially constrained with time, but overall sum of BSUoS + TNUoS should not increase so quickly | But for those in low TNUoS areas the rise in BSUoS will possibly be disproportional. As BSUoS rises this will adversely effect cross border trades. |
| 1b Reduction of risks of failure | Planning standard n/a, therefore actual risk of system failure increased, but operational standard is thought to be adequate | Operational standards have in the past been successful with the planning standard as the backdrop. The removal of the planning criteria may shift the balance. |
| 1c Choice of Firmness | Currently the proposal does nothing to facilitate or prevent choice of firmness as all pay one rate of TNUoS, | Choice of firmness achieved by: a) Over-arching agreement between systems/parties. b) Choice of Connection agreement c) Possibility of overlaying bilateral contract with NGC |
| 2 improved long term Investment efficiency | | |
| | Maybe see 1a above | |
| 2.1 Incentives to network reinforcement | Range of options for new access <u>may</u> lead to more cost-effective reinforcement decisions within NGT. | |
| 2.2 Incentives to locate | Nothing specific | For I/Cs and two-way trade, incentives should counter-balance. |
| 2.3 Improve incentives to decommission | Stiffening of monetary obligations. | Suggest N/A for I/Cs. |
| 3 Other Criteria | | |
| Undue discrimination | Implicit vs. explicit rights | Different treatment on I/Cs depending upon direction of transfer, despite the same trading rationale in use. |
| Benefits concomitant with complexity | Little increase (if any) in cost or complexity for generation only model. Possibility of earlier connection, earlier release of moribund access | |

| | | |
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| Appendix 3: CUSC Criteria | | |
| Efficient discharge of Licence obligations | Access is made available more cost-effectively & more quickly? | |
| Competition in supply and generation | i) Little effect on supply ii) May encourage earlier market entry/exit of generation. | |

Appendix 4: Duration of Access (for IOs in current structure) - Issues

The duration of access is a knot of inter-related issues:

- 1 yr or multi-year: If there is choice, then there are problems of choice of period and price risk for the connected party. How would the party exit and trade their remanent access period?
- Cost recovery: If NGT is allowed to always recover costs then there is a problem of discrimination between connected parties if they are charged differing amounts depending on when they commit to buying access.
- Renewal Optionality: The automatic option to renew year on year prevents volume access risk. Removal of optional renewal would increase pressure to buy multi-year access. However, even at the end of the multi-year access, the problem of judging renewal period, timing and price would remain.
- Price Structure:
 - Current Price Structure: Connected Parties currently have small annual price risk. Regulatory oversight and the structure of charging means that on average there will be small smoothed annual changes in price. This is consistent with the nature of the asset base that underpins the service. Note, however, that a rapid change in the volume of connected power stations would produce lumpy changes, albeit smoothed a little.
 - Fixed prices: If NGT were to offer fixed prices for access this is likely only to be attractive, compared with the current system, if parties perceive volatile access prices, or if their valuation of future price trends suggests that this will be a cheap price. By offering fixed prices alongside current price structures, NGT risk charges of undue discrimination between parties.
 - Fixed Structure prices: A variant of fixed prices would be prices with a pre-determined rate of change, such as in line with an inflation index. This has the same problems as fixed prices.
- **In the alternative structure all these difficulties would be removed for existing I/Cs but would still remain for any future merchant I/Cs i.e. not owned or operated by NGT.**

Distribution – Strawman Assessment against Criteria/Questions 22 Nov 2002

- Nodes at entry/exit points to/from the Total System
- Bilateral agreement between NGC and DSO (payments in either direction)

