

MASTER AGREEMENT

For Long Term Gas Supply Contracts

- MA LTCs -

between

E.ON Ruhrgas AG, Huttropstrasse 60, 45138 Essen, Germany

- hereinafter referred to as "ERG" -

and

E.ON Energy Trading AG, Holzstrasse 6, 40221 Düsseldorf, Germany

- hereinafter referred to as "EET" -

- ERG and EET hereinafter each individually referred to as "Party" and collectively referred to as "the Parties" -



Table of content

Preamble.....	3
Article 1 Scope of Application and Resolution of Conflicts.....	4
Article 2 Pricing	4
Article 3 Changes of Contract Parameters	5
Article 4 Invoicing and Payments	5
Article 5 Modification of LTCs and Negotiation of new LTCs.....	6
Article 6 Information Exchange and Documentation	7
Article 7 VAT, Customs and other Tax Issues.....	8
Article 8 Miscellaneous.....	8
Article 9 Legal Effect and Termination	9
Article 10 Optimisation Activities, Carry-Forward and Make-Up of Gas Quantities, Transportation Capacities.....	10
Article 11 Form and Modification of this Master Agreement	10
Article 12 Applicable Law	11
Article 13 Confidentiality.....	11
Article 14 Mediation / Arbitration Clause.....	12
Article 15 Severability Clause.....	12

Preamble

WHEREAS, ERG and EET are affiliated companies of the E.ON group. The E.ON group conducts business activities in the entire value chains of the power and gas business that range from power generation and gas production to distribution and customer sales.

WHEREAS, EET is the centralized trading unit of the E.ON group focusing on the European energy and energy-derivatives wholesale trading markets, in particular by holding access to the main European commodity exchanges, broker platforms and other OTC-markets.

WHEREAS, ERG receives gas supplies from External Counterparties.

WHEREAS, the Parties agree that ERG shall sell gas to EET on the basis of Asset Contracts, thus enabling EET to act as the European centralized wholesale energy trading unit of the E.ON group.

WHEREAS, under each Asset Contract EET is both entitled and obliged to purchase gas quantities from ERG and ERG is both entitled and obliged to sell such gas quantities to EET.

WHEREAS, the purchase price to be paid by EET to ERG for the gas quantities is to be calculated according to the rules which are set out in this Master Agreement.

WHEREAS, the actual sale and purchase of gas quantities and the transfer of legal title to these gas quantities is dealt with as described in the Asset Contract referring to this Master Agreement but not in this Master Agreement.

Terms used in this Master Agreement shall have the meanings set out in the **Annex "Definitions"**.

Accordingly, the Parties agree as follows:

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Article 1

Scope of Application and Resolution of Conflicts

- 1.1 This Master Agreement applies to those Asset Contracts in which the application of this Master Agreement is explicitly agreed upon.
- 1.2 In the event a provision of this Master Agreement conflicts with a provision of an Asset Contract, the latter shall prevail.

Article 2

Pricing

- 2.1 Under an Asset Contract, EET is both entitled and obliged to buy gas quantities from ERG. The following elements of remuneration apply (Price Elements):
- (1) a Contract Price which is payable based on the quantities of gas delivered to EET at the relevant delivery point as specified in an Asset Contract,
 - (2) a Standing Charge as described in Art. 2.3 and defined in **Annex 2.3**,
 - (3) a Recalculation Payment as described in Art. 3 and defined in **Annex 3.1**,
 - (4) a Reconciliation Compensation Payment as described in Art. 3 and defined in **Annex 3.3**,
 - (5) a Basis Risk Compensation Payment as defined in **Annex 3.2**,
 - (6) Remuneration for Optimization Activities - as specified in Art. 10.1 - provided by EET to ERG and calculated according to **Annex 2.5**.
- 2.2 Price Element (1) is payable by EET to ERG. Each of the Price Elements (2), (3), (4) and (5) is payable by EET to ERG if positive and payable by ERG to EET if negative. Price Element (6) is payable by ERG to EET.

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- 2.3 The Standing Charge reflects the difference between the Forward Prices derived from the trading markets and the Contract Price as specified in the Asset Contract as well as taking into account the flexibility of the gas deliveries under each Asset Contract. For the avoidance of doubt, the Standing Charge may be negative. The Standing Charge is calculated during each Contract Year “y” in respect of the pricing of gas deliveries in the Contract Year “y+2” in accordance with the methodology laid down in **Annex 2.3** with y starting on 1st October 2008. Price Elements (2), (3), (4), (5), (6) are to be stated in Euros.
- 2.4 In respect of gas deliveries in Contract Years 2007/08, 2008/09, 2009/10 and 2010/11, the pricing process for the Standing Charge and the Remuneration for Optimization Activities is governed by the rules laid down in **Annex 2.4**.

Article 3

Changes of Contract Parameters

If at any point during or after the process of the Standing Charge calculation in respect of an Asset Contract one of the Parties becomes aware of any change in the Contract Parameters used for the calculation of such Standing Charge, this Party shall notify the other Party about this change as soon as reasonably practicable and **Annex 3** shall apply.

Article 4

Invoicing and Payments

- 4.1 The Contract Price is to be calculated by ERG according to the Asset Contract.
- 4.2 EET is responsible for calculating all payments as set out in Art. 2.1 (2) to (6) (Remuneration Payments) and for issuing specifications of such Remuneration Payments. The calculations and specifications of the Remuneration Payments have to be provided to ERG by the 5th Working Day after the end of each Delivery Month at the latest.
- 4.3 The Parties shall provide each other with all relevant data for the calculation of such Remuneration Payments.

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- 4.4 ERG will issue to EET invoices regarding the Delivery Month not later than the 10th Working Day after the end of the Delivery Month. In the event that EET has not provided ERG with calculations and specifications in terms of Art. 4.2 by the 5th Working Day after the end of the Delivery Month, ERG may invoice EET a reasonably estimated amount.
- 4.5 Remuneration Payments relating to Price Elements (2) to (6) according to Art. 2.1 shall be due on the 10th Working Day following the receipt of the invoice. The Contract Price (Price Element (1) pursuant to Art. 2.1) shall be due on the date set out in the Asset Contract. Overdue payments shall accrue interest from, and including, the due date to, but excluding, the date of payment, at an interest rate corresponding to the German Civil Code (BGB) as stipulated in § 288 BGB.
- 4.6 Any prices, fees, costs and other charges invoiced in accordance with this Master Agreement and/or any Asset Contract are net amounts and subject to any applicable taxes and charges.

Article 5

Modification of LTCs and Negotiation of new LTCs

- 5.1 In the case of any modification of the terms (price etc.) of an LTC and such modification has an impact on the Standing Charge, a Recalculation of the Standing Charge is required for any affected period for which a Standing Charge has already been calculated. Any changes after the gas delivery has taken place shall not result in any payments (or changes to payments already made) between the Parties.
- 5.2 In the case of ERG entering into renegotiations with External Counterparties which could impact the terms and conditions of an Asset Contract, ERG shall carry out such renegotiation in co-operation with EET, provided the gas quantities affected by the renegotiations have not been delivered to EET already. For the avoidance of doubt ERG takes all decisions concerning such renegotiations.
- 5.3 In the case EET identifies an opportunity to renegotiate the terms and conditions of gas supplies to which an Asset Contract relates, EET shall inform ERG accordingly and EET shall be kept fully informed as to how discussions progress with the External

Counterparty. For the avoidance of doubt ERG takes all decisions concerning such renegotiations.

- 5.4 In the event that ERG negotiates new gas supplies with an External Counterparty for which deliveries are planned under a new Asset Contract, Art. 5.3 of this Master Agreement shall apply accordingly.

