

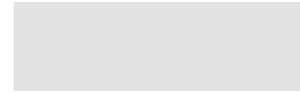
European TPA Transmission Tariff Comparison 2003

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INTRODUCTION

The first part of this report gives a description of the principles of the tariff systems proposed by TSOs for Third Party Access.

The second part of this report gives a comparison between the resulting transmission prices for some standard cases.

The TSOs contributing to this report are :

BEB	(Germany)
BORD GAIS EIREANN	(Ireland)
DEPA	(Greece)
DONG Energy-Service	(Denmark)
EDISON Transmission & Storage	(Italy)
FLUXYS	(Belgium)
Gastransport Services	(Netherlands)
GAZ DE FRANCE	(France)
GAZ DU SUD OUEST	(France)
MOL	(Hungary)
OMV Erdgas	(Austria)
RUHRGAS	(Germany)
SPP	(Slovak Republic)
SNAM RETE GAS	(Italy)
SOTEG	(Luxembourg)
TRANSCO	(United Kingdom)
TRANSGAS	(Czech Republic)
WINGAS	(Germany)

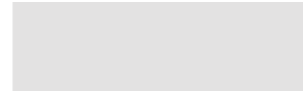


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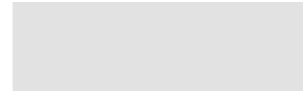
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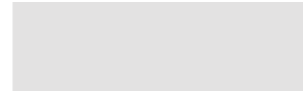
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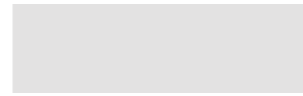
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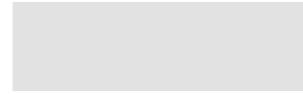
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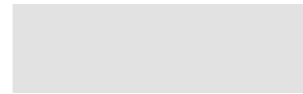
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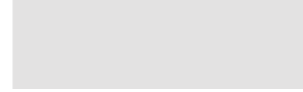
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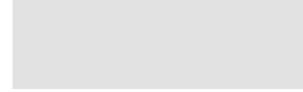
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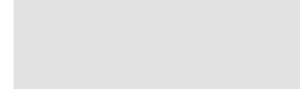
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PART 1: PRESENTATION OF TARIFF SYSTEMS FOR THIRD PARTY ACCESS



1. BEB

1.1. Description of the transmission system

BEB's transportation system is divided into a H and L-Gas System and each into a Supra-Regional Transmission System and a Regional Transmission System. Although this distinction is made no specific difference result from it only that the Supra-Regional Transmission System is used to transport large gas volumes over longer distances with high capacities and that the Regional Transmission System delivers gas to the regional public utility companies.

1.2. Description of the tariff system

The tariff system is based on a point-to-point system with capacity booking along the pipeline route from the entry point to the exit point. The standard contract duration is one year starting at October 1st or April 1st, but capacity also can be booked on a monthly basis or a multiple of months, not starting at the mentioned dates.

After the capacity availability is given, the transport capacity is reserved according to the 'first committed, first served' principle. If no firm capacity is anymore available BEB will offer interruptible transportation capacity.

1.2.1. *The following tariff elements have to be considered*

- Capacity charge – applied to the booked capacity and distance related,
- Service charge – applied only to the booked capacity,
- Service gas (recovers fuel gas etc.) – allocated on a throughput basis and paid in kind.

These components will be calculated as follows:

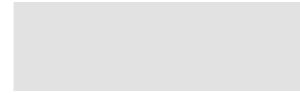
capacity charge

This fee depends on the pipeline route which will be taken due to chosen entry and exit point. An indicative price in EUR/(m³_N/h)/year can be calculated online in the internet under

<http://www.beb.de> -> Gastransport -> NetCode -> Transportpreisrechner -> H-Gas/L-Gas

service charge

A fee of 2.19 EUR/(m³_N/h)/year for system services applies.



service gas

The service gas has to be paid in kind and is calculated as 0.5 % of the volume delivered at the entry point for transportation. There might be exceptional situations where other percentages apply.

Tariff indexation

Charges of long term contracts can be indexed at October 1st each year.

1.2.2. Interruptible capacity

Interruptible capacity can only be booked if no firm capacity is anymore available on the used pipeline sections. Generally the same charges apply to this type of contract, with the difference that the capacity charge will only be 75% of a non-interruptible contract. There might be exceptional situations where other charges apply. And for the time of a transportation interruption the capacity charge will not be charged.

1.2.3. Short-term contracts

The aforementioned fees refer to contract terms of one year commencing on October 1st or April 1st. Individual terms for short-term transportation can be agreed upon. Depending on the individual term a percentage of the one-year capacity reservation fee applies:

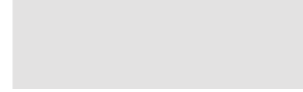
Contract term	Percentage
· October, March each	70%
· November - February each	100%
· April - September each	10%

A cap of 100% shall be applied for contracts, lasting for multiple months within a standard contract year.

1.2.4. Capacity overrun

A capacity overrun will be charged based on the maximal overrun in the respective month.

Up to a overrun of 2% of the booked capacity only the normal monthly charge has to be paid for the overrun.

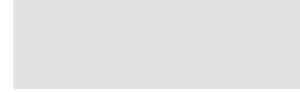


Is the capacity overrun higher than 2% of the booked capacity the monthly charge will be doubled for the part exceeding the 2% and the first 2% are charged as stated before.

1.2.5. Balancing

The Shippers are required to balance their gas flows on an hourly basis. If imbalances occur they have to be commercially balanced, which means that there are rules of penalty fees which increase as the shipper's imbalances exceed certain tolerance thresholds. The penalties are aimed to discourage shippers from creating an imbalance between the intake and the offtake which would endanger the physical system balance. This penalty is based on market prices for the peak capacity and commodity.

The above mentioned threshold is an imbalance due to unplanable circumstances of 15% of the hourly booked capacity. The cumulated imbalance shall not exceed 24 times the 15%. For transportation capacities of up to 5,000 m³/h an expanded imbalance threshold of further 15% can be contracted.



2. BORD GAIS EIREANN

2.1. Description of the tariff system

The capacity regime applied by BGE is a point-to-point system with capacity booked from an entry point to an exit point. Entry point capacity booked must equal exit point capacity booked and must be booked for a minimum of one year.

The tariff system is a mixture of postage stamp and entry exit : there is a separate entry charge depending on the entry point of gas (e.g. UK, offshore gas fields). There is then a postage stamp exit charge.

The tariff is split into three components:

- Capacity – applied to the capacity booked for each gas year,
- Commodity – applied to each unit of throughput on the network,
- Shrinkage (recovers fuel gas etc.) – allocated on a throughput basis.

The tariff is structured as 90% capacity and 10% commodity. The capacity charge is calculated using the projected 2% peak day load (i.e. on the basis of the coldest winter in the last 50 years). The capacity charge is charged monthly to customers on the basis of the actual capacity they book on the Transmission network (under our Code of Operations the bookings for heat-sensitive customers must be for the 2% peak day). The commodity charge is calculated based on projected usage of the network and is a charge per kWh transported.

The tariff applied to standard service as defined in our Code of Operations. If shippers or end users require enhanced services (e.g. enhanced pressure) they must pay for this separately. Contracts are for a minimum of one year. No discount is given for longer term contracts.

2.2. Description of the transmission system

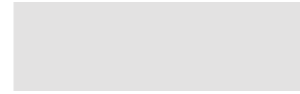
BGE does not make any distinction between Main Transmission System and Regional Transmission System.

2.3. Capacity overrun

In the case of capacity overrun the shipper is liable to pay the annual capacity charges times a multiplier on the capacity he overruns.

2.4. Transmission costs and revenues

The tariff calculation involves a ten year forecast of demand, capital and operating costs. New investments have to be shown to be necessary or economic to be allowed in the tariff calculation.



Calculation of the initial regulated asset base (RAB) and Value of WACC

The Regulated Asset Base (RAB) is calculated at historic cost indexed for consumer price inflation less straight line depreciation. The rate of return allowed is 6.5% pre-tax, real.

Revenue

The methods used to calculate allowed revenue and charges are :

Allowed revenue = NPV of operating and capital costs for year 1-10

plus opening RAB value year 1

less PV of RAB at the end of year 10

Capacity charge = allowed revenue x 90% divided by NPV of capacity usage years 1-10

Commodity charge = allowed revenue x 10% divided by NPV of projected volumes years 1-10

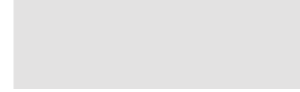
Under- or over-recoveries of revenue are redistributed by reducing the allowed revenue in future years.

Tariff indexation

The tariff is indexed at consumer price inflation each year.

Approval by the regulator

The tariff has been approved by the regulator.



3. DEPA

WARNING

These tariffs have not yet been applied, since TPA does not yet exist in Greece.

General Tariff Methodology

Cost based

Definition of the Cost base

- Calculation of the initial regulated asset base (RAB)

Transportation tariffs are based on the calculation of a Required Revenue on an annual basis, which includes the operational and capital costs of transportation activities that need to be covered. The Required Revenue is calculated using an accounting approach. It includes the total operational costs, depreciation and the return on capital employed. The return is calculated on the Regulated Asset Base (RAB), which includes all the tangible and intangible assets of the transportation business, at historic cost minus depreciation, the working capital as well as any new investments. Any registered subsidies (i.e. those that have not been included in DEPA's share capital) are subtracted from the RAB. The transportation tariff is smoothed over a period of 15 years (otherwise increasing volumes would yield a very high tariff in the first years and a very low in the future).

- Value of WACC

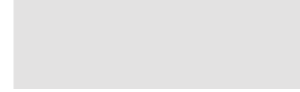
The return on capital employed is calculated with a (nominal, pre-tax) weighted average cost of capital (WACC) equal to 11,43% (real pretax 7,40%).

- Future investments

New investments are included in the RAB at the start of their implementation, smoothing out the average transportation charge. Investments for the construction of dedicated new branches, used exclusively for the supply of individual consumers, are not included in the RAB. The costs of these investments will be charged to the relevant consumers in the form of annual payments, to the extent that they are carried out and funded by DEPA.

Tariff structure

Postage stamp system for the entire transmission network with additional charge for the use of the LNG terminal.



Capacity/Commodity allocation principles

90% of the required revenue is recovered through the capacity charge

10% of the required revenue is recovered through the commodity charge

Detailed Tariff Design

The natural gas tariffs are uniform across the country. Shippers will be charged independently of the distance of consumption points from natural gas entry points in the system. Shippers will be able to aggregate gas quantities per exit area.

The transportation tariff consists of a capacity charge and a commodity charge.

The annual charge for each shipper is calculated through the following formula :

$$P_t = 466,1 \times C_{\max} + 0,2568 \times Q \text{ (€/year)}$$

where, C_{\max} is the maximum daily capacity of each shipper (in MWh/peak day/year) and Q is the quantity of gas transported during the year (MWh/year).

In addition to the transportation tariff above, a tariff is applied for the use of the LNG terminal.

Natural gas suppliers, including DEPA Trading, who import and supply LNG, will be charged for this service with a capacity charge (on the basis of LNG daily regasification capacity required by each supplier) and a commodity charge (on the basis of LNG quantity).

$$P_l = 148,2 \times C_{\max} + 0,1116 \times Q \text{ (€/year)}$$

where, C_{\max} is the maximum daily LNG capacity of each supplier (in MWh/peak day/year) and Q is the quantity of regasified LNG the supplier imports in the transportation system during the year (MWh/year).

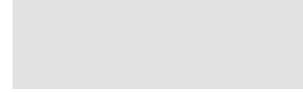
Indexation of tariff

Tariffs will be applied when TPA to DEPA's system will be granted (expected in 2006), and a major revision is expected to take place during 2009 in order for revised tariffs to be applied as of 01.01.2010.

There is a provision for tariffs indexation for both the commodity and capacity charges.

The indexation is based on :

- the annual variation of the Consumer Price Index, and



- the deviation between the capacities allocated and the quantities transmitted, and the ones initially estimated (predicted) at the phase of the tariff design (determination).
The indexation formula also contains a parameter, taking either positive or negative values, which provides incentives for the increase of productivity of the Operator of the Natural Gas National Transmission System or the improvement of the quality of its services.

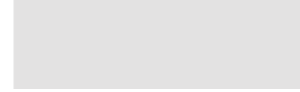
The tariffs indexation will be applied on a yearly basis.

Specific tariffs or rules applied to backhaul transportation or specific services if any

N/A

Regulatory involvement in tariff setting

Methodology and several key assumptions have been agreed with the regulator.



4. DONG ENERGY-SERVICE

4.1. Tariff

The tariff is postage stamp, independent of distance and diameter of pipes, with a capacity and volume component. Concerning the tariff level, the Danish regulator decided in March 2002 that DONG Transmission should lower the tariffs. This is reflected in the table below. However, DONG Transmission has appealed the decision to the Energy Board of Appeal, a final decision is expected summer 2003.

<i>DONG, Transmission tariffs, 1. October 2002</i>		
Volume		
Tariff	0,0000688	EUR/kWh
Capacity		
- Entry tariff	1,125	EUR/kWh/hour/year
- Exit tariff	3,364	EUR/kWh/hour/year

4.2. Description of the transmission system

The transmission system of DONG is not divided into a Main Transmission System and Regional Transmission Systems. The transmission system is based on high pressure pipelines with a diameter from 255 mm up to 760 mm. The transmission system is connected downstream directly to few large customers and the distribution systems.

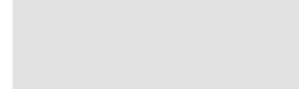
4.3. Capacity overrun

There applies penalties for hourly capacity overruns that exceed 102% of the reserved capacity.

The penalty for the maximum overrun accounts for 200% of the normal capacity payment. For any succeeding overrun the penalty accounts for 2% of the normal capacity payment.

4.4. Short term contracts

DONG Transmission has introduced short term contracts. As of 01/04/2003 the tariffs are: October-November 70% of the annual capacity fee, December-March 80% and April-September 9%. The maximum tariff for transport contracts of 2 to 11 months length is $(88\% + (1\% \times \text{number of months})) \times \text{capacity fee}$ for an annual contract.



5. EDISON TRANSMISSION & STORAGE

5.1. Description of tariff principles

The Italian Energy Regulator with the Deliberation n.120/01, on 30th May 2001, has defined the criteria for the calculation of transportation and dispatch tariffs on the Main Transmission System (MTS) and Regional Transmission System (RTS) for the existing transportation companies (SNAM Rete Gas; Edison T+S, SGM, TMPC) and wishing to enter the market. The tariffs set by the transportation companies had been submitted to the Energy Regulator for approval (Deliberation n.193/01, on 7th September 2001). The Regulator's provision replaces the previous agreement between Snam and Assomineraria and any transmission agreements negotiated directly by the parties. The new transportation tariff has come into force on October 1st (the first day of the new thermal year, which runs from October, 1st 2001 to September, 30th 2002) and is applicable retroactively from June, 1st 2001, according to the Legislative Decree on the liberalisation of the Italian gas market. The transportation tariff on the Main Transmission System is based on a entry-exit system, without an auction mechanism for entry and exit capacity, with fees for the booked capacity at the entry point to pipelines (frontier, fields and storage depots) and at interconnection points with the regional networks (grouped into 17 zones), and on a fee for booked capacity on the regional network. This is a «stamp» fee, with discounts for operators with off-take points less than 15 km from the exit node from the regional network. These booked capacity fees are supplemented by an additional fee that varies according to the cubic meters of gas actually transported.

SNAM Rete Gas, the major operator, manages the MTS and applies the tariffs as defined in the deliberation n.193/01. In the RTS transport operators as Edison, SGM and SNAM Rete Gas apply different tariffs. Edison and SGM have set the same tariffs for all the zones in which they operate. SGM is a regional operators while Edison is a national and regional operator. Edison has a piece of network in the MTS in which there are two entry points: Pineto and Hub Edison for the storage of gas. These two points are managed contractually by SNAM Rete Gas as part of the MTS that is unique for Italy.

The formula of the transport tariff is as follows:

$$T = (K_e * C_{Pe}) + (K_u * C_{Pu}) + (K_r * C_{Rr}) + CF + E * (CV + CV_p)$$

Where:

K_e = capacity granted to the customer at the entry point (cm/d);

K_{pe} = capacity charge at the entry point (EUR/year/cm/d);

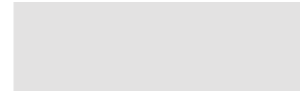
K_u = capacity granted to the customer at the exit point in (cm/d);

C_{Pu} = capacity charge (EUR/year/cm/d);

K_r = capacity granted to the customer at the delivery point r (cm/d);

C_{Rr} = capacity charge at the delivery point r (EUR/year/cm/d);

CF = fixed charge for each delivery point (EUR);



E = energy that enters in the MTS(GJ);

CV = variable unit charge (EUR/GJ);

CV_p = additional variable unit charge (EUR/GJ) for new investments.

The transportation tariff is composed by the following:

- capacity component on the MTS: $(K_e * C_{Pe}) + (K_u * C_{Pu})$;
- capacity component on the RTS: $(K_r * C_{Rr})$;
- commodity component: $E * (CV + CV_p)$
- fixed component: CF .

According to the deliberation n.120/01 the capacity booking regime is annual (for entry points) or bi-annual booking (for exit points) with tradable capacity. Revision of booked capacity is foreseen in the case of:

- available capacity;
- new imports, new domestic productions, new customers;
- new customers as a result of customers changing supplier.

Edison T+S and SGM offer a transport service on a continuous basis for the delivery points on the RTS and for the inlet points of the production fields directly interconnected with the RTS. They offer also transportation services on an interruptible basis with a 4% of discount on the regional capacity charge and 5 days maximum of interruption during the contract period. The duration of the contract is one year and only for deliveries can be semi-annual or quarterly with no differences on transportation charges.

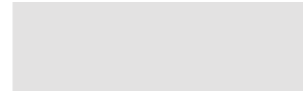
The commodity charge CV is discounted by 40% if gas flows only on the MTS or only on the RTS (for ex. export or production directly related to regional systems and delivered in the same region).

No entry capacity charge is paid for production that are directly related to RTS

The delivery capacity charge is subject to reduction if the delivery point has a distance less than 15 Km of pipeline from the MTS with the following rule: $C_{Rr} * D / 15$ where D is the distance from MTS.

Storage entry doesn't pay any commodity charge.

Storage fields are only entry points to the MTS and are aggregated in 2 hubs, one for each operator (Edison Gas and Stocaggi Gas Italia).



5.2. Description of the transmission system

The Main Transmission System (about 8,200 km) was defined by a Ministry of Industry decree on 22nd December 2000 and consists of the Main Spines under high pressure starting from import entry points, storage fields, national production fields and section of networks which link two Main Spines. The high pressure regional networks (which cover about 21,000 km) are mainly for internal linkages between one region and another and for connecting up with the local distribution networks. Edison T+S owns 125 km of the MTS and about 450 km of RTS while SGM has only regional networks (600 km). For a clear description of our transmission system, please see the maps attached.

Note:

1. The gas tariffs on the MTS are not distinguished between the distances (entry-exit system).
2. The average prices of Edison and SGM are only for the RTS, while only SNAM Rete Gas is able to give information about gas prices referring to the MTS. SNAM Rete Gas, as the major transport operator, manages all the entry and exit points on the MTS.
3. The gas prices for RTS given by Edison and SGM consist of the capacity component and a fixed component. The commodity component is paid at the entry point for the whole system (MTS and RTS). The fixed component is paid for each metering point and has an average value of 0.05 EUR/MWh. There are three different fixed components, according to the type of the metering point and the level of the annual gas consumption to which the particular metering point refers.
4. Please take note that the data above are calculated for a distance from MTS above 15 km. Otherwise, for a distance from MTS upper to 15 km, there is a reduction in this figure depending on how the tariff regional capacity component is set.
5. The data above have been converted into MWh from standard cubic meters, with the following formula: 1000 cm of natural gas = 9.57 MWh

5.3. Capacity overrun

The following system applies in case of capacity overrun :

- 1) Entry points: no tolerance and penalty = $3 \cdot C_{pe} \cdot \Delta K_e$

Where ΔK_e = capacity overrun

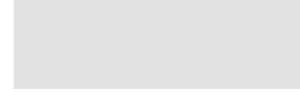
- 2) Exit points: 5% of tolerance; no penalty if $\Delta K_u \leq 5\% \cdot K_u$

if $5\% < \Delta K_u \leq 15\%$ penalty = $1.5 \cdot C_{pu} \cdot \Delta K_u$ (capacity overrun over the 5% of tolerance level)

if $\Delta K_u > 15\%$ penalty = $2 \cdot C_{pu} \cdot \Delta K_u$ (capacity overrun over the 15% of tolerance level)

- 3) delivery points: 10% of tolerance; no penalty if $\Delta K_r \leq 10\% \cdot K_r$

if $\Delta K_r > 10\%$ penalty = $1.25 \cdot C_{pr} \cdot \Delta K_r$ (capacity overrun over the 10% of tolerance level)



5.4. Transmission costs and revenues

Every comment is taken from the Energy Regulator's deliberation n.120/01. Articles and items are referred to this deliberation.

