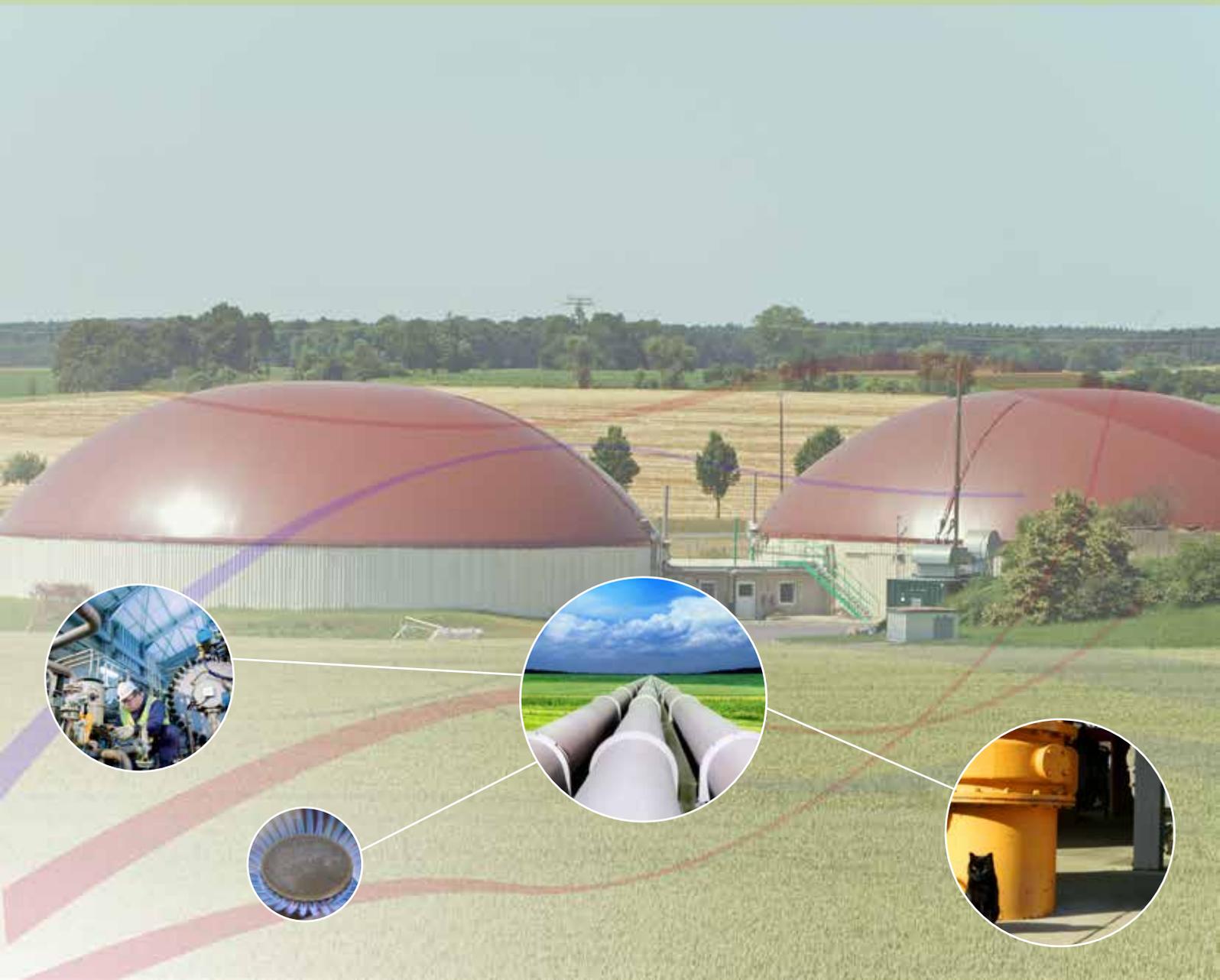
