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## **Abstract**

This is the final technical report for the U.S. Department of Energy Grant DE-FG26-02NT41445 for Membership in the International Centre for Gas Technology Information. The grant period began January 1, 2002 and ended December 31, 2002. The primary purpose of this grant was to continue U.S. country membership in the International Energy Agency's International Centre for Gas Technology Information (ICGTI) for calendar year 2002. The mission of ICGTI is to promote international cooperation and collaboration on natural gas technology development and commercialization. This final technical report describes ICGTI's 2002 activities, in which U.S. country membership in ICGTI was sustained and supported, but ICGTI's activities were curtailed by loss of funding.

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## **List of Graphical Materials**

None

## **Introduction**

The overall objective of U.S. DOE grant DE-FG26-02NT41445 was to continue U.S. country membership in the International Energy Agency's (IEA) International Centre for Gas Technology Information (ICGTI). The mission of ICGTI is to promote international cooperation and collaboration on natural gas technology development and commercialization. ICGTI accomplishes this primarily by using and enhancing its web site <<http://www.gtionline.org>> (GTIonline), as the medium for information transfer.

c2energy was designated by the ICGTI Executive Committee (policy-making body) as ICGTI's Operating Agent. As such c2energy provided the U.S. Department of Energy (U.S. DOE) all rights and privileges associated with membership in ICGTI, including:

- U.S. DOE and all U.S.-based companies were provided full use of ICGTI's web site, <<http://www.gtionline.org>> and
- The U.S. DOE acted as a voting member in the ICGTI Executive Committee attending meetings and conferences in person and through written, telephonic, and electronic correspondence. Minutes from these meetings were available on the Executive Committee's web page on GTIonline and are included as Appendix A.

This final technical report summarizes the major activities and accomplishments for ICGTI beginning 1 January 2002 through 31 December 2002.

## Executive Summary

c2energy operated the International Centre for Gas Technology Information (ICGTI or "the Centre") and carried out its basic grant task of—

- Maintaining the U.S. DOE's membership in ICGTI and providing access for all U.S.-based companies to the Centre's web site <<http://www.GTOnline.org>>; and
- Assisting the U.S. DOE representative's role as voting member in ICGTI's Executive Committee, which is the Centre's policy-making body.

As well as serving the United States members, the Centre's accomplishments on behalf of all of its Implementing Agreement (IA) participants for the reporting period are summarized within the following four categories.

**Member Services.** The Centre collaborated with current and new members on offering a new web-based service to increase revenues (see online poster sessions below). The Centre also worked with its International Energy Agency representatives on IA governance and received marketing and administrative assistance regarding outstanding member's fee payments. When significant funding issues arose, c2energy created scenarios for both merging the IA and operating at scaled-down levels. As a result, the Centre's other program activities were kept at maintenance levels, while c2energy pursued participant funding opportunities.

**Online Development.** The Centre added substantive new content to its web site <<http://www.GTOnline.org>> in the first half of 2002 both to encourage new users and to maintain user satisfaction for U.S. and other worldwide users. The Centre collaborated with its members the Danish Gas Technology Centre (DGC) and its new sponsor, Gaz de France (Gdf), on the development of a new web-based service for ongoing technical conference poster sessions. The Online Poster Session (OPS) demonstrated how worldwide users could gain access to natural gas technology poster papers, as if the users were present at the conference (see Appendix B). The OPS was designed to showcase each poster paper and an online discussion area where poster authors and other interested readers could discuss particular natural gas concepts. It was proposed that the OPS be made available in conjunction with the upcoming International Gas Research Conference (IGRC) to be held in Vancouver, Canada in 2004. In autumn, the OPS contract was not given to ICGTI because the IGRC felt the Centre would not be in operation in 2004. As the year progressed and the Centre's energies were directed at member services, the web site was maintained, but no new content was added.

**Marketing Activities.** The primary emphasis on marketing was focused on targeting new members/sponsors in Europe and Latin America. In Europe, ICGTI gained GdF as a 2002 sponsor. The Centre also worked with Centro de Tecnologia do Gas (CTGas) in Brazil to gain Latin America participants. The Centre's existing marketing tools included an ICGTI/GTOnline presentation on CD-ROM; the "ICGTI Update," a period newsletter; and the GTOnline User Guide, which were all available to users on the web site. In 2002, the Centre created the 2001 annual report entitled the "Year-in-Review" to communicate progress of funding efforts and GTOnline development activities. For the ICGTI Brazilian member, the Centre updated the marketing presentation and created 1,000 CD-ROMs that were distributed at two major international conferences in Brazil (see Appendix C). The winter 2001/2002 and spring/summer 2002 "ICGTI Updates" (see Appendix D) were created and promoted via broadcast E-Mails to all GTOnline registered users. European marketing activities by ICGTI's European Principal Office (in Denmark) in the latter part of the year were not conducted due to a decline in Centre revenues.