Calculation of the initial regulated asset base (RAB)

Capital asset base from re-evaluated balance sheets (current cost method). (Article 3 item 5)

Value of WACC

WAAC is equal to 7.94% real before tax. (Article 3 item 2.b)

Future investments

It is envisaged a special treatment for new investments which are capitalised and put into operation starting from 2001. New investments are awarded 12.44% as additional revenue comprising 7.47% of investment to add to the capacity component, 4.98% of investment to add to the commodity component as CVp; this incentive CVp is applied for six years after the year of capitalisation. (article 4)

Revenue

If capacity component of revenues is higher/lower than the allowed revenues, the difference between the 2 values is discounted/recovered in the tariff calculation of the next year.

Tariff indexation

During the regulatory period (2001-2006), the evolution of the tariffs is pre-determined according to the formulae of price cap (article 11). These formulae contain some parameters which take into account unpredictable events (parameter Y), recovery of costs deriving from quality standards (parameter Q) and demand control policies (parameter W). These parameters will be determined by the Energy Regulator and at the moment they are equal to zero. The Energy Regulator has set an annual updating for the capacity revenue (CR), the commodity charge (CV) and the fixed charge (CF) as follows:

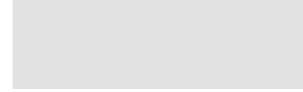
The capacity revenue:

$$CR_t = CR_{t-1} (1 + I_{t-1} - RP_c + Y + Q + W)$$

Where:

I_{t-1} is the inflation rate;

RP_c is the rate of productivity (2%);



Y, Q, W are additional parameters which take into account unpredictable events, recovery of costs deriving from quality standards and demand control policies;

The commodity charge:

$$CV_t = CV_{t-1} (1 + I_{t-1} - RP_v)$$

Where:

I_{t-1} is the inflation rate;

RP_c is the rate of productivity (4.5%).

The fixed charge:

$$CF_t = CF_{t-1} (1 + I_{t-1} - RP_f)$$

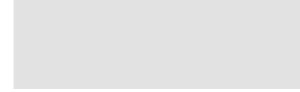
Where:

I_{t-1} is the inflation rate;

RP_f is the rate of productivity (2%).

Approval by the regulator

The tariffs have been approved by the Energy Regulator with the deliberation n.193/01, as already said at the point 2 of this report.



6. FLUXYS

6.1. Introduction

6.1.1. *Natural gas transport services in Belgium: scope*

The Fluxys transport services cover a range of services for redelivery of natural gas at a redelivery point in Belgium on the Fluxys grid (consumption point or connection with distribution grid) upon delivery of an equivalent quantity of gas at one of the entry points to the grid. Both consumers and their suppliers – if they are in possession of a supply license – can subscribe to transport services.

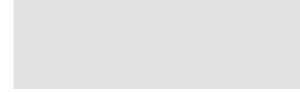
- Grid users subscribe to capacity services on a point-to-point basis whereas tariffs are not distance related: the price for capacity services is calculated on the basis of one single unit tariff per subscribed ($m^3(n)/hour$)/year.
- Fluxys provides transport services according to the ‘first committed, first served’ principle provided that capacity is available.
- Transport services are being offered under an hourly balancing regime. Capacity subscriptions include some basic flexibility services.
- Tariffs include a range of incentives for encouraging grid users to subscribe capacity and flexibility according to their needs. They also aim to encourage grid users to nominate their quantities at the entry and redelivery points as accurately as possible and to continuously maintain any imbalances within their limits of flexibility.

6.1.2. *Regulated tariffs*

The amendments of 16 July 2001 to the Belgian federal Gas Act of 12 April 1965 and the Royal Decree of 15 April 2002 provide that the following transport services are to be offered at regulated tariffs:

- Capacity services
- Flexibility services
- Pressure reducing services
- Odourisation services
- Quality conversion services

The regulated tariffs are cost-based. Accordingly, Fluxys’s costs are allocated to the various services offered by the company.



According to the Royal Decree of 15 April 2002, Fluxys has to submit every year its budget and tariff proposal for the following year to the Regulator, the Commission for Regulation of Electricity and Gas (CREG).

6.1.3. 2003 tariffs

In accordance with the Royal Decree of 15 April 2002, Fluxys submitted its budget and tariff proposal for 2003 to the CREG on 9 December 2002. The CREG approved the proposal on 19 December 2002. The 2003 tariffs are applicable as from 1 January 2003.

6.2. Capacity services

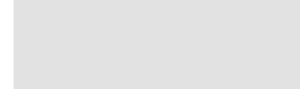
6.2.1. Main conditions

Fluxys provides transport services according to the ‘first committed, first served’ principle provided that capacity is available.

Fluxys provides firm as well as interruptible capacity, the latter being offered at a lower tariff. Capacity subscriptions (Maximum Transport Services Rights or MTSR) are made on a point-to-point basis.

If a Route only uses the high-pressure grid (maximum authorised operating pressure 65 bar) the high-pressure capacity tariff applies. If a Route uses the medium-pressure grid (maximum authorised operating pressure < 65 bar), both high and medium-pressure capacity tariffs apply.

Grid users undertake to subscribe to a level of MTSR that is sufficient to cover their needs at all times. Grid users also undertake to keep an hourly balance between the quantities of delivered and redelivered energy on each of their Routes by making use of the flexibility services available to them.



The maximum hourly imbalance per Route amounts to 25% of MTSR plus Rate Flexibility (RF) provided that Volume Flexibility (VF) is available. Volume Flexibility is aggregated per grid user and per entry point.

Fluxys Transport Service Agreements are concluded for a duration of at least one year. In order to serve specific short-term needs Fluxys also offers firm seasonal capacity on a monthly basis. Subscriptions for seasonal capacity are made at the seasonal capacity tariff and have a minimum duration of 30 consecutive days (an exception is made for the month of February, for which subscriptions can be made for 28 or 29 days). Seasonal capacity can be subscribed to no earlier than 12 months in advance.

6.2.2. Firm capacity

The firm capacity tariff consists of **two components**: a capacity component, which is a function of the subscribed firm MTSR, and a commodity component, which is linked to the energy actually transported.

The **capacity component** consists of two tariff terms:

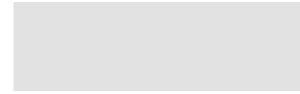
- subscribed firm high-pressure capacity: the tariff for subscribing to firm MTSR is € 31.4/(m³(n)/h)/year,
- subscribed firm medium-pressure capacity: the tariff for subscribing to firm MTSR is € 10.7/(m³(n)/h)/year.

If a Route only uses the high-pressure grid (maximum authorised operating pressure 65 bar) the firm high-pressure capacity tariff applies. If a Route uses the medium-pressure grid (maximum authorised operating pressure < 65 bar), both high and medium-pressure firm capacity tariffs apply.

The **commodity component** is 0.2% of energy actually transported, the value being calculated using the representative publications on the Zeebrugge market for the relevant days.

6.2.3. Interruptible capacity

Grid users can subscribe to interruptible capacity up to 15% of their total capacity subscriptions per entry point (firm MTSR + interruptible MTSR). The interruptible capacity tariff consists of **two components**: a capacity component, which is a function of the subscribed interruptible MTSR and a commodity component, which is linked to the energy actually transported.



The **capacity component** consists of two tariff terms:

- subscribed interruptible high-pressure capacity: the tariff for subscribing to interruptible MTSR is € 18.8/(m³(n)/h)/year,
- subscribed interruptible medium-pressure capacity: the tariff for subscribing to interruptible MTSR is € 6.4/(m³(n)/h)/year.

If a Route only uses the high-pressure grid (maximum authorised operating pressure 65 bar) the interruptible high-pressure capacity tariff applies. If a Route uses the medium-pressure grid (maximum authorised operating pressure < 65 bar), both high and medium-pressure interruptible capacity tariffs apply.

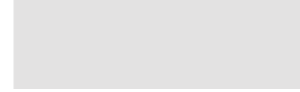
The **commodity component** is 0.2% of energy actually transported, the value being calculated using the representative publications on the Zeebrugge market for the relevant days.

6.2.4. *Seasonal capacity*

The monthly seasonal capacity tariff is equal to the annual firm capacity tariff multiplied by a coefficient varying from month to month, as set out in the table below.

Seasonal capacity tariff coefficients					
January	February	March	April	May	June
35%	35%	20%	15%	9%	9%
July	August	September	October	November	December
9%	9%	10%	10%	20%	30%

The commodity term of 0.2% of energy actually transported also applies to the seasonal capacity tariff, the value being calculated using the representative publications on the Zeebrugge market for the relevant days.



6.2.5. Rate flexibility

Rate Flexibility allows grid users a.o. to supply at a redelivery point an amount of energy exceeding the corresponding MTSR, provided that they have at their disposal a sufficient amount of energy from the Volume Flexibility services available to them.

Fluxys offers without additional charges per redelivery point a **Basic Rate Flexibility** (RF_b) equal to 10% of the subscribed MTSR on the Route to that redelivery point.

In addition to the Basic Rate Flexibility grid users can subscribe to **Complementary Rate Flexibility** (RF_c) up to a level that brings the sum of Basic Rate Flexibility and Complementary Rate Flexibility to 15% of the subscribed MTSR. The tariff for Complementary Rate Flexibility is € 5.1/(m³(n)/h)/year.

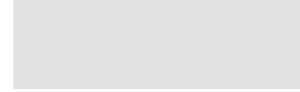
6.2.6. Renomination

Grid users can call on this service for changing nominations. One renomination per day and per Route is offered free of charge. Further renominations for the same day and Route are charged at € 50 per renomination.

6.3. Volume flexibility services

Fluxys provides Volume Flexibility services allowing grid users to accumulate imbalances between the quantities of delivered and redelivered energy - imbalances being calculated hourly per Route. The level of accumulated imbalances may not be negative (Shortfall) and its maximum level may not exceed the sum of Basic Volume Flexibility and Complementary Volume Flexibility (Exceeding).

Fluxys offers without additional charges a **Basic Volume Flexibility** (VF_b) equalling (5+5) hours of Basic Rate Flexibility. In addition to the Basic Volume Flexibility grid users can subscribe to **Complementary Volume Flexibility** (VF_c), subject to availability. The tariff for Complementary Volume Flexibility is € 2.2/m³(n)/year.



6.4. Pressure reducing services

Redelivery to end-users and distribution system operators may require the use of a pressure reducing station directly connected to such redelivery points. The annual tariff for directly connected pressure-reducing stations is equal to € 7.2/(m³(n)/h) of MTSR subscribed.

6.5. Odourisation services

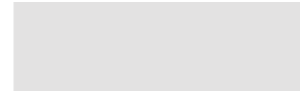
Fluxys offers distribution system operators and end-users the service of odourising the natural gas that is being redelivered to them. The annual tariff for odourisation services is equal to € 0.52/1,000 m³(n) of actually odourised natural gas.

6.6. Incentives related to capacity subscription

Fluxys determines per day and per Route the Daily Capacity Exceeding by taking the highest Hourly Capacity Exceeding of such day. The incentives related to capacity subscription are calculated per Route starting from these Daily Capacity Exceedings:

- **Peak Exceeding:** the highest Daily Capacity Exceeding for the month, which is multiplied by the annual unit capacity subscription cost,
- **Non-peak Exceeding:** the sum of the Daily Capacity Exceedings for the other days of the same month; this sum is multiplied by the annual unit capacity subscription cost and divided by 6,
- in the event of extreme low temperatures ($\leq -5^{\circ}\text{C}$) the peak and non-peak exceeding incentives are multiplied by two.

A mechanism gives to the shipper subjected to penalties, the opportunity to increase its subscribed capacity at an advantageous tariff.



7. GASTRANSPORT SERVICES

7.1. Description of the tariff system

7.1.1. *Tariff structure*

Gas enters the Gastransport Services transmission system at entry points and leaves the system at exit points. GTS introduces a conditional entry/exit system with effect from 1 January 2003, which will mean separate tariffs for entry points and exit points.

A shipper's portfolio may include both contracted entry capacity and contracted exit capacity. Entry and exit capacities do not have to be contracted simultaneously. The gas which the shipper offers to GTS for transport at its contracted entry points is delivered simultaneously by GTS to the shipper at its contracted exit points.

The system will also enable administrative processing of transfers of gas from one shipper to another via the Title Transfer Facility (TTF). This facility relates to transfers of gas which is already present within the GTS network.

7.1.2. *Entry points*

On the entry side, there will be around 50 entry points at terminal level, using around 20 different tariffs. Contracting, nomination and allocation will therefore effectively take place at terminal level.

7.1.2.1. *Diversion*

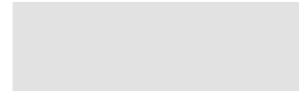
The purpose of the diversion service is to enable the – temporary – switching of capacity from an entry terminal which has already been contracted to another adjacent entry terminal. This service is being provided because it is possible in some cases to operate a pooling arrangement between adjacent entry terminals without making additional capacity demands on the GTS system.

7.1.3. *Exit point*

Contracting of exit capacity at pseudo-gas receiving station level will be maintained for the time being. The total number of exit points will therefore be around 830.

7.1.4. *Connection*

'Connection' relates to the last part of the transport network supplying the user, i.e. the connecting pipework and the gas receiving station.



7.2. Capacity Overrun

The incentive scheme applicable to entry and exit points and to quality conversion has been introduced to provide an incentive for correct and efficient contracting of capacity, through the use of penalties. Gastransport Services intends to feed the proceeds from the penalties back into the market. Exactly how this will be achieved is still the subject of study.

The system of penalties for capacity overshoots is as follows:

During any one gas-day, the system is monitored hour-to-hour for capacity overshoots.

The first part of the monitoring process involves establishing whether the actual volume is within a 2% margin. As long as that is the case, no overshoot is deemed to have occurred. If, however, the actual volume overshoots by more than this margin, the amount of the overshoot is calculated with respect to the contracted capacity.

The next step is to look at the largest hourly overshoot during the gas-day. The penalty is calculated on the basis of this hourly overshoot. The amount of the penalty per m³ (35.17MJ) is equal to half the applicable monthly capacity tariff for that gas-day. In other words for an overshoot in March on a particular section, the penalty is 1/2 x 20% of x annual capacity tariff for that section x the largest overshoot. If the contracted capacity is subsequently exceeded on another gas-day, another penalty for that overshoot of half the monthly capacity tariff is charged. There is accordingly a daily incentive not to exceed the contracted capacity.

7.3. Quality conversion

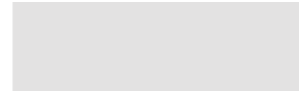
Gas is found in many different qualities. The quality conversion service makes it possible to convert gas to a lower quality for delivery to the desired exit points.

All entry and exit points are assigned a Wobbe label to assist in quantifying the quality conversion capacity requirement. The following Wobbe labels will apply for 2003:

- 51.7 MJ/m³(n): for all H-gas entry and exit points.
- 46.5 MJ/m³(n): for the L-gas entry and exit points at Zevenaar, Winterswijk and Hilvarenbeek;
- 43.8 MJ/m³(n): for the Groningen, Friesland gas and Local-Balgzand entry points connected to the G-gas system
- 44.4 MJ/m³(n): for all other entry and exit points in the G-gas system.

Hourly quality conversion volume is calculated retrospectively at portfolio level, as follows:

- Win = flow-weighted average Wobbe label for entry points;
- Qin = total flow at entry points;
- Wout = flow-weighted average Wobbe label for exit points;



- Qout = total flow at exit points;
- Wobbe-delta = maximum { 0 ; (Win – Wout) };
- Quality conversion = Wobbe-delta x (Qin + Qout) / 2.

A variable tariff will be applied to the calculated quality conversion capacity for the relevant hour. The calculated capacity will also be compared with the shipper's contracted quality conversion capacity.

The quality conversion tariffs are as follows:

- a. Annual capacity fee: **EUR 1.47/m3(n;35.17)/h/year x MJ/m3(n);**
- b. Variable charge: **EUR 0.000209/m3(n;35.17) x MJ/m3(n).**

7.4. Short-term and long-term contracts

The above system for transport capacity relates to annual tariffs. Apart from annual contracts, it will also be possible to have contracts of shorter duration (one or several months; one or several days) and longer-term contracts. In the case of contracts for periods of less than 12 months, transport cannot be reserved for more than 12 calendar months in advance of the starting date. In the case of contracts for periods of more than 12 months, a constant annual transport capacity will have to be contracted. The minimum contract period will be one day.

For monthly capacity the following monthly system will be applied for 2002.

Months are classified as winter months (January, February and December), shoulder months (March, April, October and November) and summer months (May, June, July, August and September). The monthly charge will be 70%, 20% or 10% of the annual tariff, respectively, subject to a maximum of (76% + 2% x number of months) x annual tariff for the total period for which the relevant capacity is contracted. If a shipper subsequently contracts additional months on an entry or exit point, the tariff will be calculated separately according to the monthly system.

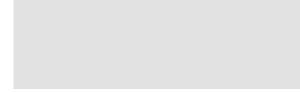
A monthly system also applies to quality conversion, but with different percentages. The monthly tariff will be 25% of the annual tariff, subject to a maximum of the lower of 12.5% x the number of months and 100% of the annual tariff.

For capacity booked on a daily basis the tariff will be 1/8 or 1/15 (depending on the period of notice) times the monthly factor (70%, 20%, 10%) times the annual tariff. Here there is no maximum to the total amount payable for the period for which daily capacity is booked. E.g. booking capacity on a daily basis for a period of 16 days is more expensive than booking it on a monthly basis.

7.5. Trading of transport and quality conversion capacity

Contracted transport and quality conversion capacity will be tradable among shippers qualifying as 'admissible parties'. It will be necessary for Gastransport Services to keep records of traded capacity in connection with contract performance.

A handling fee of EUR 120 is payable for each traded capacity to cover administration costs.



The handling fee is payable by the selling party.

7.6. Use-it-or-lose-it

If a shipper utilises none or virtually none of the contracted capacity during any month, GTS will have the right to demand release of that capacity and will be under no obligation to refund the charge. GTS will exercise this right only if firm capacity for the entry or exit point in question is sold out and only after giving the shipper concerned an opportunity to provide GTS, within a given period, with evidence supporting the shipper's contention that it should be allowed to retain its claim to the capacity.

This use-it-or-lose-it system is applicable *mutatis mutandis* to quality conversion.

7.7. Balancing

Gastransport Services will offer contracts based on daily balancing with hourly tolerances, taking into account the physical capabilities of the GTS transport network and assuming that shippers will deliver gas to the entry point at a constant rate or in a pattern which matches their off take.

For each portfolio hourly tolerance relates to the total difference between actual physical flows at the entry points and exit points within the shipper's portfolio. There will be 0% hourly tolerance at -17°C, increasing linearly to 13% at 0°C and above (based on the actual mean 24-hour effective temperature, i.e. including chill factor, as recorded at De Bilt). An additional operating margin of 2% will be applicable, over and above the tolerance. Both the tolerance (up to 13%) and the 2% operating margin will be split 50/50 over the entry and exit flows.

Tolerance can be traded in advance on a portfolio basis. Both parties must give GTS due notice that a tolerance quantity is to be transferred.

