

Minutes of meeting

2nd Meeting of PGC A in the Triennium 2012-2015

Rio de Janeiro, 18-21 February 2013

1. Attendance

The second meeting of PGC A in the current IGU triennium took place at the Windsor Atlantica Hotel in Rio de Janeiro, 18-21 February 2013, as a joint reunion with WOC 1.

A total of 48 IGU delegates were present, of which 22 from WOC 1, 24 from PGC A (Table 1), one from WOC 3 and one from the Coordination Committee. In addition to that, 17 external speakers and 11 guests were invited to participate, totaling 76 attendees from 19 countries.

Table 1. Attendees from PGCA.

A.1	Hiromichi Kameyama	Tokyo Gas	Japan
A.1	Hazleen	Petronas	Malaysia
A.1	Nonglak	PTT	Thailand
A.1	Mercedes Cavani	PDVSA GAS	Venezuela
A.2	(Antônio Machado)	SCGAS	Brazil
A.2	Soren Hylleberg	HMN Naturgas	Denmark
A.2	Sari Siitonen	Gasum Oy	Finland
A.2	Elbert Huijzer	Liander	Netherlands
A.2	Sergey Shilnikov	Gazprom promgaz	Russian Federation
A.2	Puttaporn Pravalpruk	PTT	Thailand
A.3	Daniel Hec	Marcogaz	Belgium
A.3	Dirk Gullentops	Synergrid	Belgium
A.3	Anne Prieur	GDF Suez	France
A.3	Yuichiro Yamaguchi	Osaka Gas	Japan
A.3	Hyun-seok	Kogas	Korea
A.3	Luis M. Gonzalez N.	PDVSA	Venezuela
A.4	Abdallah Souad	Sonatrach	Algeria
A.4	Mauro G. Soares	Tecpetrol	Argentina
A.4	Anatoly Arabsky	Gazprom	Russian Federation
A.4	Masaki Okada	ExxonMobil	Japan
A.4	Yoshito Umeda	Toho Gas	Japan
A.4	Hyo-Sun	Kogas	Korea
	Satoshi Yoshida	Tokyo Gas	Japan
	Masao Takekawa	Tokyo Gas	Japan

2. Brazilian gas sustainability panel



After the welcome words of the Chairmen of WOC 1 and PGC A, the meeting started with a series of small presentations performed by selected representatives of the Brazilian gas industry.

The most important producer is Petrobras, whose Chief Gas and Energy Officer, Mr. **Alcides Santoro**, presented his expectations towards the local market. Domestic production has nearly doubled to 70 million m³/d in the last 10 years, and the local reserves experienced a similar increase to 460 BCM in the same period. Meanwhile, LNG imports have also grown substantially, and an internal production programme was recently launched to explore and exploit the Brazilian onshore potential, entitled PRON-GAS. Petrobras is willing to investment nearly US\$ 13 billion in its gas businesses over the next five years, mostly for the production of power and fertilizers.

The charter member of the IGU in Brazil is the Brazilian Association of Local Distribution Companies (Abegas), whose CEO, Mr. **Luis Domenech**, is also a member of the Executive Committee of the IGU and regional coordinator for the Americas. He defended regional integration as a means to expand the use of gas, reduce costs and promote economic and social development in the region. Abegas is also interested in increasing the transparency throughout the gas chain, and expects the Brazilian demand to reach more than 200 million m³/d by 2020.

The Brazilian Petroleum, Gas and Biofuels Institute (IBP) was represented by its secretary, Mr. **Milton Costa Filho**. He explored the potential of the oil and gas industry in Brazil, where an annual production of 50 million bpd of oil and gas could be reached by 2020. His organization is one of the most influential in the country, with more than 220 members and an active participation in the formulation of local policies for oil and gas.

Ms. **Cynthia Silveira** of Total is also a member of the Executive Committee of the IGU. She gave the participants a good insight into the most important uncertainties and challenges faced by the Brazilian gas industry. One of the difficulties lies in the strong volatility of the demand, as the rains ultimately dictate the power to be produced from gas (in Brazil most of the electricity comes from hydropower facilities).