Article 6

Information Exchange and Documentation

- 6.1 The Parties shall use all reasonable endeavours to enable each other to fulfil their obligations under this Master Agreement. In particular, each Party shall submit to the other Party all data (be it as hard copy or in electronic format) required for the performance of the obligations under this Master Agreement as well as any explanations relating to these data.
- 6.2 In particular, EET will provide sufficient information to ERG in order to allow the checking of the calculation of remuneration according to this Master Agreement. ERG has the right to ask EET for detailed explanations of the price calculation and EET is obliged to provide all said information.
- 6.3 Any Party that wants to object to any calculation or specifications provided by the other Party shall do so in writing within 5 Working Days upon receipt of such calculation or specification. Failure to do so shall be deemed to be an acceptance of such calculation or specification.
- 6.4 The Parties shall be obliged to properly document the performance of their obligations under this Master Agreement. The documentation must be prepared in such a way that an expert third-party could gain insight into the calculation of the remuneration of the transactions executed under this Master Agreement. This documentation shall be kept for at least 10 years after the end of the Delivery Year. At the request of one of the Parties the other Party is obliged to make available the respective documentation to the requesting Party.

- 6.5 The Parties shall exchange in writing lists of contact persons responsible for the operation of this Master Agreement and of the respective Asset Contract (**Annex 6.5**) and keep this list up to date.

Article 7

VAT, Customs and other Tax Issues

- 7.1 All amounts referred to in this Agreement are exclusive of VAT.
- 7.2 The Parties are dependent companies of E.ON AG as the controlling company according to Sec. 2 para. 2 no. 2 Umsatzsteuergesetz ("German VAT Tax Group") and shall not invoice the other Party with VAT.
- 7.3 In the event that ERG or EET withdraws from the German VAT Tax Group, EET shall pay and invoice to ERG and ERG shall pay and invoice to EET an amount equal to the VAT at the applicable VAT rate.
- 7.4 All payments referred to under this Agreement are exclusive of any customs and excise duties. If deliveries under this Agreement are subject to customs and excise duties, each of ERG or EET shall state these customs and excise duties separately on the invoice and the other Party shall pay such amounts.

Article 8

Miscellaneous

- 8.1 EET may delegate the execution of the tasks imposed on it under this Master Agreement - either partly or completely - to other companies of the E.ON group, ERG included. In such event, EET is obliged to agree on the terms and conditions of such delegation with ERG.
- 8.2 The rights arising under this Master Agreement cannot be assigned by any Party to any third party without the prior written consent of the other Party.

Article 9

Legal Effect and Termination

- 9.1 This Master Agreement enters into force on the Effective Date. The Effective Date shall be the day of the registration of the spin-off of ERG Energy Trading into the commercial register of ERG.
- 9.2 The term of this Agreement shall be from the Effective Date 2008 till 31 December 2010. This Agreement shall be automatically renewed for another year, if not terminated by the Parties according to Article 9.3.
- 9.3 Each Party shall be entitled to terminate this Agreement with the termination date as at 31 December of each calendar year by providing the other Party with a 12-month-prior written notice of termination. In accordance with Article 9.2, a first-time termination of this Agreement shall only be permitted as at 31 December 2010.
- 9.4 Notwithstanding Article 9.3, in the event of E.ON AG either owning - directly or indirectly - 50% or less of the shares representing the equity capital of any Party or otherwise losing control over any Party, either Party shall be entitled to terminate this Master Agreement with immediate effect.
- 9.5 No such termination as mentioned in Article 9.3 and 9.4 shall have retroactive effect on those rights and obligations arising under this Master Agreement which were created or existing prior to the termination becoming effective. With regard to gas quantities for which a Standing Charge has already been fixed under this Master Agreement - but which, at the time the termination becomes legally effective, have not yet been delivered - **Annex 9.5** shall apply.
- 9.6 If this Master Agreement is terminated, all Asset Contracts concluded by ERG and EET which refer to this Master Agreement are also terminated and **Annex 9.5** shall apply.
- 9.7 For the avoidance of doubt, terminating an Asset Contract does not result in the termination of this Master Agreement. Art. 9.5 applies accordingly.

Article 10

Optimisation Activities, Carry-Forward and Make-Up of Gas Quantities, Transportation Capacities

- 10.1 EET shall perform Optimisation Activities as specified in **Annex 10.1**. In particular, EET is responsible for the planning of scheduling and dispatching of the gas deliveries. In this regard, EET takes into consideration all regulatory frameworks and technical features of the market, which determine and affect the respective gas deliveries. Moreover, EET will be responsible for the optimal use of all flexibilities, including proposals for exercising Carry Forward Rights or Make-Up Gas Rights.
- 10.2 The rights and obligations of the Parties in relation to Carry-Forward and, respectively, to Make-Up Gas Rights shall be as set out in **Annex 10.2**.
- 10.3 The quantity of Transportation Capacities required under each Asset Contract is calculated according to **Annex 10.3**.

Article 11

Form and Modification of this Master Agreement

- 11.1 This Master Agreement was prepared in writing in two originals, one for each Party. Any amendment of this Master Agreement or any Asset Contract subject to it, including this provision, shall only be considered as valid and binding on the Parties if executed in writing by the Parties.
- 11.2 Article 11.1 also applies to amendments and supplements of the Annexes.
- 11.3 In case of significant changes of the economic circumstances having material influence on the commercial basis of this Master Agreement, the Parties shall mutually agree upon any necessary amendments or modifications of this Master Agreement in order to properly reflect such changes.
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Article 12

Applicable Law

This Master Agreement is governed by the laws of Germany.

Article 13

Confidentiality

- 13.1 During the term of this Master Agreement and at any time after its expiration, the Parties shall preserve in strict confidence any information exchanged - be it in writing, recorded in any other manner or in oral form - between the Parties in course of the negotiations and performance of this Master Agreement (hereinafter referred to as the "Confidential Information"). Confidential Information shall include, but is not limited to, contractual, technical, financial, commercial, marketing, production, operating information data regarding the Parties or their customers, trading and co-operation partners.
- 13.2 Confidential Information, however, shall not include information which
- (a) is disclosed with the two Parties' prior written consent;
 - (b) is disclosed by a Party to its directors, employees, affiliates, agents, professional advisors, bank or other financing institution or rating agency;
 - (c) is disclosed to comply with an applicable law, regulation, or rule of any exchange, system operator or regulatory body, or in connection with any court or regulatory proceeding; provided that all Parties shall, to the extent practicable and permissible under such law, regulation, or rule, use reasonable efforts to prevent or limit the disclosure and to give the other Party prompt notice of it; or
 - (d) is in or lawfully comes into public domain other than by a breach of this confidentiality obligation.

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Article 14

Mediation / Arbitration Clause

- 14.1 In the case of a dispute arising from this Master Agreement, the Parties shall first attempt to reach a settlement through negotiations and if such negotiations fail to settle the dispute refer the dispute to the VP Commodity Portfolio Optimisation of E.ON AG or the successor organisational unit for mediation. If a settlement still cannot be reached the dispute shall be referred to the SVP Trading & Optimisation of E.ON AG or the successor organisational unit for mediation. As a final instance, the COO of E.ON AG shall settle the dispute with binding effect for the Parties.
- 14.2 The Parties do not intend that any third party shall have any rights under or be able to enforce this Master Agreement and the Parties exclude to the extent permitted under applicable law any such third party rights that might otherwise be implied.

Article 15

Severability Clause

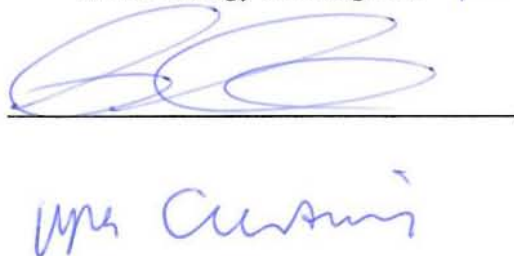
The invalidity or inenforceability of any provision of this Master Agreement shall not affect its overall validity. Instead of the invalid or unenforceable provision, such a provision shall come into effect which comes closest to the economic objective pursued by the Parties with the invalid or unenforceable provision. The same applies to any gaps in this Master Agreement.