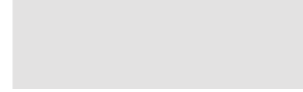
7.8. Title Transfer Facility (TTF)

The TTF facilitates the transfer of gas from the portfolio of one shipper to another shippers portfolio. The selling shipper must give advance notice of a transfer at time τ of volume v with Wobbe label w to the buying via the TTF; buying shipper gives advance notice of a transfer at time τ of volume v with Wobbe label w from selling shipper via the TTF. If confirmed by GTS, an exit volume v with Wobbe label w at time τ is entered in selling shippers portfolio upon allocation and an entry volume v with Wobbe label w at time τ is entered in buying shippers portfolio.

The following tariffs will apply with effect from 1 January 2003:

- a. Annual subscription of **1,000 EUR/month**, which entitles the shipper to use the title transfer service for all four Wobbe labels.
- b. Fee per GJ of **0.004 EUR/GJ**.

Both buying and selling shipper will be charged these tariffs for title transfers via the TTF.



7.9. Methodology, Indexation and regulatory involvement

7.9.1. General tariff methodology and regulatory involvement in tariff setting

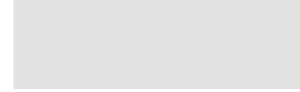
Gastransport Services bases its tariffs on market value and international benchmarking, taking into account the stipulations contained in binding direction 100554/15 and the Guidelines for the Transmission of Natural Gas 2003, both issued by the DTe.

7.9.2. Indexation of tariffs

The indicative tariffs are stated at 2003 prices. Gastransport contracts extending beyond 31 December 2003 will be subject to revisions in the tariff system and price level (see also paras. 128 and 130 of the binding directive). In the year 2004 and 2005 the average tariff will be 5% lower (nominal) compared to the preceding year.

7.9.3. Backhaul

The anticipated amount of backflow in the GTS transport system is incorporated in the tariff for the entry and exit points.



8. GAZ DE FRANCE

8.1. Description of the tariff system

8.1.1. Main Transmission System (MTS)

The design of the tariff system on the Gaz de France MTS (see definition in paragraph 3.1) follows an “Entry-Exit” model applied to five Balancing Zones (named North-H, West, East, South for the H-Gas network and North-L for the L-Gas network). It means that the Entry Capacities and the Exit Capacities within each Balancing Zone are put on the market separately, which is also the case for the Connection Capacities from one Balancing Zone to another. This division into Balancing Zones was thought necessary to lessen the impact of some shortcomings of the primary “Entry-Exit” model, especially on a large territory, such as:

- breach of the cost-reflectivity principles, both for low-cost (short-distance) routes and for long-distance routes;
- lack of information to the Shippers about the internal transportation capacity deep inside the network, eventually leading to an increase of interruptible capacities at the Entry Points to the detriment of firm capacities.

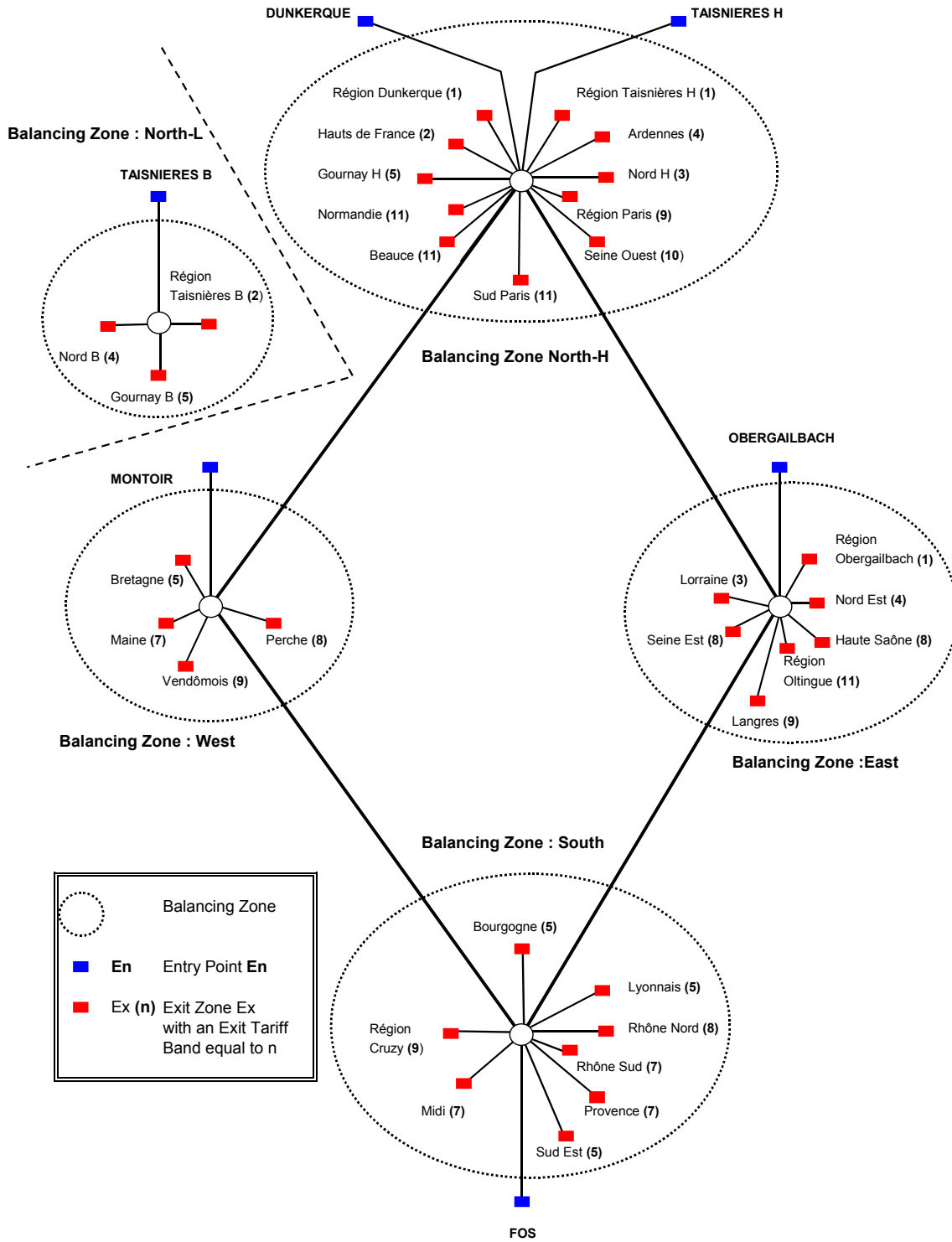
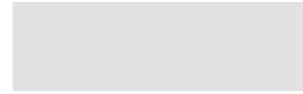
Each Entry Point is attached to a Balancing Zone and subject to a specific tariff.

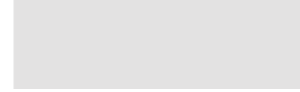
Within each Balancing Zone, Exit Zones are defined and individually subject to a specific tariff. Each Delivery Point is attached to an Exit Zone.

The Balancing Zones, the Entry Points and the Exit Zones are shown on the diagram below, also displaying the connections between the Balancing Zones.

For a standard transmission from an Entry Point to an Exit Point on the MTS, a Shipper has to subscribe :

- a daily capacity at the Entry Point, expressed in MWh/d ;
- a daily capacity at the Exit Zone to which the Exit Point is attached, expressed in MWh/d;
- if the Entry Point and the Exit Point are not attached to the same Balancing Zone, a daily capacity on the Connection(s) from the Balancing Zone to which the Entry Point is attached to the Balancing Zone to which the Exit Point is attached, expressed in MWh/d.





The transportation tariff on the MTS includes the following terms :

- an Entry Term, specific to each Entry Point, with a single component proportional to the daily capacity subscribed at the Entry Point:

Entry Capacity Term (EUR/year per (MWh/d) – December 23 rd 2002 value)					
TAISNIERES B	TAISNIERES H	DUNKERQUE	OBERGAILBACH	MONTOIR	FOS
67.32	91.80	91.80	91.80	73.44	73.44

- an Exit Term with two components:

(a) an Exit Capacity Term applied to the daily capacity subscribed at the Exit Zone; this term depends on the Exit Tariff Band, integer number associated to each Exit Zone (in French *Niveau de Tarif de Sortie “NTS”*, see the diagram above for the NTS values associated to each Exit Zone); it is calculated according to the following formula:

Exit Capacity Term (EUR/year per (MWh/d) – December 23 rd 2002 value)			
For a NTS between 1 and 4:	$(6.12 \times \text{NTS}) - 3.06$	For a NTS between 4 and 11:	$(18.36 \times \text{NTS}) - 52.02$

(b) an Exit Quantity Term applied to the actual quantity of energy delivered at the Exit Zone, calculated according to the following formula:

Exit Quantity Term (EUR/MWh – December 23 rd 2002 value)			
For a NTS between 1 and 4:	$(0.057 \times \text{NTS}) - 0.210$	For a NTS between 4 and 11:	$(0.018 \times \text{NTS}) - 0.054$

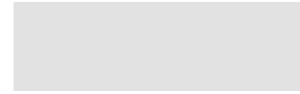
- a Connection Term, specific to each Connection, with a single component applied the daily capacity subscribed on the Connection between the two Balancing Zones concerned:

Connection Capacity Term (EUR/year per (MWh/d) – December 23 rd 2002 value)			
From North BZ to West BZ	104.04	From North BZ to East BZ	104.04
From West BZ to North BZ	20.82	From East BZ to North BZ	20.82
From West BZ to South BZ	183.60	From East BZ to South BZ	183.60
From South BZ to West BZ	36.72	From South BZ to East BZ	36.72

BZ : Balancing Zone.

8.1.2. Regional Transmission System (RTS)

To each Delivery Point on the Gaz de France RTS (see definition in paragraph 3.2) is applied a Transport Tariff Band on the RTS (in French *Niveau de Tarif d’Acheminement sur Réseau Régional* European TPA Tariff Comparison 2003



“*NTAR*”); the *NTAR* is an integer number reflecting the transmission cost from the Exit Zone **A** on the MTS to the considered Delivery Point, the Exit Zone **A** being the Exit Zone to which the considered Delivery Point is attached.

The transportation tariff on the RTS to a Delivery Point is composed of a Capacity Term only, equal to:

42.84 EUR/year per (MWh/d) per *NTAR* - December 23rd 2002 value

applied to the daily capacity subscribed at the considered Delivery Point.

8.1.3. *Deviation from standard cases*

All contracts have to be concluded for a one year period, with no exception.

At the operator’s (Gaz de France) request, the transportation contract may include provisions for temporary reduction or interruption of the gas deliveries with a short notice. In that case, the prices on the RTS are set at 50% of the standard tariff (this reduction does not apply to the prices on the MTS).

8.2. Definition of the Main Transmission System and of the Regional Transmission System

8.2.1. *Main Transmission System (MTS)*

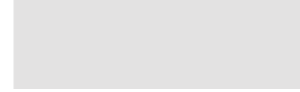
The Main Transmission System (MTS) is made up of high pressure pipes connecting together:

- the connection points with neighbouring networks (on-shore or off-shore pipes),
- the LNG terminals (2 terminals in France, MONTOIR and FOS),
- the underground storage facilities (14 sites in France), and
- the large consuming zones (such as PARIS and LYON areas).

Most of the MTS pipes have a nominal diameter in the range between 500 mm and 1100 mm.

As a result of the interconnection function of the MTS pipes, gas is likely to flow trough them in each direction, depending on the period of the year and/or on special circumstances.

The Regional Transmission networks (see paragraph 2.2 hereunder) as well as some individual industrial consumers and Public Distribution networks are connected to the MTS.

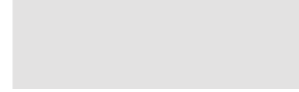


8.3. Regional Transmission system (RTS)

The Regional Transmission System (RTS) is made up of high pressure pipes connecting industrial consumers and Public Distribution networks to the MTS (with only few exceptions, some of them being connected directly to the MTS, as mentioned above).

Most of the RTS pipes have a nominal diameter in the range between 80 mm and 500 mm.

Unlike in the MTS, the gas generally flows through the RTS in only one direction, from the MTS to the Delivery Points.



8.4. Penalties in case of Capacity Overrun

If, on a given day, the quantity of energy transported (or delivered) is higher than the Daily Capacity subscribed¹ (noted DC), the difference is called a Daily Capacity Overrun, and the maximum of all Daily Overruns for a given month (noted CO) is the basis for the calculation of the price for Capacity Overrun during the considered month. Three cases are to be considered:

Case a): CO is less than 3% of DC:

The overrun is free of charges.

Case b): CO is more than 3% of DC but less than 10% of DC:

An additional price is charged; it is equal to the product of $[CO - 0.03 \times DC]$ time the unit price p_{01} equal to:

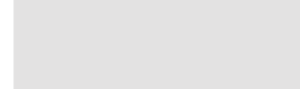
- ↳ twice the annual unit price of DC for the months of December, January and February;
- ↳ half this annual unit price for the other months.

Case c): CO is more than 10% of DC:

An additional price is charged; it is equal to :

- ↳ $0.07 \times DC$ time the unit price p_{01} calculated according to case b) hereabove,
plus
- ↳ the product of $[CO - 0.1 \times DC]$ time the unit price p_{02} equal to:
 - five times the annual unit price of DC for the months of December, January and February;
 - 1.25 times this unit price for the other months.

¹ at the Entry Point or at the Exit Zone or at the Delivery Point



9. GAZ DU SUD OUEST

9.1. General Considerations

9.1.1. *The Transmission System*

GSO's system consists of two separate subassemblies:

- The main system (Main Transmission System [MTS]) is interconnected to the Entry Points with the neighbouring transportation operators' systems and the storage sites. It consists of large-diameter pipelines (usually exceeding 60 cm) in which the flows may be bi-directional.
- The auxiliary system (Regional Transmission System [RTS]) enables the gas to be routed from the MTS's Exit Points to the customers' consuming sites or the public supply systems. It consists of smaller pipelines.

9.1.2. *Capacities*

A Shipper desirous of transporting gas to a customer's consuming site must reserve capacities at Entry Points, Exit Points and Delivery Points.

The data enabling GSO Transport to manage the expansion of its system include those capacities.

9.1.3. *Balancing*

Balancing equalizes on a daily basis the quantities leaving the system with the quantities entering the system.

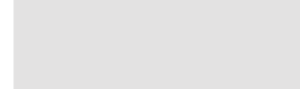
That is necessary for the proper operation of the system. A pressure increase caused by a positive imbalance (entries exceeding exits) might imperil the safety of the facilities. A pressure reduction caused by a negative imbalance materially reduces the transportation capacities and so harms all of the system's users.

The Shipper is responsible for contractual balancing of entries and exits which is penalty free as far as his imbalances stay within the contractual tolerance limits. For that purpose, it must serve daily notice of the quantities which it plans to tender at the Entry Points and the Eligible Customers' corresponding consumption estimates.

The Transportation Manager is responsible for the physical balancing of its network.

9.2. Tariff objectives, principles and method

GSO has adopted a seasonalized entry-exit transportation tariff intended to facilitating the fluidity of gas exchanges in the southwest of France.



The purpose of GSO's method is to allocate the actual transportation costs to the system's users in a way reflecting gas-transportation reality and economics.

To meet that objective, the tariff is based on the following principles:

- It is based on network developing costs established with proper modeling of the infrastructures and the seasonal dimensioning flows.
- It takes into account the degree of saturation of the transportation capacities, thereby enabling relevant signals to be sent to the market and facilitating optimum use of the system.

Those principles have been applied to the Main and Regional Transmission Systems with due allowance for their own specifics:

- On the Main Transmission System, GSO has taken account of the system's dimensional characteristics (diameter and length of the pipelines), the reality of the seasonal dimensioning flows (including backhaul flows) and the degree of saturation of the compression installations and transportation capacities.

A detailed description of the method used can be downloaded from <http://www.gso.fr/uk/images/methodologie.pdf>

- On the Regional Transmission System, GSO has taken account of the dimensional characteristics of the system (diameter and length of the pipelines).

9.3. Main Transmission System Tariff

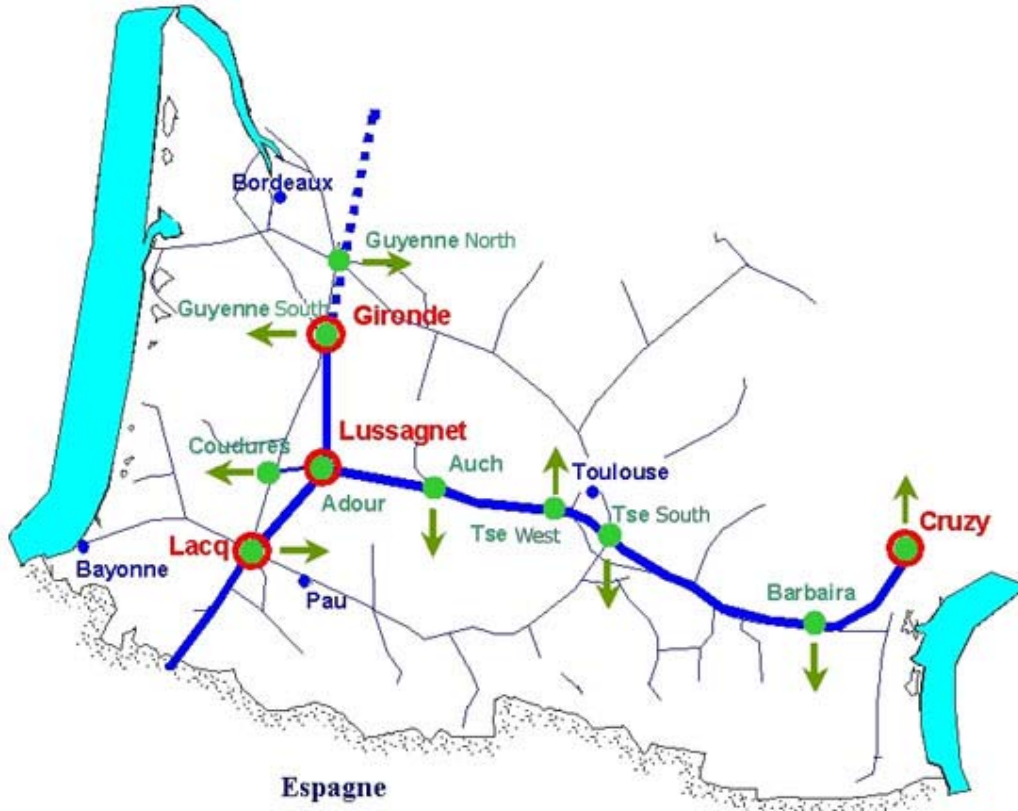
The Main Transmission System Tariff (TRGT) differs between summer (April-October) and winter (November-March). It depends on the Entry and Exit Daily Capacities (CJE and CJS) in MWh/day.

It consists of:

- a Main Transmission System Entry Term (TE)
- a Main Transmission System Exit Term (TS)

$$\text{TRGT} = \text{TE} + \text{TS}$$

TRGT is replaced by an Interconnection Term (TI) when the Entry and Exit Points are merged.

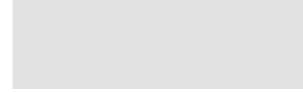


9.3.1. Main Transmission System Entry Term (TE)

$$TE (\text{€}) = PEE * CJEE + PEH * CJEH$$

in which :

- CJEE is the Summer Entry Daily Capacity in MWh/day
- CJEH is the Winter Entry Daily Capacity in MWh/day
- PEE is the Summer Entry Price in € per MWh/day
- PEH is the Winter Entry Price in € per MWh/day



20 December 2002 Schedule of the PEE and PEH Prices :

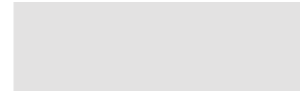
<i>Entry Point</i>	<i>PEE €/MWh/d</i>	<i>PEH €/MWh/d</i>
Gironde	29	19
Lussagnet	29	20
Cruzy	32	19
Lacq	28	18

9.3.2. *Main Transmission System Exit Term (TS)*

$$TS (\text{€}) = PSE * CJSE + PSH * CJSH$$

in which :

- CJSE is the Summer Exit Daily Capacity in MWh/day
- CJSH is the Winter Exit Daily Capacity in MWh/day
- PSE is the Summer Exit Price in € per MWh/day
- PSH is the Winter Exit Price in € per MWh/day



**20 December 2002 Schedule of the PSE and PSH
Prices**

<i>Exit Point</i>	<i>PSE €/MWh/d</i>	<i>PSH €/MWh/d</i>
Guyenne Nord	55	60
Guyenne Sud	47	40
Coudures	61	33
Lacq	63	45
Adour	56	17
Auch	50	50
Toulouse Ouest	35	68
Toulouse Sud	31	67
Barbaira	13	60
Cruzy	11	57

9.3.3. Interconnection Term (TI)

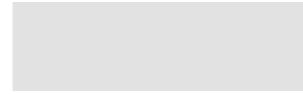
For Shippers desirous of transporting gas from an Entry Point to an Exit Point, merged, TRGT is replaced by an Interconnection Term.

