EUROPEAN GAS
RESEARCH GROUP

GROUPE EUROPÉEN DE
RECHERCHES GAZIÈRES

2012 Activity Report

I. Introduction

2013 was in some ways a year of transition for GERG, with its new AISBL status acquired mid-year, and the retirement of General Secretary Dave Pinchbeck after 16 years of dedicated service to the organisation. Membership has continued to grow, and the new Friends of GERG category was introduced with 7 new members in this group.

A spotlight on the place of new gas technologies in the energy transformation is again shining from Brussels, and GERG now needs to develop new ways of remaining in this spotlight perhaps with new strategic priorities emerging.

II. General Matters

- Mr David Salisbury, National Grid, was President of GERG throughout 2012.
- At the Spring Board meeting, Grank Groeschl (DVGV), Angel Guttierez (Naturgas Energia) and Svein Berger-Thaule (Gassco) were elected Vice Presidents.
- On the 31st May 2012 the new GERG Statutes came into effect as GERG became an incorporated AISBL under Belgian law. At the point of signing there were 15founder members. During the remainder of 2013 all but two of the original GERG members had applied for and been approved re-admission.
- Following incorporation seven organisations applied to be and were accepted as Friends of GERG. These were DNV KEMA, TNO, CSM Italy, Polytec Norway, University of Freiberg, Hanze University and Ecole Nationale Supérieure en Génie des Technologies Industrielles, France
- RWE Dea became a member of GERG in 2012. They are represented in the Board by Dr Kai Schultze.
- Dr Michael Pritchard replaced Terry Williams as the GL Noble Denton Board representative at the Autumn meeting.

III. Programme Committees

A list of Programme Committees' current and proposed projects is attached as an appendix to this report. They were chaired as follows:

- PC General Studies — Mr G Roslonek, Gaz System
- PC Transmission & Storage — Mr J-L Zurita, Enagas
- PC Distribution — Yannick Onfroy GDF SUEZ
- PC Utilisation — Martin Seifert, DVGW
- PC LNG — Robert Coll, Repsol

The new PC LNG held its first meeting in Brussels in March, and as it stands is the largest PC with 18 members.

IV. GERG Secretariat

David Pinchbeck retired as General Secretary of GERG at the end of July and was replaced by Dr Robert Judd.

V. Highlights

GERG Board meetings - 2012

- Spring London, UK;
- Autumn Helsinki, Finland.

Targets for the New President

At the Spring Board meeting David Salisbury, the New GERG President presented his priority activities for his tenure, 2012- 2013

These included:

- Gaining a better understanding of members' needs
- Ensure that GERG is lobbying appropriately for R&D activities and supporting the Gas Naturally advocacy programme.
- Working towards influencing Horizon 2020
- Encourage the stimulation of new projects and look for new approaches, including more effective PC operation.
- Work closely with formal collaborators
- Ensure that GERG and its projects are promoted
- Complete the statutes and initiate Friends of GERG

Gas Naturally (formerly the Joint Gas Advocacy Programme)

- GERG is an active member of Gas Naturally which was set up in Brussels during 2011 in response to the Commission's initial EU Energy Roadmap 2050 which omitted to mention natural gas, in its drive towards decarbonisation of Europe. JGAP is made up of gas-related lobbying organisations who are now pooling their resources, with the aid of external professional consultants, to influence the critical political thinking in Brussels.
- The strategic objectives of Gas Naturally are:
    - *to enhance recognition among European Union policy makers of the benefits of natural gas in the current and future European energy mix;*
    - *to contribute to policy discussions in Europe in order to remove policy barriers to the use of natural gas;*
    - *to ensure a critical role for gas in the transformation of the European energy system.*

A 'Gas week' in the European Parliament in Brussels was successfully staged in April 2012 and the strategic priorities were further focused during the year. Gas Naturally activities will step up during 2013 with an increased focus on technology as an enabler of transformation, and a number of events including a second Gas Week in April, and a number of roundtable events including one ivolving GERG and Marcogaz.

GERG Academic Network

The 4th GERG Academic Network Event returned to Brussels during June 2012. The aims are to reinforce the GERG Academic Network by enlarging and strengthening links between selected universities and the European gas industry's research centres.

