

ECONOMIC COMMISSION FOR EUROPE

COMMITTEE ON SUSTAINABLE ENERGY

Working Party on Gas

Fourth expert meeting on the update of the
UNECE Study on Underground Gas Storage in
Europe and Central Asia

Geneva, 7 January 2009

REPORT OF THE MEETING

I. INTRODUCTION AND ELECTION OF OFFICERS (Agenda item 1)

1. The fourth expert meeting on the update of the UNECE study on Underground Gas Storage in Europe and Central Asia was held on 7 January 2009. It was attended by representatives from France, Germany, Hungary and the Netherlands. Representatives of Gas Infrastructure Europe and the International Gas Union were also present.

2. Mr. G-H. Joffre, Chairman of the Bureau of the Study, was elected Chairman.

II. ADOPTION OF THE AGENDA (Agenda item 2)

2. The agenda was adopted with the addition of an item concerning preparation of the presentation to the UNECE Working Party on Gas.

III. TERMS OF REFERENCE FOR THE LAUNCH OF UPDATE OF THE UNECE STUDY ON UNDERGROUND GAS STORAGE IN EUROPE AND CENTRAL ASIA
(Agenda item 3)

3. The meeting adopted the final version of the Terms of Reference for the Study (see Annex). Slight modifications were introduced to the previous version related to the structure of individual chapters and minor demarcation of tasks among those chapters.

4. It was agreed that the UNECE secretariat, in close cooperation with the International Gas Union and Gas Infrastructure Europe, would facilitate the task of Heads of Chapters in identifying their contacts for every UNECE country.

5. The Terms of Reference will be submitted to the nineteenth session of the Working Party on Gas on 20-21 January 2009.

IV. ELECTION OF OFFICERS OF THE STUDY (Agenda item 4)

6. Selected additions to the previous structure of group of experts in charge of individual chapters were approved, and the UNECE secretariat was asked to again get in contact with suggested companies and executives, the potential candidates for filling vacant positions:

Chapter One: Representatives of Germany (Mr. Hermann Spreckels, E.ON Gas Storage GmbH, Germany, participation), France (Mr. Carlos Gomez Montalvo, Geostock, France, participation) and United Kingdom (some suggestions made, including Centrica).

Chapter Two: Mr. Mircea Sandu, (Romgaz, Romania) and Mr. Joachim Wallbrecht (BEB Erdgas und Erdöl GmbH, Germany) as representative of IGU with Ms. Petra Grigelova (RWE Trangas Net, Czech Republic) as alternate to Mr. Wallbrecht.

Chapter Three: Mr. Gilles-Henri Joffre (GdF-Suez, France), Mr. Alexander Ramm (RWE Energy Aktiengesellschaft Storage System Operator, Germany - participation) and Mr. Ulrich Duda (E.ON Gas Storage GmbH, Germany - participation).

Chapter Four: Representative of Italy (selected suggestions made, including Stogit), Mr. Joachim Wallbrecht (BEB Erdgas und Erdöl GmbH, Germany) as representative of IGU with Ms. Petra Grigelova (RWE Trangas Net, Czech Republic) as alternate to Mr. Wallbrecht, Mr. Ulrich Duda (E.ON Gas Storage GmbH, Germany - participation) and Mr. Alexander Ramm (RWE Energy Aktiengesellschaft Storage System Operator, Germany - participation).

Chapter Five: Mr. Tamas Korosi (Hungarian Energy Office, Hungary) and Mr. Alexander Ramm (RWE Energy Aktiengesellschaft Storage System Operator, Germany - participation).

Chapter Six: Mr. Gerard H. Martinus (GasTerra, Netherlands) and a representative of Germany (selected suggestions made), and possibly a representative of Denmark (preferably DONG), or of Austria or Slovakia, with a selected input from the United States gas industry.