The routes concerned are: Cruzy/Cruzy, Lussagnet/Adour, Lacq/Lacq, Gironde/Guyenne Sud.

$$TI (\text{€}) = 2,5 * CJE + 2,5 * CJH$$

in which :

- CJE is the Summer Daily Capacity in MWh/day
- CJH is the Daily Winter Capacity in MWh/day



9.4. Regional Transmission System (RTS) Tariff

9.4.1. Regional Transmission System Term

This term is based on the cost of RTS transportation from the MTS Exit Point to the Delivery Point upstream of the End Connection.

The **Regional Transmission System Transportation (TRDR)** term depends on:

- the Daily Delivery Capacity (**CJ**).
- the RTS transportation tariff level corresponding to the supplied site (**NIVR**).

<p>Regional Transmission System Transportation Charge (20 December 2002 schedule): CJ in MWh/day</p> $\text{TRDR} = \text{NIVR} \times 39 \times \text{CJ euros per annum}$
--

9.4.2. Delivery term

This term consists of two factors :

- the first depending on the Daily Capacity at the Delivery Point is the **Delivery Capacity Term (TCL)** in euros per annum.
- the second depending on the number of Delivery Stations specified in the contract is the **Fixed Delivery Term (TFL)** in euros per annum per Delivery Station.

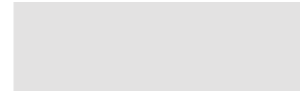
Delivery Charge (20 December 2002 schedule) CJ in MWh/day		
TCL (delivery capacity term) :	10 x CJ	euros per annum
TFL (fixed delivery term) :	2000	euros per annum per Delivery Station

9.4.3. Interruptible capacities on the RTS

a) Definition and implementation :

Unlike a firm capacity, an interruptible capacity may be reduced by GSO in whole or in part on short notice without liability to the shipper or end consumer. That is done in event of extraordinarily bad weather or specific system operating needs.

In exchange, the shipper enjoys the benefit of an attractive tariff on the Regional Transmission



System.

GSO offers an interruptible capacity service if and only if firm transportation capacities are not available. Interruptible capacities are subscribed to for one year and are not automatically renewable.

GSO informs the end consumer concerned of each interruptible capacity subscription by a shipper. The end consumer undertakes to have another source of energy and to be able to interrupt its takings, to the extent of the interruptible part of its capacities, within the time specified by GSO in each case.

b) Tariff :

The Regional Transmission System transportation Tariff (TRDR) is replaced by an **interruptible TRDR** proportional to the volumes of gas delivered to the end customer.

TRDR interruptible	$NIVR \times 0.09 \times \text{Delivered Quantities}$ (in MWh) euros per annum
---------------------------	---

The other terms of the price schedule are unchanged.

9.5. Capacities

9.5.1. Subscription of Daily and Hourly Capacities on the MTS

a) General principles

The Daily Entry Capacity, in MWh/day, defines the maximum quantity of energy which the Shipper may tender to the Transportation Manager at an Entry Point on a given day under its Transportation Contract.

It affords access at the Entry Point to a maximum hourly capacity corresponding to 1/23rd of the Daily Entry Capacity.

The Daily Exit Capacity, in MWh/day, defines the maximum quantity of energy which the Transportation Manager agrees to take from the MTS at an Exit Point on a given day under its Transportation Contract.

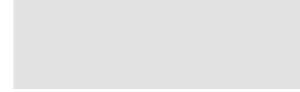
It affords access, at the Exit Point and without additional charge, to an hourly capacity (Base Hourly Exit Point Capacity) corresponding to 1/20th of the Daily Exit Capacity.

The Daily and Hourly Capacities are subscribed to for the minimum term of the contract (12 consecutive months) but the amounts in summer and winter may differ.

b) Subscription to an Hourly Capacity exceeding the Base Hourly Exit Point Capacity

Subscription at the Exit Point to an Hourly Capacity exceeding 1/20th of the Daily Capacity (the Base Hourly Capacity) is conditional on payment of an additional charge.

Such additional charge is proportional to the Hourly Capacity Difference (DCH) between the



Hourly Capacity which the Shipper wants at the Exit Point and the Base Hourly Capacity at such Exit Point.

The additional charge for a given Exit Point is equal to the Hourly Capacity Difference (DCH) multiplied by 20 (to increase it to the daily equivalent-value), in turn multiplied by the corresponding Exit Price.

c) Capacity overrun

The Transportation Manager determines the Quantity of Energy allocated to an Exit Point daily on the basis of the consumption of the eligible Customers assigned to such Exit Point.

If the Quantity of Energy allocated to a Shipper reflects an overrun of a Daily or Hourly Capacity, an additional charge less a deductible is billed to the Shipper.

The difference on a given day between an allocated Daily Quantity of Energy and a Daily Capacity is, if it exceeds 3% of the Daily Capacity, a Daily Capacity Overrun.

The difference between an allocated hourly Quantity of Energy and an Hourly Capacity is, if it exceeds 3% of the Hourly Capacity, an Hourly Capacity Overrun.

d) Daily Capacity Overrun:

Every Daily Capacity Overrun in a month entails payment of an additional charge equal to the product of:

- the sum of the maximum Daily Capacity Overrun in such month and 10% of the other Daily Capacity Overruns in the month, multiplied by
- twice the Exit Price of the season concerned

e) Hourly Capacity Overrun

The difference on a given day between the maximum hourly Quantity of Energy calculated (*) at the Delivery Point and the Hourly Capacity at such Delivery Point is an Hourly Capacity Overrun.

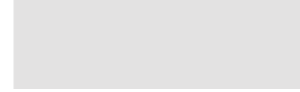
Such overrun entails payment of an additional charge equal to the product of:

- the sum of the maximum Hourly Capacity Overrun in such month and 10% of the other Hourly Capacity Overruns in the month, multiplied by
- 20 to increase it to the daily equivalent, multiplied by twice the Exit Price of the season concerned

9.5.2. Subscription to Daily and Hourly Capacities on the RTS

a) General principles

The Daily Delivery Capacity, in MWh/day, defines the maximum quantity of energy which the Shipper may ask the Transportation Manager to deliver to it at the Delivery Point on a day under its



Transportation Contract.

It affords access, at the Delivery Point and without additional charge, to an hourly capacity corresponding to 1/20th of the Daily Capacity (Base Hourly Delivery Point Capacity).

The Daily and Hourly Capacities are subscribed to for the minimum term of the contract (12 consecutive months).

b) Subscription to an Hourly Capacity exceeding the Base Hourly Delivery Point Capacity

Subscription at the Delivery Point to an Hourly Capacity exceeding 1/20th of the Daily Delivery Capacity (the Base Hourly Capacity) is conditional on payment of an additional charge.

Such additional charge is proportional to the Hourly Capacity Difference (DCH) between the Hourly Capacity which the Shipper wants at the Delivery Point and the Base Hourly Capacity at such Delivery Point.

The additional charge for a given Delivery Point is equal to the Hourly Capacity Difference (DCH) multiplied by 20 (to increase it to the daily equivalent-value), in turn multiplied by the annual unit Regional Transmission System transportation price for the Regional Transmission System tariff Level (TRDR) of the Delivery Point plus one.

c) Capacity overrun

The Transportation Manager measures the Quantity of Energy delivered to a Delivery Point daily.

If such measurement of the Quantity of Energy allocated to a Shipper reflects an overrun of a Daily or Hourly Capacity, an additional charge less a deductible is billed to the Shipper.

The difference on a given day between an allocated Daily Quantity of Energy and a Daily Capacity is, if it exceeds 3% of the Daily Capacity, a Daily Capacity Overrun.

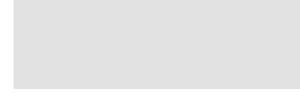
The difference between an allocated hourly Quantity of Energy and an Hourly Capacity is, if it exceeds 3% of the Hourly Capacity, an Hourly Capacity Overrun.

d) Daily Capacity Overrun

Every Daily Capacity Overrun in a month entails an additional charge equal to the product of:

- the sum of the maximum Daily Capacity Overrun in such month and 10% of the other Daily Capacity Overruns in the month, multiplied by
- twice the sum of the annual unit:
 - Regional Transmission System transportation price and
 - Delivery price (fixed term excluded)

corresponding to the Delivery Point concerned.



e) Hourly Capacity Overrun

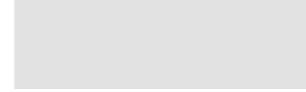
The difference on a given day between the maximum hourly Quantity of Energy calculated (*) at the Delivery Point and the Hourly Capacity at such Delivery Point is an Hourly Capacity Overrun.

Such overrun entails payment of an additional charge equal to the product of:

- the sum of the maximum Hourly Capacity Overrun in such month and 10% of the other Hourly Capacity Overruns in the month, multiplied by
- twice the sum of the annual unit:
 - Regional Transmission System transportation price for a Regional Transmission System tariff Level plus one and
 - Delivery price (fixed term excluded)

corresponding to the Delivery Point concerned.

[*maximum hourly average of the quantities delivered in 4 consecutive hours]



10. MOL

10.1. Description of the tariff system

Gas transmission in Hungary is a regulated activity. At the time, MOL Rt. is the only entity licensed to carry out transmission activities.

Since MOL Rt. enjoys a monopoly position as a gas transmission entrepreneur, the maximum official price of transmission service is subject to regulatory price setting procedure.

In setting the prices, the HEO (Hungarian Energy Office) utilises the lowest cost principle, which means that it ensures that the incurred costs will not be the actual incurred costs but rather the costs, which would have been incurred had the lowest cost materials and services been used.

As the only monopoly gas wholesale activity and the transmission activity are in the same company till today without any unbundling, the Minister of Economy determinates the wholesale gas price, which contains the transmission tariff. Therefore there are no published tariff for transmission.

Our method is very simple: we use an inner accounting price, which is cost based average tariff based on the volume of sold gas.

10.2. Expectations:

The legislative unbundling of the transmission activity is expected from 1. January 2004.

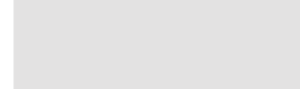
It seems most likely that from 1. January 2004 the new regulated tariffs for gas transmission in Hungary will take effect. According to the proceeded negotiations we will have a cost-based tariff for transmission. The cost base consists of:

- Operating costs
- Depreciation - calculated according to the DRAV (Depreciated Replacement Asset Value) method
- 8.5 % return on revaluated asset value

According our expectations the transmission tariff will contain a capacity and a quantity element. The division between them - depended on the load factor – will approximate the capacity – quantity ratio of 80% - 20%.

Capacity overrun:

From 1. January 2003 we call for the daily booking of capacities at all gas delivery stations. The penalty for any capacity overrun depends on the extent of the overrun and the temperature.



11. OMV ERDGAS

11.1. Description of the tariff system

OMV Erdgas GmbH manages some Main Transport Systems – among the WAG, the Penta West and the PVS (primary distribution system). Even though the PVS is a regional grid, no one of this systems is directly connected to gas users, therefore we treat it as MTS.

WAG and Penta West is managed by a point-to-point reservation system with capacity booking on a specific route on the network, allocating a specific entry point to a specific exit point.

The PVS is managed by a zone oriented system with booking entry capacities for going in and exit capacity for going out of the system at specific entry resp. exit points.

According to the different structure there is a distinction in applying the tariff systems.

Generally the applied tariff, based on each pipeline used, consists of 4 terms:

11.1.1. Load / distance factor

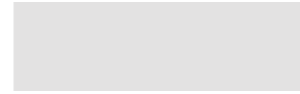
This is derived from the distance covered in the pipeline and the transportation capacity nominated by the customer. It is not applied to the primary distribution system (PVS) due to its network nature.

11.1.2. Pipeline load factor

This is based on the contractually committed transportation capacity of each pipeline used, irrespective of distance. The minimum we charge for is 3,000 m³/h.

11.1.3. Load-dependent system service factor

The standard flexibility (+/-2%) included in standard transportation services, as well as simultaneous gas input and output, are guaranteed, and billed in the form of the system service component based on the contractually committed transportation capacity for each contract. This tariff component is applied to the contractually committed hourly throughput rate, and pays for the use of resources (storage capacity and gas), for simultaneity, balancing gas and warranted equivalence of calorific value. The element is not adjusted with the time factor, however it is billed pro rata with agreements of less than one year. (Not charged for transit)



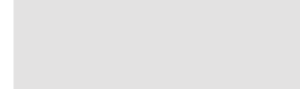
11.1.4. Time factor

The transportation tariffs apply to standard contracts with a duration of one year. For contractual periods other than one year, the transportation tariff is adjusted by time factors; the minimum contractual period is one month.

Adjustment factors are applied to the load/distance and pure load factor.

11.2. Capacity overrun

In the case of overrunning the standard system service of flexibility we will charge a penalty tariff of 200% for the additional transportation service.



12. RUHRGAS

12.1. Description of the tariff system

A point to point system is applied by allocating a specific entry point to a specific exit point.

The different tariff elements ;

- Capacity fee (distance related) in EUR/(m³/h)/km/a
- System services fee (capacity related) in EU/(m³/h)/a
- Fuel gas to be delivered in kind.
-

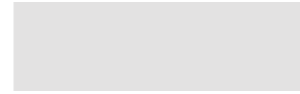
Rules apply to transportation lasting less than one year :

- Winter season (October to March): 100 % of the annual transportation fee
- Summer season (April to September): 60 % of the annual transportation fee (booking of transportation capacity not earlier than 8 weeks before the start of contract term)
- consecutive months in the summer season: 45 % of the annual transportation fee (booking of transportation capacity not earlier than 4 weeks before the start of contract term)

The average GCV in the system is 11.0 kWh/m³.

12.2. Capacity overrun

If a capacity overrun occurred the annual transportation fee per m³/h (tariff x distance plus system services fee) of capacity overrun would be charged. In addition another fee of either 50 % or 100 % of the product of the annual tariff and distance would be charged for the capacity overrun. If a capacity overrun occurred on subsequent days the annual tariff times distance would be charged for each maximum demand in m³/h within a capacity overrun. The shipper may be given the opportunity to book additional capacity. In that case up to 50 % of the payment for the additionally booked capacity can be set off by the payment under the incentive scheme.



13. SNAM RETE GAS

13.1. Introduction To Regulation

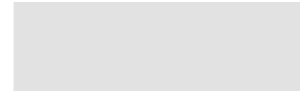
The Italian Ministry of Industry is responsible for establishing the strategic guidelines for the natural gas industry and for ensuring the safety and economic soundness of the natural gas sector.

Autorità per l'Energia Elettrica e il Gas, the Italian regulatory authority for electricity and gas (the Authority), is an independent governmental body which is responsible for:

- setting and adjusting tariffs for storage and transport, and distribution for non-eligible customers, of natural gas on the basis of general criteria established by law;
- advising the Italian Ministry of Industry on the structuring and administration of licensing and authorization regimes for the natural gas sector; and
- overseeing the separation of utility companies into separate legal entities or into units for accounting and management purposes.

The Letta Decree implemented the Gas Directive in Italy and introduced major changes in the regulation of the Italian gas market, providing for its gradual liberalization. The Letta Decree defines the segments of the gas market as importation, production, exportation, transportation (including LNG regasification activities) and dispatching, storage, distribution and sale. The Letta Decree provides for:

- liberalization and increased competition in gas importation, production and sale;
- the regulation of transport, storage and distribution, so that those services are provided to third parties at equal terms and with regulated prices, and sales to non-eligible customers;
- the separation into different legal entities of the transportation activities from all other activities in the gas market, with the exception of the storage activities which are only required to be accounted for separately;
- the separation into different legal entities of the distribution activities of the existing operators in the gas market; and



- the access to the gas transportation, distribution and storage services by eligible customers that request it on equal and transparent terms in accordance with the conditions set forth by the Letta Decree.

13.1.1. Importation and production

Importation and production of natural gas are liberalized. The importation of natural gas produced outside the European Union must be authorized by the Italian Ministry of Industry on the basis of objective and non-discriminatory criteria. Importation from a European Union country merely needs to be notified to the Italian Ministry of Industry.

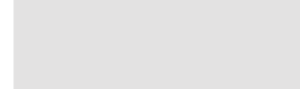
Gas production is subject to Ministry of Industry licenses. The regime governing gas production aims at expanding national reserves. Regulations for the research, exploitation and management of gas fields and the associated infrastructure have been introduced, as well as a tax-favourable treatment for the exploitation of low-yield gas fields receives.

13.1.2. Transportation and dispatching

Under the Letta Decree, the transportation (including the LNG regasification activities) and dispatching of gas is considered to be in the public interest and, due to its quasi-monopolistic nature, is regulated. Companies which carry out these activities must grant access to any eligible users to their network upon request. Furthermore, the Letta Decree requires the Italian Ministry of Industry to issue regulations establishing safety standards and for dealing with emergencies.

The Letta Decree provides that, from January 1, 2002, transport and dispatching must be performed by entities that do not otherwise operate in the gas sector save for storage activities, which must, however, be subject to separation of accounting functions.

Because transportation and dispatching activities have elements of a natural monopoly, the Letta Decree provides for access of eligible third parties to the network at equal and transparent terms and with regulated pricing. For this purpose, the Letta Decree requires that the Authority establish the criteria for an appropriate remuneration of transportation services, which will be reflected in the tariffs that transportation companies can charge to shippers. See “The New Transportation Tariff System”.



13.1.3. Storage

Storage activity is also a regulated activity. Storage of gas in depleted fields or other subterranean geological formations is subject to Ministry of Industry licenses with a term of up to twenty years. Licensees are obliged to supply strategic, mining and storage services to users who so require. The Authority ensures that this principle is respected and establishes criteria which will ensure all users have access on the same terms.

13.1.4. Distribution and sale

From January 1, 2002, natural gas may only be distributed by companies that do not otherwise operate in the natural gas industry. Similarly, from the same date, natural gas may only be sold by companies that do not otherwise operate in the natural gas sector other than as importers, producers or wholesalers.

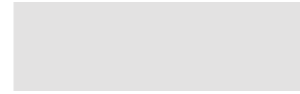
Under the Letta Decree, the distribution of gas is a public utility entrusted to companies, through public tender competitions, for periods of no more than twelve years.

The Letta Decree provides for a gradual liberalization of the distribution and sale of natural gas. For this purpose it divides natural gas end-users into eligible customers and non-eligible customers.

Pursuant to the Letta Decree, the following have been identified as eligible customers:

- gas-fired power plants;
- consumers of more than 200,000 cubic meters per year;
- consortia of customers which are in the aggregate consumers of more than 200,000 cubic meters and whose members are individually consumers of more than 50,000 cubic meters per year;
- domestic producers of natural gas for own consumption; and
- wholesalers and local distribution companies.

From January 1, 2003 all final gas consumers will be considered eligible customers.



Whereas the sale of gas to non-eligible customers, which are small commercial users and residential users, is subject to regulated pricing through a tariff system that provides for the remuneration of distribution services, sale to eligible customers is unregulated.

13.2. ABOUT SNAM RETE GAS

Snam Rete Gas was incorporated on November 15, 2000 as Rete Gas Italia S.p.A., and changed its name into Snam Rete Gas effective October 2001. Snam Rete Gas was formed to own and operate all of the natural gas transportation and dispatching services and the LNG regasification services assets transferred by Snam. Snam, a subsidiary of Eni, was active as an integrated gas company in the supply, transportation and marketing of natural gas.