Essen/Düsseldorf, 07 July 2008

E.ON Ruhrgas AG



E.ON Energy Trading AG



Annex “Definitions”

Adjusted Take or Pay Quantity	The quantity calculated as (i) the Take or Pay Quantity, minus (ii) the Temperature Dependent Annual Quantity multiplied by the Temperature Factor; minus (iii) the Carry Forward Reduction; plus (iv) the Make-Up Adjustment.
Ask Price	A price offered by a trader selling into the market
Asset Contract	As described in the Preamble
Basis Risk Compensation Payment	As defined in Article A3.2.4
Bid Price	A price offered by a trader buying in the market
Carry Forward Reduction	As defined in Article A2.3.8(g)
Carry Forward Right	The right of a buyer in a long term gas contract to a reduction in the take or pay quantity in a particular contract year where the buyer has in previous years taken more gas than the specified level in the contract.
Confidential Information	As defined in Article 13.1
Contract Parameters	As defined in Article A2.3.8
Contract Price	The price (per unit of gas) paid by EET to ERG for the actual quantities of gas purchased from and delivered by ERG as defined in an Asset Contract
Contract Price Formula	As defined in Article A2.3.11(a)
Contract Year	A period commencing on (and including) the Day of 1 October and ending on (and including) the Day of the immediately following 30 September
Day	A period starting at 06:00 a.m. on one day and ending at the expiry of 05:59 a.m. on the next day
Delivery Month	A Month in which gas is to be delivered under an Asset Contract.
Delivery Year	A Contract Year in which gas is to be delivered under an Asset Contract.
E.ON group	E.ON AG and all affiliated companies according to § 15 AktG
External Counterparty	Any party other than ERG and EET having contracted or contracting in the future with ERG and / or EET
Forward Prices	The Gas Forward Price and the forward prices of the Tradable Commodity Indices and Proxy Tradable Commodity Indices
FX	Foreign currency exchange rate
Gas	Any hydrocarbons or mixture of hydrocarbons and other gases consisting primarily of methane which is predominantly in the gaseous state

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LTC	Long Term Contract concluded by ERG with an External Counterparty for the supply of gas
Gas Forward Price	The forward price for gas for the relevant period and market.
Maintenance	As defined in Article A2.3.8(c)
Make-Up Adjustment	As defined in Article A2.3.8(h)
Make-Up Right	The right of a buyer in a long term gas contract to recover gas in a particular contract year for a zero (or near zero) contract price where the buyer has paid for but not taken gas in a previous contract year as a result of taking less than the take or pay quantity.
Marginal Transportation Costs	As defined in Article A2.3.12
Maximum Annual Quantity	As defined in Article A2.3.8(d)
Maximum Daily Quantity	As defined in Article A2.3.8(a)
Minimum Daily Quantity	As defined in Article A2.3.8(b)
Month	A period from (and including) the first Day of any calendar month to (and including) the last Day of the calendar month
MTP Period	The current Contract Year (Y) and the two immediately following Contract Years (Y+1 and Y+2)
Non-Commodity Index	As defined in Article A2.3.11(a)
Non-Tradable Commodity Index	As defined in Article A2.3.11(a)
Price Element	As defined in Article 2.1
Pricing Month	A Month in which the rights and obligations in respect of gas deliveries under an Asset Contract are being priced.
Pricing Year	A Contract Year in which the rights and obligations in respect of gas deliveries under an Asset Contract are being priced.
Proxy Tradable Commodity Index	As defined in Article A2.3.11(c)
Remuneration for Optimisation Activities	As defined in Annex 2.5
Reconciliation Compensation Payment	As defined in Article A3.3.3
Remuneration Payment	As defined in Article 4.2
Recalculation Payment	As defined in Article A3.1.10
Recalculation Cut-Off Date	As defined in Article A3.1.6

Spread	The forward price for gas minus the Contract Price minus the Marginal Transportation Cost, all in respect of a Delivery Month M ($FWP_M - CP_M - MTC_M$)
Standing Charge	The price (in Euros or £ Sterling, as appropriate) paid by EET to ERG (or, if negative, by ERG to EET) for the right to purchase gas as defined in Article A2.3.1
Take or Pay Quantity	As defined in Article A2.3.8(e)
Temperature Dependent Annual Quantity	As defined in Article A2.3.8(f)
Temperature Factor	Fifty percent (50%)
Total Call Quantity	As defined in Article A2.3.15(a)
Total Put Quantity	As defined in Article A2.3.16(a)
Tradable Commodity Index	As defined in Article A2.3.11(a)
Trading Day	A day on which gas is traded in the relevant market and a price is published by an agreed source
Transportation Capacity	Firm NTS, GTS, IuK, BBL and Fluxys Transportation Capacity defined in the Master Agreement Transportation.
Transportation Capacity Requirement	As defined in Annex 10.3.
Transportation Rights	The right to transport Gas in a specified Transportation Capacity
Unshaped Gas Forward Price	The forward price for gas in the relevant market and for the periods quoted by the relevant sources, before any shaping to give a Monthly price.
Working Day	A day (other than a Saturday or a Sunday) which is not a public holiday in Northrhine-Westfalia.

Annex 2.3

Calculation of the Standing Charge

- A2.3.1 The Standing Charge is the price paid for each Delivery Month under each Asset Contract for the right to take deliveries of gas under the respective Asset Contracts. The Standing Charge reflects the difference between the forward prices derived from the trading markets and the Contract Price as specified in the Asset Contract as well as taking into account the flexibility of the gas deliveries under each Asset Contract.
- A2.3.2 The Standing Charge shall be determined during Contract Year Y (the Pricing Year) in respect of the second Contract Year ahead Y+2 (the Delivery Year).
- A2.3.3 Following the end of each month within the Pricing Year (each a Pricing Month), the Standing Charge and the Remuneration for Optimisation Activities shall be calculated for every Month within the Delivery Year (each a Delivery Month) in accordance with Articles A2.3.6 and 2.5 respectively.

- A2.3.4 Following the end of the Pricing Year the Standing Charge shall be calculated as follows:

$$SC_{M,c} = \frac{1}{12} \sum_{p=1}^{12} SC_{M,c,p}$$

Where:

- $SC_{M,c}$ is the Standing Charge for Delivery Month M and Asset Contract c
- p is an index specifying each Pricing Month of the Delivery Year
- $SC_{M,c,p}$ is the Standing Charge for Delivery Month M and Asset Contract c calculated at the end of Pricing Month p

- A2.3.5 EET shall be responsible for the calculation of the Standing Charge and shall provide the calculations to ERG within 15 Working Days after the end of each Pricing Month.
- A2.3.6 The Standing Charge for Delivery Month M, Asset Contract c and Pricing Month p, $SC_{M,c,p}$, shall be calculated as follows:

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$$SC_{M,c,p} = \left(\begin{aligned} & (FWP_{M,c,p}^{bid} - CP_{M,c,p} - MTC_{M,c,p}) \bullet MQ_{M,c,p} + \\ & CALL(FWP_{M,c,p}^{bid}; CP_{M,c,p} + MTC_{M,c,p}; T_{M,p}; \sigma_{M,c,p}) \bullet CQ_{M,c,p} + \\ & PUT(FWP_{M,c,p}^{ask}; CP_{M,c,p} + MTC_{M,c,p}; T_{M,p}; \sigma_{M,c,p}) \bullet PQ_{M,c,p} \end{aligned} \right)$$

Where:

- $FWP_{M,c,p}$ is the Gas Forward Price for the Delivery Month M and Asset Contract c, as defined in Article A2.3.10 and calculated at the end of the Pricing Month p, and FWP^{bid} shall refer to bid prices and FWP^{ask} shall refer to Ask Prices;
- $CP_{M,c,p}$ is the Contract Price for the Delivery Month M and Asset Contract c as defined in Article A2.3.11 and calculated at the end of the Pricing Month p;
- $MTC_{M,c,p}$ are the Marginal Transportation Costs for the Delivery Month M and Asset Contract c for gas off-taken under the Asset Contract, as defined in Article A2.3.12 and calculated at the end of the Pricing Month p;
- $MQ_{M,c,p}$ is the Monthly Quantity planned to be off-taken in the Delivery Month M and Asset Contract c, as defined in Article A2.3.13 and calculated at the end of the Pricing Month p;
- $CALL()$ is the value of a call option as defined in Article A2.3.14;
- $T_{M,p}$ is the time (in years) from the day of the calculation of $SC_{M,c,p}$ to the first Day of the Delivery Month M;
- $\sigma_{M,c,p}$ is the annualised Volatility of the Unshaped Gas Forward Price for the relevant period in which the Delivery Month M occurs and for Asset Contract c, as defined in Article A2.3.14 and calculated at the end of the Pricing Month p;
- $CQ_{M,c,p}$ is the Call Quantity, being the quantity by which the Monthly Quantity for Asset Contract c can be increased in the Delivery Month M, as defined in Article A2.3.15 and calculated at the end of the Pricing Month p;
- $PUT()$ is the value of a put option as defined in Article A2.3.14 and calculated at the end of the Pricing Month p;
- $PQ_{M,c,p}$ is the Put Quantity, being the quantity by which the Monthly Quantity for Asset Contract c can be reduced in the respective Delivery Month, as defined in Article A2.3.16 and calculated at the end of the Pricing Month p.