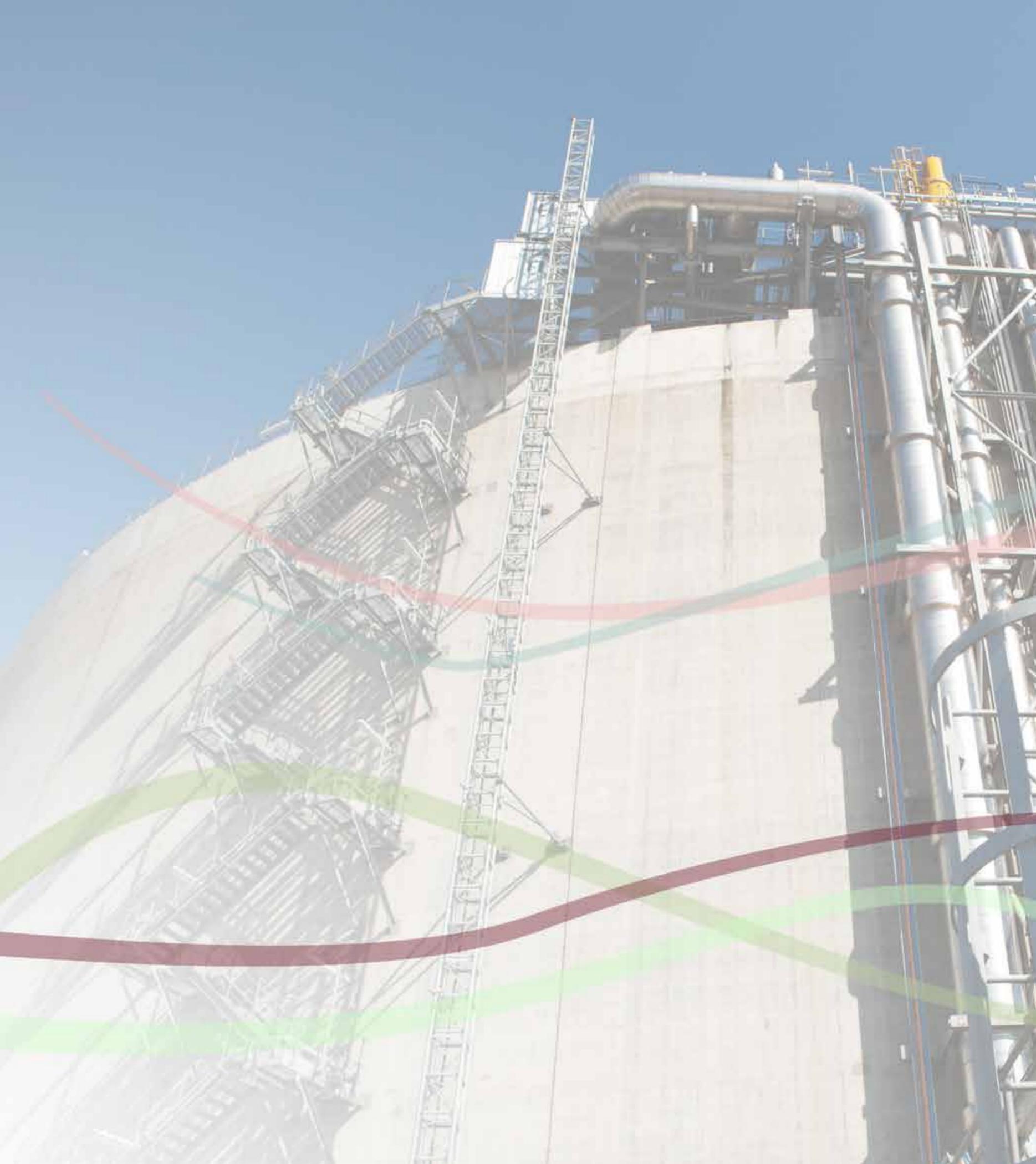