On July 1, 2001, all of the natural gas transportation and dispatching services and the LNG regasification services assets of Snam were transferred to Snam Rete Gas.

On November 1, 2001, all of the LNG regasification services assets of Snam Rete Gas were transferred to GNL Italia S.p.A., a wholly owned subsidiary of Snam Rete Gas.

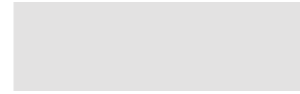
Since December 1, 2002 Snam Rete Gas shares have been listed on the Milan stock exchange; the portion of Snam Rete Gas 's capital placed into the market was 40.24%.

As a result of the simplification of the corporate organization of the Eni group, on February 1, 2002 Snam merged with and into Eni. As a consequence, Eni owns directly 59,76% of the shares of Snam Rete Gas.

Snam Rete Gas is the leading Italian provider of natural gas transportation and dispatching services, and is the only Italian provider of LNG regasification services.

Snam Rete Gas carries out at the national and regional level substantially all of the gas transportation activities in Italy, and it owns more than 29,000 km of pipeline, out of a total of approximately 30,400 km comprising the Italian transportation pipeline network.

Additionally, Snam Rete Gas owns the only LNG regasification terminal currently operating in Italy, located at Panigaglia (near La Spezia). The LNG terminal receives gas imported through LNG carriers.



The Italian transportation pipeline network is divided into a National Pipeline Network and a Regional Transportation Network as required by the Letta Decree, according to the criteria set forth in the Italian Ministry of Industry Decree of December 22, 2000. The distinction between the National Pipeline Network and the Regional Transportation Network is relevant for the calculation of natural gas transportation tariffs.

The part of the National Pipeline Network owned by Snam Rete Gas consists of approximately 7,500 km of high pressure, large diameter pipe and sealine. The National Pipeline Network is designed to transport large quantities of gas from the national input terminals to the points of interconnection with the Regional Transportation Network. The National Pipeline Network therefore links these interconnection points with international gas import and export pipes, storage facilities and the main domestic gas production sites.

The part of the Regional Transportation Network owned by Snam Rete Gas consists of approximately 21,500 km of smaller diameter pipe designed to transport natural gas within specific regions to industrial customers, power plants and local gas distribution companies.

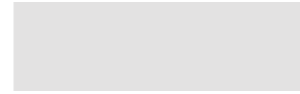
13.3. THE NEW TRANSPORTATION TARIFF SYSTEM

In its decision, or Delibera 120/01 dated May 31, 2001 the Authority set out the criteria for calculating natural gas transportation, system control and LNG regasification tariffs.

Under the new system, transportation companies propose to the Authority the set of tariffs that they intend to apply to customers and the Authority gives approval provided that the proposed tariffs comply with the criteria established in the Delibera. The new tariff mechanism applies to all shippers from the beginning of the first gas year on October 1, 2001, and applies retroactively to the period June 1, 2000 to September 30, 2001.

The Authority regulates the tariff mechanism by setting criteria that apply over each regulatory period, the first of which will last four gas years. Each gas year begins on October 1 and terminates on September 30. The first gas year began on October 1, 2001.

The allowed revenues of transportation companies are regulated by the Authority for each regulatory period on the basis of:



- a RAB (Regulatory Asset Base) that the Authority recognizes for the natural gas transportation and LNG regasification companies;
- a rate of return that the Authority recognizes on the RAB;
- an allowed depreciation rate and a recognized level of operating costs;
- a revenue cap formula, pursuant to which the allowed revenues from providing transportation capacity are adjusted each year by a given percentage;
- a price cap formula, pursuant to which the price charged for a unit of volume transported is adjusted each year by a given percentage; and
- a separate incentive for new investments in the extension or capacity expansion of the network.

The allowed revenues comprises a capacity revenue, which relates to the transport capacity provided to the shippers and does not depend on the volumes of gas transported, and a commodity revenue, which relates to the volume of gas transported for the shippers. The Delibera allocates 70% of the reference revenue to the capacity component and 30% of the reference revenue to the commodity component.

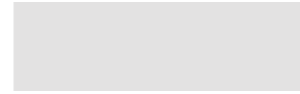
On the basis of the capacity revenue and the commodity revenue, the transportation companies determine the tariffs to be charged to customers. The transportation tariff comprises a capacity charge and a commodity charge connected, respectively, to the network capacity requested by the shipper and to the volume of gas to be transported.

The system of determining the capacity component of the tariff for National Pipeline Network is known as “entry – exit” system.

The capacity charge is based on the capacity requested by the shipper at the entry point of the National Pipeline Network, at the interconnection points between the National Pipeline Network and Regional Transportation Network and at the exit point. Points of entry principally include the interconnections of the network at the national border with foreign transportation networks and the points of entry of natural gas from gas fields and storage sites. Points of exit are principally the points where natural gas is delivered to end-users or to local distribution networks.

13.4. TERMS OF ACCESS CONDITIONS TO THE SYSTEM FOR THE GAS YEAR 2001-2002

In September 2001, Snam Rete Gas published rules for access to the transportation services for the gas year beginning October 1, 2001 and ending on September 30, 2002 (the Access Conditions).



Snam Rete Gas prepared the Access Conditions in accordance with the provisions of the Letta Decree, subsequent decrees of the Italian Ministry of Industry and the Delibera. Snam Rete Gas has updated its Access Conditions according to the immediately applicable provisions of the Delibera n° 137/02, issued by the Italian Regulator on July 26th, 2002.

The Access Conditions are a set of rules governing the access of shippers to the gas transportation system. Their purpose is to allow the transportation service to operate safely and efficiently, on non-discriminatory terms and to promote a high quality of service.

The Access Conditions function as a set of standard contractual provisions which bind transportation companies and shippers.

The following is a summary of the most significant provisions of the Access Conditions.

13.4.1. Access to the system

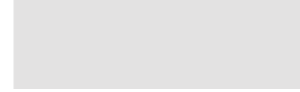
In order to obtain access to the Snam Rete Gas network system, shippers must comply with certain requirements, including being eligible pursuant to the Letta Decree and providing the required authorizations by the Italian Ministry of Industry and adequate credit guarantees. These guarantees are required to cover the amounts due by the shippers with reference to the capacity booked for a six-month period.

13.4.2. Capacity booking

The Access Conditions indicate how Snam Rete Gas makes transportation capacity available to the shippers.

Shippers book capacity in terms of the maximum daily volume of natural gas that they can deliver into, and withdraw from, the system. Capacity must be booked at national network entry and exit points, at regional network redelivery points and at the LNG terminal.

Snam Rete Gas makes its capacity available either on a firm basis at the entry and exit points, in which case Snam Rete Gas cannot interrupt such availability, or on an interruptible basis at the import entry points, in which case Snam Rete Gas can interrupt in whole or in part the capacity made available for up to a certain number of days, or during a certain period, of the gas year.



The Access Conditions indicate the procedure and the timing for the shippers to submit their requests and for Snam Rete Gas to allocate its capacity. In particular, the Access Conditions describe the rules governing Snam Rete Gas' allocation of capacity in the event that capacity booking requests exceed the available capacity. With respect to import entry points in 2001, Snam Rete Gas gave priority to capacity booking from shippers which were parties to a long-term gas transportation agreement with Snam Rete Gas on the date of publication of the Access Conditions. If the remaining capacity booking requests exceed the available capacity, capacity was allocated pro-rata on the basis of requests submitted. The 2002 capacity booking round procedure gives priority initially to "take or pay" contracts and then to multi-annual and annual contracts, pursuant to the provisions of the Delibera n°137/02.

Under the Access Conditions, shippers can trade, on a monthly basis during the gas year, the transportation capacity that has been allocated to them at the entry and exit points on the National Transportation Network. In addition, the Access Conditions provide for the transfer of capacity from one shipper to another at regional network redelivery points in the event that a shipper replaces another shipper in supplying the final customer or distribution company.

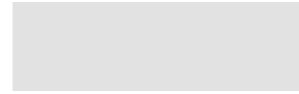
13.4.3. Flow nominations

The Access Conditions require the shippers to submit to Snam Rete Gas a "transportation program" which provides estimates of their monthly, weekly and daily intake and offtake flows to provide the necessary assistance to Snam Rete Gas in its management of the operations of the pipeline. The notification of the gas flow is called nomination, and this amount must be verified and confirmed by Snam Rete Gas.

13.4.4. Balancing

The Access Conditions provide for the physical and commercial balancing of the gas transportation network:

- Physical balancing is the set of operations performed by Snam Rete Gas' dispatching center through the real-time monitoring of the gas flow capacity and pressure, in order to



guarantee the safety and efficiency of the gas transportation system from the entry to the exit points;

- Commercial balancing is the set of penalty fees applicable to the shippers aimed at discouraging shippers from creating an imbalance between the intake and the offtake, thus assisting Snam Rete Gas in performing its physical balancing operations.

In accordance with the Letta Decree, Snam Rete Gas is responsible for physical balancing. For this purpose, Snam Rete Gas books storage capacity that it uses both to provide for the hourly modulation of the gas transported during a given day and to maintain the appropriate pressure in the pipeline system (through the use of the so-called line-pack). In accordance with the Delibera, the energy daily balancing performed by Snam Rete Gas includes the hourly modulation of the shippers' offtake as an integral part of the transportation services provided by Snam Rete Gas.

Under the commercial balancing rules, shippers are subject to penalty fees which increase in proportion to the shipper's imbalance above certain tolerance thresholds.

13.4.5. Invoicing and payment

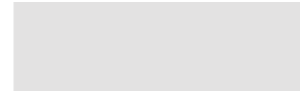
The Access Conditions require that Snam Rete Gas issue the invoices for the payment of transportation services and any applicable penalty fee at the end of each month. Shippers are generally required to pay within 30 days from the date of the invoice.

13.4.6. Legal provisions

The Access Conditions set forth the rules governing the contractual relationship between Snam Rete Gas and the shippers. Topics addressed include, among other things: governing law, jurisdiction, performance, liabilities, force majeure, gas losses, termination, assignment, tax and customs regulations.

13.5. THE NETWORK CODE

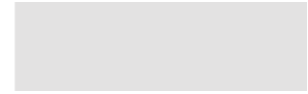
The Access Conditions will be replaced by a Network Code, proposed by Snam Rete Gas and approved by the Authority. The Network Code will set forth rules for access to the transportation services going forward on the basis of criteria issued by the Authority.



Snam Rete Gas is currently preparing, according to the Delibera n°137/02 on access criteria, the contents of the Network Code to be delivered to Italian Authority for approval.

13.6. WEB SITES:

- www.snamretegas.it/snamretegas/italiano/regolamentazione/regolamentazione.html
- www.autorita.energia.it/docs/01/120-01.htm
- www.minindustria.it



14. SOTEG

14.1. Description of the tariff system

14.1.1. Introduction

The following schedule outlines the general terms and conditions for any shipper who desires to transport gas volumes on the SOTEG transmission system.

Shippers must subscribe the maximum required hourly transport capacity for a twelve month period. The price is a post stamp tariff based on the subscribed capacity.

There is no tolerance on transmission capacity. Shippers must not exceed their hourly capacity subscription. Shippers will be penalised if their capacity subscription is exceeded in any hour of the year.

14.1.2. Transmission tariff

The transport service offered means that SOTEG will transport the gas received at the receipt point and deliver the same quantity of energy at the delivery point within the limits of the booked maximum hourly capacity (CHM).

The pricing structure of this transport service consists of two elements:

- **a capacity charge (TC)**

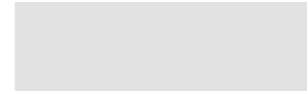
This charge is a multiple of the maximum hourly capacity booked by the shipper. This charge is independent of the entry and supply point. The maximum hourly capacity is the maximum volume of natural gas in Nm³ (volume of dry gas which at a temperature of 0° and 1.02325 bar occupies a volume of 1 cubic meter) which the shipper can inject or retrieve from the SOTEG transmission system at any hour during period of the contract.

Capacity Charge :	
TC	57.4 x CHM EUR/year (CHM is in Nm³ per hour)

- **a fixed access charge (TA)**

The access charge (TA) covers all metering, invoicing and other administration costs.

Access Charge :



TA	6000 EUR/year
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The total cost of the service equals TC+TA =TT in EUR/year

14.2. Capacity overrun

Shippers must subscribe the maximum required hourly transport capacity (CHM) for a twelve month period.

SOTEG is not obliged to transport gas in excess of the maximum hourly capacity (CHM) booked.

Shippers are required to reserve sufficient transmission capacity to meet their transportation and balancing requirements. Booked capacity is assumed to be the maximum of the hourly or daily capacity subscription. There will be no tolerance for either hourly or daily capacity.

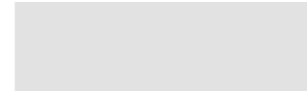
Should the transmission capacity utilised exceed the transmission capacity reserved by a shipper during any hour for reasons not attributable to, and without the consent of SOTEG, Shipper will be charged and obligated to pay an unauthorised transportation charge. The penalty charge will be equal to two times the SOTEG capacity charge based upon the unauthorised transmission capacity (CHNA) utilised.

$$\text{PENALTY} = 2 \times \text{CHNA} \times \text{TF} \quad \text{EUR/year}$$

The shipper's contracted maximum hourly capacity (CHM) will be increased by the unauthorised capacity utilised, depending on the available capacities at that moment.

14.3. Hourly fluctuations

Shippers are required to balance on a daily basis. However, shippers are expected to utilise best efforts to maintain a constant hourly flow during the gas day. Shippers are not allowed to maintain large fluctuations in their deliveries or receipts during the day. Shippers are allowed an hourly delivery capacity equal to 1/16th of their daily nominated volumes which equates to a 50% fluctuation each hour of the day. If a shipper breaches this hourly allowable fluctuation, the shipper will be charged according to the following fee schedule The fee will be based on the percentage and on the total hourly volume of the imbalance (ΔH in Nm³) measured .

*14.3.1. Winter Schedule*

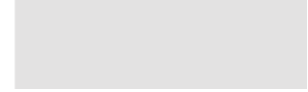
Surplus Hourly Fluctuation	Penalty
Fluctuation < 50.0%	0
50.0% < Fluctuation < 55.5%	2.0 x 0.013 x ΔH
55.5% < Fluctuation < 58.0%	4.5 x 0.013 x ΔH
58.0% < Fluctuation < 60.5%	7.5 x 0.013 x ΔH
60.5% < Fluctuation	9.0 x 0.013 x ΔH

14.3.2. Summer Schedule

Surplus Hourly Fluctuation	Penalty
Fluctuation < 50.0%	0
50.0% < Fluctuation < 57.5%	1.0 x 0.013xΔH
57.5% < Fluctuation < 60.0%	2.5 x 0.013xΔH
60.0% < Fluctuation < 62.5%	4.5 x 0.013xΔH
62.5% < Fluctuation	7.0 x 0.013xΔH

14.4. Approval by the regulator

The tariff is expected to be approved by the regulator in the next couple of month.



15. SPP – SLOVENSKY PLYNARENSKY PRIEMYSEL

15.1. Approval by the regulator

The Decree of the Ministry of Economy of the Slovak Republic No. 562/2001 Coll. of Laws stipulates the lowest volume of the annual consumption of natural gas for eligible customers. Eligible customers are the only entities who are entitled for TPA in Slovakia.

The decree 0088/2002/03 of the Regulatory office of network industries of Slovakia (RONI) is determining the pricing of gas transport and distribution for eligible customers in Slovakia. Gas transport for domestic market is a regulated activity regulated by RONI and the transit across Slovakia is a negotiated activity not being regulated by RONI.

The payment for gas transport and distribution for eligible customers is not related to the distance of transportation or diameter of the pipelines. (Poststamp-tariffs)

15.1.1. Definitions :

“Takeover place”: a place, where the Shipper hands over gas to SPP for distribution.

“Handover place”: a place, where SPP hands over gas to the Shipper.

M category of eligible customers : yearly consumption from 6 500 to 60 000 cubic metres.

S category of eligible customers : yearly consumption from 60 000 to 400 000 cubic metres.

V category of eligible customers : yearly consumption above 400 000 cubic metres.

Price for Gas Distribution:

In conformity with the Resolution of the RONI No. 0088/2002/03 of 18 December 2002 the tariff price will be determined for each handover place as follows:

a) *an off-take point in the M category:*

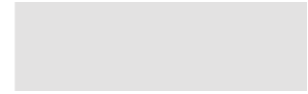
$$P = Y + V$$

b) *an off-take point in the S category:*

$$P = F + V$$

c) *an off-take point in the V category:*

$$P = F + H + V$$



Where:

P – price for Gas Distribution (in Sk)

Y – fixed rate for the reservation of the annual capacity (3 309.00 Sk)

F – fixed rate per cubic meter for the reservation of capacity (0.67 Sk/m³) x booked monthly capacity in individual months (in m³)

H – yearly rate for maximum hourly capacity (1 952.88 Sk/(m³/h)) x booked maximum hourly capacity (in m³/h)

V – variable charge for the transported volumes, according to the individual categories (in Sk/m³)

The price is calculated and invoiced on a monthly basis.

15.2. Approval by the regulator

The gas transmission system in Slovakia consists technically of three parts – the transit system, high pressure inland system and distribution network. The transit system serves for international transit and import of gas for Slovakia. The inland high pressure system connects distribution system with transit system. The distribution network brings gas to local customers. All the system is owned and operated by SPP.

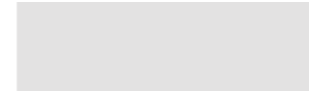
The transmission system of SPP is not for the purpose of TPA divided into a Main Transmission System and Regional Transmission Systems. For the purpose of TPA the transport is considered from the entry point of the system directly to the eligible customer.

15.3. 3. Capacity overrun

The pricing of capacity overrun will be agreed and applied during the first half of 2003 year. The current proposal is following, where prices A1-A3 and B1-B3 will be agreed by RONI :

In case the Shipper overruns the booked hourly capacity, the following rates will apply for the overrun capacity at each single exceeding of the booked hourly capacity:

Overrun 0 – 5 %	Price A1 in Sk/m ³ /h
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Overrun 5 – 10%	Price A2 in Sk/m ³ /h
Overrun over 10 %	Price A3 in Sk/m ³ /h

In case the Shipper overruns the booked monthly capacity, the following monthly rates will apply for the overrun volume exceeding of the booked monthly capacity:

Overrun 0 – 5 %	Price B1 in Sk/m ³
Overrun 5 – 10%	Price B2 in Sk/m ³
Overrun over 10 %	Price B3 in Sk/m ³

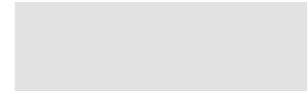
15.4. 3. Capacity overrun

The tariffs for transport and distribution for eligible customers are under regulation by the regulatory authority (RONI). The decree 0088/2002/03 of the Regulatory office of network industries of Slovakia (RONI) is determining the pricing of gas transport and distribution for eligible customers in Slovakia.

15.5. Price comparison table

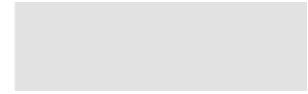
The standard scenarios of GTE can not be used because of postal system of pricing. In order to facilitate basic comparison, a model example was chosen. Category V of eligible customers is considered. The situation of transport for 200 km on MTS and consequent transport through RTS is considered. This fits well for comparison with Table 6 of GTE tariff comparison and looks to be a realistic scenario for the average eligible customer in Slovakia.

Distance 200 km MTS + RTS		Price (EUR/MWh)
DLF = 330 d	HLF = 23 h	4.78
	HLF = 20 h	4.86



DLF = 250 d	HLF = 23 h	4.78
	HLF = 20 h	4.86
DLF = 125 d	HLF = 23 h	4.78
	HLF = 20 h	4.86

owned and operated by SPP.



16. TRANSCO

16.1. Description of the tariff system

For its transmission system, known as the National Transmission System (NTS), Transco operates an entry/exit tariff system. The main entry points are the six main beach terminals, but there are five smaller onshore fields and a number of storage facilities which also count as entry points. There is a much larger number of exit points, about 170, where gas is offtaken into either the Local Distribution Zones or to large loads such power stations or the Interconnectors.