Chapter Seven: Mr. Gerard H. Martinus (GasTerra, Netherlands), Mr. Joachim Wallbrecht (BEB Erdgas und Erdöl GmbH, Germany) as representative of IGU with Ms. Petra Grigelova (RWE Trangas Net, Czech Republic) as alternate to Mr. Wallbrecht, Mr. Alexander Ramm (RWE Energy Aktiengesellschaft Storage System Operator, Germany - participation) , Mr. Ulrich Duda (E.ON Gas Storage GmbH, Germany-participation) and Mr. Sergei Khan (Gazprom, Russian Federation – to be confirmed).

7. The representatives of the International Gas Union and Gas Infrastructure Europe reiterated their pledge to cooperate in filling the positions of Heads of Chapters. While the representative of the International Gas Union had already secured the support of selected German mining authorities for the work on Chapter Five on legal framework, the representative of Gas Infrastructure Europe will explore with STOGIT and Centrica the possibility of their participation in Chapters Four and One, respectively. The delegate from the Netherlands will provide to the secretariat a contact in Centrica, who could potentially participate in the Study. The representative of Hungary will identify appropriate experts in Poland and in ENI/SNAM who could take part in the Study.

V. ADOPTION OF THE CALENDAR OF WORK (Agenda item 5)

8. The date for the next meeting of the Bureau and Heads of Chapters and other interested delegates will be determined on the occasion of the annual session of the Working Party on Gas on 20-21 January 2009.

VI. OTHER BUSINESS (Agenda item 6)

9. The meeting decided on the structure of the Round Table on underground gas storage (UGS) to be held on 20 January 2009:

Introduction and overview: Mr. G-H. Joffre (Gdf-Suez, France)

Chapter One: Mr. Hermann Spreckels, (E.ON Gas Storage GmbH, Germany)

Chapter Two: Mr. G. Radu and Mr. M. Sandu (Romgaz, Romania) and Mr. J. Wallbrecht (BEB, Germany and IGU)

Chapter Three: Mr. G-H. Joffre (Gdf-Suez, France) and Mr. Ulrich Duda (E.ON Gas Storage GmbH, Germany)

Chapter Four: Mr. J. Wallbrecht (BEB, Germany and IGU) and Mr. Alexander Ramm (RWE Energy Aktiengesellschaft Storage System Operator, Germany)

Chapter Five: Mr. T. Korosi (Hungarian Energy Office, Hungary)

Chapter Six: Mr. G. Martinus (GasTerra, the Netherlands) and Mr. S. Czike (E.ON Földgaz Storage Zrt., Hungary)

Chapter Seven: Mr. G. Martinus (GasTerra, the Netherlands),

10. It was agreed that the Group of Experts would be flexible and accommodate the participation in the Round Table of other gas industry executives from the UNECE region, who could actively support the work on the Study.

11. The meeting agreed that the provisional structure of the introductory presentation by Mr. Joffre would cover the following areas:

- The main message: why the update of the Study is needed (change of markets structure, new players, new services, liberalization, increasing import and security of supply issues all leading to the increasing relevance of UGS in the natural gas chain)
- Status of UGS: more important than 10 years ago, provides not only balancing but also trading and security of supply role
- Future of UGS: more UGS required as natural gas supply and demand have changed
- Structure of the Study (up to two slides)
- Organization of the Study
- Objectives, calendar and request to UNECE member countries for support.

VII ADOPTION OF THE REPORT (Agenda item 7)

11. The expert group adopted the report of its fourth meeting on 7 January 2009.

ANNEX I

STUDY ON UNDERGROUND GAS STORAGE IN EUROPE AND CENTRAL ASIA OR STUDY ON UNDERGROUND GAS STORAGE IN THE UNECE REGION 2010

DRAFT OUTLINE – TERMS OF REFERENCE

Introduction

The current and expected increase in natural gas demand in the UNECE region, coupled with the greater complexity of natural gas market operations and change in sources of supply, requires all natural gas market players to optimize flows of natural gas in order to ensure uninterrupted supply of the fuel, its delivery at competitive prices and flexibility in meeting demand peaks as well as various other consumer needs. While efficient operation of the natural gas industry is certainly a prerequisite for the vast majority of companies for maintaining desirable profitability and meeting prescribed technical standards and safety requirements, it is also considered to be a condition for improving security of supply.

