Guidance for calculation of the RPC price cap

<u>Introduction</u>

1.1   The proposed modification to IGT licences requires that under RPC IGTs determine a transportation charging cap using the following formula:

$$TC_t = SSP - CSEP$$

Where:

TC$_t$ means the maximum charge the licensee may charge for each premises in year 't';

SSP   means DN's single supply point charges for premises calculated at the prevailing charge in accordance with the prevailing methodology statement for Network Region r at the Entry-point; excepting charges for metering arrangements, meter reading, CSEP administration charges, NTS entry capacity charges where determined by auction, or other charges determined in writing by the Authority; and

CSEP   means DN's connected system exit point charges calculated at the prevailing charge in accordance with the prevailing methodology statement for Network Region r at Entry-point; excepting charges for metering arrangements, meter reading, CSEP administration charges, NTS entry capacity charges where determined by auction, or other charges determined in writing by the Authority;

1.2   The RPC price-cap should be determined using the DN's relevant gas transportation charging methodology. Four parameters determine the price cap – the entry-point into RPC, the relevant property annual quantity (AQ), estimation of fully developed AQ, and the region and relevant load factor.

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1.3   Application of some of these parameters may differ across types of premises if GTs apply different assumptions. Ofgem's approach to the calculation of RPC charges in specific cases is set out below using a consistent set of assumptions. This is followed by worked examples. Where a property first enters RPC, part way through a charging year, the RPC price-cap will need to be pro-rated to reflect the period of time over which transportation services were provided.

2.0   New domestic housing connections

Entry point

2.1   The entry-point determines the initial charges i.e. where year 't' is equal to 1 and the formula in 1.1 above is used to determine the RPC price-cap. The date of entry-point determines the appropriate DN charging method applicable to the calculation of RPC. The following principles apply when determining entry-point:

2.2   The entry-point date is either:

- the date of binding contractual agreement; or
- the date of connection of a premises.

2.3   The binding agreement is between the GT and the consumer requiring the connection or the appointed agents of either party. An IGT has 60 days from the date they entered into a binding contractual agreement to select their approach to determining entry-point. In the absence of any such selection, the date of connection will be used to determine the entry-point. Where the GT uses the date of binding agreement as the entry-point it may apply this date to all premises included in the specific agreement. In this case premises

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are subject to a shadow-charge. The shadow-charge will determine the maximum charges shippers face when premises are connected and transportation charges first fall due[1].

2.4   If the GT uses the date of connection then premises are likely to have different entry-points. This may affect the initial RPC charge if, for example, the DN's charging method or charges has changed. There is no shadow-charge if this approach is used to determine entry-point. The connection date is determined when a specific premises is connected to the GT's gas main and gas has entered the service pipe. It is not necessarily equivalent to the date of meter fit or registration of the supply point.

2.5   Once determined the entry-point stays fixed for any particular premises.

Property annual quantity

2.6   To calculate the DN equivalent SSP charge an annual quantity for the premises is required. For domestic premises the prevailing AQ values as referenced in the IGT UNC at the time of entry into RPC arrangements as per paragraph 2.2 must be used. The charging band applicable to a specific premises must be consistent with the property type actually connected or reasonably expected to be connected. Any change in the AQ values as referenced in the IGT UNC resulting from an AQ Review will only apply to those properties that have not yet entered RPC arrangements.

Estimation of fully developed annual quantity

[1] See Ofgem's 3 September 2003 open letter 'Implementation of RPC', paragraph 8 for more information on the shadow-charge.

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Deleted: must be used as illustrated in Table 1 below. In effect this gives seven charging bands into which connected premises may fall.