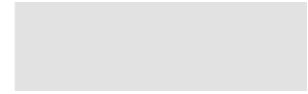
There are two types of charges for use of the NTS – capacity charges and commodity charges.

16.1.1. Capacity charges

These are divided into entry capacity charges and exit capacity charges. Monthly System Entry Capacity (MSEC) is now sold by pay-as-you-bid auctions. Auctions are held twice a year, normally in February/March and August/September for MSEC for the six months starting 1 April and 1 October respectively. MSEC unsold at the auctions may be bought on a first come first served basis up to three days before the month of use at a price based on the weighted average of the top 50% of accepted bids by volume. Any capacity remaining unsold is offered for sale as daily capacity (DSEC) again on an auction basis.

From 1 December 2000 Monthly Interruptible System Entry Capacity (MISEC) has also been made available using an auction format similar to that for MSEC. However from 1 April 2002, MISEC will no longer be available.

Exit capacity is booked on an annual basis and charged for on the basis of charges published by Transco in its Transportation Charges Statement.



16.1.2. Commodity charges

Commodity charges are based on the volume of gas transported. The standard commodity charge is a single charge per kWh irrespective of the distance the gas is transported. The charge is published in Transco's Transportation Charges Statement. Apart from the standard commodity charge there is an optional short-haul commodity charge which is based on the distance the gas is transported and can result in a lower charge for large loads situated close to an entry point.

Interruption Interruptible transportation is available for supply points which consume over 5,860,000 kWh per annum. For supply points which have been nominated by a shipper as interruptible the shipper does not pay the NTS exit capacity charge. The entry capacity charge and the commodity charge are still payable. Transco has the right to interrupt these supply points for up to 45 days each year.

Regional Transmission System Transco has no separate charges for the use of the Regional or Local Transmission System as they are included in the charges for use of the Distribution System.

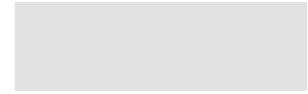
16.2. Capacity Overrun

Capacity overrun charges apply in the case of exit capacity overruns. Overruns on entry capacity would be dealt with through the balancing regime.

Each Daily Metered customer has a quantity of registered NTS exit capacity. This quantity of capacity can be set and booked by a shipper on behalf of the customer on an annual basis, subject to Transco assessment. If for any reason the daily volume offtaken exceeds this quantity, in any calendar month, then the customer becomes liable for overrun charges. The quantity on which they are charged overrun charges is the maximum difference between the amount offtaken and the registered exit capacity within the month.

The applicable overrun charges are a multiple of the applicable NTS Exit Capacity Charges with the multiplier dependent on the month in question. The probability of a peak day occurring varies from month to month and the impact of overrun quantities is more significant in the months when there is a high probability of a peak day occurring.

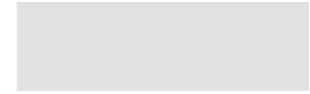
The relevant multipliers are:



Month	Overrun Multiplier
December to March	2.0
October, November, April, May	0.5
June to September	0.2

16.3. Transmission costs and revenue

Transco's transportation charges are derived within a price control which is set by Ofgem, the UK's gas and electricity market regulator. The price control formula determines the maximum revenue Transco can earn for each unit of gas transported through its network. Within the limits set by the price control, transportation charges are designed to reflect the relative costs of constructing, maintaining and operating the different parts of the gas transmission and distribution systems.



17. TRANSGAS

17.1. Description of the tariff system

In accordance of the new Energy Act the Czech natural gas market would be open on 1 January 2005. For transmission systems, negotiated third party access has been proposed and for distribution networks it has been proposed regulated TPA. Despite the provisions, the obligation to publish transmission tariffs will come into force as from the day of above mentioned market opening.

Until 1 January 2005 the Energy Regulator will control complete gas prices having the format of two-component prices – the commodity charge and the capacity charge. Transportation costs – the subject of this comparison – are together with storage costs parts of the capacity charge. The capacity charge has nature of a postal stamp

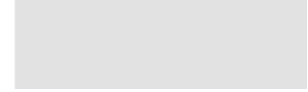
for all Czech Republic and the Czech gas customers will pay the cost of contracted capacity. From 2002, natural gas price will include all justifiable costs, and further on this cost-based price will be increased to include a reasonable profit margin from 1 January 2005.

17.2. Description of the transmission system

The Transgas natural gas transmission system is comprised of the two parts – the transit system and the inland system. The transit system serves for non-regulated international transport of natural gas for foreign companies and also into the inland gas system. The inland system that is linked to the transit system via inland transfer stations is used only for serving domestic market. The last link of the Czech gas system are distribution network owning by the regional distribution companies.

17.3. Capacity overrun

No penalties is used in the case of overrun contracted capacity. Only, in case of an overrunning of the contracted capacity during a given contracted year, for the year is stated new contracted capacity and the customers have to pay off the new level also for the past months.



18. WINGAS

18.1. Description of the tariff system

Point-to-point transportation based on reserved hourly maximum capacity. The utilisation of the transportation capacity is at the shipper's sole discretion. However, resale of capacity (secondary capacity trading) would require agreement with WINGAS. A 2% overrun of the capacity reservation is tolerated.

In addition, WINGAS also offers interruptible transportation contracts.

The transportation fees are made of three components:

18.1.1. the distance component (capacity reservation):

The following specific transportation fees apply:

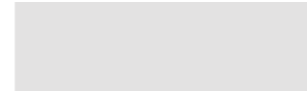
Diameter (=x in mm)	Specific transportation fee [EUR/(m ³ /h)/km/a]
$x \geq 1000$	0.18
$700 \leq x < 1000$	0.23
$500 \leq x < 700$	Currently not existent
$350 \leq x < 500$	0.74

18.1.2. the service component (system services):

A fee of 4.34 EUR/(m³_N/h)/year for system services applies.

18.1.3. the service gas

For a distance of 100 km such service gas is 0.22 % of the volume delivered at the entry point for transportation.



A first indication, for a specific transportation project, the transportation fees can be derived by the calculator on the WINGAS-website.

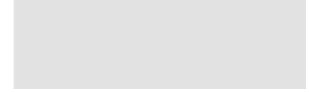
18.2. Short-term contracts

The aforementioned fees refer to contract terms of one year commencing on 1 April or 1 October. Individual terms for short-term transportation can be agreed upon. Depending on the individual term only a percentage of the one-year capacity reservation fee applies:

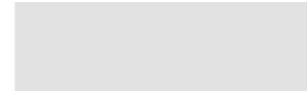
Contract term	Percentage
half-year, summer	50
half-year, winter	85
· Q1 (January – March)	60
· Q2 (April – June), Q3 (July – September) each	30
· Q4 (October – December)	50
· January, February, December each	25
· March, October, November each	15
· April – September each	10

18.3. Transportation chain

As a supplementary service for shippers on the WINGAS-system, WINGAS offers its know-how to support its shippers in getting access to pipeline-systems of other network operators, if needed («transportation chain»). The service is free of charge if the transportation chain is organized and consequently a transportation contract on the WINGAS system is concluded.



PART 2 : THIRD PARTY ACCESS TARIFF COMPARISON



19. ASSUMPTIONS AND DEFINITIONS

19.1. Standard cases

The following tariff comparison concerns a standard transmission situation from an entry point to an exit point of the system. It has been established for the following cases :

3 values for Daily Load Factor : 330, 250 and 125 days per year ;

2 values for Hourly Load Factor : 20 and 23 hours per day ;

3 values for the distance on the Main Transmission System : 100, 200 and 500 km ;

a mean value for the Regional Transmission System.

19.2. Definitions and basic assumptions

19.2.1. Daily Load Factor

The Daily Load Factor is defined as the annual quantity delivered to the exit point divided by the maximum daily quantity to be delivered at the exit point (expressed in days per year). The three values selected : 330 days, 250 days and 125 days may correspond respectively to a large industrial consumer (e.g. chemical plant), a consumer more sensitive to climatic conditions (e.g. power plant or mid-size industrial consumer) and a local distribution company.

19.2.2. Hourly Load Factor

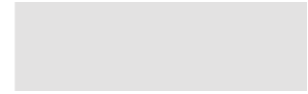
The Hourly Load Factor is defined as the maximum daily quantity divided by the maximum hourly quantity to be delivered at the exit point (expressed in hours per day). The two values selected for this parameter : 23 hours and 20 hours, are consistent with moderate variations over a gas day.

19.2.3. Annual quantity

For most of the TSOs, this parameter has no or little influence on the transmission price. If necessary, an annual quantity equal to 500 millions of kWh per year is taken into consideration.

19.2.4. Main Transmission System (MTS)

The distance referred to is the distance along the network between the point where gas is filled into the system (entry point) and the point where the gas is delivered out of the system (exit point).



For those TSO not having a distance-related system, a low case value and a high case value is estimated.

19.2.5. Diameters

For TSOs for which the tariff depends on the diameter of the pipeline used, a high case and a low case values are given, consistent with the high value and low value of the diameter that are given in the description of the MTS and RTS (see table 7)..

Regional Transmission System (RTS)

Given the very different tariff structure, only a mean value is given.

19.2.6. Contract duration

The prices are calculated on the basis of a one year contract.

19.2.7. Gross calorific value

When the tariff system is based on volumes rather than energy, the prices are calculated based on an average gross calorific value (see table 7).

19.2.8. Auctions

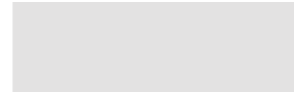
When prices are determined by an auction system, the price indicated in the table is based on the tariffs which would have been applied in absence of auctions.

19.2.9. Currency

When tariffs are expressed in a currency out of the Euro zone, the price is converted into Euros based on an average rate (see table 7).

19.3. Tables

Table 1	Distance on the MTS : 100 km
Table 2	Distance on the MTS : 200 km
Table 3	Distance on the MTS : 500 km
Table 4	Mean value on the RTS
Table 5	Distance on the MTS : 100 km + Mean value on the RTS
Table 6	Distance on the MTS : 200 km + Mean value on the RTS
Table 7	Assumptions and remarks related to the Tables 1 to 6
Table 8	Assumptions and remarks related to the Operators

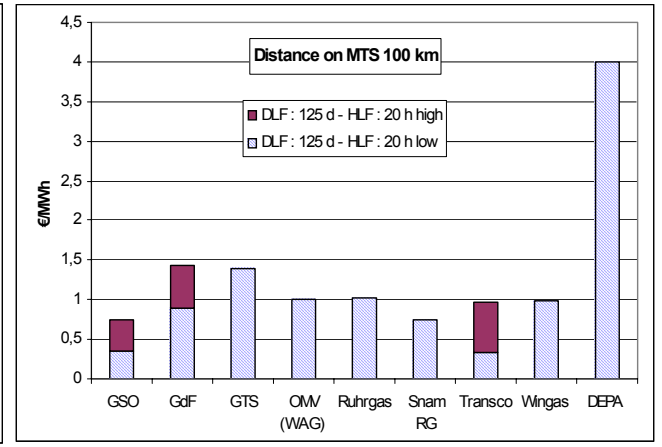
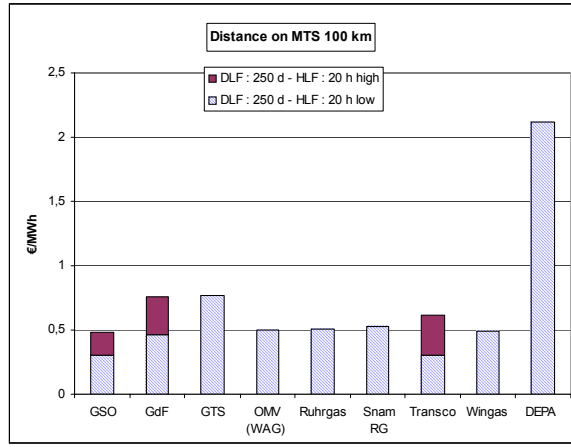
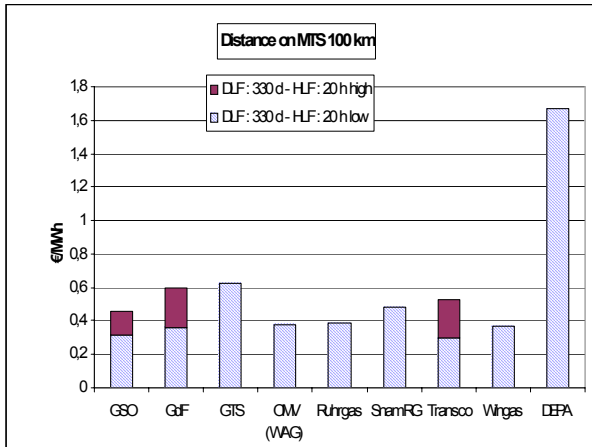
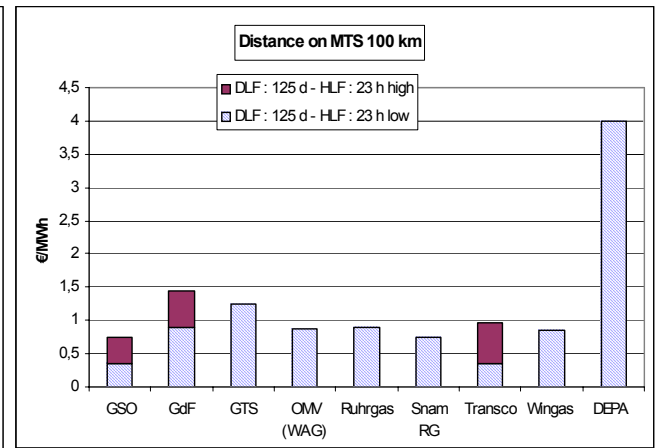
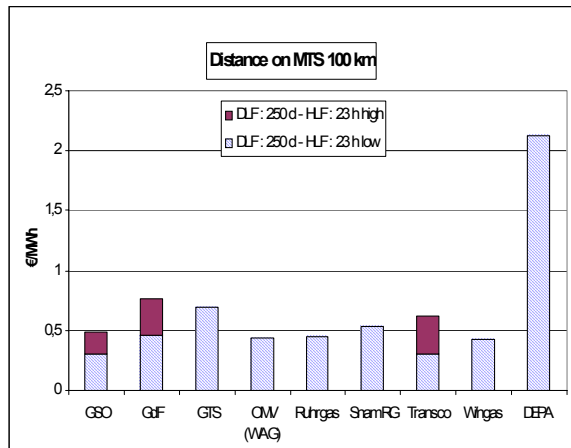
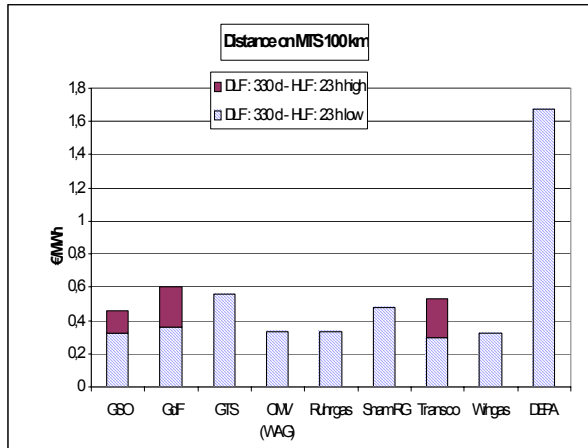


19.4. Table 1: Distance on the MTS: 100km

Distance on the MTS : 100 km	GSO		GdF		GTS	OMV (WAG) Ruhrgas			Snam RG		Transco		Wingas	DEPA
	min	max	min	max				min	max	min	max			
DLF : 330 d - HLF : 23 h	0,32	0,46	0,36	0,60	0,56	0,33	0,34	0,48	0,48	0,29	0,53	0,33	1,67	
DLF : 330 d - HLF : 20 h	0,32	0,46	0,36	0,60	0,62	0,38	0,39	0,48	0,48	0,29	0,53	0,37	1,67	
DLF : 250 d - HLF : 23 h	0,30	0,48	0,46	0,76	0,69	0,44	0,44	0,53	0,53	0,30	0,61	0,43	2,12	
DLF : 250 d - HLF : 20 h	0,30	0,48	0,46	0,76	0,77	0,50	0,51	0,53	0,53	0,30	0,61	0,49	2,12	
DLF : 125 d - HLF : 23 h	0,35	0,75	0,89	1,44	1,24	0,88	0,89	0,75	0,75	0,34	0,96	0,86	3,99	
DLF : 125 d - HLF : 20 h	0,35	0,75	0,89	1,44	1,40	1,01	1,02	0,75	0,75	0,34	0,96	0,99	3,99	



19.5. Graph 1: Distance on the MTS: 100km



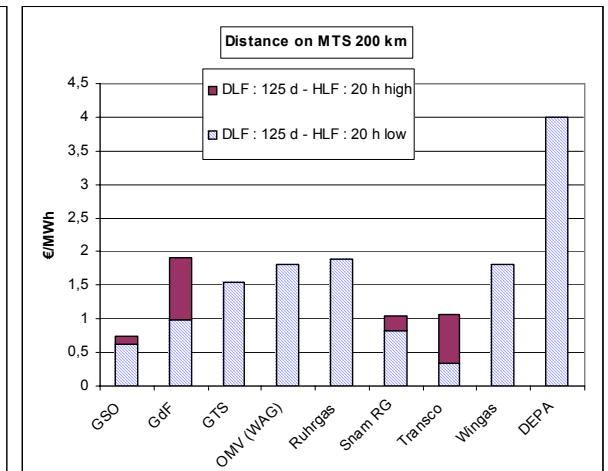
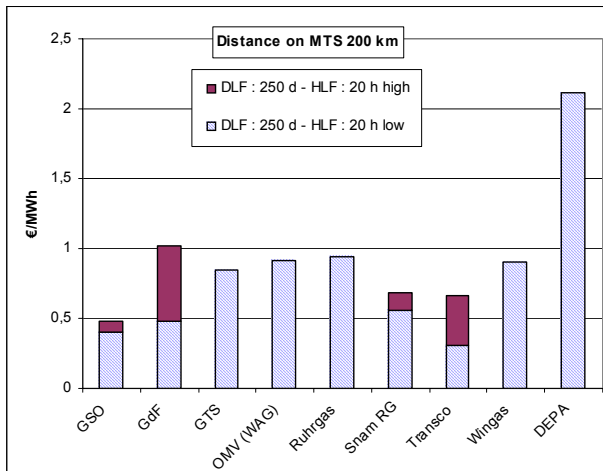
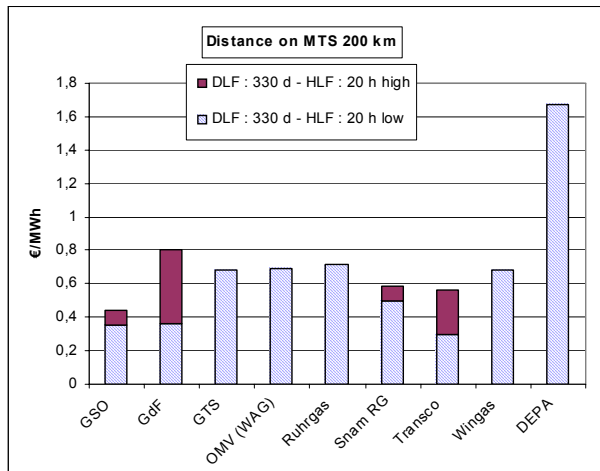
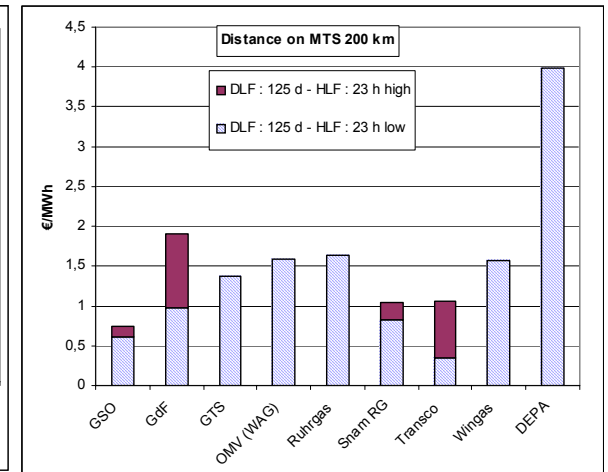
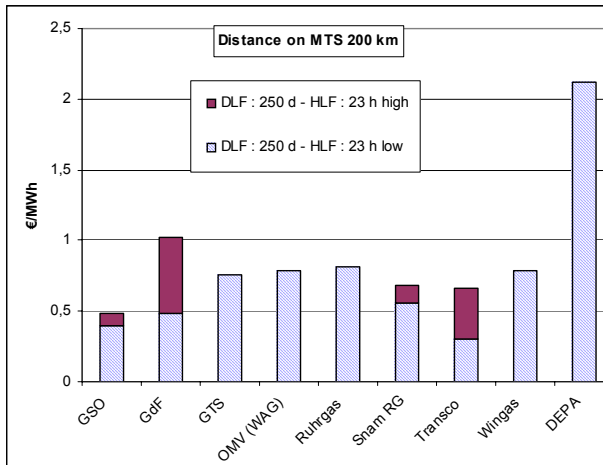
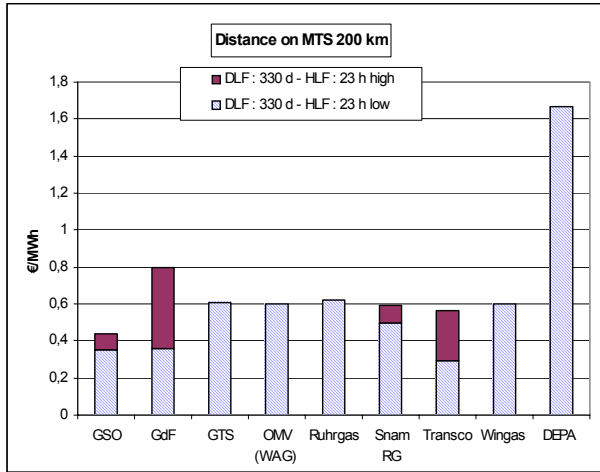