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A2.3.7 All calculations of the Standing Charge and all other payments (except for the Contract Price) shall be in Euro. Where any of the input parameters required for the calculation of the Standing Charge are denominated in a different currency, such input parameter shall be immediately converted (prior to any averaging) using the mid-point of the forward (for the calculation of a Standing Charge or Recalculation Payment) or spot (for the calculation of a Basis Risk Compensation Payment or Reconciliation Compensation Payment) exchange rate taken from the EET trading system at that time.

A2.3.8 In respect of each Asset Contract, ERG shall notify EET of the Contract Parameters to be used for the calculation of the Standing Charge at least 10 Working Days prior to the first Pricing Month in respect of a Delivery Year. The Contract Parameters to be notified by ERG for the Delivery Year shall include:

- (a) Maximum Daily Quantity, being the maximum quantity which may be off-taken on any Day, provided that the Maximum Daily Quantity shall be reduced according to any Maintenance;
- (b) Minimum Daily Quantity, being the minimum quantity which may be off-taken on any Day, provided that the Minimum Daily Quantity shall be reduced according to any Maintenance;
- (c) Maintenance, being the foreseen off-take restrictions for any period due to maintenance etc as defined in an Asset Contract;
- (d) Maximum Annual Quantity, being the maximum quantity which may be off-taken in any Delivery Year;
- (e) Take or Pay Quantity, being the minimum quantity which may be taken in any Delivery Year, below which gas not taken must still be paid for;
- (f) Temperature Dependent Annual Quantity, being the quantity by which the Take or Pay Quantity can be reduced in any Delivery Year due to warm winter temperatures;
- (g) Carry Forward Reduction, being the quantity of Carry Forward Rights allocated by ERG to any Delivery Year;
- (h) Make-Up Adjustment, being a quantity by which ERG wishes to increase (if the quantity is positive) or decrease (if the quantity is negative) the Take or Pay Quantity through the exercise of its Make-Up Rights in respect of any Delivery Year.

A2.3.9 When notifying such Contract Parameters,

- (a) Where any Contract Parameter is a fixed quantity in the Asset Contract, ERG shall use such fixed quantity unless ERG has reasons to assume that such quantity will change, in which case ERG shall provide its good faith best estimate of such quantity together with an explanation of the change;
- (b) Where any Contract Parameter has yet to be fixed in the Asset Contract at the time of the notification, ERG shall provide its good faith best estimate of such quantity;

- (c) In respect of the Carry Forward Reduction, ERG shall allocate Carry Forward Rights to a Delivery Year based on:
 - (i) the actual Carry Forward Rights accrued for all Contract Years up to (and including) the penultimate Contract Year prior to the relevant pricing year, which have yet to be allocated by ERG;
 - (ii) an estimate of the Carry Forward Rights for the Contract Year immediately preceding the relevant Pricing Year.

By way of example, in respect of the 2011/12 Delivery Year whose Pricing Year commences on 1 October 2009, the Carry Forward Reduction will be based on (i) the unallocated Carry Forward Rights accrued up to the 2007/8 Contract Year; and (ii) an estimate of the Carry Forward Rights to be accrued in the 2008/9 Contract Year.

Once the quantity estimated by ERG pursuant to Article A2.3.9(c)(ii) becomes fixed, ERG shall be entitled to adjust the Carry Forward Reduction for the Delivery Year accordingly and Article A3.1.1 shall apply.

A2.3.10 The Gas Forward Price for the respective Delivery Month shall be determined according to the following process:

- (a) Each Asset Contract shall specify into which market(s) the Asset Contract delivers and which forward curve(s) is relevant.
- (b) The monthly shaped forward curve for gas in the relevant market shall be taken from the EET-trading system for each Trading Day of the Pricing Month as further described in A2.3.17.
- (c) The Gas Forward Price used shall be the forward price for the respective Delivery Month, averaged over all Trading Days of the Pricing Month.

A2.3.11 The Contract Price for the respective Delivery Month shall be determined according to the following process:

- (a) Each Asset Contract shall specify the formula for the calculation of the Contract Price (a Contract Price Formula). Where such formula includes indices, each index shall be defined in the Asset Contract as a Tradable Commodity Index, a Non-Tradable Commodity Index or a Non-Commodity Index.
- (b) In respect of a Tradable Commodity Index, the forward prices (ask prices) shall be taken from the EET-trading system for each Trading Day of the Pricing Month.
- (c) In respect of a Non-Tradable Commodity Index, ERG shall specify a calculation rule to an alternative correlated Tradable Commodity Index and document the reasons for such correlation and calculation rule. The Forward Price (ask prices) for such Proxy Tradable Commodity Index shall be taken from the EET-trading system for each Trading Day of the Pricing Month.
- (d) In respect of a Non-Commodity Index, ERG shall provide its good faith best estimate of the outturn value for such Non-Commodity Index.

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- (e) The Contract Price is calculated using the Contract Price Formula and averaged over all Trading Days of the Pricing Month.

A2.3.12 The Marginal Transportation Costs are the additional cost (for each unit of gas) that EET is obliged to pay (to a transmission operator or otherwise) to transport gas from the delivery point according to an Asset Contract to the relevant trading hub, as may be more specifically defined in the Asset Contract. In respect of each Asset Contract, ERG shall notify EET of the Marginal Transportation Costs to be used for the determination of the Standing Charge at least 10 Working Days prior to the first Pricing Month in respect of a Delivery Year.

A2.3.13 The Monthly Quantity to be off-taken in each Delivery Month shall be determined according to the following process, taking each step in turn:

- (a) For each Delivery Month, initially allocate the sum of the Minimum Daily Quantity for each Day in the respective Delivery Month;
- (b) Take the Delivery Month with the highest Spread (or least negative) between the Gas Forward Price and the Contract Price for this Delivery Month.
- (c) In the case that the Spread is positive, increase the allocated quantity to the lower of (i) the sum of the Maximum Daily Quantity for each Day in the respective Delivery Month; and (ii) the quantity which would result in the aggregate allocated quantity for the Delivery Year being equal to the Maximum Annual Quantity.
- (d) In the case that the Spread is negative, check if the Adjusted Take or Pay Quantity has been met.
 - If yes, allocate no further gas.
 - If no, increase the allocated quantity to the lower of (i) the sum of the Maximum Daily Quantity for each Day in the respective Delivery Month; and (ii) the quantity which would result in the aggregate allocated quantity for the Delivery Year being equal to the Adjusted Take or Pay Quantity.
- (e) Go to the Delivery Month with the next highest Spread between the Gas Forward Price and the Contract Price for this Delivery Month, and repeat steps (c) and (d).
- (f) Check that the Adjusted Take or Pay Quantity and the Maximum Annual Quantity have been complied with.

A2.3.14 The value of a call option, a put option and the related parameters shall be determined using the following formulae.