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Domestic property types   … [1]

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2.7 To calculate the DN equivalent CSEP charge an estimate of the fully developed peak day load for the completed development is required. To ensure consistency across GTs the following principles shall apply:

- For RPC purposes the fully developed CSEP AQ (CSAQ) must be calculated as the sum of individual property NExA AQs as determined from the development plan agreed as part of the original binding contract (see paragraph 2.3 above). In other words, the sum of the NExA AQs or specific properties that the IGT is contractually bound to connect once the IGT has definitely secured a connection contract. This is termed 'CSAQrpc'.
- The fully developed CSAQrpc must be determined when the CSAQ in respect of the development is first submitted to the DN under the NExA arrangements.

- Once determined, the CSAQrpc is not revised or re-estimated when calculating RPC for the charging bands referred to in 2.6 above with the following exception:
  - o If a new CSAQ is nominated to the DN which exceeds the original CSAQ, then for RPC purposes the CSAQrpc may be re-calculated. The re-calculation should be based on any current, up-dated, development plan relevant to the original binding contractual agreement and is based on the sum of individual property NExA AQs. The NeXA AQs should be based on those in use at the time the first property on a site connects.

- Once the RPC charge is established for a specific property, i.e. the property is connected to the GT's pipeline and a shipper has made arrangements for transportation of gas, it is not subject to any change in the property AQ or CSAQ, i.e. charges are based on the property AQ and the estimate of CSAQrpc prevalent at the time of connection.
- CSAQrpc does not make any allowance for potential future developments. Such issues are not relevant to RPC although they may remain relevant to

the engineering design of the CSEP and CSAQ nominated to the DN as part of the NExA.

Region and relevant load-factor

2.8   DN applies a standard load factor for domestic premises which varies by LDZ. The relevant domestic load factor for the region in which the premises are connected should be used when calculating the DN-equivalent charges.

Indirect CSEP connections

2.9   When a secondary site is indirectly connected to a CSEP via an initial (upstream) site (regardless of whether the same IGT operates both sites or not), the CSEP AQ upon which RPC charges for the secondary site are calculated is equal to the sum of the NExA values of the planned properties (CSAQrpc) on the secondary development only. In effect, the secondary development is treated as a separate entity and as such its charges are not influenced by the upstream site nor by the combined CSEP load of the two sites. The property charge is calculated using the same method as set out in paragraph 2.6.

3.0   Industrial and commercial premises

Unit charges

3.1   The RPC charge for I&C premises applies to the unit charge (p/kWh). As of 1 January 2005, the IGT can choose between the two following options to

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determine transportation charges for small I&C premises and large I&C premises[3]:

a) Adopt a fixed unit rate (p/kWh): Changes in consumption, as reasonably estimated in view of available meter reads, will be taken into account from year to year by adjusting the total RPC annual charging cap. Changes in estimated consumption will apply on a forward-looking basis and will not be used for reconciliation of the previous year's RPC price-cap. Nor will they be used to recalculate the unit charge other than in the circumstances described in 3.6 below.

b) DN-equivalent charging on a continuous basis: IGTs can recalculate the unit charge according to DN's charges in line with actual AQs.

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3.2 As of 1 January 2005, each IGT is required to choose the same approach for its entire portfolio of small I&Cs. Similarly, each IGT is required to choose the same approach for its entire portfolio of large I&C properties connected to its network. There is no requirement on the IGT to apply the same charging option for both small and large I&Cs.

3.3 If an I&C crosses the AQ threshold that distinguishes small and large I&C customers, the IGT must adopt the RPC charging approach relevant to the prevailing property AQ. For example, consider an IGT that applies a fixed unit rate approach for small I&Cs and a continuous DN-equivalent charging for large I&Cs. This IGT has an I&C customer with an initial AQ of 700,000kWh. If the actual AQ of this customer increases to over 732,678kWh, the IGT would need to start treating it as a large I&C and adopt the continuous charging

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[3] Small I&C premises are defined as premises with an annual consumption (AQ) of less than 25,000 therms (732,678kWh); large I&C premises have an AQ of 25,000 therms (732,678kWh) and over.

approach. Conversely, a large I&C that sees a reduction in AQ to less than 732,678kWh would have to apply the fixed unit rate approach.