the european gas research group  
INNOVATION FOR EUROPE'S ENERGY FUTURE

## ACTIVITY REPORT 2013 - 2014





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## A MESSAGE FROM THE PRESIDENT

The world of energy is becoming more complex, and the old rules no longer apply. This is as true for research and innovation as it is for the business models of the industry. The gas industry can no longer be seen as mature – we need to work alongside renewables, address the challenges of decarbonisation and harmonization, and fit a whole new portfolio of unconventional resources into our strategic planning.

The impact on organization and funding of research and innovation in the gas industry has been marked. GERG has had to evolve and move with the times in order to stay relevant and determine where best to add value to its members.

The gas and energy industries in Europe have undergone big changes, so GERG cannot stand still as it continues to support the interests of its members.

Challenges include:

- How do we continue to provide the collaborative research and innovation needs of an ever broader membership.
- How do we continue to leverage R&D funds at the level required to make a difference when internal R&D budgets are being squeezed.
- How do we address the changing technical priorities of the industry against an increasingly complex backdrop of the European energy transformation.
- How do we demonstrate the value of gas technology innovation in enabling Europe to meet its targets for a future low carbon energy system.

In addressing these challenges, we see big opportunities for GERG. With an increasingly segmented European gas industry, we believe that GERG can provide a glue, pulling together research interests which cut across the different segments of the industry, and at the same time show how the gas industry can play a role in all our energy futures. To this end we are working closely with stakeholders in Brussels and beyond to demonstrate that without gas technology and innovative solutions which link the gas and broader energy infrastructures the success of the energy transformation is substantially less likely and substantially more expensive.



The collaborative approach on which GERG has built its legacy is, if anything, more important now than at any time in the past. The challenge GERG is addressing is how to build even more effective collaboration in innovation across a broader gas industry, and alongside a complex energy community. This year we have made considerable steps forward. The next few years will cement the position of GERG at the heart of new European energy innovation.

David Salisbury  
President of GERG

## A MESSAGE FROM THE SECRETARY GENERAL

In the second half of 2012, GERG saw the retirement of Dave Pinchbeck the Secretary General, after 16 years of excellent service. Having taken over from Dave I am now working closely with the President, David Salisbury of National Grid, the Board and with all our friends and stakeholders to continue the good work Dave started, and to try and ensure that GERG stays aligned with the needs of the gas and energy industry. Christmas 2013 saw the launch of a new GERG website and the start of a rebranding which is illustrating how GERG is moving forward. In the background the GERG Board is developing a new Strategic Roadmap, which will better equip the organization to meet the challenges of the future, and formulate new ways of driving project lifecycles to improve the relevance and dynamics of the GERG output.

The last year has seen good progress on a number of fronts; in Brussels where we have worked with stakeholders in the energy and research communities, and beyond where we are reaching out to an increasingly broad membership and attempting to develop a project portfolio that is taking on a wider perspective than ever before. As gas increasingly demonstrates that it can be a framework around which a low carbon energy future is built, innovative gas technology needs to be supported and developed by the industry to make this future real.

Some highlights of the last period include:

- The continuing growth of the membership with more full members and more Friends.
- A closer working relationship with Marcogaz, and a number of successful joint initiatives which have been supported by the wider community.
- A successful EGATEC Conference and an Academic Network event, which brought the gas industry together with the potential recruits of the future.
- Increased interaction with industry stakeholders including support to GasNaturally events, and GIE and Eurogas initiatives, and close interaction with the new EDGaR / DVGW axis.
- GERG working at the centre of development of European Energy Technology Strategy to 2030 through contribution to the new SET Plan production, and input to Workshops with representation at the highest level of European policy making.
- A new closer working relation between our Programme Committees, which will help us to better coordinate and deliver our research priorities.
- A new website and online Communication platform, which will allow more regular and effective interaction between members outside of formal meetings.

In summary GERG is continuously looking for better ways to derive value for its membership, and the next year will continue to build new initiatives with input from the Board and its wider membership.

**Robert Judd**

**Secretary General of GERG**

## THE CHANGING FACE OF GAS RESEARCH IN BRUSSELS

### HORIZON 2020 AND THE NEW SET PLAN

After much negotiation and re-drafting, Horizon 2020 was finally launched by the European Commission in December 2013. There was much to be optimistic about from the work-programme and the content of the calls, with many of the first calls recognizing the importance of gas in the future energy mix. Individual calls dealt with CCS, unconventional gas, energy system modelling, flexible power generation, biomethane in the gas grid and Power to Gas. This is already a better situation for gas than in Framework 7, and it is likely that the efforts of GERG, often working alongside other stakeholders both inside and beyond the gas industry, played a role in improving the position of gas in the programme. We are optimistic that future calls will continue to recognize that the challenges of the future energy system cannot be realized without a strong emphasis on gas technology, increasingly as a partner to intermittent renewables.

There is still some considerable way to go, however, to carve out a strong partnership for gas technology with other players in the energy mix. The new Strategic Energy Technology (SET) plan is being built on the outputs of the Integrated Roadmap for Energy Technologies. This was constructed during 2013-4 in Brussels, and GERG worked alongside over 150 stakeholders in the European Energy Community to ensure that the role of gas was recognized and integrated. The SET Plan is expected to be approved later this year, and we are again looking forward to seeing gas technology interwoven within the fabric of the future energy mix, and the future calls of Horizon 2020 which will be informed by the new SET Plan.



# THE INNOVATION VOICE FOR GAS ADVOCACY - GERG IN GASNATURALLY

**G**asNaturally is an initiative, now in its third year and formed of 6 organisations constituting over 150 Companies covering the whole of the gas chain. The aim of GasNaturally is to promote the position of gas in the energy transformation, through raising awareness of the benefits of gas and developing clear policy messages that can help the industry speak with a unified voice.