The expected rise in demand for natural gas in the UNECE region over the next 15 to 25 years, in the framework of the sharp increase in import dependency for most of the countries and declining production in western Europe (and particularly Norway, the Netherlands and United Kingdom), has further accentuated the need for the natural gas industry to guarantee reliable delivery from ever increasing distances at a competitive cost. Underground gas storage within the whole industry chain plays an important role in securing a reliable and efficient supply of natural gas to industrial, residential and other consumers in the region.

Considerable recent and ongoing changes in the functioning of the natural gas market in the UNECE region have also affected the underground natural gas storage sector. New legislation has been introduced, including at the European Union level, which opened the sector to competition together with third-party access provisions. Unlike the past experience, where the key national natural gas industry players had a long investment horizon and little uncertainty with regard to the use of their underground natural gas storage facilities, in the current and expected market and regulatory framework, investment decision-making becomes more difficult. Discussion about potential new requirements regarding security of supply, unhindered access to third parties and ever higher standards for transparency of operations and clarity of price mechanisms also make it difficult for the key operators to make timely decisions on the investment needed in this major part of the natural gas value chain.

Underground gas storage services as the backbone of flexible and reliable natural gas infrastructure

With the liberalization of the natural gas industry in the UNECE region, the natural gas industry has to rely more on the increasing role of underground natural gas storage facilities. In addition, new services have been developed and new roles designed, such as underground gas storage swaps and transforming the storage facilities into the backbone of hub operations. In turn, they have contributed considerably to the integration of the gas markets in the UNECE region with the development of facilities which serve regional needs and convert a set of national markets into a truly regional or even, as in the case of the European Union, into a European industry. In addition, considerable decline in transport tariffs in Europe, provided that transport capacity is available, also reinforced trend of an increasing economic reach of underground gas storage facilities.

To ensure the continuing efficient functioning of underground gas storage facilities in the UNECE region, a good understanding of the current and expected industry trends is essential. Also, the consequences of the regulation of the natural gas market and gas storage must be anticipated and their financial consequences estimated in a timely manner. It is therefore of vital importance both for governments and corporations to undertake a continuous assessment of the key trends in the underground gas storage sector and accordingly adjust their strategic, operational and investment decisions.

The purpose of the UNECE study on underground gas storage is to review the main trends in the sector with a view to increasing the visibility of future capacity and investment needs as well as the regulatory, cost and operational challenges. It should also identify potential problem areas which might inhibit the sector's ability to continue providing the desired services in a timely and affordable manner. Finally, it should assist gas companies in making informed investment decisions in underground gas storage facilities with obvious benefits for natural gas end-user.

Structure of the UNECE study on underground gas storage

Introduction

Executive summary

Methodology employed and sources

- Information gathering
- Structure of update
- Confidentiality

Chapter One: New and emerging technologies and technological improvements in underground gas storage

Heads: Representatives of Germany - Mr. Hermann Spreckels (E.ON Gas Storage GmbH, Germany, participation), France (Mr. Carlos Gomez Montalvo, Geostock, France, participation) and United Kingdom (some suggestions made, including Centrica)

- Subsurface and surface technological trends and improvements
- Intelligent UGS (operational optimization)
- Commercial optimization software
- Technical developments (delta pressure, horizontal drilling, ...)
- Monitoring
- Reducing environment impacts
- Offshore technology for storage
- Surface and subsurface infrastructure
- Technological impact on CO₂ sequestration
- Storage in combination with regasification of LNG

Chapter Two: Current UGS status in Europe and Central Asia

Heads: Mr. Mircea Sandu, (Romgaz, Romania) and Mr. J. Wallbrecht (BEB, Germany) as representative of IGU with Ms. Petra Grigelova (RWE Trangas Net, Czech Republic) as alternate to Mr. J. Wallbrecht when he is absent

- Existing UGS by country – Technical analysis
- Minimum data:
 - o working volume,
 - o total volume,
 - o maximal send-out capacity,
 - o maximal send-in capacity
 - o annual cycles
- impact of declining capacities as in caverns - capacity outlook
- focus on a synthesis by market area
- Storage used for production
- Ownership structure and SSO listing
- Quality, health, safety and environmental standards (QHSE)
- Cooperation with IGU including use of their data base mandatory

Chapter Three: Market structure and legal framework for market organization.