As usual, post-graduate students working towards a Ph.D. funded by, or relevant to, the gas industry were invited with their supervisors to present their work to a select audience made up of their peers, gas industry R&D experts and representatives from the gas industry worldwide.

Feedback from academic participants was generally positive, but one disappointment was the lack of gas industry member involvement this needs to be addressed for future events. The 2013 event is planned to be part of the EGATC Conference in Paris at the end of May, and assessment will be made of future needs for the event following the conference.

K4I and the GERG Dinner Debate

GERG is a founder member, and Governing Board member of Knowledge4Innovation's, (the K4I Forum of the European Parliament. GERG was involved in the 4th European Innovation Summit (EIS), which was held in Brussels in October where GERG hosted a reception highlighting its work on Power to Gas. K4I also worked with GERG to organise a dinner debate on the Power to Gas Research Roadmap in the European Parliament in November . This was attended by over 50 people including representatives from the Parliament and the Commission. Speakers included The GERG President David Salisbury, Klaus Altfeld, Tudor Constantinescu (Principal Adviser to the Director General for Energy) and Fernando Correia De Campos (Portuguese Socialist MEP and Energy Infrastructure Rapporteur). The event was successful in raising both the technology issues around Power to Gas, and also the need for a partnership involving gas and renewables through the energy transition and beyond. Follow up with DG Energy has already occurred, and GERG has an opportunity to continue to influence thinking in an area which is gaining in profile.

The GERG Hydrogen Project

2012 saw the initiation of the Board level GERG Hydrogen project (hydrogen in pipeline systems or HIPS). The cross-cutting issue of hydrogen in networks, and Power to Gas which is seen as a strategic priority, sits outside of any individual PC. Following expert workshops in 2011, HIPS kicked off to address the limitations for hydrogen injection with respect in particular to:

- modern gas turbines with premixed burners;
- underground porous rock storage;
- steel tanks in NGVs and CNG fuelling stations.
- The existing appliance population

The main research actors for this project are E.ON Ruhrgas, DVGW, DGC, GDF SUEZ and DNV KEMA. However by the end of 2012 the project had attracted over 30 members, including most GERG members each contributing €8500. At the start of 2013 the membership continued to grow, with the Korean Gas Corporation becoming the first Asian member of the project. The mid-term project workshop in Brussels in November attracted over 40 attendees.

The Power to Gas Research Roadmap

In parallel with the HIPS project, the Power to Gas research Roadmap is nearing completion, and now has had input from all GERG members as well as external organisations and the European Commission. The document is expected to launch in the first quarter of 2013.

The increasing availability of wind energy has highlighted the issue of shortage of electricity storage. GERG and its members are preparing a project that will enable the use of surplus electricity for the generation of hydrogen by electrolysis and its direct injection into the natural gas network. This would make an important contribution to the transportation and storage of surplus or non-transportable renewable electricity and is particularly attractive if it helps to avoid construction of new electricity lines.

Collaborative activities and publications

The Secretaries continued involvement in the following committees:

- Organising committee of EGATEC2013, to be held in Paris in May, 2013;
- Gas Naturally Steering Committee;

- K4I Management Board;

Publication:

- "Power to Gas, Gas Quality and the GERG Hydrogen Project" by Dave Pinchbeck and Klaus Altfeld, Gas for Energy 2, 2012

VI. Members – 2012

As of the 1st of June GERG moved from being a subsidiary organisation of EUROGAS to being an incorporated Company in it own right. At the time of incorporation 15 of the member organisations became, by proxy and Power of Attorney, founder members of the new GERG AISBL.

These were:

- BP U.K.
- Danish Gas Technology Centre Denmark
- DVGW Germany
- Enagas Spain
- Gas Natural Spain
- Gassco Norway
- Gasum Finland
- Gaz System Poland
- GDF SUEZ France
- IGDAS Turkey
- National Grid U.K.
- Naturgas Energia Spain
- Repsol Spain
- Snam Rete Gas Italy
- SVGW/SSIGE Switzerland

Since incorporation the following members have applied to join or re-join and have been accepted into GERG by a Board vote.