GERG has been active within Gas naturally over the past year on a number of fronts

- Developing the GasNaturally Policy Priorities, Messaging and Strategy
- Taking Part in Gas Week 2013, specifically a public hearing in which the GERG President debated on the subject of “Reconciling EU Policy Goals with Reality”.
- Organising, with Marcogaz and GIE a Parliamentary Dinner Debate on the benefits of Gas Utilisation in improving energy efficiency, reducing emissions and reducing costs.



## Gas Naturally : one voice for Gas

7 associations

275 entities including 150 companies



# K4I AND THE INNOVATION SUMMIT



**K**nowledge4Innovation is the leading Brussels based innovation platform operating within the environment of the EU Institutions. K4I members are from the private, academic and public sectors and include large networks such as EUREKA, COST, Cefic, ECPA and EFPIA as well as universities, regional development organisations, cities, think tanks and small enterprises. GERG is founder member and continues to sit on the Board of Management.

K4i has continued to provide an excellent opportunity to showcase the role of innovation in the Gas Industry at the heart of the European Innovation message. In 2012 GERG organized a dinner debate on Power to Gas which has continuing impact through relationships forged with important players in the Commission.

In 2013 GERG again was a partner in the 5th Innovation summit, and presented in a panel debate on Horizon 2020 – From funds to Market.

At the beginning of 2014 GERG co-organised a significant event, with support from the highest levels of the European Commission, the roundtable – “Europe’s Energy Future:

Efficiency and competitiveness through innovation and smart integration”. The GERG President took part in a panel debate with the Commissioner for Energy, Gunther Oettinger, The Directors General for Energy and Research, and Prof Jerzy Busek former President of the Parliament. The theme was the role that innovation needs to play in the future of Europe’s Energy, in the context of the New Integrated Roadmap for Energy Technologies. This event was specifically requested by Mr Oettinger’s Cabinet, to help develop a deeper understanding of the challenges facing the energy transition. It will be the precursor for a second event in the New Parliament at the 6th K4I Innovation Summit in November.



# KEY TECHNICAL PRIORITIES – POWER TO GAS AND HYDROGEN

**A**t the end of 2013 GERG published the Power to Gas Roadmap in Gas for Energy magazine, and the roadmap was presented in a number of external events.

The Hydrogen in Pipeline Systems (HIPS) project concluded produced its final Report both as a paper and as an extended report, which was made available for purchase for a small fee.

Led by DBI (DVGW), a sub-group of the original HIPS members began HIPS-NET, the successor to HIPS launched at the end of 2013. This project is producing periodic newsletters, which highlight current developments, which impact the injection of hydrogen into natural gas systems. In 2013 the profile of Power to Gas was seen to burgeon, and GERG remains at the centre of developments through involvement in the initiatives such as the North Sea Power to Gas Platform, and expects that in response to Horizon 2020 calls GERG members will respond through at least one major proposal.

The Fuels Cells and Hydrogen Joint Undertaking (FCHJU) of the European Commission this year initiated a major study on Energy Storage, and at the forefront of this study is the role hydrogen is likely to play in future energy storage. GERG and Eurogas, along with a number of other stakeholders are contributing to the study which will report at the end of the 4th quarter 2014. The Horizon 2020 Work Programme and the FCHJU Work Programme published in June 2014 both gave pointers to an expectation of Power to Gas related future calls

# EGATEC 2013 AND THE 5<sup>TH</sup> ACADEMIC NETWORK

**E**GATEC, the biannual conference for Gas Technology in Europe was held in Paris from 30th to 31st May 2013, and was organized by GERG, Marcogaz, AFG and GDFSuez. Marc Florette GERG Board Member and Marcogaz President led the organization of a highly successful event. Keynote speeches by Jerome Ferrier (President of IGU), Fatih Birol (Chief Economist IEA) and David Carroll (President GTI) highlighted the position of gas at the centre of an evolving global energy system.

Their presentations also served to contrast how differently the benefits of gas are seen globally in comparison to Europe. This served to highlight the central role of technology innovation in re-establishing the reputation and long-term position of gas in the European energy mix. The conference took forward this theme, with sessions on such subjects as Mobility, Power to Gas, End Use Advances, Gas Quality, Biomethane and SMART Transmission and Distribution. The GERG Secretary presented a paper on the Power to Gas Research Roadmap.

The GERG Academic Network Event was held in conjunction with the EGATEC Conference, and 22 students selected from European Universities. 22 posters were presented by 22 selected postgraduate students, who attended, in many cases along with their supervisors presented posters highlighting their work on gas industry challenges and fundamental new developments. This provided them with a great opportunity to interact with over 200 industry attendees over the conference two days. They were also able to attend all conference sessions and gain insight into the issues that are currently driving the Gas Industry in Europe. As a way of bringing together industry and the new and innovative ideas of our academic community, the event was judged a great success, and many new contacts were made. As has become a tradition, the posters were assessed by senior GERG members, and prizes awarded by the GERG President to the top three - or in this case four as there was a third place tie!