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$$Call = FWP_{M \times P} \times N(d_1) - (CP + MTC) \times N(d_1)$$

$$Put = (CP + MTC) \times N(-d_1) - FWP_{M \times P} \times N(-d_1)$$

where:

$$d_1 = \frac{\ln\left(\frac{FWP_{M \times P}}{CP + MTC}\right) + \sigma^2 \frac{T}{2}}{\sigma \sqrt{T}}$$

$$d_2 = d_1 - \sigma \sqrt{T}$$

$N(\)$ = cumulative value of normal distribution

$$\sigma = \sqrt{\frac{1}{58} \sum_{i=1}^n \left(\ln\left(\frac{FWP_{M \times P, i-60}}{FWP_{M \times P, i-61}}\right) - \mu \right)^2} * \sqrt{252}$$

$$\mu = \frac{1}{59} \sum_{i=1}^n \ln\left(\frac{FWP_{M \times P, i-60}}{FWP_{M \times P, i-61}}\right)$$

FWP = Unshaped Gas Forward Price for the relevant period on Trading Day t

For definitions see Article A2.3.6.

A2.3.15 The Call Quantity shall be determined according to the following process:

- (a) The Total Call Quantity shall be equal to the Maximum Annual Quantity minus the sum of the Monthly Quantities for each Delivery Month allocated in accordance with Article A2.3.13.
- (b) Take the Delivery Month with the highest call option value for the respective Delivery Month.
- (c) The Call Quantity for the respective Delivery Month shall be equal to:
 - If the Monthly Quantity allocated in accordance with Article A2.3.13 is equal to the sum of the Maximum Daily Quantity for each Day in the Delivery Month, zero;
 - Otherwise, the lower of (i) the sum of the Maximum Daily Quantity for each Day of the Delivery Month minus the Monthly Quantity allocated in accordance with Article A2.3.13; and (ii) the Total Call Quantity minus the sum of the Call Quantities for all Delivery Months already determined in accordance with this Article A2.3.15.
- (d) Go to the Delivery Month with the next highest call option value for the respective Delivery Month, and repeat step (c).

A2.3.16 The Put Quantity shall be determined according to the following process:

- (a) The Total Put Quantity shall be equal to the sum of the Monthly Quantities for each Delivery Month allocated in accordance with Article A2.3.13 minus the Adjusted Take or Pay Quantity.

- (b) Take the Delivery Month with the highest put option value for the respective Delivery Month.
- (c) The Put Quantity for the respective Delivery Month shall be equal to:
 - If the Monthly Quantity allocated in accordance with Article A2.3.13 is equal to the sum of the Minimum Daily Quantity for each Day in the Delivery Month, zero;
 - Otherwise, the lower of (i) the Monthly Quantity allocated in accordance with Article A2.3.13 minus the sum of the Minimum Daily Quantity for each Day of the Delivery Month; and (ii) the Total Put Quantity minus the sum of the Put Quantities for all Delivery Months already determined in accordance with this Article A2.3.16.
- (d) Go to the Delivery Month with the next highest put option value for the respective Delivery Month, and repeat step (c).

A2.3.17 Determination of Price Curves

- (a) For the purposes of this Master Agreement Price Curves shall be used for the determination of prices. Each Confirmation shall include a reference to a Price Curve to be used for pricing purposes and the respective Price Curve Documentation. For each Confirmation the Price Curves based on the latest version of the Price Curve Documentation shall be used.
- (b) For commodities the Price Curves used under this Master Agreement shall reflect the Market Price and the difference between the Prices for buying and selling the respective commodity (Bid-Prices and Ask-Prices). The Price Curves could be shaped in different Delivery Periods and/ or settlement periods compared to commodities traded in the respective market. In case there is a reference to Mid-Market Curves, the Bid-/ Ask Spread shall be defined separately.
- (c) The Price Curve Documentation shall at least include the following components
 - (i) A reference to one or more sources for the market prices and/ or indices.
 - (ii) A method to calculate the Price Curve from the mentioned sources.
 - (iii) If required, a method to transform the result of A2.3.17 (c, ii) into a shaped Price Curve, e.g. a Monthly Shaped Forward Curve.
 - (iv) If required, a method to derive Bid-/Ask- Prices e.g. from broker screens, recorded telephone calls with EET counterparties etc.
- (d) The methods to derive these Curves shall be properly documented and are subject to change in order to best reflect actual market conditions. Changes to methods shall be agreed between the Parties.
- (e) At the Effective Date, the documentation as set out below has been defined, shared, understood and agreed by the Parties:

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Price Curve or Bid-/ Ask Spread	Reference for documentation
Bid-/ Ask- Spread Gas Oil 0.1% Fob Barges Rotterdam	Document "Dokumentation BID/ASK-SPREAD für GCRG Tracker Hedging" version 1.0 and dated 14/09/2007.
Bid-/ Ask- Spread NBP Hedging	Document "Dokumentation BID/ASK-SPREAD für GCRG Tracker Hedging of Financial Gas Position" version 1.0 and dated 27/02/2008.
FO_ALL.EUR (Fuel Oil 1% Fob Barges Rotterdam)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
GO_0.1_FOBARA_B.EUR (Gasoil 0.1% Fob Barges Rotterdam)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_IPE_IDX.EUR (ICE NBP M-1 Index)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_NBP.GBP (Shaped NBP Mid)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_NBP_BID.GBP (Shaped NBP Bid)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_NBP_OFFER.GBP (Shaped NBP Offer)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_SAP.GBP (NTS System Average Price)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_SMP_SELL.GBP (NTS System Marginal Price Sell)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_SMP_BUY.GBP (NTS System Marginal Price Buy)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_ZEEBRUGGE.GBP (Shaped ZHUB Mid)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.

NG_ZEEBRUGGE_BID.GBP (Shaped ZHUB Bid)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_ZEEBRUGGE_OFFER.GBP (Shaped ZHUB Offer)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_TTF.EUR (Shaped TTF Mid)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_TTF_BID.EUR (Shaped TTF Bid)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_TTF_OFFER.EUR (Shaped TTF Offer)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_EGT_H.EUR (Shaped EGT-H Mid)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_NBP_TRADED.GBP (Traded Products NBP Mid)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_NBP_TRADED_BID.GBP (Traded Products NBP Bid)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_NBP_TRADED_OFFER.GBP (Traded Products NBP Offer)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_ZEEBRUGGE_TRADED.GBP (Traded Products ZHUB Mid)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_ZEEBRUGGE_TRADED_BID.GBP (Traded Products ZHUB Bid)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_ZEEBRUGGE_TRADED_OFFER.GBP (Traded Products ZHUB Offer)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_TTF_TRADED.GBP (Traded Products TTF Mid)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_TTF_TRADED_BID.GBP (Traded	Document "Market Curves for the

Products TTF Bid)	evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
NG_TTF_TRADED_OFFER.GBP (Traded Products TTF Offer)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
HEL.EUR (Rheinschiene HEL)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
HSL.EUR (Rheinschiene HSL)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
COAL_API2.USD (API#2 Mid)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
COAL_API2.EUR (API#2 Mid in Euro)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
COAL_BAFA.EUR (BAFA Quotierung)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
FX_ECB_GBP.EUR (ECB GBP <-> Euro exchange rate)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.
FX_ECB_USD.EUR (ECB USD <-> Euro exchange rate)	Document "Market Curves for the evaluation of Trading Positions" version 3.1 and dated 26/06/2008.

Annex 2.4

Pricing of quantities for the Contract Years 2007/08, 2008/09 and 2009/2010

Delivery Year 2007/08

For the Delivery Year 2007/08 no Asset Contracts will be concluded. Gas deliveries from ERG to EET are governed by the Master Agreement for Physical Gas Positions.

Delivery Year 2008/09

The Standing Charge for each Delivery Month in the Delivery Year 2008/09 shall be calculated on the 40th Trading Day after the signing date of the respective Asset Contract in accordance to Annex 2.3 using the:

- Forward Prices averaged over the 40 Trading Days from (and including) the signing date of the respective Asset Contract;
- Volatility calculated on the 40th Trading Day after the signing date of the respective Asset Contract; and
- Contract Parameters, estimates of Marginal Transportation Cost and information to calculate the Contract Price notified by ERG to EET prior to the signing date of the respective Asset Contract.