<u>Entry-point</u>

3.4   The entry-point for all I&C premises is determined in exactly the same way as domestic premises.

<u>Property annual quantity</u>

3.5   The proposed licence requires that IGTs estimate and agree where appropriate an initial AQ with shippers at entry-point, or in any event, before charges first fall due. There are no standard AQs relevant to I&C premises. Once established, I&C AQs in subsequent years should be subject to revision taking into account actual meter reads (as set out in 3.1 above).

<u>Estimation of fully developed annual quantity</u>

3.6   The CSAQrpc is determined based on the sum of individual property AQs connected to the same CSEP and governed by the same contractual commitment as set out in paragraph 2.7. Once established the CSAQrpc is only revised or re-estimated on the basis set out in paragraph 2.7, i.e. if a new CSAQ is nominated which exceeds the original CSAQ. When this is the case, the revised unit charges are only applied to future connections.

<u>Region and relevant load-factor</u>

3.7   For non-daily metered I&C premises, the load-factors applicable depend upon the LDZ and estimate of annual quantity (as determined in 3.5 above). The GT should use the appropriate load factor in accordance with the DN's

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relevant gas transportation charges methodology (i.e. the appropriate End-User Category) in order to calculate the system off-take quantity (SOQ).

4.0   Infill domestic premises

4.1   The proposed licence allows the application of a surcharge, in addition to the main RPC charge, to determine the price cap for domestic infill premises. The following principles apply in determining the RPC price-cap in circumstances where a surcharge is applicable. Where the surcharge is not applicable the approach for domestic premises set out in paragraph 2.1 – 2.8 must be followed.

<u>Unit charges</u>

4.2   Domestic infill premises are subject to the unit charge approach outlined in paragraph 3.1 above.

<u>Entry-point</u>

4.3   The entry-point for domestic infill premises is determined in exactly the same way as for domestic premises set out in paragraph 2.1 – 2.5 above.

<u>Property annual quantity</u>

4.4   The proposed licence requires that IGTs estimate and where appropriate agree an initial AQ with shippers at entry-point or, in any event, before charges first fall due. This is used to determine the DN-equivalent SSP charge. There are no standard AQs relevant to infill domestic premises. Once established domestic infill AQs in subsequent years are subject to revision taking into account actual meter reads.

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Estimation of fully developed annual quantity

4.5   The CSAQrpc is determined based on the sum of individual property AQs connected to the same CSEP and governed by the same contractual commitment as set out in paragraph 2.7. Once established CSAQrpc is only revised or re-estimated on the basis set out in paragraphs 2.7 and 3.5.

Region and relevant load-factor

4.4   Infill domestic premises should use the same load factors as domestic premises as set out in 2.8 above.

5.0   Mixed developments/sites

5.1   A mixed development or site is one that has more than one type of property on it. That is, where there is any combination of domestic housing, domestic infill and I&C properties connected to the same CSEP, and governed by the same contractual agreement. In this case, the CSAQrpc is equal to the sum of the individual AQs of all properties connected to the CSEP and covered by the same contractual agreement. Thus, for example, for a CSEP that has both new domestic housing and I&C properties connected to it, the CSAQrpc will be calculated as the sum of the NExA AQs for the new domestic properties together with the sum of forecast AQs for the I&C properties.

6.0   Worked examples:

Example 1: Domestic premises

6.1   This section illustrates how the RPC charge will be calculated using DN's transportation charging methodology in the North and Yorkshire region as an example. Numbers used in the examples are for illustrative purposes only. The

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data given in the table overleaf is based on the estimated development of a completed site in May 2003.