**Major problems encountered.** One of the largest problems the Centre encountered was when the U.S. DOE representative announced that there would be no funding for U.S. membership in 2003. Since the

U.S. DOE had been ICGTI's primary funding organization for the past few years, much of c2energy's effort as ICGTI's Operating Agent after this announcement was to acquire funding from new sources or additional funding from remaining members. This was the primary reason the new OPS service was developed. However, it was determined that the Centre could not receive sufficient revenue to launch the new OPS service before ICGTI operating funds ran out; and therefore, ICGTI was not given the contract to create the OPS for IGRC. Beginning in October, the Executive Committee met on a regular basis to rectify ICGTI's funding problems by seeking potential merger partners to rescue the Centre from dissolution. However, additional members decided either not to remain active (specifically Denmark, Advantica, and Gdf), or not to fund the programme in 2003. As a result of limited 2003 funding expectations, it is likely that ICGTI Executive Committee will decide to close ICGTI and end its operations in the early part of 2003.

## Experimental

No experimental methods were used. c2energy staff use standard PC-based computer hardware and Microsoft software to provide U.S. users access to GTIonline and to communicate with the Executive Committee. c2energy staff used the following Internet web site development software to maintain GTIonline.

- Licensed software used for **hypertext markup language (html) web site development** pages: Macromedia's (formerly Allaire's) "ColdFusion" and "Fireworks."
- Licensed software used for extensive **Internet spidering** service on web site: Convera's (formerly Excalibur's) "RetrievalWare™". Over 3,500 different uniform resource locator (URLs) were spidered; i.e., RetrievalWare™'s software visited each web site, indexed the information on the web pages (e.g., html and adobe acrobat files) and organized that data into categories so that it could be retrieved through a search query. RetrievalWare™ then returned the 100 most relevant responses to the query searched.
- Licensed software used to calibrate **GTIonline use statistics**: NetIQ's "Webtrends". GTIonline use statistics were prepared each month and provided to Executive Committee members on their dedicated web page. A summary of this use was also provided to Executive Committee members in progress reports. Users were provided with a summary of statistical use in the "ICGTI Update" newsletter. GTIonline users were sent broadcast E-Mails (using ColdFusion's mass E-Mail feature) to alert them to when the newsletter was available.
- Licensed software used to **disseminate portable documents**: Adobe's "Acrobat Reader."
- Licensed software used to **access GTIonline web hosted server**: Symantec's "PC Anywhere."

## **Results and Discussion**

ICGTI's activities and accomplishments performed by c2energy are categorized into four major areas: administrative tasks, member services, online development services, and marketing activities. The primary efforts in 2002 supported member services and online development. The major activities in each of these areas include the following.

### **Member Service Activities**

Member services in 2002 focused on three major efforts. First, development of a new web-based service to meet current members needs and expand the use of GTIonline (in order to increase revenues). This development was the result of collaboration with Gdf in developing a GTIonline service that offered technical OPS from the IGRC as well as an ongoing technical discussion area for each paper/poster. c2energy prepared a full-scale web demonstration on how posters could be accessed on the web and a discussion could occur.

The OPS demonstration is available on the attached CD-ROM (see Appendix B). This service was initially proposed at the IGRC Policy Committee meeting in April in Washington, DC, and presented to the IGRC Technical Programme Committee in November. This proposal was not accepted because the Technical Programme Committee believed that at the current funding levels, it was unlikely that ICGTI would continue to operate until IGRC's next scheduled conference in mid-2004.

The second major effort for the year was working with the IEA in Paris on its current review of the relationship between the IEA Secretariat and the existing IAs (ICGTI is one of many). The IEA and ICGTI worked together to improve existing IEA staff/IA coordination as well as trying to locate potential members from within IEA member countries. Staff met in France at the IEA Secretariat, at U.S. DOE Headquarters in Washington, DC, and at the IEA Working Party for Fossil Fuels meeting of the Zero Emissions Strategy Task Force.

