

WGCPARIS2015
WORLD GAS CONFERENCE



IGU

INTERNATIONAL GAS UNION
UNION INTERNATIONALE DU GAZ

WOC 2 Storage 2012-2015: work programme

Ladislav Goryl, Nikita Barsuk

**1st WOC 2 meeting
Bratislava, Slovakia
October 2012, 23 -26**

❖ **WOC2**

- ❖ *Introduction*
- ❖ *Transversalities*
- ❖ *Collaboration*

❖ **Study groups**

- ❖ **SG 2.1** *UGS Database*
- ❖ **SG 2.2** *Techniques and new opportunities*
- ❖ **SG 2.3** *Attracting students/young professionals to storage activities*

WOC2 Introduction

- Chairman: Ladislav Goryl  (Slovakia)
- Vice-Chairman: Nikita Barsuk  (Russia)
- Secretary: Mária Poláková  (Slovakia)

SG 2.1

- «UGS Database»
- SG leader: ???

SG 2.2

- «Techniques and new opportunities»
- SG leader: ???

SG 2.3

- «Attracting students/young professionals to storage activities»
- SG leader: Nikita Barsuk

Transversal Pillars issues

- ◆ **Yellow Pillar (renewables and electricity combination) :**
 - ◆ *to be defined within Scope of SG 2.2: i.e. concepts of energy storage and its position within “renewable chain”*
- ◆ **Purple Pillar (Human Resources) :**
 - ◆ *to be included as a part of SG 2.3*
- ◆ **Green Pillar (Sustainable Development) :**
 - ◆ *to be included within best practices as a part of SG 2.2*

IGU Transversalities with WOC/PGC/TFs (Correspondent members)

- PGC A Sustainability: ???
- PGC F RD&I Kangwon Lee
- TF 1 Human Capital ???
- TF 2 Gas Advocacy ???

External organizations

- GSE ???
- UN ECE ???
- Others e.g. EAES

WOC 2 meetings organizations

- ❖ **Working parts**
 - ❖ *Progress of SG works*
 - ❖ *Organization issues of WOC2*
 - ❖ *Collaboration with other WOC and PGC*
- ❖ **Workshop on „storage“ topics**
- ❖ **Technical tour at storage facility**
- ❖ **Venues**

Meetings schedules / WOC 2

◆ *Date and location of the 6 meetings*

Meeting	Date	Venue
1st Meeting	24 - 26 October 2012	Bratislava - Slovakia
2nd Meeting	19 - 22 March 2013	?
3rd Meeting	09 - 11 October 2013	?
4th Meeting	Spring 2014	?
5th Meeting	Autumn 2014	?
6th Meeting	Spring 2015	?

Note: Informal invitation for hosting WOC 2 meeting from Russia, Austria, Iran

WOC 2 workshops topics pool

- ❖ ***Best practices to be elaborated within SG2.2***
 - ❖ *Storage performance modeling*
 - ❖ *Storage integrity management*
 - ❖ *Asset management*
 - ❖ *Increased automatization*
 - ❖ *New techniques for efficiency increase*
 - ❖ *New techniques for environmental footprint reduction, etc.*

- ❖ ***Energy storage***
- ❖ ***Storage from trading point of view***
- ❖ ***Joint workshop with other WOC/PGC***

SG 2.1: « UGS database »

◆ **Leader : ???**

◆ **Goal :**

- ◆ **Update of storage database and trends**
- ◆ **New developments (Asia, Middle East)**
- ◆ **Highlighting roles of storage (balancing, SoS, trading liquidity)**
- ◆ **Positioning storage's role**

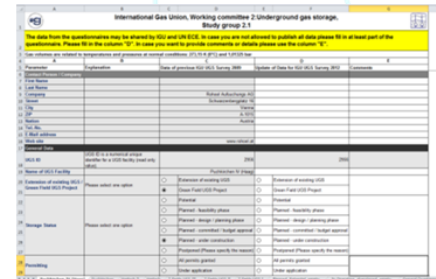
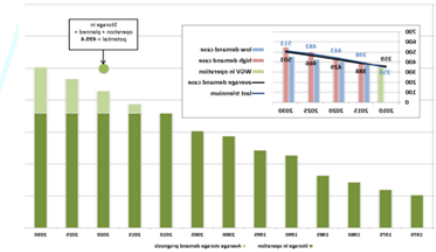
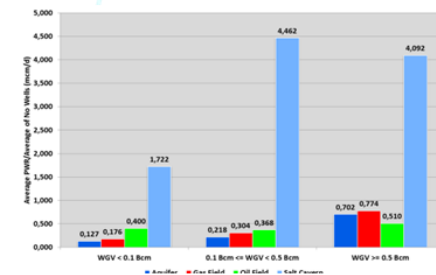
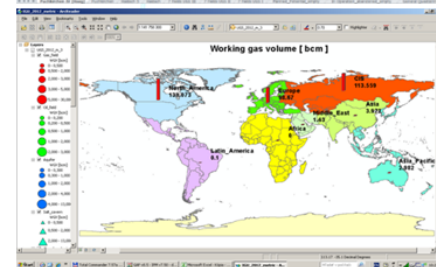
◆ **Deliverables**