In case the Asset Contract is signed after the 31st of July 2008, the calculation of the above Standing Charge and the Volatility shall be done on the 20th Trading Day after the signing date. The Forward Prices shall be averaged over the 20 Trading Days from (and including) the signing date of the respective Asset Contract.

For the avoidance of doubt, it should be noted, that gas deliveries for 2008/09, subject to the Master Agreement for Physical Gas Positions and relating to Asset Contracts under this Master Agreement will be recalculated under the Master Agreement for Physical Gas Positions. The calculation of the Remuneration for Optimization activities shall not take into account the Optimization Activities undertaken by EET and paid for by ERG under the Master Agreement for Physical Gas Positions.

Delivery Year 2009/10

The Standing Charge for each Delivery Month in the Delivery Year 2009/10 shall be calculated in accordance with Annex 2.3, except that the Pricing Year shall be the period commencing on (and including) the first Day of the Month following the signing date of the

Asset Contract and ending 12 Months later. For the avoidance of doubt, it should be noted, that gas deliveries for 2009/10, subject to the Master Agreement for Physical Gas Positions and relating to Asset Contracts under this Master Agreement will be recalculated under the Master Agreement for Physical Gas Positions. The calculation of the Remuneration for Optimization activities shall not take into account the Optimization Activities undertaken by EET and paid for by ERG under the Master Agreement for Physical Gas Positions.

Delivery Year 2010/11

The Standing Charge for each Delivery Month in the Delivery Year 2010/11 shall be calculated in accordance with Annex 2.3. For the avoidance of doubt, it should be noted, that gas deliveries for 2010/11, subject to the Master Agreement for Physical Gas Positions and relating to Asset Contracts under this Master Agreement will be recalculated under the Master Agreement for Physical Gas Positions. The calculation of the Remuneration for Optimization activities shall not take into account the Optimization Activities undertaken by EET and paid for by ERG under the Master Agreement for Physical Gas Positions.

17.10.10



Annex 2.5

- A2.5.1 The Remuneration for Optimisation Activities for Delivery Month M, ROA_M , shall be calculated as follows:

$$ROA_{M,c,p} = \left(\begin{aligned} &Max[(FWP_{M,c,p}^{bid} - CP_{M,c,p} - MTC_{M,c,p}) \cdot MQ_{M,c,p} \cdot 0.015; 0] + \\ &CALL(FWP_{M,c,p}^{bid}; CP_{M,c,p} + MTC_{M,c,p}; T_{M,p}; \sigma_{M,c,p}) \cdot CQ_{M,c,p} \cdot 0.15 + \\ &PUT(FWP_{M,c,p}^{ask}; CP_{M,c,p} + MTC_{M,c,p}; T_{M,p}; \sigma_{M,c,p}) \cdot PQ_{M,c,p} \cdot 0.15 \end{aligned} \right)$$

Where all parameters shall be as defined in Article A2.3.6 and $Max[X;0]$ means the maximum of X and zero.

- A2.5.2 Following the end of the Pricing Year, the Remuneration for the Optimisation Activities shall be calculated as follows:

$$ROA_{M,c} = \frac{1}{12} \sum_{p=1}^{12} ROA_{M,c,p}$$

Where

- $ROA_{M,c}$ is the Remuneration for Optimisation Activities for Delivery Month M and Asset Contract c
- p is an index specifying each Pricing Month of the Delivery Year
- $ROA_{M,c,p}$ is the Remuneration for Optimisation Activities for Delivery Month M and Asset Contract c calculated at the end of Pricing Month p

- A2.5.3 EET shall be responsible for the calculation of the Standing Charge and shall provide the calculations to ERG within 15 Working Days after the end of each Pricing Month.

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Annex 3.1
Recalculation of Standing Charges

- A3.1.1 If, at any point in time after a Standing Charge has been calculated in accordance with Annex 2.3 or a Recalculation has been carried out, up to and including the Recalculation Cut-Off Date, ERG notifies EET of a change of the Contract Parameters, Marginal Transportation Costs or Contract Price used for such Standing Charge calculation or Recalculation, then a Recalculation of the Standing Charge for each relevant Delivery Month in the Delivery Year(s) shall be undertaken.
- A3.1.2 For the avoidance of doubt, the Parties may agree not to undertake a Recalculation for a change notified by ERG.
- A3.1.3 A Recalculation shall also be carried out if requested by ERG in accordance with Article A3.2.3
- A3.1.4 The responsibilities of ERG and EET in case of a Recalculation shall be as follows:
- (a) ERG is responsible for informing EET of any changes of the Contract Parameters, Marginal Transportation Costs or Contract Price as soon as reasonably practicable.
 - (b) EET is responsible for calculation of the Recalculation Payment using the method in Article A3.1.10 and shall provide ERG with details of the calculation no later than the end of the Month immediately following the Month in which ERG notified EET of the change.
- A3.1.5 Where the change notified by ERG in accordance with Article A.3.1.1 is made during a Pricing Year (and thus the Standing Charge for the Delivery Month has not been fully calculated in accordance with Article A2.3.3), then:
- (a) a Recalculation shall be carried out for each Delivery Month in the Delivery Year (noting that the calculation of the Recalculation Compensation Payment in Article A3.1.10 allows for the proportion of Pricing Months affected); and
 - (b) for the remaining whole Pricing Months in the Pricing Year, the Standing Charge to be calculated in Article A2.3.3 shall use the new Contract Parameters, Marginal Transportation Costs and/or Contract Price.
- A3.1.6 The Recalculation Cut-Off Date shall be the 5th Trading Day prior to the Delivery Month, unless otherwise extended in accordance with Article A3.1.8.
- A3.1.7 The Recalculation will take place at the point in time t , where time t is:

- (a) In the case of a change notified prior to 20 Trading Days prior to the Delivery Month, the 21st Trading Day after the change was notified by ERG and the Forward Prices used for the purpose of the Recalculation shall be an average of the 20 Trading Days from (and including) the day the change was notified by ERG;
- (b) Otherwise, the 6th Trading Day after the change was notified by ERG and the Forward Prices used for the purpose of the Recalculation shall be an average of the 5 Trading Days from (and including) the day the change was notified by ERG.

A3.1.8 If ERG and EET agree, the Recalculation Cut-Off Date may be extended, but shall in any event never be later than the penultimate Trading Day prior to the Delivery Month. In such event, the Forward Prices used for the purpose of the Recalculation shall be an average of the Trading Days in the period from (and including) the day the change was notified by ERG up to (and including) the last Trading Day prior to the Delivery Month and the Recalculation shall be done at time t, where t is the first Trading Day of the Delivery Month.

A3.1.9 Any changes notified after the Recalculation Cut-Off Date are subject to the Reconciliation process in accordance with Annex A3.3.

A3.1.10 Recalculation of the Standing Charge is based on the following mathematical relationship and will result in a Recalculation Payment:

$$REC_P_{M,t} = \{SC_NEW_{M,t}(MP_t, CP_{new}, MTC_{new}, CQ_{new}) - SC_OLD_{M,t}(MP_t, CP_{old}, MTC_{old}, CQ_{old})\} * N / 12$$

Where:

$REC_P_{M,t}$ is the Recalculation Payment for a Delivery Month M, calculated at time t. If the result is positive, EET has to pay that amount to ERG. If the result is negative, ERG has to pay that amount to EET.

$SC_OLD_{M,t}$ is the Standing Charge calculated for a Delivery Month M, calculated at time t using old Contract Parameters, the old Contract Price Formula, the old Marginal Transportation Costs and the new market parameters.

$SC_NEW_{M,t}$ is the Standing Charge calculated for a Delivery Month M, calculated at time t using the new Contract Parameters, the new Contract Price Formula, the new Marginal Transportation Costs and the new market parameters.