The winners were:

**1st Place**

Ensuring Operational Safety of the Natural Gas Grid by Removal of Oxygen from Biogas via Catalytic Oxidation of Methane, Felix Ortloff

**2nd Place**

Zirconium electrolyte optimization of a thin film electrochemical sensor for the measurement of biogas and natural gas quality, Lander Rojo

**3rd place tie**

Gas quality tracking in gas grids including gas from renewable sources, Christian Fiebig  
2nd generation Biomethane synthesis by catalytic methanation, kinetic and catalyst deactivation study, Nouriah Fatah

## EVENTS

**G** ERG has provided important input into a number of external events in this period:

- Hydrogen Workshop with DG Energy (Brussels) – The GERG President was invited to present the GERG view on gas network adaptation and contributed to a panel discussion.
- IEA Hydrogen Roadmap – the GERG Secretary attended the two day roundtable event in Paris and presented on requirements for grid injection of hydrogen, both from technology and standards perspectives.
- GERG GIE Marcogaz roundtable – organized under the GasNaturally banner, this event in the European Parliament
- EGMONT 3rd Symposium: How to foster innovation in a fast changing EU energy landscape? – the GERG Secretary spoke alongside Marie Donnelly Director in DG Energy for New and Renewable Energy Sources.
- Eurogas Annual Conference - The Secretary took part in 2 hour panel discussion which also included representative of EREC (the European Renewable Energy Council), and Paul Hodson, Director of Energy Efficiency at DG Energy.
- Power to Gas Roadmap – TUV Nord symposium – The Secretary Presented the Power to Gas Roadmap, and took part in a panel debate in a Programme which included, DG Energy, Audi and others.
- The EDGaR / DVGW Conference, Brussels November 2013. – The President Chaired a session on the future of support for Gas Innovation which included Mark Van Stiphout, from The Cabinet of the Energy Commissioner, and Beate Raabe of Eurogas.
- Swedish Gas Conference – the Future of R&D – The GERG President presented the GERG view on the history and the future role and challenges of Research and Development in the Gas industry.
- High Level Energy Roundtable with K4i – “Europe’s Energy Future: Efficiency and competitiveness through innovation and smart integration”. The GERG President took part in a panel debate with the Commissioner for Energy, Gunther Oettinger, The Directors General for Energy and Research, and Prof Jerzy Busek former President of the Parliament. The theme was the role that innovation needs to play in the future of Europe’s Energy, in the context of the New Integrated Roadmap for Energy Technologies. This event was specifically requested by Mr Oettinger’s Cabinet, and will be the precursor for a second event in the New Parliament at the 6th K4I Innovation Summit in November.

## WORKING WITH EXTERNAL ORGANISATIONS

- Cooperation with Marcogaz has stepped up considerably this year, with interaction on a number of fronts. These include:
  - Organisation of a highly successful workshop on the role of gas sensors.
  - Participation in the Marcogaz LNG working Group
  - Participation in the Marcogaz SMART Grids working Group
  - Integrated Roadmap for Energy Technologies – GERG along with Marcogaz are representing Gas industry input to new SET Plan.
  - Joint organization of events under the GasNaturally Banner
  - Regular information exchange
  - It is expected that the level of interaction will increase as the need for an aligned voice from the gas industry becomes more important.
- Eurogas – GERG are working with Eurogas and Marcogaz on a new European report on Heating Strategy finalized in mid 2014
- GIE – GERG working with the GTE Sustainability Committee and presented on Power to Gas in March, alongside the European Commission, as well as organising a joint event at Gas Week.
- NGVA Europe – GERG now has NGVA Europe representation within the Utilisation Programme Committee.
- EDGaR (the Dutch Energy Delta Gas Research Group). GERG is now attending meetings of the steering group of the EDGaR DVGW alliance, with a view to bringing European scale activities under a GERG umbrella. At a meeting in Brussels in February, discussion of joint activities on Horizon 2020 led to a decision to pursue three potential proposals – Energy System Modeling, Flexible Power Generation, and Power to Gas. Work will continue in May to scope these further.
- PRCI – The President and Secretary met with President of PRCI, Cliff Johnson and agreed a greater degree of information sharing, and invitation to relevant meetings. GERG also has common representation at PRCI Technical meetings with a number of Board members and individual members involved in PRCI projects. It is important to build on this link to ensure that GERG and PRCI are not duplicating research projects.
- Fuel Cells and Hydrogen Joint Undertaking – GERG has a place on Working Groups of the FCHJU initiative on Energy Storage, This was recently tendered to framework consultancies and awarded to McKinsey, and commenced mid-April.