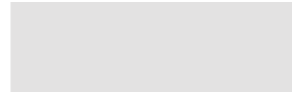
19.6. Table 2: Distance on the MTS: 200km

Distance on the MTS : 200 km	GSO		GdF		GTS	OMV (WAG) Ruhrgas			Snam RG		Transco		Wingas	DEPA
	min	max	min	max		min	max	min	max	min	max			
DLF : 330 d - HLF : 23 h	0,35	0,44	0,36	0,80	0,61	0,60	0,62	0,50	0,59	0,29	0,57	0,60	1,67	
DLF : 330 d - HLF : 20 h	0,35	0,44	0,36	0,80	0,68	0,69	0,71	0,50	0,59	0,29	0,57	0,69	1,67	
DLF : 250 d - HLF : 23 h	0,40	0,48	0,48	1,02	0,76	0,79	0,82	0,56	0,68	0,30	0,66	0,79	2,12	
DLF : 250 d - HLF : 20 h	0,40	0,48	0,48	1,02	0,85	0,91	0,94	0,56	0,68	0,30	0,66	0,91	2,12	
DLF : 125 d - HLF : 23 h	0,62	0,75	0,98	1,91	1,37	1,58	1,64	0,82	1,05	0,34	1,06	1,58	3,99	
DLF : 125 d - HLF : 20 h	0,62	0,75	0,98	1,91	1,55	1,81	1,88	0,82	1,05	0,34	1,06	1,81	3,99	



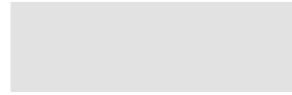
Graph 2: Distance on the MTS: 200km



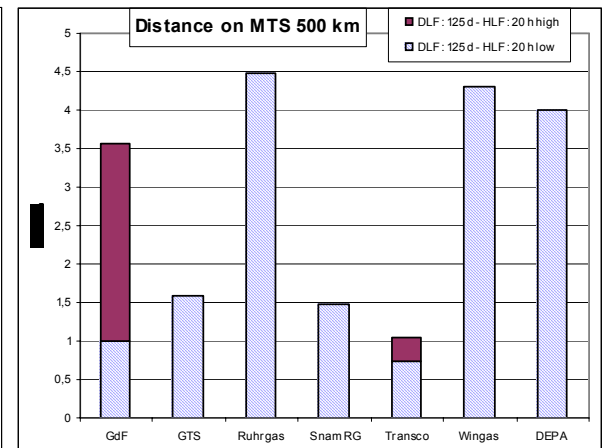
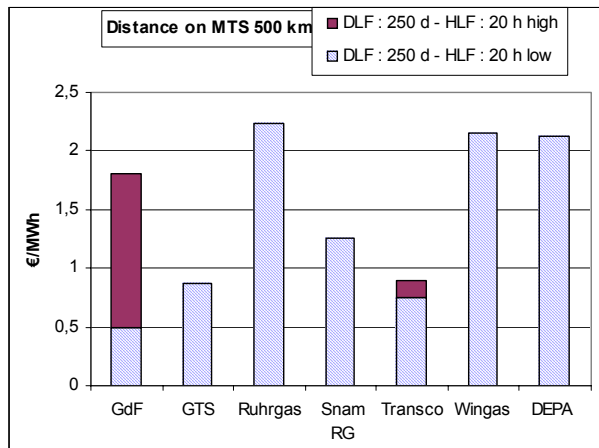
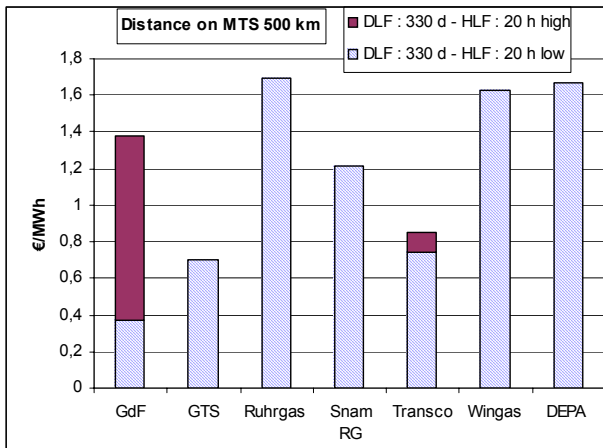
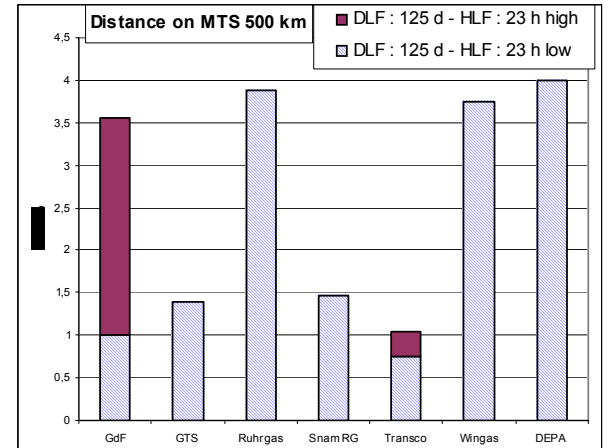
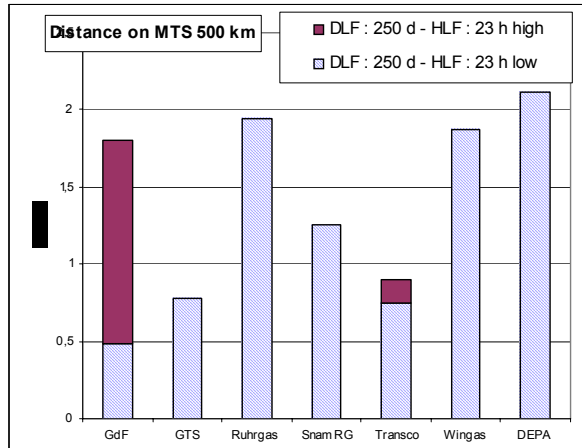
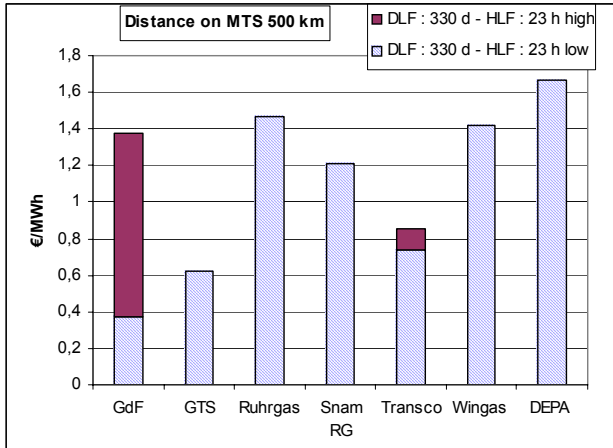


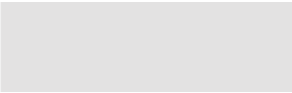
19.7. Table 3: Distance on the MTS: 500km

Distance on the MTS : 500 km	GdF		GTS	Ruhrgas	Snam RG		Transco		Wingas	DEPA
	min	max			min	max	min	max		
DLF : 330 d - HLF : 23 h	0,37	1,38	0,62	1,47	1,21	1,21	0,74	0,85	1,42	1,67
DLF : 330 d - HLF : 20 h	0,37	1,38	0,70	1,69	1,21	1,21	0,74	0,85	1,63	1,67
DLF : 250 d - HLF : 23 h	0,49	1,80	0,78	1,94	1,26	1,26	0,75	0,90	1,87	2,12
DLF : 250 d - HLF : 20 h	0,49	1,80	0,87	2,24	1,26	1,26	0,75	0,90	2,15	2,12
DLF : 125 d - HLF : 23 h	1,00	3,56	1,40	3,89	1,47	1,47	0,75	1,05	3,74	3,99
DLF : 125 d - HLF : 20 h	1,00	3,56	1,59	4,47	1,47	1,47	0,75	1,05	4,30	3,99



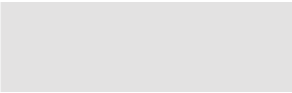
19.8. Graph 3: Distance on the MTS: 500km



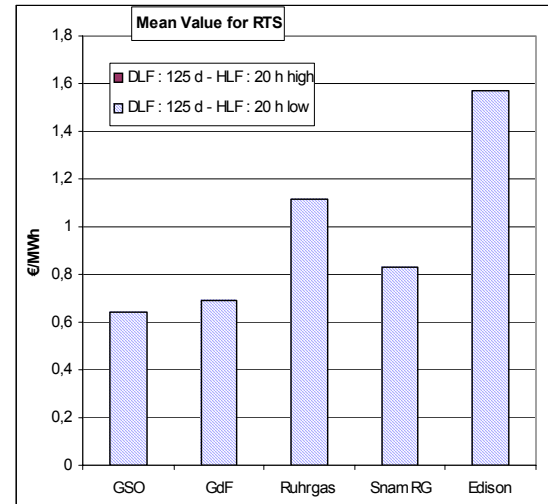
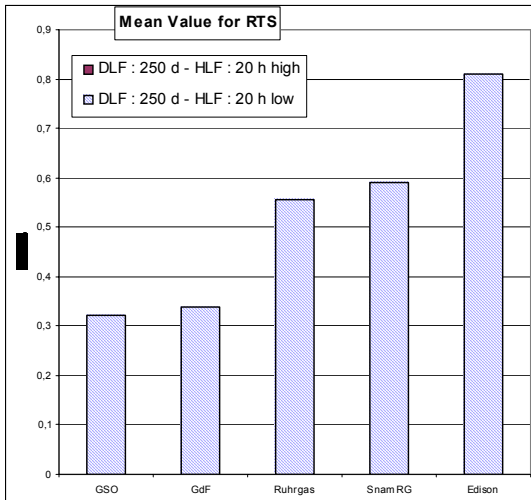
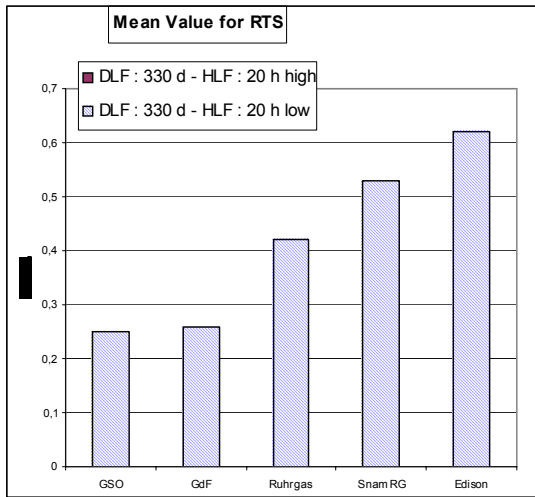
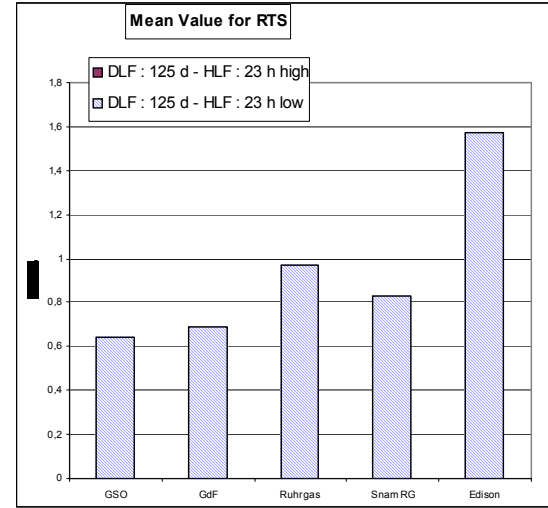
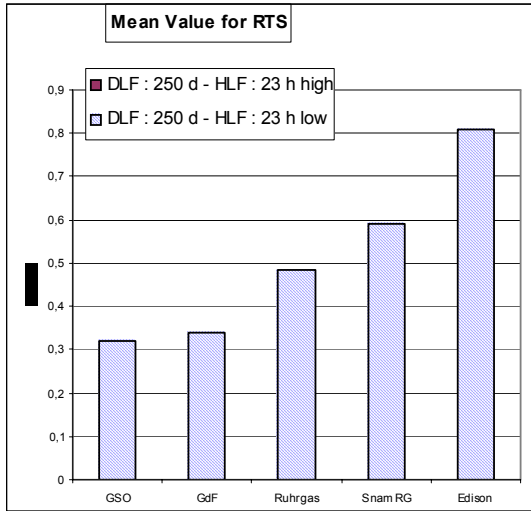
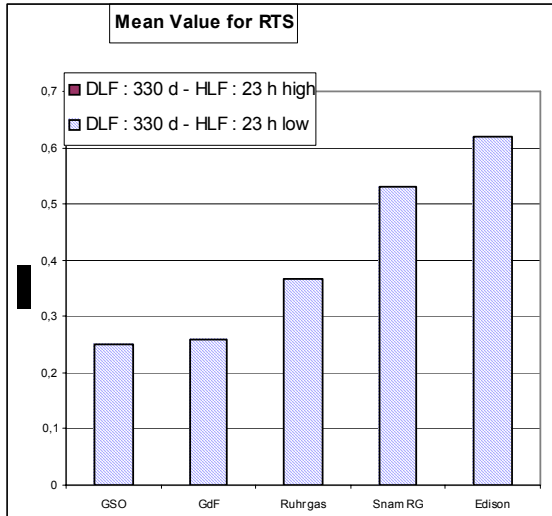


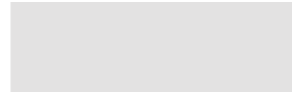
19.9. Table 4: Mean Value on the RTS

Mean value for RTS	GSO	GdF	Ruhrgas	Snam RG	Edison
DLF : 330 d - HLF : 23 h	0,25	0,26	0,37	0,53	0,62
DLF : 330 d - HLF : 20 h	0,25	0,26	0,42	0,53	0,62
DLF : 250 d - HLF : 23 h	0,32	0,34	0,48	0,59	0,81
DLF : 250 d - HLF : 20 h	0,32	0,34	0,56	0,59	0,81
DLF : 125 d - HLF : 23 h	0,64	0,69	0,97	0,83	1,57
DLF : 125 d - HLF : 20 h	0,64	0,69	1,11	0,83	1,57



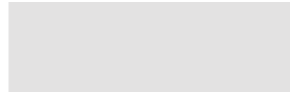
19.10.Graph 4: Mean Value on the RTS



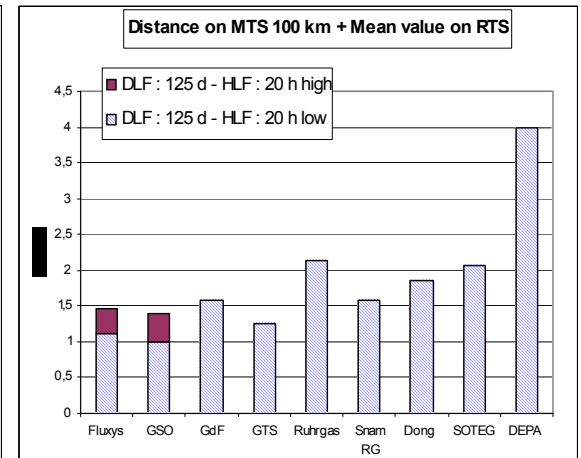
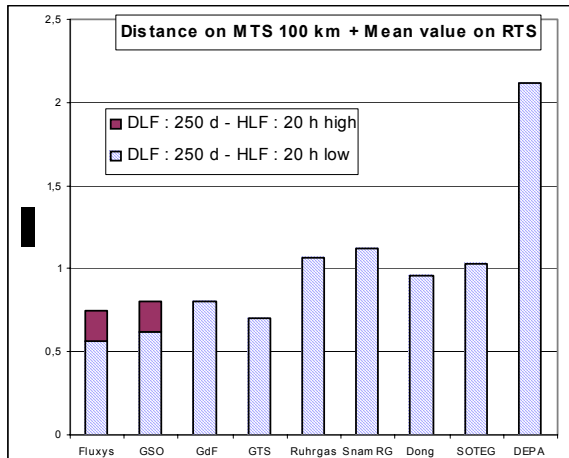
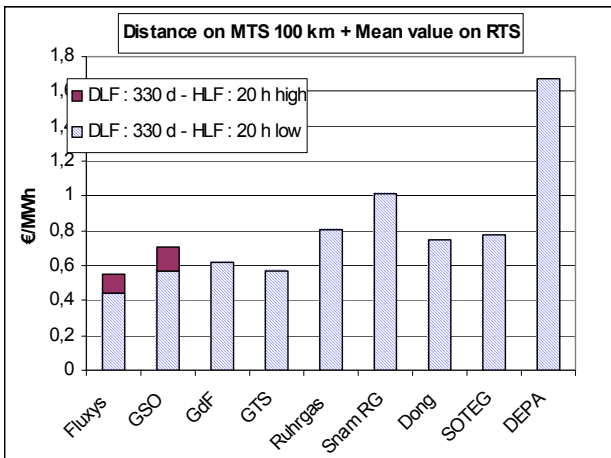
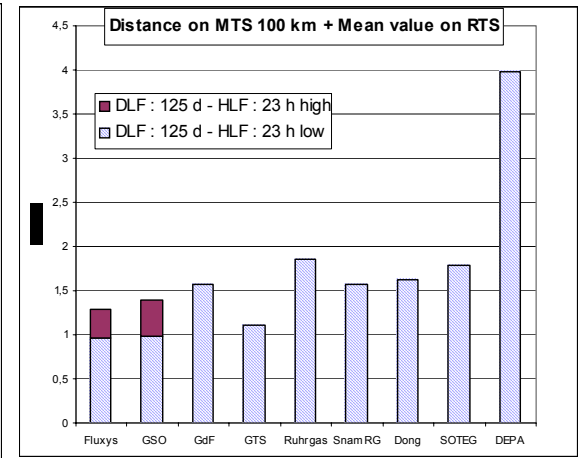
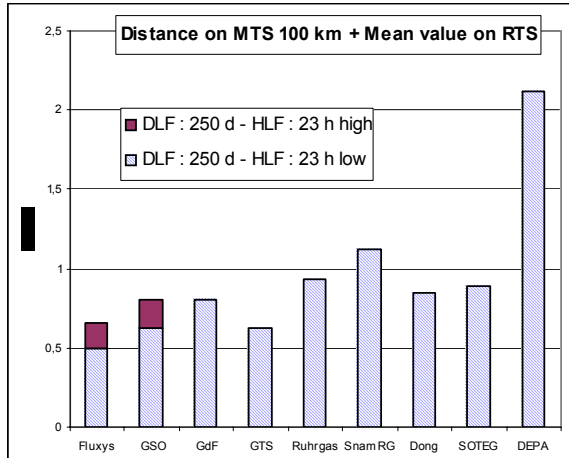
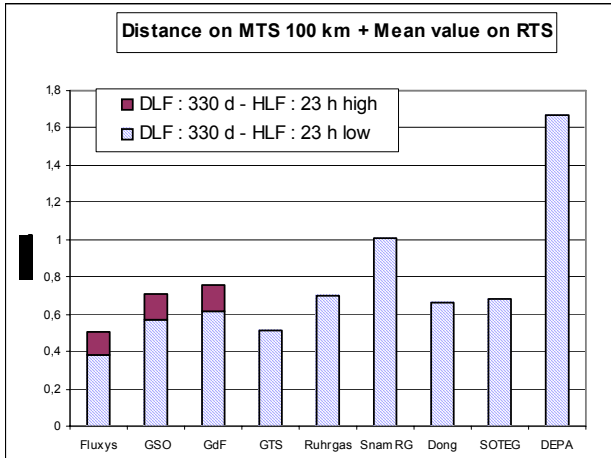