◆ **Database**

- ◆ **Existing storages**
- ◆ **Projects**

◆ **Report**

- ◆ **Status of existing storage capacities**
- ◆ **Storage prognosis to 2035 (2050)**
- ◆ **Trends definition**
- ◆ **Analysis**

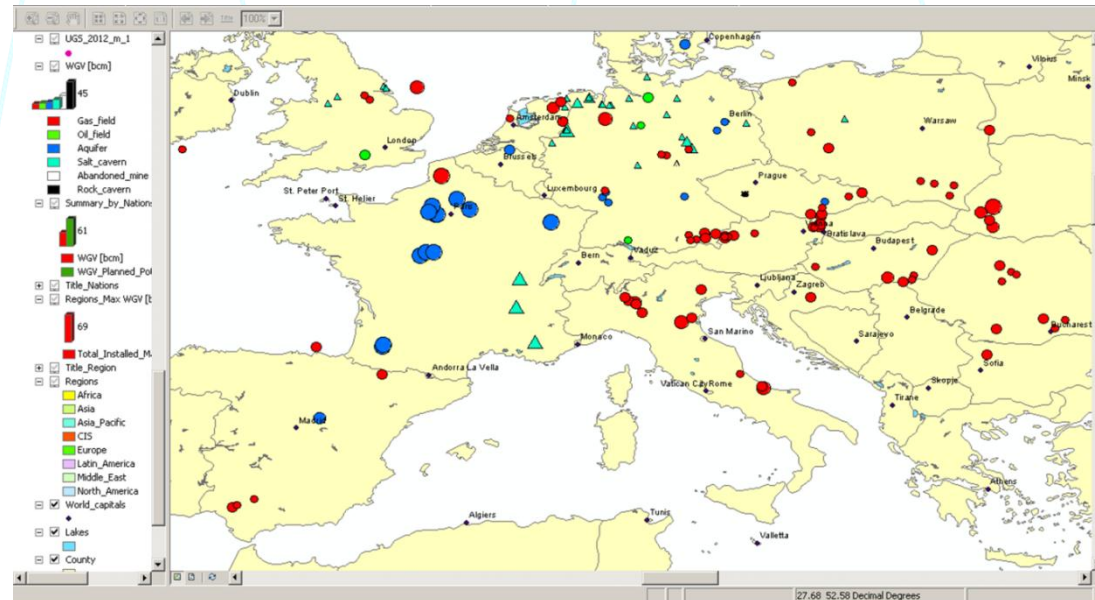
SG 2.1: « UGS database »

Geo-referenced visualization

- Existing storages
- Storage projects
- Main transmission pipelines
- LNG regasification terminals
- CO2 potential structures for CCS ???

Cooperation with

- WOC 3 Transmission
- PGC A sustainability
- PGC B Strategy
- PGC D LNG, etc.



SG 2.2: « Techniques and new opportunities »

❖ **Leader : ???**

❖ **Goal :**

❖ **Promote and share techniques „best practices“ within storage community**

- ❖ *Enhancing performance and efficiency of storage facilities safety*
- ❖ *Minimizing environmental footprint*
- ❖ *Improving safety standards*

❖ **New opportunities**

- ❖ *Support further integration of natural gas with renewables and sustainable development (biomethane, hydrogen)*
- ❖ *Energy storage*

SG 2.2: « Techniques and new opportunities »