# WORKING TOGETHER-THE GERG MARCOGAZ SENSOR WORKSHOP



An example of a correlative gas quality sensor developed by MEMS that is currently being field tested

the event was oversubscribed and some registrations had to be refused.

The context of the event was presented at the outset with presentations from the European Commission and from GIE (Gas Infrastructure Europe). The European Commission emphasized the importance of gas quality for realizing the Single European Energy Market. GIE illustrated how gas quality in Europe is changing as gas sources become more and more diverse, with new pipeline, LNG and renewable gases having widely varying gas quality. An illustration of the impact was given by Energinet.dk, who showed how step changes in heating value of gases of over 10% are now regularly seen and the Germany – Denmark border. It is vital to understand gas quality (and particularly Wobbe Index which is an important measure of combustion characteristics) in order to ensure safe combustion of natural gas. In turn cheap, fast and accurate sensors allied to effective measurement and control systems are vital to ensure that safe combustion is taking place and can be appropriately managed.

The subsequent sessions of the conference illustrated that there are many options already in operation, and even more options for the future. The relevant applications range from monitoring and control of distributed gas, through to control at the individual user level.

Transport is becoming a major application with the increasing success of natural gas (CNG and LNG) vehicles and ships. Collaborative efforts from OEMs and engine manufacturers to integrate sensors into a new fleet of heavy-duty vehicles were presented. This application may lead the way in creating a new market for mass production of small sensors, and new integrated chip based devices such as MEMS are rising to the challenge.

For domestic users, integrating gas quality sensing and control into individual appliances, especially boilers and water heaters is an ambition that has so far only been realized in very small numbers. One early need is a cheap Wobbe meter which can be used by gas installers to check gas quality at point of use. Pipeline solutions may move away from the expensive

**O**n 27th February 2014 Marcogaz and GERG and jointly organized a workshop in Brussels on the subject of sensors in the gas industry, with a specific focus on Gas Quality sensing, measurement and control. The event was a great success with over 60 attendees from a broad range of industrial and academic concerns. Indeed

total gas analysis chromatography based systems towards cheaper correlative type devices. These can be installed at the increasing number of entry points, and give sufficient confidence in the main quality parameters. Here regulatory rather than technical hurdles need to be overcome to ensure their widest use.

The number of diverse technical approaches to sensor development, demonstrate that this is a field which is not short of possible technical solutions. The workshop has shown that there is an important need by the sensor industry for information from the gas industry on gas quality variations, and application specifications for sensors in the industry. Therefore it is important for the gas industry to convey the correct messages to potential developers, manufacturers and integrators, so that the solutions will meet the needs. With this in mind, the Workshop organisers will continue to work closely together in coming weeks to define next steps and an action plan and roadmap that can be communicated back to the sensor community.

Sensors seem to offer solutions to a number of challenges that gas quality variation will bring. The workshop a first step for a joint industrial effort toward solutions to manage these variations automatically and with increased confidence.

**marcogaz**  
TECHNICAL ASSOCIATION  
OF THE EUROPEAN NATURAL GAS INDUSTRY

**GERG**  
the european gas research group  
INNOVATION FOR EUROPE'S ENERGY FUTURE

# OUR PROGRAMME COMMITTEES

The Five Programme Committees in the GERG Organisation continued through 2013 and into 2014. In early 2014 two of the PC Leaders Changed due to organizational changes and the exit of Repsol From GERG:

PC	LEADER	COMMENT
General Studies	Arne Fredheim (Statoil)	Replaced Grzegorz Rolstonek of PGNIG
Transmission and Storage	Juan Lopez Zurita (EnaGas)	
Distribution	Yannick Onfroy (GDF SUEZ)	
Utilisation	Martin Seifert (SVGW)	
LNG	Dirk Goemminne (Fluxsys)	Replaced Roberto Coll of Repsol

The tables [below] show the list of current and projected PC projects, and also the overall value of the GERG portfolio. One point of note is that current timing puts us in a hiatus between Programmes of the European Commission – Framework 7 has come to a conclusion and Horizon 2020 is yet to begin. Several of the major GERG projects in Framework 7 have concluded, reducing the value of the EC Funded element to zero. Despite this, and the difficult economic climate for many of our member countries, we have seen an increase in the overall value of the GERG portfolio, with some positive signs for the future. GERG members and the Secretariat continue to seek out new collaborative funding routes, and the coming year is expecting to show that there are realizable opportunities to develop these.