MP_t are the Forward Prices (calculated in accordance with Articles A3.1.7 or A3.1.8) and Volatilities at the point in time t when

Recalculation is done. If for a particular Delivery Month M the change results in a reduction of the Monthly Quantity (MQ_M), the term " $(FWP^{bid} - CP - MTC)$ " used in the formula in Article A2.3.6 shall be replaced with " $(FWP^{ask} - CP - MTC)$ " when calculating the Recalculation Payment.

CP_{new}	is the Contract Price calculated using the Contract Price Formula, the forecast of Non-Commodity Indices and the calculation rule for Non-Tradable Commodity Indices that are valid after notification of changes
MTC_{new}	are the Marginal Transportation Costs that are valid after notification of changes
CQ_{new}	are the Contract Parameters that are valid after notification of changes
CP_{old}	is the Contract Price calculated using the Contract Price Formula, the forecast of Non-Commodity Indices and the calculation rule for Non-Tradable Commodity Indices that were valid directly before notification of the changes
MTC_{old}	are the Marginal Transportation Costs that were valid directly before notification of changes
CQ_{old}	are the Contract Parameters that were valid directly before notification of the changes
N	is the number of (whole or part) Pricing Months, in respect of Delivery Month M, prior to the change being notified.

Annex 3.2

Basis Risk Compensation

- A3.2.1 The Standing Charge is initially determined according to Annex 2.3.
- A3.2.2 In the event that the formula for the Contract Price includes Non-Tradable Commodity Price Indices or Non-Commodity Indices, EET shall be compensated for the risk that these indices develop in a different way than defined by ERG at the time the Standing Charge is calculated, more specifically:
- (a) the expected relation between the Non-Tradable Commodity Index and the related Tradable Commodity Index deviates once the Contract Price is settled;
 - (b) the expected value of the Non-Commodity Index provided by ERG differs from the published Non-Commodity Index.
- A3.2.3 ERG has the right to request an adjustment of the assumed value of the Non-Commodity Index and/or the assumed relation between the Non-Tradable Commodity Index and the associated Proxy Tradable Commodity Index up to and including the Recalculation Cut-Off Date. In this case, a Recalculation according to Annex 3.1 will take place.
- A3.2.4 If the change is notified after the Recalculation Cut-Off Date, the change in the Standing Charge will be calculated according to the following formula and will result in a compensation payment (a Basis Risk Compensation Payment) according to the following formula:

$$\text{COMP_BR}_M = \text{SC}_{2,M}(\text{MP}, \text{CP}_2, \text{CQ}) - \text{SC}_{1,M}(\text{MP}, \text{CP}_1, \text{CQ})$$

Where:

- COMP_BR_M is the Basis Risk Compensation Payment for a Delivery Month M. If the result is positive, EET has to pay that amount to ERG. If the result is negative, ERG has to pay that amount to EET.
- $\text{SC}_{1,M}$ is the Standing Charge calculated for a Delivery Month M
- $\text{SC}_{2,M}$ is the Standing Charge calculated for a Delivery Month M
- MP is the average of the price used for Reconciliation (P_{rec}) in Article A3.3.4 (assuming the preconditions as set out in Article A3.3.4(a)(i) are fulfilled) for each Day in the Delivery Month M.

CP ₁	is the Contract Price calculated using the Contract Price Formula and values for each of the indices of NCI ₁ , TCI and NTCI ₁ accordingly.
NCI ₁	are the values of the Non-Commodity Indices used at time of last Recalculation or at the time of the original Standing Charge calculation if no Recalculation has taken place for determining the Contract Price in respect of the Delivery Month M.
TCI	are the outturn prices of the Tradable Commodity Indices in respect of the Delivery Month M.
NTCI ₁	are the assumed outturn values for the Non-Tradable Commodity Indices using the most recent calculation rules provided by ERG in accordance with A2.3.11(c) and the outturn values for the respective Proxy Tradable Commodity Indices in respect of the Delivery Month M.
CP ₂	is the Contract Price calculated using the Contract Price Formula and values for each of the indices of NCI ₂ , TCI and NTCI ₂ accordingly.
NCI ₂	are the actual published values for the Non-Commodity Indices used for determining the Contract Price in respect of the Delivery Month M.
NTCI ₂	Actual published values for the Non-Tradable Commodity Indices used for determining the Contract Price in respect of the Delivery Month M.
CQ	Contract Parameters used for the calculation of the Standing Charge at time of last Recalculation or at time of pricing if no Recalculation took place.

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Annex 3.3

Reconciliation Compensation

A3.3.1 The Reconciliation process applies to the following events:

- (a) Subject to Article A3.3.1(b), changes to the Contract Parameters notified by ERG to EET after the Recalculation Cut-Off Date.
- (b) Where ERG requests that Maintenance be moved within a Delivery Month, EET may, at its own discretion, agree to accept such change with no Reconciliation being carried out. If EET does not so agree then ERG may require EET to accept such change which shall be subject to a Reconciliation.
- (c) Under-delivery or over-delivery, as compared to the quantity of gas properly nominated for delivery by EET in accordance with the Asset Contract.
- (d) Delivery of off-specification gas (as defined in each Asset Contract).
- (e) Unavailability of booked (by ERG or EET) Transportation Capacity to be made available by ERG to EET.
- (f) Any other event explicitly identified in an Asset Contract, for which a payment mechanism shall be defined.

A3.3.2 Responsibilities of ERG and EET in case of Reconciliations:

- (a) Each Party is responsible for informing the other Party of changes in firm quantities or delivery of off-specification gas as soon as reasonably practicable after it becomes aware of such change.
- (b) In respect of changes to Contract Parameters notified after the Recalculation Cut-Off Date, at the time of making any nomination under the Asset Contract, EET shall be entitled to notify ERG of the quantity that EET would reasonably have nominated (a Shadow Nomination). Such difference between the actual nomination and the Shadow Nomination shall be treated as an under-delivery or over-delivery accordingly
- (c) EET is responsible for the calculation of Reconciliation Compensation Payments.
- (d) In case of under-deliveries, ERG will compensate EET for the costs of buying the non delivered quantities from the market, unless the replacement costs are less than the Contract Price in which case EET shall compensate ERG.
- (e) In case of over-deliveries, EET will compensate ERG for the revenue from selling such over-delivered gas less any costs incurred in accepting such over-delivered gas, as defined in the Asset Contract, unless the revenue from selling the over-delivered gas is less than the Contract Price in which case ERG will compensate EET.
- (f) In case of delivery of off-specification gas, the Asset Contract shall specify the Compensation Payment, which may include either or both of the following mechanisms:

- (i) ERG compensates EET for any penalties that EET is charged for selling the off-specification gas;
- (ii) The delivery is not accepted by EET and will thus be handled as an under-delivery of firm qualities.

A3.3.3 Calculation of the Reconciliation Compensation Payment will take place at the end of each Delivery Month, for each Day separately in the Delivery Month, according to the following formula (unless otherwise defined in an Asset Contract):

$$\text{COMP_REC}_{q,D} = Q_{\text{change}} \cdot (P_{\text{rec}} - \text{CP}_D - \text{MTC}_D)$$

Where:

$\text{COMP_REC}_{q,D}$ Compensation Payment from ERG to EET for a certain quantity q that was over-/underdelivered on a day D under a specific Asset Contract. If the result is positive, ERG has to pay that amount to EET. If the result is negative, EET has to pay that amount to ERG.

$Q_{\text{change},D}$ is the change in the quantity delivered to EET in accordance with the Asset Contract in respect of Day D , where an under-delivery shall be positive and an over-delivery shall be negative.

CP_D Contract Price for Day D

$P_{\text{rec}, D}$ Price to be used for purposes of Reconciliation in respect of Day D (as specified in Article A3.3.4)

MTC_D Marginal Transportation Costs for Day D

A3.3.4 The price used for Reconciliation (P_{rec}) shall be:

- (a) If
 - (i) ERG notifies EET of the under-delivery or over-delivery no later than 12:00hrs on the Day prior to the Day of delivery; and
 - (ii) under-delivery or over-delivery relates to any market other than the UK,

then P_{rec} is the day-ahead market price at the relevant trading hub, as specified in the Asset Contract (Bid price, in case of over-delivery and Ask price in case of under-delivery).