The third major effort in member services included developing scenarios to operate ICGTI at reduced funding. These scenarios included scaling-down operations as well as merging ICGTI with other international energy associations. The other international organizations contacted for a potential merger included the International Gas Union, the World Energy Council, and the Pipeline Research International Council. These merger requests were not accepted by these organizations primarily for funding reasons. Finally, an additional option was explored that included moving GTIonline to a U.S. DOE web site. Because of a lack of ICGTI funding, this option was not considered feasible. Other organizations that were contacted within the U.S. for funding assistance included the American Gas Association, the Center for Advancement of Energy Markets, and the IEA Hydrogen Program Implementing Agreement.

Additionally, c2energy prepared for and conducted one physical meeting in Washington, DC, and seven ICGTI Executive Committee meetings via teleconference to decide on the Centre's future.

### **Online Development Activities**

Online development of GTIonline in 2002 centered on two activities: c2energy developed two new web site services (proposed but not implemented), and added original content from ICGTI member and sponsor contributions.

The two new services that were discussed and developed were the proposed IGRC OPS (described above) and a new service proposed by the Cedar Group. The Cedar Group service "VisuAlert" was designed to take the output from GTIonline's existing Convera RetrievalWare™ spidering efforts and organize it for the user in a more workable and user-friendly format. Cedar Group provided a demonstration that was

added to GTIonline's home page to showcase "VisuAlert" Internet content searches by theme. The two areas of interest that Cedar Group compiled for its demonstration included fuel cell technology and distributed power generation.

The major original content that was added to GTIonline using contributions from ICGTI members and affiliated organizations included:

- **Gas Executive Remarks.**
  - World Energy Council essay entitled “Energy for People, Energy for Peace;”
  - Gdf Research and Development essay entitled “The Role of Gas Technologies;” and
  - CTGas essay entitled “How Petrobras is Promoting the Use of Natural Gas In Brazil.”
- **Partner Focus.** The Swedish Gas Centre, Gdf, and CTGas posted information regarding their particular gas technology services and current work.
- **Technology Focus:** Gas-to-Liquids Technologies and Deepwater Drilling technologies were explained in 10-15 page articles including graphics.
- **Industry Topic:** U.S. gas industry pipeline integrity and reliability issues summary.
- **Technology Updates.** The IEA's internal publication "Open Energy Technology Bulletin" and the European Commission's "Energy and Transport in Europe Digest" were added to GTIonline's home page and news feature.

GTIonline monthly statistics were compiled for the members and placed on their own Executive Committee web page. A summary of this use was also provided to Executive Committee members in progress reports.

## Marketing Activities

Marketing efforts were focused on targeting new members/sponsors in Europe and Latin America. In Europe, GdF became a 2002 sponsor. As reported above, Gdf worked with c2energy to develop a new online product and determine whether or not there was a market for this service (see Online Development activities above).

In Latin America, c2energy worked with the ICGTI Brazilian member to market ICGTI and GTIonline to other Latin America countries. As a result of this collaboration, c2energy prepared and updated a previous ICGTI/GTIonline marketing presentation listing GTIonline's new services, which was distributed on CD-ROM (see Appendix C). This CD-ROM also contained the "ICGTI Update" newsletters, the GTIonline User Guide, and the 2001 Year-In-Review (see below). One thousand copies were made of the CD-ROM and distributed at the World Petroleum Conference (September 2002) and the Rio Oil and Gas Conference (August 2002). In addition, 1,000 cards illustrating where users could discover more information on ICGTI and GTIonline were created and distributed at both these conferences (see Appendix C). In addition to this work, c2energy attended the 2002 Annual Latin American Energy Conference in La Jolla, California, to promote ICGTI and GTIonline to potential new members, sponsors, and subscribers.

c2energy also created its first annual report in five years entitled the “2001 Year-In-Review” to communicate the Centre's 2001 operation and programs. The “Year-In-Review” included information on funding efforts as well as GTIonline development activities (see Appendix C). Other marketing efforts in 2002 included publishing two editions of the “ICGTI Update” newsletter (winter 2001/2002,

spring/summer 2002) (see Appendix D). To promote this newsletter, c2energy sent out broadcast E-Mails to all registered users announcing the newsletters' availability online.