## APPROXIMATE VALUE OF GERG PROGRAMME - BY PC, APRIL 2014

PC	Value k€ (2012 fig. in bracket)	EC and external funding (k€)	% of total
General Studies	2,500 (852)	0 (170)	20
Transmission & Storage	730 (1630)	0 (715)	45
Distribution	1,570 (808)	0	0
Utilisation	300 (250)	0	0
LNG	5,300 (30)	2000	36
Totals	10,400 (3675)	2000 (885)	18 (24)

## 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.Project 1.69 - Revision of gravimetric method in ISO 6570 – improvement of detection limits and accuracy of the method in the standard
- 3.Biogas sampling – to prepare recommendations for sampling procedures which minimize analytical errors
- 4.Comparison and evolution of measurement methods to determine CH4 emissions from biogas plants
- 5.Formation of elemental sulphur
- 6.Olfactory issues with biomethane odourisation

### Projects in preparation:

- 1.Total acceptable error in fiscal metering systems
- 2.Installation
- 3.Correlation techniques – (Ph.2) lab tests
- 4.Clamp-on meters as diagnostic device
- 5.Instrumentation and verification procedures at metering station
- 6.Expansion of water dew point/water content calculation proposed in ISO Standard 18453
- 7.Comparison of hydrocarbon dew point measurement principles

## PROGRAMME COMMITTEE:- TRANSMISSION AND STORAGE

### Projects in execution:

- 1.PIT-STOP: algorithm able to classify the acoustic detections made via the optic fiber generated by not announced third parties' activities around the pipelines
- 2.Comparison of greenhouse gas emissions measurements methods
- 3.North Sea Power2Gas Platform
- 4.Revision of Pipeline Operators Specification

### Projects in Discussion:

- 1.Fast quantitative corrosion inspection with ultrasonic guided waves
- 2.Development of Guidelines for Assessment of Unpiggable Pipelines
- 3.Development of a Multifunctional Carbon Dioxide Test Loop
- 4.Pipeline life extension and decommissioning
- 5.Avoiding vibration on small bore pipework for process plant
- 6.Safety distance between wind turbines and underground pipeline
- 7.Non-intrusive techniques to locate from the surface buried metallic pipes (GDF)
- 8.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.Gas dispersion in soil – tools to analyse situations at risk due to gas leakage in the soil (Phase 2)
- 3.Bagging off system for Distribution Grid up to 5 bar
- 4.Keyhole tests assessment of benefits of each method
- 5.Hygrid, SMARTSIM, hydrogen impacts in distribution systems
- 6.Comparison of greenhouse gas emissions measurements methods (with PC T&S)

### Projects in discussion and preparation:

- 1.The SMART Distribution Network of the Future (multiple sub projects)
- 2.Sustainability and the Gas distribution System
- 3.State of the art methods to locate buried distribution assets
- 4.Monitoring the Safe Injection of Biomethane into the Gas Distribution Grid (with PC General Studies)
- 5.Leakage survey and methodologies for quantification
- 6.Modeling Electrofusion Processes – Stage 1, bibliographic survey

## PROGRAMME COMMITTEE:- UTILISATION

### Projects in execution:

- 1.DomHydro – Hydrogen Impact in Domestic Environment
- 2.GERG Marcogas strategies for Gas technologies
- 3.Assessment of Sensors state of the Art4
- 4.SEMEMS use of MEMS Sensors

### Projects in discussion and preparation:

- 1.Biomethane trace components
- 2.Methane number calculation methods - KNOCKOUT
- 3.GASQUAL - H2
- 4.Hygrid – Hydrogen injection in Gas Distribution Systems

## PROGRAMME COMMITTEE: LNG

### Projects in Execution:

- 1.Inspection and testing of decommissioned steel tanks
- 2.Integral Safety Program for small scale LNG supply chain (TNO)
- 3.LNG Mass Flow Metrology (VSL, GERG advisory Group)

### Projects in Preparation and Discussion:

- 1.Small-scale LNG release tests and model improvements
- 2.Predicting the risk of Rapid Phase Transition events in LNG spill
- 3.Development of a fully integrated system for offshore LNG transfer in harsh environment
- 4.Two-phase LNG flow in flexible hoses (INNOCOLD)5