Mr. **Marco Tavares** (Gas Energy) briefly explored some new paradigms affecting the local industry, including the production in the pre-salt, and the unconventional gas potential available in the country. An excess of 30 TCM could be produced from onshore basins, according to estimates performed by the National Petroleum Agency (ANP) and market sources. Large uncertainties subsist, however, as drilling activity is still incipient in most of the areas.

The Brazilian Ministry of Mines and Energy (MME) was represented by its deputy director for natural gas, Mr. **Aldo Cores Jr.** After a dark period of almost five years, three bidding rounds are now scheduled for 2013. The first one will take place in May (11th Bidding Round), and the last one in December for unconventional gas.

The Manager of the Global Gas Flaring Reduction (GGFR) programme of the World Bank, Mr. **Bent R. Svensson**, explained the purposes and main achievements of this important public-private partnership, which is now entering in its fourth stage. This initiative is closely related to the work programme of both WOC 1 and PGC A, as its main goal is to reduce gas flaring by increasing the efficiency of the productive processes. Increased energy supply and monetization follow as a consequence.

Mr. **Denis Krambeck Dinelli**, Gas Production Planning Manager, presented Petrobras' POAG 2015 programme, which increased gas utilization from about 84% in 1997 to 94% in 2012, in spite of a substantial increase in the production of gas. He estimated that more than 16 million tons of CO₂ emissions have been avoided in the last three years, which is equivalent to 3 million light passenger cars being removed from the Brazilian fleet (about 15%).

The CEO of the Brazilian Wind Energy Association (ABEE), Ms. **Elbia Melo**, announced that in 2013 the Brazilian capacity will be the 10th largest in the world. In spite of the sharp capacity increase observed in the last few years, the potential that remains unexplored is huge, so there is much to be done.

3. R&D workshop

Committee members visited the new R&D facilities of Petrobras, where they had the opportunity to watch a 3D presentation on the submarine facilities and platforms of the Campos Basin at the Visualization and Collaboration Nucleus (NVC).

They also attended a small R&D workshop there, whose content was designed to contribute to the work programme of WOC 1 and PGC A.

This event started with a presentation from Mr. **Orlando Jose Soares Ribeiro**, General Manager for Production Engineering R&D at Petrobras. He briefly described some of the innovations introduced by his company and its partners to produce in the Brazilian pre-salt.

Mr. **Francesco Palombo**, Downstream Research Coordinator at Petrobras, introduced the attendance to the production of second generation bioethanol from sugar cane bagasse. Petrobras and Blue Sugars have shared research efforts in a demonstration facility located in the USA, where cellulosic materials have been converted to sugars by enzymes. The process can increase the production of ethanol by 40%.

Ms. **Ana Paula Fonseca**, Coordinator for Gas, Energy and Sustainability at Petrobras, explained how Petrobras and its partners have developed compact GTL technologies to reduce gas flaring and add value to the offshore operations of Petrobras.

Mr. **Breno Pietracchi** (Universita Ca'Foscari di Venezia) presented the results of his research on the location and capacity of biofuel mills in Brazil. In the case of biodiesel, abundant soybean supply and proximity to crushing mills are some of the most important variables.

The production of biodiesel and biofuel for aviation was the subject of the presentation performed by Prof. **Donato Aranda** (Federal University of Rio de Janeiro), who explored the environmental and social benefits brought about by the production of these biofuels.

The workshop was ended with a presentation of the National Organisation of the Petroleum Industry (ONIP), performed by its superintendent Mr. **Luis Mendonca**. A debate is taking place right now in Brazil, where a mandate on local content is considered by some as an important tool to create jobs, while others think that it could delay the development of the oil and gas industry in the country.

4. News from the Coordination Committee

The Secretary of the Coordination Committee of the IGU, Mr. **Yves Tournie**, graciously attended the meeting to provide guidance and support to the activities performed by WOC 1 and PGC A.

Membership is growing fast in all committees and task forces of the IGU, but new nominations are still welcome, to reinforce the expertise of all study groups. The Russian Federation, France and Iran are the countries with the largest number of nominations.

He encouraged the committee members to submit articles to the IGU Magazine, and to use the information technology resources available in the internet to share ideas and exchange information.