Table 2: Estimated site development plan for new domestic housing (May 2003) – North & Yorkshire region

1. Property charging band (NExA AQ table)	2. No of PLANNED houses (May 2003)	3. NeXA AQ (kWh) per property	4. Sum of NeXA AQ (kWh) per band	5. No of ACTUAL houses built	6. SSP charge per property (determined at contract date)	7. CSEP charge per property	8. IGT charge per property
Band 1	2	9,964	19,928	2	40.49	22.97	**17.52**
Band 2	5	12,104	60,520	4	49.16	27.91	**21.25**
Band 3	6	13,423	80,538	6	54.44	30.95	**23.49**
Band 4	0	15,152	0	1	61.41	34.94	**26.47**
Band 5	32	18,610	595,520	32	75.54	42.91	**32.63**
Band 6	0	22,508	0	0	0	0	**0**
Band 7	0	34,172	0	0	0	0	**0**
TOTAL	**45**		**756,506**	**45**			

1. Entry into RPC on the basis of date of binding contractual agreement

6.2   In this example, the IGT chooses the date of binding contractual agreement as entry-point into RPC as set out in paragraphs 2.1 to 2.5.

6.3   Table 2 shows the planned portfolio of houses to be built with the number of properties for each NExA AQ property charging band. The shadow charge for each property band is determined at the date of binding contractual agreement. Assuming entry date into RPC is May 2003, DN's most recent transportation charging methodology (in this case April 2003) is used to calculate the price cap for each property band based on the SSP charge and CSEP charge.

6.4   The charges for each band are determined by the four parameters set out in
        paragraph 1.2. For example, the relevant parameters for premises in band 2
        are:

- entry point – **date of binding agreement**;
- relevant property annual quantity – **Band 2: 12,104kWh**;
- estimation of fully developed annual quantity (CSAQrpc) – **756,506kWh**; and
- region and load factor – **North and Yorkshire**.

Calculating the CSEP charge

6.5   For those CSEPs with a CSAQrpc of 732,000kWh and over, the CSEP SOQ
        (based on the relevant load factors of the individual properties) is used to
        calculate the LDZ unit rates for the capacity and commodity elements of the
        CSEP charge[4]. On establishing the LDZ unit rate, the relevant SOQ of the
        property is then used to determine the capacity unit charge on a property
        basis. As a consequence, a different CSEP capacity unit charge is calculated
        per load band. However, on a development containing only domestic
        properties a single CSEP capacity unit charge is generated per property. Thus
        for this particular development, the combined capacity and commodity CSEP
        unit charge for each property is given below:

        CSEP unit charge: = **0.2306 p/kWh**

6.6   The CSEP unit charge is then multiplied by the relevant NExA AQ to obtain a
        CSEP charge for each property band (column 7 in Table 2). For a property in
        band 2 this is:

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[4] For those sites with a CSAQrpc of less than 732,000kWh the CSEP SOQ is not required to
calculate the LDZ unit rates

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CSEP charge for band 2:   0.2306p/kWh x 12,104 **= £27.91**

Calculating the SSP charge

6.7   The SSP charge is calculated with reference to the relevant property AQ. In the case of a band 2 property, the AQ is 12,104kWh, which gives an annual charge of £49.16.

Calculating the RPC price cap shadow charge

6.8   The initial RPC price-cap for transportation charges for a band 2 property is the difference between the SSP charge and the CSEP charge:

IGT shadow charge for band 2:   49.16 – 27.91 **= £21.25**

The RPC price cap on connection

6.9   The shadow charge must be revised to reflect the appropriate property band for the property type actually connected. Column 5 in table 2 shows the actual number of houses built in each property band. For example, if on connection in December 2003, a property that was initially planned as a band 2 property (i.e. a 2 bedroom terrace) now falls in band 4 (i.e. it is eventually built as a 3 bedroom semi), then the IGT charge should be as per band 4. That is, the IGT shadow charge must be revised by the IGT to reflect the CSEP charge and SSP charge applicable for band 4 calculated at the original entry point, May 2003:

IGT charge for band 4: 61.41 – 34.94 **= £26.47**

Adjustments in CSAQrpc

6.10   As paragraph 2.7 states, once determined the CSAQrpc is not revised or re-estimated except in the circumstances the IGT re-nominates a new CSAQ to DN that exceeds the original CSAQ. Then, for RPC purposes the CSAQrpc may be re-calculated based on any current and up-dated development plan

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relevant to the binding contractual agreement. The new CSAQrpc must be based on the NeXA AQs used to determine the original CSAQrpc.