## PUBLICATIONS

IIR Meeting in Arnhem – The GERG Power to Gas Research Roadmap

EGATEC 2013 – The Power to Gas Research Roadmap

Gas for Energy Magazine – The GERG Power to Gas Research Roadmap

EU Hydrogen Conference, Brussels– Network Adaptation for Hydrogen Blending

IEA Hydrogen Roadmap Workshop – Network Adaptation

Gas Week 2013 – Reconciling European Policy Goals with Reality

K4I 5th Innovation Summit, Session “Horizon 2020 from Funds to Market”, 1st October European Parliament – Gas Technology Innovation and Energy Transformation

How to Foster Innovation in a Fast Changing EU Energy Landscape, 8th October, Brussels

Power to Gas Roadmap at Seminar Organized by TUV Nord in December

The Hydrogen in Pipelines System Project, Gas For Energy Magazine, Spring 2014

The HIPS Project, GERG Report Spring 2014

Future of R&D in the Gas Industry at Green Gas Conference in Sweden on March 19th 2014

The European Gas Research Group and the Challenge of Innovation for our Energy Future, G7 Magazine, Spring 2014

The GERG Marcogaz Sensor Initiative – European Energy Innovation, Autumn 2014

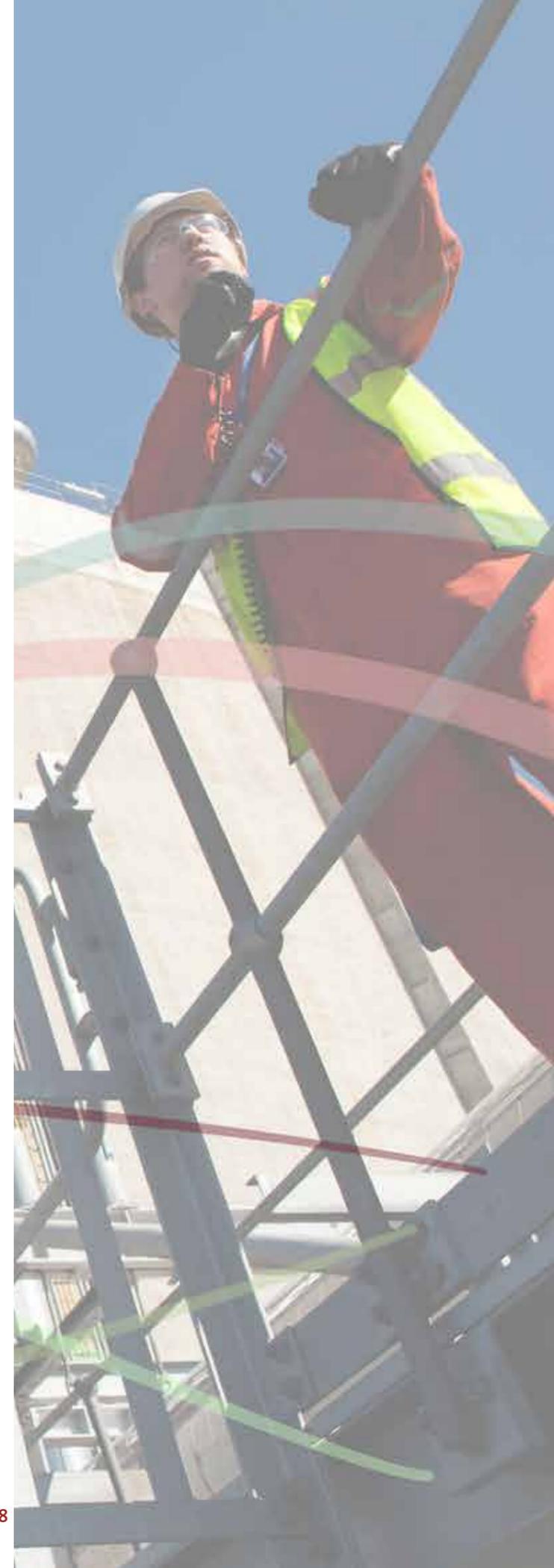
# MEMBERSHIP AND FRIENDS OF GERG

The good news is that GERG is growing. In 2013 we gained three new members – The Swedish Gas Technology Centre, GRT Gaz and Edison. Sadly, on the negative side Repsol decided to withdraw from GERG due a change in their Corporate strategy in relation to gas. From an original membership of 5 major integrated gas companies, GERG membership now numbers 28, with 5 of these members having arrived in the last 2 years. The Friends of GERG (FoG) initiative is intended to renew and broaden the level of expertise and knowledge within GERG and continued to grow during 2013 with the arrival of Imperial College London, IFE Norway and very recently ESTI of Bilbao. We hope to see many more FoGs in the GERG fold over the next few years.

## MEMBERS



## FRIENDS OF GERG







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