| Criterion/Question | Response | Comments |
|--|---|---|
| 1) How should rights be defined | | |
| a) Type of rights | Financially firm commercial right | |
| b) Explicit/Implicit | Explicit defined ex ante as a fixed volume e.g. 1kW for one year. | Implicit defined as ex post measured with limitation only physical, e.g. connection capacity (analogous to CEC) |
| c) Definition of right | vii) Right to export (import) 1 kW for one year at an entry point on the distribution/ transmission system | On a customer basis Ideally metered at the entry/exit point, otherwise metered elsewhere and adjusted to that entry/exit point. May need to treat each half hour individually. |
| | viii) Right to compensation in the event of breach of provision of right | Production - BSC P80/87 for Transmission outages only, if approved by the Authority. Consumption (works for Transmission & Distribution outages): i) NHH – insurance via GSPGCF - spreads effects of outage across all Suppliers in GSP Group ii) HH – System Sell Price compensation Interconnector – special case |
| | ix) Subject to reasonable control of the operator | For example, DSO action in either system can affect flows between systems. |
| d) Obligations | i) Pay DUoS & TNUoS | |
| | Prudent operator responsibility not to exceed max of the defined right | |
| | Pay overrun charges | Overrun Extra connection & infrastructure charges – see also Structure of Electricity Distribution Charges (OFGEM) Extra DUoS & TNUoS charges. |
| e) Duration | 1 year or multiples of one year, but issues re i) optional extension, ii) price structure iii) risk, & iv) discrimination | See Appendix 4 on Duration issues. |
| f) Variation of Rights | i) When? <i>Suggest at any time, but financial commitment for rest of period</i> | Change at any point in the period, or only at say year-ends? |

| Criterion/Question | Response | Comments |
|--|---|--|
| | ii) By how much? <i>Suggest by any multiple of 1kW, limited by physical capacity of connection & system</i> | Is 1 kW the minimum, and is there a maximum? |
| | iii) With what notice? <i>Suggest immediate effect downwards, subject to process upwards</i> | |
| 1g Initial Allocation | How done? | <i>On basis of current connection agreements</i> |
| 2) Who buys and sells and trades these rights | | |
| | Party-Party possible at entry/exit point Party-DSO possible at entry/exit point Trading between entry/exit points requires DSO facilitation at extra cost | <i>Will non-physical players want to trade? Access is location specific. Scope for trading very small.</i> |
| | Rights tagged to each customer at an entry/exit point, traded by Supplier for SVA entry/exit and customer for CVA entry/exit points | <i>Issues: Demand side how would it work, given unlimited consumption rights of customers? Entry/Exit points cannot be related to a specific GSP</i> |
| 3) What are the consequences of breaching? | | |
| a) Breach by service provider | Compensation for loss of access, based on DUoS | Energy issues dealt with in BSC. Note consequential losses for customers not dealt with. What about physical damage to customer plant? |
| b) Breach by Party | v) Additional DUoS/connection charge vi) 'Endorsement/loss of Licence' | |
| | | <i>Note asymmetry: 1 year's DUoS additional for over export, versus 1/2 hour's DUoS for loss of system</i> |
| 4) Who are the players? & What are their contractual relationships? | | |
| | DSO - Licensed Party | Bilateral agreement Licences |
| | DSO - Unlicensed customer | Bilateral agreement directly, or indirectly via licensed party (e.g. Supplier & embedded LEG) |
| 5) DSO + NGC Investment Decisions | | |
| | i) Facilitating mechanism - DSO & NGC trade access both ways short/long term to optimise use of System. | Bilateral agreement DSO – NGC Effect on the planning standard P2/5 |

| Criterion/Question | Response | Comments |
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| | ii) Alternative/complement to capital investment. | |
| | ii) How are DSOs & NGC rewarded for squeezing more capacity out of existing system without capital investment? | Change to regulatory incentives. Duration of reward? Link to costs incurred, or equivalent capital cost of access increment? |
| | | <i>If planning consent for station or connection, or infrastructure is delayed who bears the risk?</i> |
| Appendix 2 | | |
| 1 Improved short-run efficiency of operation of transmission & distribution system | | |
| | Potentially yes, | Is this any more than the bilateral contracting options that can already deliver this? Incentives are needed. |
| 1a Constraint and losses costs | System will probably become more potentially constrained with time, but overall sum of DUoS + BSUoS + TNUoS should not increase so quickly | System costs will decrease, and there will be less physical assets, offset by higher administration costs. Difficult for DSO to get cost messages across. |
| 1b Reduction of risks of failure | Planning standard n/a, therefore actual risk of system failure increased, but operational standard is adequate | Knock on effect to Guaranteed Standards of Performance |
| 1c Choice of Firmness | This does nothing to facilitate or prevent choice of firmness as all pay one rate of DUoS + TNUoS | Choice of firmness achieved by: |
| | | a) Choice of Connection agreement |
| | | b) Possibility of overlaying bilateral contract with DSO/NGC |
| 2 improved long term Investment efficiency | | |
| | Yes see 1a above | |
| 2.1 Incentives to network reinforcement | Range of options for new access leads to more cost-effective reinforcement decisions. | |
| 2.2 Incentives to locate | Only through connection charge or locational DUoS/TNUoS | |
| 2.3 Improve incentives to decommission | Stiffening of monetary obligations. | Production - Sharpens decision to decommission Consumption – assign to newcomer |
| 3 Other Criteria | | |
| Undue discrimination | Implicit vs. explicit rights | Explicit for consumption expensive |