- ARGB Belgium
- GL U.K.
- Kiwa Gastec The Netherlands
- OGE (Open Grid Europe) Germany
- Shell Global Solutions The Netherlands
- Statoil Norway
- Gasunie Engineering & Technology The Netherlands
- RWE DEA AG Germany

Re-applications were still awaited from:

- E.ON New Build and Technology Germany
- Eni Gas & Power Italy

1. Appendix

GERG Activities Report – 2012

1. GERG PROGRAMME COMMITTEE TOPICS: Current

Programme Committee:- General Studies for the Gas Industry	
Projects in execution:	
1.	Uncertainty determination of response factors for gas components determined by gas chromatography.
2.	Aqueous dew-point - development of a method for determination of water dew point for natural gas taking into account the impact of trace materials
3.	Installation, calibration and validation guidelines for on-line hydrocarbon dew point analysers.
4.	Formation of elemental sulphur
5.	Development of density meter for LNG
Projects in preparation:	
1.	Total acceptable error in fiscal metering systems
2.	Biogas trace components - siloxane
3.	Installation, calibration and validation guidelines for on-line hydrocarbon dew point analysers (Ph.2)
4.	Correlation techniques – (Ph.2) lab tests
5.	Clamp-on meters as diagnostic device
6.	Instrumentation and verification procedures at metering station
7.	Expansion of water dew point/water content calculation proposed in ISO Standard 18453
8.	Comparison of hydrocarbon dew point measurement principles
9.	Olfactory of odorized biomethane

Programme Committee:- Transmission and Storage
Projects in execution:
1. 'Integ-Risk' - Pipeline R.O.W. surveillance
2. Inspection and test of two old concrete LNG tanks
3. COSHER
Projects in preparation:
1. North Sea Power2Gas Platform (KEMA).
2. Optimization of the chain of CO2 pipeline transmission and injection (KEMA)
3. Safety of CO2 transmission pipelines (KEMA).
4. Next step NoPIG (KEMA).
5. BP Biomethane (KEMA).
6. Air flow method (GSYSTEM).
7. Fibre Optic detection systems: PIT-STOP (FLUXYS).
8. Non-intrusive techniques to locate from the surface buried metallic pipes (GDF).
9. Technical and economic criteria used to choose third party prevention barriers (GDF).

Programme Committee:- Distribution
Projects in execution:
1. Non-destructive techniques to measure the integrity of butt fusion and electro-fusion joints in new and existing PE gas pipeline systems
2. Qualification procedure for self-compacting backfill
3. Gas dispersion in soil – tools to analyse situations at risk due to gas leakage in the soil (Phase 2)
4. Evaluation of the Strain Hardening Method (SHT) for PE Pipe Materials
5. Bagging off system for Distribution Grid up to 5 bar
6. Keyhole tests (knowledge sharing with GTI)
Projects in preparation:
1. Hygrid, SMARTSIM, hydrogen impacts in distribution sysstems
2. Sustainability and the Gas distribution System
3. Examining the effect of using re-rounding clamps after squeezing off PE gas pipe
4. Monitoring the Safe Injection of Biomethane into the Gas Distribution Grid
5. Leakage survey and methodologies for quantification
6. Modeling Electrofusion Processes – Stage 1, bibliographic survey
7. North Sea Power to Gas Platform

Programme Committee:- Utilisation
Projects in execution:
1. DomHydro – Hydrogen Impact in Domestic Environment
Projects in preparation:
1. GERG Marcogas strategies for Gas technologies
2. Biomethane trace components
3. Methane number calculation methods
4. GASQUAL - H2
5. Hygrid

Programme Committee: LNG
Projects in Execution:
1. Rapid Phase Transition, Literature survey
Projects in Preparation:
1. Inspection and test of 2 steel-plated LNG tanks
2. Two-phase LNG flow in flexible hoses
3. Predicting the risk of Rapid Phase Transition events in LNG spill
4. Sloshing in LNG tanks. Effect of phase transition
5. LNG as fuel specification

2. APPROXIMATE VALUE OF GERG PROGRAMME - BY PC, OCTOBER 2012

PC	Value (k€)	EC funding (k€)	% of total
General Studies	852 (987)	170	20 (17.2)
Transmission & Storage	1630 (1,903)	715	45(37)
Distribution*	808 (1,332)	0	0
Utilisation	250 (2,914)	0 (1,427)	0 (49.0)
LNG	30 (0)	0 (0)	0 (0)
Totals	**3675 (7156)**	**885 (2,312)**	**24 (32.4)**