5. PGC A sessions

Mr. Satoshi Yoshida, PGCA Chairman, welcomed the new Vice-Chair Mr. Mauro G. Sores from Argentina and thanked all attendees for coming. He explained the progress so far including the outcome of 1st meeting in Sapporo. He also indicated that the next meeting will be held in Kota Kinabalu.

The instruction of the two IGU website was also presented in the plenary session and the Secretary of the Coordination Committee of the IGU, Mr. Yves Tournie demonstrated how to use the Growing Together website.

Use rules of the two website are as follows;

- Growing Together (<http://ccmembers.wgc2015.org/>)

It is a collaborative platform, reserved mainly for internal users of IGU, in order to exchange and to progress for Working Groups. (This site is upon invitation only, and a mail from French Team is needed on the first access.)

- IGU Website (<http://www.igu.org/>)

It is the official website reserved to members and working Group, for documents ready for presentation for WGC 2015 (private access) or open to internet publication (public access) .

PGCA is expected to organize 2 Strategic Panels and 4 committee sessions, and 1 of the 2 strategic panes will be I with WOC 1 on unconventional gas.

Study group A.1 (Carbon Capture and Storage)

Attendancy: Madros Nor Hazleen (Malaysia), Nonglak Pinitniyom (Thailand), Mercedes Cavani (Venezuela), Hiromichi Kameyama (Japan)

After a presentation about the current business operation of CO₂-EOR in Petrobras by Mr. Rodolfo Dino, members discussed and agreed on work plan of this triennium.

SG1 is to make CCS Road Map report for WGC2015 and going to get information about

- Technology: Latest development of ongoing CCS project
- Cost (feasibility): Benefits or Co-Benefits of Enhanced Oil Recovery
- Public Acceptance: To overcome NIMBY problems Members are to have frequent e-mail communication and 2 workshops would be conducted.

The group is expecting collaboration with WOC3 in the field of CO₂ pipeline.

Study group A.2 (Renewable Gases)

Attendancy: Søren Sørensen (Denmark), Antonio Machado (Brazil), Sari Siitonen (Finland), Puttaporn Pravalpruk, (Thailand), Sergei Shilnikov (Rusland), Elbert Huijzer (Netherlands).

(Apologies were received from Radia Aissaoui (Algeria), Milan Zdravkovic (Serbia), Claire Breccq and Marc Perrin (France).The two French members were both standby on telephone.)

After a short introduction by the participants and presentations about the situation of Wind Energy and Biogas from swine manure in Brazil by Ms. Elbia Melo and Antonio Machado, everyone explained the situation in their country concerning renewable gases. Reports were also received in advance from France and Algeria (including several other Maghreb and Arab countries). These country reports are for use within the working group and will ultimately lead to addenda to the final report.

For the next meeting, a country report from the participants from Serbia and Iran will be asked and inputs by colleagues from Germany, Japan and Sweden will also be asked for more country reports. The Netherlands Development Organization (SNV) will be contacted for help on informing about biogas in countries without a well-developed gas grid. Additional information about the biogas potential in France will be prepared.

The group discussed and decided a rough structure of the final report (Title: Sustainability of renewable gases).

The message is that renewable gases are a rightful source of methane. There are sources, there is a market, and it is preferably locally produced and used. Therefore, it is a useful new supply for the natural gas market.

The economics are a difficult point for renewable gases. It is up to IGU to report about the good examples. But there is a lot of variety between countries, making comparisons complex. Where one might expect decreasing prices because of better and wider spread technologies, it is observed that in the leading country, Germany, the costs even increased. The reason for this is most likely that the feed-in tariffs are so high that there is no incentive to decrease the cost level.

One of the improvements for the renewable gas market could be trading of certificates. At the moment this is not possible between countries, because the underlying financial systems are too different from each other. This issue will be looked into more detail in the next meeting.

On life cycle analysis, both CEN and ISO are working on standards for bio-methane and the group will contact with both committees to be able to inform about, and use, their work. Life Cycle Analysis studies from Gasum will also be brought on the table for the next meeting.

The coming months a first draft for a vision on an integrated energy services will be prepared and it will be distributed among the members, preferably leading to a final draft in the next meeting.