### **Administrative Activities**

The majority of 2002 administrative activities focused on conducting the 2001 financial audit and securing a resolution to the 2000 audit from the previous Operating Agent, Gas Technology Institute (the Institute). The 2000 audit with the Institute and discussion of outstanding debt was resolved by the ICGTI Executive Committee in spring 2002. In addition, invoices for 2002 membership were sent out, dues were collected, and the subcontracting agreement with the DGC to conduct marketing and member services in Europe was negotiated with the same terms as those in the previous year. As a result of declining resources, the Senior Program Manager and full-time Webmaster positions were eliminated mid-year. The European Principal Office's European marketing was limited in 2002.

## **Conclusion**

Owing to the decline in funding and membership participation, ICGTI's activities for the year were diverted to member services in search of funding. Expansion efforts to increase the quality and quantity of Centre and GTIonline services were curtailed and all services were put in a maintenance mode while c2energy sought potential merger partners. The online development programs (OPS and original content) and marketing activities using CD-ROMs in Latin America were not given sufficient time to attract users, nor were there enough staff resources available to pursue marketing leads. Effort was spent determining options surrounding the current funding and membership decline (loss of U.S. DOE funding, Gdf sponsorship as well as Denmark's withdrawal as an ICGTI member country). Opportunities for merging were investigated but none proved fruitful by year-end.

The most critical element for progress at year-end remains obtaining the necessary funding to continue ICGTI programme activities in 2003. Without successfully obtaining that funding, it is likely that the Centre will close operations in 2003 and the major product, GTIonline would be taken off the Internet and stored in CD-ROM format.

## **References**

None used.

## **Bibliography**

None cited.

## List of Acronyms and Abbreviations

Centre, the	International Centre for Gas Technology Information
CTGas	Centro de Tecnologia do Gas
DGC	Danish Gas Technology Centre
DOE	U.S. Department of Energy
Gdf	Gaz de France
GTIonline	ICGTI's web site < <a href="http://www.GTIonline.org">http://www.GTIonline.org</a> >, i.e., Gas Technology Information online
html	hypertext markup language
IA	Implementing Agreement; i.e., both the type of organization ICGTI <b>is</b> and, more specifically, the <b>contract</b> that country members signed at the International Energy Agency.
ICGTI	International Centre for Gas Technology Information
IEA	International Energy Agency
IGRC	International Gas Research Conference
Institute	Gas Technology Institute, Des Plaines, Illinois. Former operating agent of ICGTI in 2000.
OPS	Online Poster Session
URL	uniform resource locator; e.g., < <a href="http://www.GTIonline.org">http://www.GTIonline.org</a> >

## Appendices

- A. 2002 ICGTI Executive Committee Minutes (Files are in HTML and Adobe Acrobat format and are on CD-ROM #1.)

### Table of Contents

January 18, 2002 Teleconference  
Minutes: 020118m.html

April 12, 2002 Meeting  
Minutes: 020412m.html  
Attachments: 020412mat.html  
Agenda Items 3, 4, & 5 (MEM00224.pdf)  
Cost estimates to replace WebPerfect/Oleran web services (OLD00113.pdf)

October 25, 2002 Teleconference  
Minutes: 021025m.html

November 18, 2002 Teleconference  
Minutes: 021118m.html

November 26, 2002 Teleconference  
Minutes: 021126m.html

December 3, 2002 Teleconference  
Minutes: 021203m.html  
Options for 2003 (MEM00242.pdf)

December 9, 2002 Teleconference  
Minutes: 021209m.html  
Waive Denmark's 12-Month Withdrawal Notice (MEM00244.pdf)

December 19, 2002 Teleconference  
Minutes: 021219m.html  
Budget Options for 2003 (MEM00247.pdf)

- B. Demonstration of an Online Poster Session for the IGRC2004  
igrc-all.pdf (example of web site)  
OLD00138.pdf (presentation)  
(Files are in Adobe Acrobat format and are on CD-ROM #1.)
- C. Revised Marketing Presentation on CD-ROM revised and sent to Brazil. A sample of the cards distributed at the conference is inside each CD-ROM case.  
start.pdf (presentation)  
yir.pdf (2001 Year-in-Review)  
uguide.pdf (GTIonline User Guide)  
Newsletters: n-fall00.pdf, n-sum00.pdf, n-win 01.pdf, n-sum01.pdf
- D. 2002 "ICGTI Update" Newsletters:  
winter 2001/2002 (n-win012.pdf)  
spring/summer 2002 (n-sprsum02.pdf)  
(Files are in Adobe Acrobat format and are on CD-ROM #1.)