6.11   A new CSEP unit charge is calculated from the new CSAQrpc using the same DN transportation charging methodology that was initially used at date of binding contractual agreement. The revised CSEP unit charge is then used to recalculate the CSEP charge, and hence IGT charge, for each property band. Once revised, the IGT charge will only apply to properties not yet connected.

2. Entry into RPC on the basis of the date of connection

6.12   In this example, the IGT chooses the date of connection (in this example, it is December 2003) as entry-point into RPC as set out in paragraphs 2.1 to 2.5. The charges for each band are determined by the four parameters set out in paragraph 1.2.

<u>Calculating the CSEP charge</u>

6.13   The CSEP charge is calculated from the same CSAQrpc derived from the original development plan in May 2003, but using the DN transportation charging methodology (in this case, it is October 2003) that applies at the date of connection. Assuming that DN's October 2003 transportation charging methodology is different to the April 2003 charging methodology, the CSEP charge for a band 4 property, for example, is:

   CSEP charge for band 4: = £36.05

6.14   However, if the CSAQrpc has been updated since May 2003, and the band 4 property is connected after the update, the CSEP charge should reflect the revised CSAQrpc as stated in paragraphs 6.10 to 6.11. In addition, the CSEP charge will be based on the DN transportation charging methodology in use at the time the first property was connected.

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Calculating the SSP charge

6.15 As RPC entry is now at a later date (December 2003) than the date of binding contractual agreement, the SSP charge is calculated subject to the updated DN transportation charging methodology (as at October 2003). This may give rise to a different SSP charge from that originally calculated in May (column 6 in Table 2) if DN's charges have changed. Any change to the NExA AQ values resulting from an AQ review will only apply to those properties not yet connected.

Example 2: Domestic infill domestic premises

6.16 Table 3 shows how the IGT price cap is determined for three domestic infill premises that are part of the same infill project. As in the case of new domestic premises, the entry point for domestic infill premises is determined by either the date of binding contractual agreement or by the date of connection.

1. Calculating the initial IGT charge (first year of entry into RPC)

Calculating the CSEP charge

6.17 Assuming entry into RPC takes place at the date of binding contractual agreement in June 2003, the initial IGT charge is calculated using DN's April 2003 transportation charging methodology.

6.18 Following the method set out in paragraph 6.5, the **CSEP unit charge** for each property is as follows:

CSEP unit charge: = **0.27746p/kWh**

Calculating the SSP charge

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<#>The CSEP charge is based on the CSAQrpc, which is determined by the sum of individual property AQs. In this example, this is 36,000kWh. The CSAQrpc remains fixed except in the circumstances set out in paragraph 2.7 (i.e. when the CSAQ nominated to Transco is revised upwards).¶

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6.19 The initial SSP charge is based on the initial property AQ agreed between shipper and IGT on RPC entry. The SSP unit charge for the 10,000kWh property is **0.4191pence/kWh**.

Table 3: Estimated site development plan for domestic infill (Jun 03)–North & Yorkshire region

No of houses	Agreed AQ (kWh) with shippers per property	SSP unit charge per property	CSEP unit charge per property	RPC unit charge per property (fixed)	Surcharge	IGT unit charge per property	IGT annual charge
1	10,000	0.4191	0.2774	0.1417	0.3412	**0.4829**	**48.29**
1	12,000	0.4189	0.2774	0.1415	0.3412	**0.4827**	**57.92**
1	14,000	0.4187	0.2774	0.1413	0.3412	**0.4825**	**67.55**
3	**36,000**						

RPC unit charge

6.20 The initial RPC unit charge in respect of the 10,000 kWh property is therefore:

RPC unit charge: 0.4191p/kWh – 0.2774p/kWh = **0.1417p/kWh**

6.21 For future charges, a floor and ceiling is established 5% either side of the RPC unit charge. It is this component of the IGT charge (which excludes any surcharge) that is constrained by the floor and ceiling. Once established it is the initial RPC unit charge that is indexed by the movement in DN's charges in future years, in accordance with the rules of RPC.