The group sent the meeting report to WOC 5, to keep each other informed and to prevent interference of the work and they will use the Growing Together platform for enquiries if they cannot contact the right persons from its own network and to expand its database.

Study group A.3 (Life Cycle Analysis)

Attendance: Dirk Gullentops (Belgium), Daniel Hec (Belgium), Luis M. Gonzalez N. (Venezuela), Hyun-seok You (Korea), Yuuichiro Yamaguchi (Japan), Anne Prieur Vernat (France).

The group discussed about general objectives of the study and the two main objectives were reminded:

- Collect data from the Natural Gas industry on environmental impacts related to the various steps of the supply chains
- Assess current environmental impacts for selected typical supply chains

Those two objectives are clearly separated because the environmental impact assessment won't be done for all existing supply chains. The modeling and calculation will be done for typical chains in each region, based on the statistically most representative supply chains.

The questionnaire was finalized before the Rio meeting and is now ready to be sent for data collection. It is split into each individual step of the natural gas chain and the Power Point presentation which was presented in Rio meeting is to be used with the questionnaire as a supporting material.

Each part of the questionnaire will be sent to the relevant WOC or PGC for data collection and each member of the study group will try to collect data for the steps and countries where he is relevant.

All members of the group are also requested to look at additional data sources to share (scientific articles, reports...) that could be of interest for the Life Cycle Analysis.

It was also agreed that all reference documents (articles, reports, sustainable reports...) would be stored in the IGU website (www.igu.org) and use the wgc2015 website or be email for working documents.

The group is to propose an article for the autumn issue of the IGU magazine and the study group leader Ms. Anne Prieur Vernat will make a draft outline by the end of March for comments and proposals.

Study Group 4 (Environmental aspects of unconventional gas)

Attendance: Anatoly Arabsky (Russia), Hyo-Sun Kim (Korea), Abdallah Souad (Algeria), Yoshito Umeda (Japan), Masaki Okada (Exxon Mobil), Carlos Sergio Mazzei (WOC3), Mauro G. Sores (Argentina).

After short introduction by the participants, the group members discussed and agreed on the wording of the statement of objectives for SG4 as “PGCA SG4 will seek to improve public acceptance of unconventional gas by providing a balanced approach to the discussion about its environmental impacts based on science, fact, technological innovation and management best practices.”

Led by Mr. Mauro G. Sores, the new study group leader and PGCA Vice-Chair, the group discussed and decided a rough structure of the final report (Main Theme: Seeking Common Ground) and listed up the contents.

The group newly set a schedule for triennium work, discussed and agreed on preliminary focus of WGC2015 Committee Session and Strategic Panel.

Committee Session: “Seeking Common Ground” (along with the committee report)

Strategic Panel: “Innovative Technology as a means of minimizing environmental impact and maximizing performance of Unconventional Gas” (to be developed jointly with WOC1)

It was agreed to use the Growing Together website to enhance the level of communication, at least with WOC1, WOC3, and TF1 and also create a Google Group for email communication among group members.

Study group leader will follow up with PGCA and WOC1 chairs to set up a strategy to attract new members to this group.

6. Technical visit

Delegates visited the Guanabara Bay LNG Terminal, where they boarded the FSRU Exquisite to be lectured at the bridge, machines and regasification control room. The facility can regasify 20 million m³/d, which is enough to produce 3.7 GW of electric power. This is about one third of the average production in Itaipu, the largest facility in the country. In 2009 Itaipu and Three Gorges produced 91.6 TWh and 79.4 TWh of hydropower, respectively.

7. Next meetings



The next meeting of PGCA will take place at the **Shangri-La Tanjung Aru Resort, Kota Kinabalu, 3-6 September 2013**, once again with WOC 1. The composition and themes for the next WGC panels entitled to PGC A will be debated there, in the presence of the former President and Chairman of the Coordination Committee of the IGU, Dr. Rahim Hashim and Mr. Ho Sook Wah, respectively, whose words of advise to both committees are most expected. For additional information please refer to the presentation performed by the incoming secretary of WOC 1, Mr. Nazri Malek. ("Joint Plenary Nazri Malek Kota Kinabalu Meeting")