Head: Mr. Gilles-Henri Joffre (GdF-Suez, France), Mr. Alexander Ramm (RWE Energy Aktiengesellschaft Storage System Operator, Germany - participation) and Mr. Ulrich Duda (E.ON Gas Storage GmbH, Germany - participation)

- Status of existing market structure, incl. access to storage capacities, and regulation by country

- Legal Framework

- Regulatory documentation : list of references to regulatory texts that govern gas storage activity
 - philosophy / goals
 - current discussions and initiatives on the regulatory framework and possible evolutions in the coming years
- Regulatory context :
 - philosophy / goals
 - current discussions and initiatives on the regulatory framework and possible evolutions in the coming years – requires differentiation from previous bullet point or deletion
- Type of regulation : negotiated, regulated, hybrid, exemption
- Frameworks for the storage allocation rules : priority order, in addition to the public service obligation defined by the law
- Regulatory framework and guidelines for the storage service offers :
 - Marketing processes (open season , auctions, ...)
 - Use it or lose it principle (UIOLI)
 - Principles for secondary market of storage capacities
 - Transparency and non discrimination requirements
- Regulatory Frameworks for storage service pricing¹
 - Price structure
 - Pricing of service options

- Storage market and services

- Storage position / companies
- Short term and long term services (current position)
- General terms and conditions in contracts
 - Contract durations
 - Injection, withdrawal and working capacities offering (bundle and not bundle)
 - Max notice schedule before starting a storage service contract
 - Max amount of maintenance days

- Relationships between UGS and LNG

- Access to the transmission network and transportability (Description of procedures as requested by regulator proposed by gas companies including the evaluation on possible trend towards a prevailing mechanism)

¹ To be conducted in the way compatible with open competition and price transparency principles of the UNECE countries and steer clear of any work which could lead to the price-fixing possibilities in any way

Chapter Four: UGS projects and criteria for the selection of potential UGS facilities

Heads: Representative of Italy (selected suggestions made, including Stogit), Mr. Joachim Wallbrecht (BEB Erdgas und Erdöl GmbH, Germany) as representative of IGU with Ms. Petra Grigelova (RWE Trngas Net, Czech Republic) as alternate to Mr. Wallbrecht when he is absent, Mr. Ulrich Duda (E.ON Gas Storage GmbH, Germany - participation)) and Mr. Alexander Ramm (RWE Energy Aktiengesellschaft Storage System Operator, Germany - participation).

- Planned projects by country and type, and focus on a synthesis by market area
- Estimated working volume and capacities
- Overview of potential sites by country
- Cooperation with IGU including use of their data base mandatory

Chapter Five: Legal framework for development and operation of storage (incl. Permitting process)

Head: Mr. Tamas Korosi (Hungarian Energy Office, Hungary)) and Mr. Alexander Ramm (RWE Energy Aktiengesellschaft Storage System Operator, Germany - participation).

- Information by country about the legislation and procedures for granting consent/ authorization to Storage Systems Operators (SSO) to implement UGS projects.
- Mining laws per country and storage
- Acts on gas supply
- Strategic Storage
- Grid Codes and UGS
- Fiscal aspects (development, cushion gas, etc)
- Authorization for existing assets (renewal and extension) and for new projects
- Landownership (expropriation, easements,)
- Safety
- Comparison of European Union countries and Non-EU countries

Chapter Six: Tariffs of storage

(The scope of this chapter should be carefully defined. It is important to be not too ambitious because of confidentiality issues, especially for investment expenses (second part hereunder).