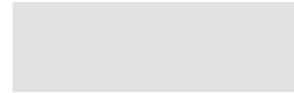
19.11. Table 5: Distance on the MTS: 100 km + Mean Value on the RTS

Distance on the MTS : 100 km + Mea	Fluxys		GSO		GdF		GTS	Ruhrgas	Snam RG	Dong	SOTEG	DEPA
	min	max	min	max	min	max						
DLF : 330 d - HLF : 23 h	0,38	0,50	0,57	0,71	0,62	0,86	0,51	0,70	1,01	0,66	0,68	1,67
DLF : 330 d - HLF : 20 h	0,44	0,55	0,57	0,71	0,62	0,86	0,57	0,81	1,01	0,75	0,78	1,67
DLF : 250 d - HLF : 23 h	0,50	0,66	0,62	0,80	0,80	1,10	0,63	0,93	1,12	0,85	0,89	2,12
DLF : 250 d - HLF : 20 h	0,57	0,75	0,62	0,80	0,80	1,10	0,70	1,07	1,12	0,96	1,03	2,12
DLF : 125 d - HLF : 23 h	0,97	1,29	0,99	1,39	1,58	2,13	1,11	1,86	1,58	1,63	1,79	3,99
DLF : 125 d - HLF : 20 h	1,11	1,47	0,99	1,39	1,58	2,13	1,26	2,14	1,58	1,86	2,06	3,99



19.12.Graph 5: Distance on the MTS: 100km + Mean Value on the RTS



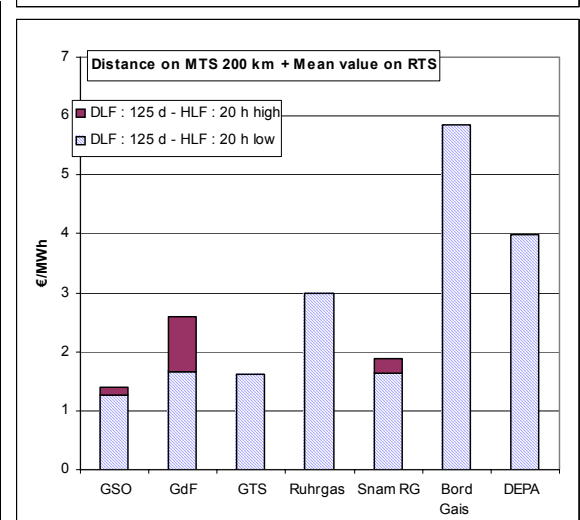
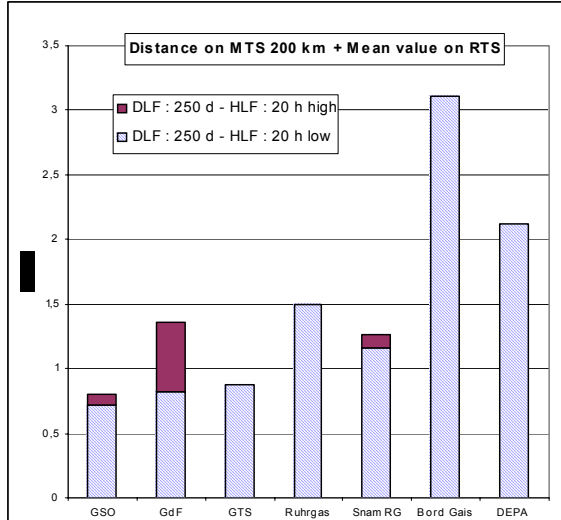
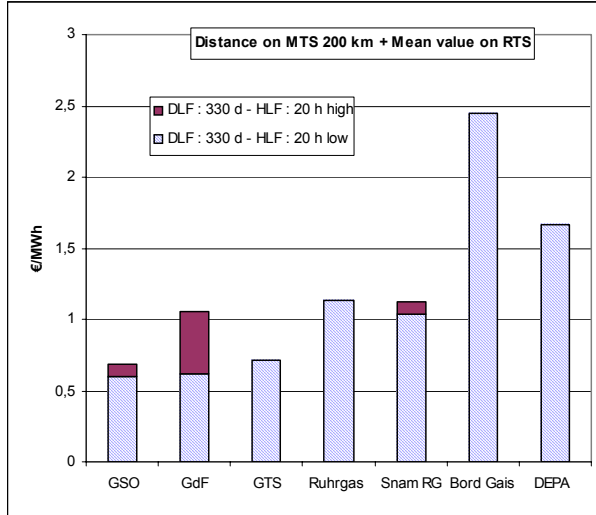
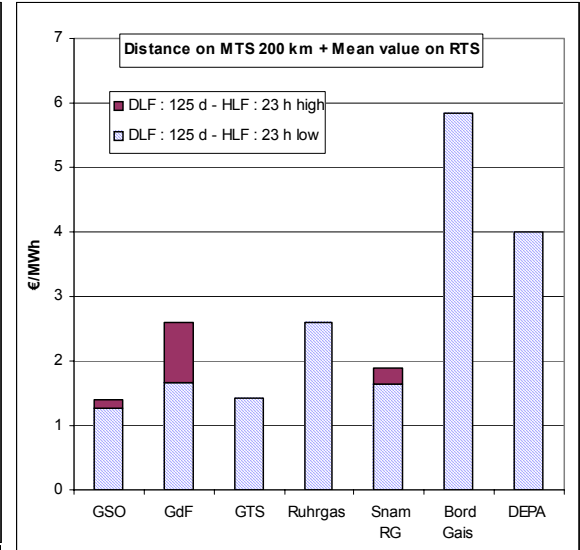
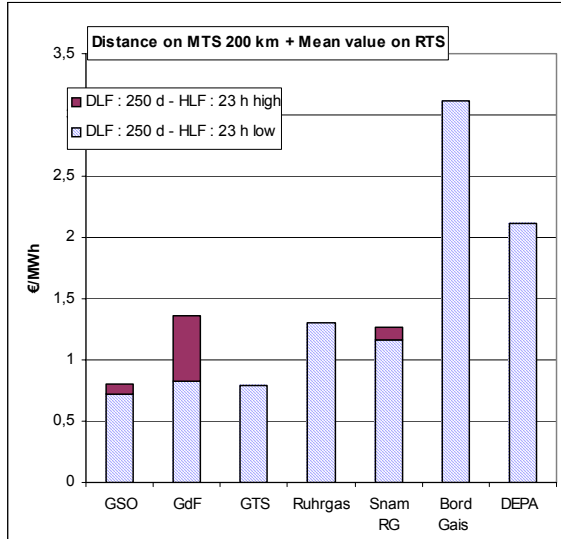
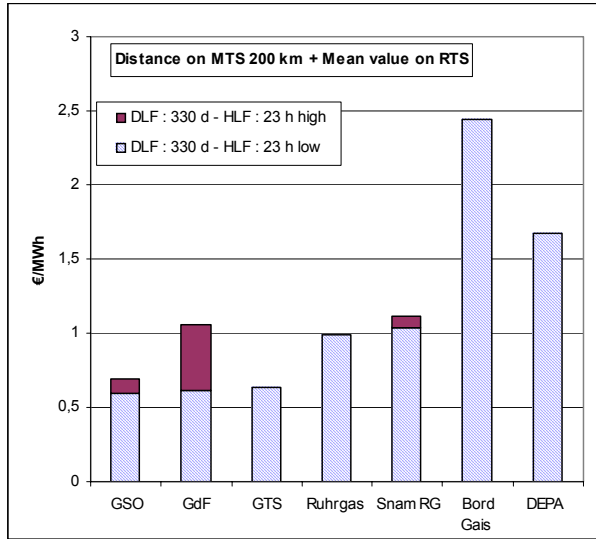


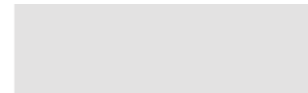
19.13. Table 6: Distance on the MTS: 200 km + Mean Value on the RTS

Distance on the MTS : 200 km + Mea	GSO		GdF		GTS	Ruhrgas	Snam RG		Bord Gais	DEPA
	min	max	min	max			min	max		
DLF : 330 d - HLF : 23 h	0,60	0,69	0,62	1,06	0,63	0,99	1,04	1,12	2,45	1,67
DLF : 330 d - HLF : 20 h	0,60	0,69	0,62	1,06	0,71	1,14	1,04	1,12	2,45	1,67
DLF : 250 d - HLF : 23 h	0,72	0,80	0,82	1,36	0,79	1,30	1,16	1,27	3,11	2,12
DLF : 250 d - HLF : 20 h	0,72	0,80	0,82	1,36	0,88	1,50	1,16	1,27	3,11	2,12
DLF : 125 d - HLF : 23 h	1,26	1,39	1,67	2,60	1,42	2,61	1,65	1,88	5,85	3,99
DLF : 125 d - HLF : 20 h	1,26	1,39	1,67	2,60	1,62	3,00	1,65	1,88	5,85	3,99



19.14. Graph 6: Distance on the MTS: 200km + Mean Value on the RTS





19.15. Table 7 : ASSUMPTIONS AND REMARKS RELATED TO THE TABLES 1 TO 6

TABLE 7	Assumptions and remarks
<p>1, 2, 3</p> <p>MTS</p>	<p>Because :</p> <ul style="list-style-type: none"> • some companies do not make any distinction between a MTS and a RTS : Bord Gais, DEPA, DONG, SOTEG (see table 8), • the price comparison is not applicable for BEB, TRANSGAS, SPP and MOL (see table 8), • Edison operates a RTS only (see table 8), <p>it remains nine companies that may enter in a price comparison on the MTS : Fluxys, Gastransport Services, Gaz de France, GSO, OMV, Ruhrgas, Snam Rete Gas, Transco, Wingas.</p> <p>Among them, five only operate a network long enough to make the 500 km case significant : Gaz de France, Ruhrgas, Snam Rete Gas, Transco, Wingas.</p>
<p>4</p> <p>RTS</p>	<p>Because :</p> <ul style="list-style-type: none"> • some companies do not make any distinction between a MTS and a RTS : Bord Gais, DEPA, DONG, SOTEG (see table 8); • the price comparison is not applicable for BEB, TRANSGAS, SPP and MOL (see table 8) ; • Transco and OMV can provide figures for the MTS only (see table 8) ; • Wingas operates a MTS only (see table 8) ; <p>it remains seven companies that may enter in a price comparison on the RTS : Fluxys, Edison, Gastransport Services, Gaz de France, GSO, Ruhrgas, Snam Rete Gas.</p>
<p>5, 6</p> <p>Combination between the MTS and the RTS</p>	<p>The results related to the four companies making no distinction between a MTS and a RTS : Bord Gais, DEPA, DONG, SOTEG have been compared to the sum of the prices for the MTS and for the RTS for the companies operating both kinds of system : Fluxys, Gasutransport Services, Gaz de France, GSO, Ruhrgas and Snam Rete Gas (for the 200 km case on the MTS only)</p> <p>Table 5 : for DONG and SOTEG the basis selected for comparison is the 100 km distance on the MTS case (plus the mean value for the RTS).</p> <p>Table 6 : for Bord Gais and DEPA the basis selected for comparison is the 200 km distance on the MTS case (plus the mean value for the RTS).</p>

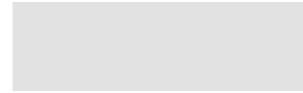
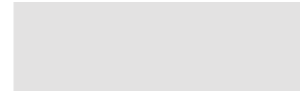
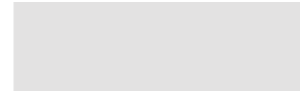


TABLE 8 : ASSUMPTIONS AND REMARKS RELATED TO THE OPERATORS

TSO	Assumptions and remarks
BEB	The price comparison is not applicable
BORD GAIS	<p>The Transmission network is not segmented between a MTS and a RTS.</p> <p>Charges calculated exclude charges for fuel gas.</p> <p>No differentiation is made on the basis of hourly quantity or distance.</p>
DEPA	<ul style="list-style-type: none"> - The MTS comprises a main pipeline (511 km), high pressure branches (450 km) and two entry points at each end of the main pipeline. No segmentation is made on the network between a MTS and a RTS. - The values indicated are valid for gas supplied by pipeline excluding any LNG supply - These tariffs have not yet been applied, since TPA does not yet exist in Greece.

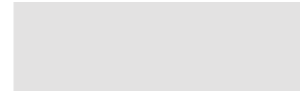


FLUXYS	<p>Assumptions:</p> <p>1 m³(n) = 11.63 kWh Gas price: 13 €/MWh</p> <p>Remarks:</p> <p>Given the RTPA tariff structure of Fluxys, it is difficult to answer to this comparison for two reasons:</p> <ul style="list-style-type: none"> - the RTPA tariffs of Fluxys are based on a capacity stamp (not distance related, nor diameter related): making difficult the comparison with cases differentiated by distance - the transmission network is not separated into an MTS and a RTS: the transmission network is split into High Pressure net & Medium Pressure net based on maximum operating pressure (independently of diameter), the majority of the net of Fluxys is classified into HP net. The direct comparison of MTS with High Pressure can not be done because the average diameter of the High Pressure net is much lower than the typical average diameter of an MTS. <p>In fact, the RTPA Fluxys tariff system is very simple and two major tariff cases are possible:</p> <ul style="list-style-type: none"> • HP tariff stamp applicable only • both HP& MP tariff stamps applicable. <p>Theses two cases are a high and a low tariff case and they are most comparable with the (100 km MTS + Mean value RTS) case of this tariff study. That's why only Table 5 is filled with values for Fluxys. Other cases are not directly comparable to the Fluxys tariff system.</p>
DONG	<p>The transmission system is not divided into a MTS and a RTS.</p> <p>1 EUR = 7.45 DKK.</p>
EDISON	<p>Edison operates a RTS only. Thus, the average prices for Edison and SGM are only for the RTS, while only Snam Rete Gas is able to give information about prices referring to the MTS.</p> <p>The data are calculated for a distance from MTS above 15 km. Otherwise for a distance from MTS lower than 15 km, a reduction is applied.</p> <p>1 m³ = 9.57 kWh.</p>

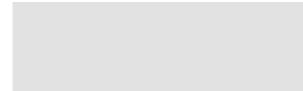


GASTRANS SPORT SERVICES	<p>The MTS-figures are based on the scatter diagram tariffs for transport from major entry points to all exit points; the distances are based on leaving the last HTL-section halfway.</p> <p>The lower and upper bounds are based on the scatter diagram described above.</p> <p>The MTS 100 km and 200 km cases include a connection fee based on $Dr = 0.10$.</p> <p>The lower bound MTS + RTS is based on the lower bound MTS plus RTS with $Dr = 0.15$.</p> <p>The upper bound MTS + RTS is based on the upper bound MTS plus RTS with $Dr = 1.00$.</p>
GAZ DE FRANCE	<ol style="list-style-type: none"> On the MTS, the tariff is not distance related. Thus, for the different couples of DLF and HLF² considered, the tariff (in EUR/MWh) has been calculated for transportation on all individual routes between each of the six main Entry Points and each important Delivery Point on the MTS. Then, the results presented in the chart above are the followings: <ul style="list-style-type: none"> for the 100 km case, the lower and the higher tariff values in a range of route distances between 50 km and 150 km; for the 200 km case, the lower and the higher tariff values in a range of route distances between 150 km and 250 km; for the 500 km case, the lower and the higher tariff values in a range of route distances between 400 km and 600 km. The price for Delivery is composed of two terms: <ul style="list-style-type: none"> a Delivery Capacity Term equal to 18.36 EUR/year per (MWh/d) - December 23rd 2002 value, a Delivery Fixed Term equal to 9,180 EUR/year per Delivery Station - December 23rd 2002 value (for calculations in the chart above, this term has been divided by an annual consumption equal to 500,000 MWh to get a unit price). <p>These two terms have been added to the MTS price in each of the cases.</p> On the RTS, an average value of the Regional Transmission Tariff Band (NTAR) equal to 2 has been used. This average value is valid for consumers whose annual consumption is above 500,000 MWh (as considered in this study).
GSO	<p>An assumption has been made concerning the RTS value : zonal average level (NIV R) equal to 3.5.</p>

² The Hourly Load Factor does not have any effect on the results in the cases considered.



MOL	In case of MOL inner accounting tariffs, which contains just one tariff element : the Quantity element, the price comparison table is not applicable. The currently use transmission tariff is : 0.77 EUR/MWh
OMV	Because of Penta West and PVS have extensions less than 100 km, in order to make the tariffs comparable OMV calculated a tariff EUR/MWh for a transport over 100 km, although the result especially for the PVS having a mean transportation distance of app. 32 km, cannot be compared (accounting the transport distance of the Penta West of 94.5 km in this case the comparison seems a minor fault.) Under this rules and accepting a Daily Load Factor of 250 days (70%) the results are the following tariffs for fictive 100 km transportation Penta West 0.50 EUR/MWh PVS 0.41 EUR/MWh The results entered into Tables 1 and 2 are those from WAG Pipeline which total 245 km.
Snam Rete Gas	$1 \text{ m}^3 = 10.58 \text{ kWh}$ The tariff on the MTS is Entry – Exit (not distance related). Assumptions have been made to give indications for comparison with distance related systems : <ul style="list-style-type: none"> • 500 Km case: Entry at MAZARA - Exit at Q. Low and high case are equivalent as only one exit zone is available for the comparison. • 200 Km case : Entry at RUBICONE - Exit at M and F • 100 Km case: not significant as the average transport distance is of several hundreds kilometres. The commodity charge is unique for MTS and RTS. For the comparison, the commodity charge has been attributed to MTS/RTS systems in the proportion 50-50 %. The average tariff on the RTS takes a reference distance of 7.5 km
SOTEG	No segmentation is made between a MTS and a RTS
SPP	The price comparison table is not applicable.
RUHRGAS	The average distance on the RTS has been assumed to be equal to 30 km. $1 \text{ m}^3 = 11.0 \text{ kWh}$.



TRANSCO	<p>The tariff on the NTS is Entry - Exit (not distance related). Assumptions have been made to give indications for comparison with distance related systems :</p> <p>100 km : Entry at BACTON - Exit at EM2 for the Low case at NT2 for the High case</p> <p>200 km : Entry at BACTON - Exit at EM2 for the Low case at NT1 for the High case</p> <p>500 km : Entry at ST FERGUS - Exit at NE1 for the Low case at NW1 for the High case</p> <p>The entry capacities are sold, now, by pay-as-you-bid auctions. The entry capacity charges for calculation are those which would have applied from October 2000 onwards in the absence of auctions.</p> <p>TRANSCO has no separate charges for the use of the RTS, as these are included in the charges for the use of the Distribution System.</p>
TRANSGAS A.S.	The price comparison table is not applicable.
WINGAS	<p>DN 800 on the MTS</p> <p>Wingas operates a MTS only.</p> <p>1 m³ = 11.1 kWh</p>