❖ *Deliverables – best practices*

❖ *Topics e.g.*

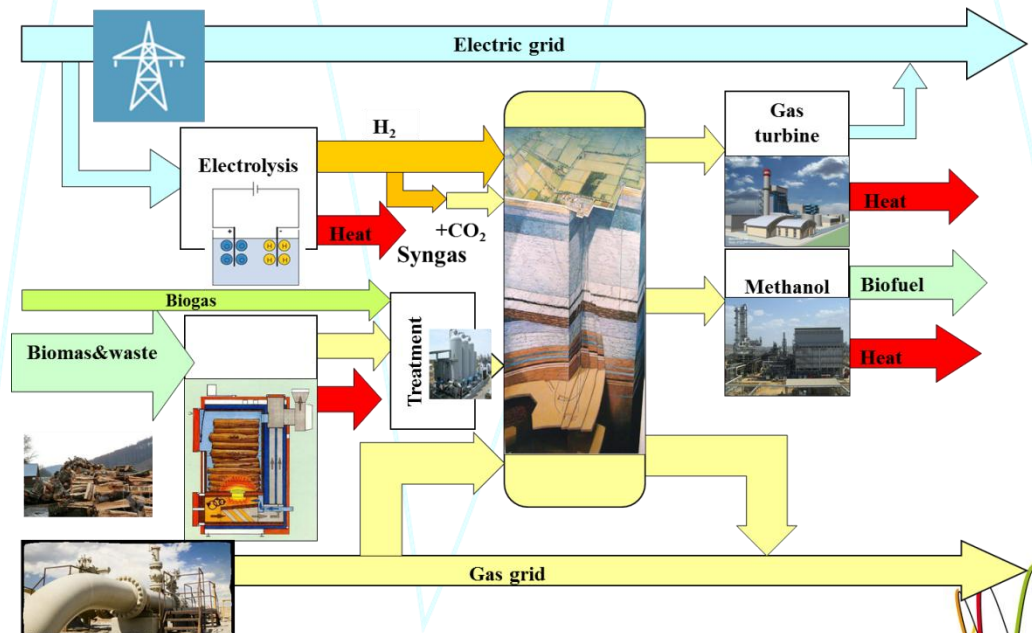
- ❖ *Storage performance modeling*
- ❖ *Storage integrity management*
- ❖ *Asset management*
- ❖ *Increased automatization*
- ❖ *New techniques for efficiency increase*
- ❖ *New techniques for environmental footprint reduction, etc.*

❖ *3 best practices shortlisted*

- ❖ *Best practices assigned to responsible persons from SG2.2*
- ❖ *Elaborated gradually over triennium*
- ❖ *Topics for WOC 2 workshops dedicated to best practices*

SG 2.2: « Techniques and new opportunities »

- Energy storage
 - Study/comprehensive overview of energy storage (hydrogen, mixture of hydrogen and gas, biomethane, syngas, CAES, etc.)
 - Balancing of electrical grid with storage and gas plants interactions
- Cooperation with PGC F RD&I



SG 2.3 Strategic guidelines: main headlines

“ Growing together towards a friendly planet ”

- ✦ Advocating for the development of **natural gas** as a destination fuel for **Sustainable Development**
- ✦ Promoting an accurate **combination with renewables & electricity**
- ✦ Improving the availability of **natural gas** in new areas & in **developing countries**
- ✦ Attracting and retaining **Human Resources for the Future**

SG 2.3 Portability

This study group will continue its work starting the last triennium. We are going to realize further promoting of gas storage industry as important sector for students of engineering disciplines. Due to the fact that there is limited number of study programs dedicated solely to underground gas storage, finding additional ways how to attract students with engineering background might be objective of the study group. Development of specific skills needed in storage industry in disciplines as reservoir engineering, drilling and engineering, process engineering, etc. tailored to storage activities are to be also addressed.

Cooperation with Task Force 1: «Building Strategic Human Capacity».

SG 2.3 What we are going to do?

Objective

To understand the key issues impacting the attraction and retention of talent in the UGS sector of gas industry and develop a strategic approach to human capacity building to ensure sufficient capable manpower are available at the right time and place for the future sustainability and integrity of the UGS sector of gas industry.

Scope

1. Map critical talent and human resources necessary to deliver projects and business for UGS. Conduct a survey across IGU's members to understand the demographic of the industry and what are the commonalities and specificities across regions Understand which skills and resources and in which quantity are necessary to deliver the UGS business of today and develop the UGS sector of the future.
2. Identify gaps and key human resource issues impacting the UGS activity in the short and long term, particularly in recruitment and capability development.
3. Assess the impact of the different factors in recruiting, development and retaining talents.
4. Compile best practices and educational programs across countries and other industries including Diversity and Inclusion, cross-industry institutions and programmes aiming at developing local talent.
5. Define the types of most efficient and advanced training programs.
6. Facilitate exchanges of students during training periods between countries and companies.
7. Assess the role of governments, industry associations, universities and private companies.

Deliverables

1. Triennium Report with Conclusions and Recommended model for adoption of UGS sector.
2. Workshops involving local and international gas associations, experts of UGS companies and consultants.
3. Periodic articles for conferences during the triennium.

WOC 2 working hard



WOC 2 working even harder



Looking forward to your active participation 😊

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