| Criterion/Question | Response | Comments |
|---|---|--|
| Benefits concomitant with complexity | Large increase in cost & complexity Possibility of tripartite discussion prior to connection, earlier release of moribund access | New half hourly settlement system required with maximum demand monitoring, unless demand left implicit, in which case no added value via DSO |
| Appendix 3: CUSC Applicable Objectives | | |
| Efficient discharge of Licence obligations | Access may be available more quickly but at a cost & with more complexity | Extra costly systems and extra step in supply chain = Inefficiency. New DSO/NGC bilateral agreements required |
| Competition in supply and generation | i) New administrative barriers to market entry ii) More dynamic | Increased costs and complexity |

Appendix 4: Duration of Access - Issues

Duration of access - issues:

- **1 yr or multi-year:** If there is choice, then there are problems of choice of period and price risk for the connected party. How would the party exit and trade their remanent access period?
- **Diversity:** Season, time of day and diversity need to be in the package, possibly related to half hourly settlements. Costs and benefits to be apportioned. Different treatment for NHH and HH entry/exit points. Is implicit the only option for NHH?
- **Cost recovery:** If DSO/NGC is allowed to always recover costs then there is a problem of discrimination between connected parties if they are charged differing amounts depending on when they commit to buying access.
- **Renewal Optionality:** The automatic option to renew year on year prevents volume access risk. Removal of optional renewal would increase pressure to buy multi-year access. However, even at the end of the multi-year access, the problem of judging renewal period, timing and price would remain.
- **Price Structure:**
 - **Current Price Structure:** Connected Parties currently have small annual price risk. Regulatory oversight and the structure of charging means that on average there will be small smoothed annual changes in price. This is consistent with the nature of the asset base that underpins the service. Note, however, that a rapid change in the volume of connected power stations would produce lumpy changes, albeit smoothed a little.
 - **Fixed prices:** If NGC & DSO were to offer fixed prices for access this is likely only to be attractive, compared with the current system, if parties perceive volatile access prices, or if their valuation of future price trends suggests that this will be a cheap price. By offering fixed prices alongside current price structures, NGC & DSO risk charges of undue discrimination between parties. Greater risk for NGC & DSO.
 - **Fixed Structure prices:** A variant of fixed prices would be prices with a pre-determined rate of change, such as in line with an inflation index. This has the same problems as fixed prices.
 - **Customer must be able to predict charges:** This means NHH customers cannot be directly linked to TRIAD charges as they stand now.

Role of DNOs

Model of DNOs Contracting with NGC

Summary of Model

This model is as described to the TASG at the meeting of 5th July 2001. In essence:

- Transmission rights would be purchased from NGC by DNOs and paid for by DNOs, as happens now for NGC connection charges
- The charges would be passed on to demand and generation connected to the DNO network through Distribution Use of System Charges. "Embedded Distribution Networks" require further consideration but could be charged in a similar way.
- The charges for demand would be made to the supplier of that demand, preserving the (virtual) single contractual relationship between end customers and their supplier.
- Whilst options exist for pass through to be either just that or via an incentive scheme with scope for the DNO to receive a payment for efficient use of the transmission scheme, the latter is assumed for the purpose of this assessment.
- Accordingly it is suggested that April 2005 would be a sensible time to implement that arrangements. This would coincide with:
 - Possible new Distribution Connection and Use of System Charging Arrangements currently being consulted upon
 - The start of the new Distribution Price Control Period.
- This model concerns the contractual relationships...it does not rule in or rule out any charging arrangements whatsoever.