- (b) Otherwise, P_{rec} is the balancing price of the transmission system operator as specified in the Asset Contract, depending on whether the Reconciliation for such Day is an over-delivery or under-delivery.

- A3.3.5 For the avoidance of doubt, it is possible to have an over-delivery and an under-delivery in respect of a particular Day.
- A3.3.6 ERG may compensate EET for under- or over-deliveries by increasing or reducing the off-take or the delivery under a physical commodity position between EET and ERG at the same delivery point (rebalancing). In case rebalancing occurs, Take-or-Pay Quantities under the Asset Contract will still be changed according to the quantities that were rebalanced. If the Parties agree, the delivery point of the gas may be shifted.
- A3.3.7 If the event that causes the Reconciliation also affects the Contract Parameters or Standing Charge calculation for any of the following Delivery Months (e.g. mintake quantities for the remaining months of the year), a Recalculation according to Annex 3.1 will be initiated.

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Annex 6.5 (List of Contact Persons)

On ERG side:

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Annex 9.5

Calculation of Termination Payment

A9.5.1 If an Asset Contract terminates, then the following process applies:

- (a) ERG shall notify EET, as soon as reasonably practicable after it becomes aware that an Asset Contract will terminate, of the revised Contract Parameters as a result of the Asset Contract terminating (ie the Maximum Daily Quantity and the Minimum Daily Quantity would be reduced to zero after the termination date; and the Maximum Annual Quantity and the Adjusted Take or Pay Quantity would be reduced accordingly);
- (b) For any Delivery Month for which the Recalculation Cut-Off Date has already passed, any gas not delivered shall be subject to Reconciliation and Remuneration Payments shall continue to be paid in accordance with Article 4;
- (c) For all Delivery Months affected by the change in the Contract Parameters and for which the Recalculation Cut-Off Date has not already passed, EET shall calculate the Recalculation Payments in accordance with Article A3.1.1.
- (d) EET shall calculate the Termination Payment in accordance with Article A9.5.2 (which shall be payable instead of the Standing Charges and Recalculation Payments), and shall provide ERG with the calculations at the same time as the Recalculation Payments are notified;
- (e) The Termination Payment shall be due and payable in first Delivery Month for which Article A3.1 would require a calculation of a Recalculation Payment.

A9.5.2 The Termination Payment shall be calculated as follows. If the result is positive, EET shall pay the amount to ERG, and if the result is negative, ERG shall pay the amount to EET.

$$\text{Termination Payment} = \sum_{M=0}^{\Phi} \frac{SC_M + REC - P_M}{(1 + X)^{M/12}}$$

Where:

M is an index representing Delivery Months, with M=0 being the first Delivery Month for which Article A3.1 would require a calculation of a Recalculation Payment and Φ is the last Delivery Month for which a Standing Charge has been calculated.

SC_M is the Standing Charge in respect of Delivery Month M

REC_P_M is the sum of all Recalculation Payments in respect of Delivery Month M

X is the 12-month EURIBOR plus 2 percent.

Annex 10.1

Description of Optimization Activities

The performance of the following activities is essentially necessary in order to realize the prices described in Annex 2.3 in the trading markets. A successful risk management and an ongoing optimization of commodity positions can only be reached, if the activities described below are performed by EET to ERG:

- (a) Portfolio management: optimization of volume and timing of purchasing gas
- (b) Scheduling: optimization of hourly schedules of each Asset;
- (c) Dispatching: continuous intra-day monitoring of gas supply and execution of necessary adjustments;
- (d) Nomination of schedules to ERG;
- (e) Market analysis and forecasting;
- (f) Services for calculation and supplying of the data basis to ERG for invoicing purposes;
- (g) Optimization Activities for Carry-Forward Rights and Make-Up Rights according to Annex 10.2.

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Annex 10.2
Responsibilities of EET and ERG in relation to the usage of Carry Forward Rights and Make-Up Rights

- A10.2.1 The responsibilities of EET and ERG with respect to the exercise of Carry Forward Rights and Make-Up Rights shall be as set out in this Annex.
- A10.2.2 ERG is responsible for exercising such rights
- A10.2.3 EET is responsible for making recommendations to ERG regarding:
- (a) the initial allocation of Carry Forward Rights to the Delivery Years 2007/8, 2008/9 and 2009/10 in accordance with Annex 2.4;
 - (b) the allocation of additional Carry Forward Rights accrued following the signing of this Master Agreement
 - (c) opportunities to re-optimize the allocation of Carry Forward Rights, either by:
 - (i) moving Carry Forward Rights between Delivery Years in the MTP Period;
 - (ii) allocating Carry Forward Rights that were initially held back by ERG for use in Delivery Years beyond the MTP Period, but which may now be more economically reasonable allocated to Delivery Years in the MTP Period; or
 - (iii) returning Carry Forward Rights to ERG that have been allocated to Delivery Years in the MTP Period, but which may now be more economically reasonable allocated to Delivery Years beyond the MTP Period;
 - (d) opportunities to exercise Make-Up Rights; or
 - (e) opportunities to re-optimize the exercise of Make-Up Rights;
 - (f) proposals of ERG to exercise Carry Forward or Make-Up Rights.
- A10.2.4 EET shall make such recommendations to ERG in a timely manner, based on the market conditions at that time and shall provide any other relevant information (also with regard to the Standing Charge and/or Recalculation Payment).

Annex 10.3

Calculation of Transportation Capacity that is required for each Asset Contract

- A10.3.1 In order to enable EET to execute deliveries under an Asset Contract to the respective delivery hub, Transportation Capacity may be required as specified in the individual Asset Contract (the Transportation Capacity Requirement) which shall be calculated in accordance with this Annex. ERG shall grant EET the required Transportation Rights under the Master Agreement Transportation.
- A10.3.2 The Transportation Capacity Requirement shall be determined according to the following rules:
- (a) In case the Transportation Capacity Requirement relates to NTS capacity, the Transportation Capacity Requirement shall be determined according to A10.3.3
 - (b) In case the Transportation Capacity Requirement does not relate to NTS capacity, the Transportation Capacity required shall be sufficient to transport the Maximum Daily Quantity under the respective Asset Contract. In case a Maximum Daily Quantity has to be converted into a hourly Maximum Quantity, the Maximum Daily Quantity shall be divided by 24.
- A10.3.3 The Transportation Capacity Requirement is calculated according to the following formula:

$$ECR_M = DQ_{\max_M} * \left(\frac{MQ_M + CQ_M * N(dl)_M}{MQ_{\max_M}} \right)$$

Where:

ECR_M is the Transportation Capacity Requirement for the Delivery Month M (in kWh/d)

MQ_M as defined in A2.3.6 and A2.3.13

$DQ_{\max_M}$ is the highest Maximum Daily Quantity (in kWh/d) for any Day of the Delivery Month M

$MQ_{\max_M}$ is the sum of the Maximum Daily Quantities for each Day of the Delivery Month M (in kWh)

$N(d1)_M$ is the change of the value of the call option value $N(d1)$ caused by a change of the underlying forward price for the respective month as specified A.2.3.14

CQ_M The call quantity CQ_M as defined in A2.3.6 and A2.3.15

All other parameters shall be as defined in Article A2.3.6 of the Master Agreement (converted to kWh).

- A10.3.4 EET shall provide the calculation of the Transportation Capacity Requirement within fifteen (15) Working Days after the end of the first Pricing Month to ERG.
- A10.3.5 In case ERG has sufficient Transportation Capacities for the full utilization of an Asset Contract, i.e. $DQMax_M$, all of these Transportation Capacities are made available to EET (e.g. if Daily Max Quantities under an Asset contract equals 100 units per day and ERG has Transportation Capacity of 100 units per day available, no detailed calculation is required. ERG grants the Transportation Rights to EET). In this case, a calculation in terms of A10.3.3. is not necessary.

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