Initial IGT charge

6.22 A 0.3412pence/kWh infill surcharge is then applied to the RPC charge to obtain the initial IGT charge. The initial IGT charge for a 10,000 kWh property is calculated in the following way, assuming entry into RPC at point of binding contractual agreement :

RPC unit charge + Unit surcharge = **IGT unit charge**

0.1417p/kWh + 0.3412p/kWh = **0.4829p/kWh**

6.23 The IGT unit charge is multiplied by the property AQ to derive the IGT annual charge cap of **£48.29**.

2. Calculating the IGT charge in subsequent years

6.24 Once established the initial CSAQrpc is not revised or re-estimated except for the reasons given in paragraph 2.7, but the property AQ is subject to revision in later years in the light of actual meter reads. For example, if in October 2004 the AQ of the 10,000kWh property is revised on the basis of actual meter reads to 14,000kWh, the IGT charge for the following year will be revised to reflect the revised property AQ.

Indexing of RPC unit charge

6.25 The RPC unit charge however, will only be revised on the basis of the RPC indexing mechanism as stated in paragraph 6.22. In this case, the following year's RPC unit charge will be as follows:

- the RPC unit charge in year t is uplifted by the annual change in the weighted SSP charge (assuming a 1.5% increase) to give the indexed RPC unit charge in year t+1:

RPC unit charge$_t$ * WSSP = **RPC unit charge$_{t+1}$**

0.1417p/kWh * 1.5% **= 0.1438p/kWh**

- the new RPC unit charge is bound by the floor and ceiling as per the RPC mechanism

Inflating of unit surcharge

6.26 The infill surcharge (if applicable) is inflated by RPI each year. We assume in this case, that the surcharge in year t is inflated by 2.5% to give:

$$0.3412p/kWh * 2.5\% = \mathbf{0.3497p/kWh}$$

New IGT charge

6.27 The RPC unit charge for year t+1 is added to the infill surcharge for year t+1 to give the IGT unit charge for the year t+1:

Year$_{t+1}$ IGT unit charge: 0.1438p/kWh + 0.3497p/kWh **= 0.4935p/kWh**

6.28 The Year$_{t+1}$ IGT unit charge is then multiplied by the revised property AQ to give the maximum annual IGT charge in year t+1:

Year $_{t+1}$ IGT annual charging cap: 0.4935p/kWh * 14,000 **= £69.09**

I&C premises

6.29 The IGT charge for an Industrial and Commercial (I&C) site is calculated in exactly the same way as infills, with the exception of I&Cs not using the fixed unit rate approach (see paragraph 3.1). The surcharge is not applicable to I&Cs.

Table 1: NeXA AQs (kWh) per region[1]

Domestic property types	South	Rest	North
1 bedroom	9,170	9,960	10,750
2Bflat, 2Bterrace	11,130	12,100	13,070
2Bsemi, 2Bdetached, 3Bterrace, 3Bflat	12,335	13,420	14,500
3Bsemi, 2Bbungalow	13,940	15,150	16,350
3Bdetached, 3Bbungalow	17,110	18,605	20,100
4Bdetached, 4Bterrace, 4Bsemi	20,715	22,500	24,290
5Bdetached, 5Bsemi, 6Bdetached	31,440	34,160	36,890

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[1] South (SW, NT, WS & SO); Rest (WN, SE, NW, EA, EM, WM & NE); and North (SC & NO)