DNO contracting – Straw man Assessment against Criteria/Questions

22 November 2002

| Criterion/Question | Response | Comments |
|--|--|---|
| 1) How should rights be defined | | |
| a) Type of rights | Financially firm commercial right on GSP basis like other transmission connected parties. | Non firm rights could also be allowed. Option independent of this model |
| b) Explicit/Implicit | Explicit defined ex ante as a fixed volume | |
| c) Definition of right | x) Right to import (export) 1 MW for one year at an exit point on the transmission system. As per other transmission | |

| Criterion/Question | Response | Comments |
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| | connected parties | |
| | xi) Right to compensation in the event of breach of provision of right | Compensation could be provided probably at a regulated rate, with appropriate pass through to affected end users |
| d) Obligations | i) Pay TNUoS or other charges. | |
| | Prudent operator responsibility not to exceed max of the defined right | |
| | Pay overrun charges | Overrun must be set high enough so that one is always better off acquiring sufficient rights in advance |
| e) Duration | 1 year or multiples of one year, but issues re i) optional extension, ii) price structure iii) risk, & iv) discrimination | See Appendix 4 on Duration issues. |
| f) Variation of Rights | i) When? <i>Suggest at any time, but financial commitment for rest of period</i> | Change at any point in the period, or only at say year-ends? |
| | ii) By how much? <i>Suggest by any multiple of 1MW</i> | Whether more rights can be acquired than physical capacity of system depends on role of planning standards etc. |
| | iii) With what notice? <i>Suggest immediate effect downwards, subject to process upwards</i> | |
| 1g Initial Allocation | How done? | <i>On basis of current connection agreements</i> |
| 2) Who buys and sells and trades these rights | | |
| | Party-Party possible at a node Party-NGC possible at a node Trading between nodes requires NGC facilitation | |
| 3) What are the consequences of breaching? | | |
| a) Breach by service provider | Compensation for loss of access | See 1 c) ii |
| b) Breach by Party | See 1 d) | |
| 4) Who are the players? & What are their contractual relationships? | | |
| | NGC- Licensed Party | CUSC Licenses |
| | NGC-Unlicensed party | CUSC directly, or indirectly via licensed party e.g. Supplier |
| | NGC's relationships would be | |

| Criterion/Question | Response | Comments |
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| | exclusively with parties connected to the Transmission System | |
| 5) NGC Investment Decisions | | |
| | i) Facilitating mechanism whereby NGC trade access short/long term as means to optimise use of the system. | |
| | ii) Alternative/complement to capital investment. | Effect on the planning standard? Revision needed? |
| | ii) How are NGC rewarded for squeezing more capacity out of existing system without capital investment? | Independent of this model. Addressed elsewhere. |
| Appendix 2 | | |
| 1 Improved short-run efficiency of operation of transmission system | | |
| | Potentially yes. DNO can encourage embedded generation and demand to behave in manner that optimises utilisation. | Uniquely to this model DNO may also have an incentive for short term demand transfers between GSPs to optimise Transmission utilisation |
| 1a Constraint and losses costs | Depends on whether planning standards changed | This is independent of this model |
| 1b Reduction of risks of failure | Primarily determined by Operational Standard of security | This is independent of this model |
| 1c Choice of Firmness | This does nothing to facilitate or prevent choice of firmness | Choice of firmness achieved by: |
| | | a) Choice of Connection agreement |
| | | b) Possibility of overlaying bilateral contract with NGC |
| 2 improved long term Investment efficiency | | |
| | Yes | |
| 2.1 Incentives to network reinforcement | Range of options for new access leads to more cost-effective reinforcement decisions. | This model, uniquely, places primary responsibility for contracting with NGC with DNOs who, like generators have long term capital assets associated with use of transmission network and must therefore plan their use of the NGC system on a long term basis. |
| 2.2 Incentives to locate | Nothing specific | Depends, as with all models, on charging arrangements |
| 3 Other Criteria | | |
| Undue discrimination | Implicit vs. explicit rights | |
| Benefits concomitant with complexity | DNOs contract with NGC for rights to use system in addition to Connection. Suppliers to not have to contract with NGC for right to | Overall no increased complexity in contractual relationships...NGC only contracts with parties connected to its network. |

| Criterion/Question | Response | Comments |
|---|---|---|
| | use system. Distribution Use of System Charges will need modification...this is expected to happen anyway. | Changes to Distribution charges are expected to be needed independently of this (see current Ofgem consultation). |
| Appendix 3: CUSC Criteria | | |
| Efficient discharge of Licence obligations | Better planning of transmission system as all parties contracting for its use are those who have to take a long term perspective as they also invest in long life assets. | |
| Competition in supply and generation | Should allow suppliers to concentrate on energy issues. Should also provide increased opportunities for embedded generation. | |