Heads: Mr. Gerard H. Martinus (GasTerra, Netherlands) and possibly a representative of Denmark (preferably DONG), or of Austria or Slovakia, with a selected input from the US gas industry

- Tariffs (Cost of service) of existing storage facilities in Europe
 - o TPA tariff overview
 - o Impact of regulatory framework on costs of service / tariff(qualitative)

- Other elements having impact on cost of service, including cushion gas
- Cost of greenfield construction, preferably in Europe (use of public information only), but United States might serve as proxy
 - Cost specification by storage type (cavern, aquifer, depleted field)
 - Influence of reservoir characteristics on cost range
 - Impact of regulation and /or legislation (environment for example) on costs
- If possible: comparison of cost of storage in EU versus the US: commercial outlook for new storage facilities
- Value and viability of UGS as independent asset for companies (valuation and potential for mergers and acquisitions)

Chapter Seven: Outlook and main expected trends of gas markets and UGS developments (by country and market areas)

Heads: Mr. Gerard H. Martinus (GasTerra, Netherlands), Mr. Joachim Wallbrecht (BEB Erdgas und Erdöl GmbH, Germany) as representative of IGU with Ms. Petra Grigelova (RWE Trngas Net, Czech Republic) as alternate to Mr. J. Wallbrecht when he is absent, Mr. Alexander Ramm (RWE Energy Aktiengesellschaft Storage System Operator, Germany - participation) , Mr. Ulrich Duda (E.ON Gas Storage GmbH, Germany-participation) and Mr. Sergei Khan (Gazprom, Russian Federation – to be confirmed).

- Gas supply (imports/exports, origin)
- Gas demand forecast (to use available data of International Energy Agency)
- Gas demand structure (households, commercial sector, power, industry, other)
- Gas demand seasonality and volatility - need for modulation
- Storage demand (need for WGV and withdrawal capacity)
- Influence of LNG on storage demand
- Periods: 2015, 2020
- Baseline projection, plus impact of renewable target (EU 20% in 2020) on storage demand
- Implications of regulation on strategic storage for the development of new UGS's
- Use of IGU outlook desirable

Conclusion and recommendations, comparison with the first UNECE study

Annexes:

Glossary, contact details, maps, database, units, bibliography.

Definition of market areas

Following the discussion during several months of the UNECE experts and their written proposals on definition of market areas, the UNECE Task Force decided on the matter as follows:.

- Area A. Western Europe (Austria, Belgium, Denmark, France, Germany, Ireland, Luxembourg, Netherlands, Norway, Sweden, Switzerland, United Kingdom)
- Area B. Central Europe (Czech Republic, Hungary, Poland, Slovak Republic)
- Area C. West Mediterranean (Italy, Spain, Portugal)
- Area D. East Mediterranean (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Greece, Malta, Montenegro, Former Yugoslav Republic of Macedonia, Romania, Serbia, Slovenia, Turkey)
- Area E. North-East Europe (Belarus, Estonia, Finland, Latvia, Lithuania, Russian Federation, Ukraine)
- Area F. Central Asian and Caucasus (Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Tajikistan, Turkmenistan, Uzbekistan)

Method and organization of work

The UNECE Task Force is under way to nominate heads for each chapter. Heads of chapters could also establish their own teams. The depth of each chapter will be discussed and related details agreed.

Particular attention will be devoted to the sources of primary information (focal points in individual countries and relevant corporations) as well as to secondary information, to avoid duplication of effort and make efficient use of already available data (the ongoing work within the International Gas Union, Gas Infrastructure Europe as well as the Study on Natural Gas Storage in the EU).

The inclusion and support of all relevant countries in the Task Force is of paramount importance for the success of the Study. All Task Force members will provide suggestions and recommendations in this regard.

Work progress will be assessed regularly, at three-month intervals with meetings taking place in various UNECE member countries, primarily hosted by the members of the UNECE Task Force.

Time framework

This definitive outline/terms of reference will be presented to the annual session of the UNECE Working Party on Gas, to be held on 20-21 January 2009, in Geneva, Switzerland.

The Study should be completed in the course of 2010.