Appendix 4: Duration of Access – Issues

The duration of access is a knot of interconnected issues:

- 1 yr or multi-year: This model would work well with multi year agreements as per connection agreements
- Cost recovery: If NGT is allowed to always recover costs then there is an issue of connected parties being charged differing amounts depending on when they commit to buying access. Whether this constitutes discrimination is a matter of opinion. Arguably it is no different to neighbours having paid different amounts for their houses because of when they bought them.
- Renewal Optionality: It is expected that multi year access agreements would be the norm.
- Price Structure:
 - Current Price Structure: Connected Parties currently have small annual price risk. Regulatory oversight and the structure of charging means that on average there will be small smoothed annual changes in price. This is consistent with the nature of the asset base that underpins the service.
 - Fixed prices: If NGT were to offer fixed prices for access this is likely to be attractive, compared with the current system, if parties perceive volatile access prices, or if their valuation of future price trends suggests that this will be a cheap price.
 - Fixed Structure prices: A variant of fixed prices would be prices with a pre-determined rate of change, such as in line with an inflation index.

Tim Russell 21st November 2002

Generation – Demand Assessment against Criteria/Questions

18 November 2002

| Criterion/Question | Response | Comments |
|--|--|---|
| 1) How should rights be defined | | |
| a) Type of rights | Financially firm commercial right | Same as generation but optional. |
| b) Explicit/Implicit | Explicit defined ex ante as a fixed volume (firm rights). | Ex post non firm measured with limitation only physical. |
| c) Definition of right | xii) Right to export (import) 1 MW for one year at an off take point on the transmission system | On a GSPbasis Ideally metered at the exit point |
| | xiii) Right to compensation in the event of breach of provision of right either through buyback or cash compensation. | BSC P80/87 offer progress on this issue for generation only but do not solve problems for supply, LEG, or Interconnectors. Non availability in the event of firm rights would be compensated. |
| | xiv) Subject to reasonable control of the operator and buy back. | For example, SO action in either system can affect flows between systems. |
| d) Obligations | i) Pay TNUoS | |
| | Prudent operator responsibility not to exceed max of the defined right | |
| | Pay overrun charges | Overrun, is just additional TNUoS charges. Could be administered charge. |
| e) Duration | 1 year or multiples of one year, but issues re i) optional extension, ii) price structure iii) risk, & iv) discrimination. One year rights could be unbundled. | |
| f) Variation of Rights | i) When? At any time, subject to availability. | Change at any point in the period. Rights would need to be assignable to any other party with connection or UoS agreement. |
| | ii) By how much? <i>Suggest by any multiple of 1MW, limited by physical capacity of system</i> | 1 MW minimum. Physical limit is maximum. |
| | iii) With what notice? <i>Suggest immediate effect downwards, subject to process upwards</i> | Notification process needed. |
| g) Initial Allocation | By subscription. On basis of current connection agreements for directly connected customers. Presumably similar Supplier | |

| Criterion/Question | Response | Comments |
|--|--|--|
| | process under UoS agreement.. | |
| 2) Who buys and sells and trades these rights | | |
| | Directly connected customers with connection contract and suppliers with UoS agreement. | Financial parties excluded initially. |
| | Party-Party possible at an entry/exit point Party-NGC possible at an entry/exit point Trading between points in different zones requires NGC facilitation (if desirable) | All parties must have physical position in generation or supply. |
| | | |
| 3) What are the consequences of breaching? | | |
| a) Breach by service provider | Compensation for loss of access, based on TNUoS with appropriate penalty/compensation specified through CUSC. | Energy issues dealt with in BSC. Note consequential losses for customers not dealt with. What about physical damage to customers apparatus? What about loss of opportunity to provide ancillary services? Dealt with by bilateral with NGT? |
| b) Breach by Party | vii) Additional TNUoS (overrun) viii) Ultimately 'endorsement/loss of Licence' | BSUoS effect not considered |
| | | |
| 4) Who are the players? What are their contractual relationships? | | |
| | NGC- directly connected customer NGC - Licensed supplier | CUSC Licences Also potentially balancing services contract |
| | NGC-Unlicensed party | CUSC directly, or indirectly via licensed party (e.g. Supplier & embedded LEG) |
| 5) NGC Investment Decisions | | |
| | i) Facilitating mechanism whereby NGC trade access short/long term as means to optimise use of the system. | Two sided information signalling will enhance investment planning process. |
| | ii) Alternative/complement to capital investment. | Demand side right allocation should sharpen incentives for interruptibility. |
| | ii) How are NGC rewarded for squeezing more capacity out of existing system without capital investment? | Need to formalise output measures. Duration of reward? Link to costs incurred, or equivalent capital cost of |

| Criterion/Question | Response | Comments |
|--|---|--|
| | | access increment? |
| | | <i>If planning consent for station or connection, or infrastructure is delayed who bears the risk?</i> |
| Appendix 2 | | |
| 1 Improved short-run efficiency of operation of transmission system | | |
| | Potentially yes, | As noted, demand side right allocation should sharpen incentives for interruptibility. |
| 1a Constraint and losses costs | System will probably become more potentially constrained with time, but overall sum of BSUoS + TNUoS should not increase so quickly. Incremental capacity prices should signal probability of constraints. | |
| 1b Reduction of risks of failure | Planning standard n/a, therefore actual risk of system failure increased, but operational standard is adequate | Risk of failure should be mitigated by better take up of interruptibility options. |
| 1c Choice of Firmness | This does nothing to facilitate or prevent choice of firmness of generation as all pay one rate of TNUoS. One option is for demand to have choice on ex ante nomination, opening up choice of firm vs non firm service. | Choice of firmness achieved by: |
| | | a) Choice of Connection agreement |
| | | b) Possibility of overlaying bilateral contract with NGC |
| 2 improved long term Investment efficiency | | |
| | Yes see 1a above | |
| 2.1 Incentives to network reinforcement | Range of options for new access leads to more cost-effective reinforcement decisions. | |
| 2.2 Incentives to locate | Nothing specific | Demand is essentially inelastic. |
| 2.3 Improve incentives to decommission | Stiffening of monetary obligations. | Sharpens decision to decommission. Should sharpen incentives for those with ex ante demand where demand is genuinely controllable. |
| 3 Other Criteria | | |
| Undue discrimination | Firm vs non-firm options available. | |
| Benefits concomitant with complexity | Little increase cost/complexity Possibility of earlier | Optionality will enable those who see the potential benefits evaluate any |

| Criterion/Question | Response | Comments |
|---|--|---|
| | connection, earlier release of moribund access | additional complexity. |
| Appendix 3: CUSC Criteria | | |
| Efficient discharge of Licence obligations | Access is made available more cost-effectively & more quickly? | Wider choice to NGC in discharge of licence obligations. |
| Competition in supply and generation | i) Little effect on supply ii) May encourage earlier market entry/exit of generation. | Competitive benefits should arise from better integration of dynamic demand into market fabric. |

Appendix 4: Duration of Access - Issues

The duration of access is a knot of interconnected issues:

- 1 yr or multi-year: If there is choice, then there are problems of choice of period and price risk for the connected party. How would the party exit and trade their remanent access period?
- Cost recovery: If NGT is allowed to always recover costs then there is a problem of discrimination between connected parties if they are charged differing amounts depending on when they commit to buying access.
- Renewal Optionality: The automatic option to renew year on year prevents volume access risk. Removal of optional renewal would increase pressure to buy multi-year access. However, even at the end of the multi-year access, the problem of judging renewal period, timing and price would remain.
- Price Structure:
 - Current Price Structure: Connected Parties currently have small annual price risk. Regulatory oversight and the structure of charging means that on average there will be small smoothed annual changes in price. This is consistent with the nature of the asset base that underpins the service. Note, however, that a rapid change in the volume of connected power stations would produce lumpy changes, albeit smoothed a little.
 - Fixed prices: If NGT were to offer fixed prices for access this is likely only to be attractive, compared with the current system, if parties perceive volatile access prices, or if their valuation of future price trends suggests that this will be a cheap price. By offering fixed prices alongside current price structures, NGT risk charges of undue discrimination between parties.
 - Fixed Structure prices: A variant of fixed prices would be prices with a pre-determined rate of change, such as in line with an inflation index. This has the same problems as fixed prices.