



GULF COAST  
**CHP**  
APPLICATION  
CENTER

*Building Success: Gulf Coast Regional  
CHP Applications Center*

*Final Report*

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## **Introduction**

In January 2005, the Houston Advanced Research Center (HARC) created the Gulf Coast Regional CHP Applications Center (GCAC) using funding from U.S. Department of Energy and administered by the Texas State Energy Conservation Office (SECO) through contract CM513. The GCAC is one of eight regional centers created by DOE, with the GCAC serving the states of Louisiana, Oklahoma, and Texas.

The Center's purpose is to help DOE achieve the national goal of increasing installed CHP capacity from 46 GW in 1998 to 92 GW in 2010. To facilitate this goal, the Center engages in education, outreach, and project support efforts to highlight the advantages and value of combined heat and power (CHP) technologies to potential system adopters, policy makers, and the general public.

The Center's activities during this first year in operation were focused on establishing a presence and positive reputation in the region. Our major activities included creating a CHP website, hosting educational workshops, speaking at conferences and to professional organizations, and by building internal capability to provide technical assistance to potential adopters. Through these methods, the Center worked to create a community of enthusiasts for CHP in the region.

In April 2005, the Center convened a Roadmap Workshop, which was held in The Woodlands, Texas. A group of about forty CHP stakeholders attended the Workshop to provide input and guidance. A key outcome of the Workshop was a desire for the GCAC to focus initially on generating interest for building integrated CHP. While Texas and Louisiana have a long and successful history of CHP adoption, stakeholders noted that most of this development has been at industrial facilities, while the commercial and institutional market is essentially untapped. As a result, the GCAC priority has been on reaching the commercial and institutional buildings sectors including for instance hospitals and universities.

## **Program Goals**

The Center's goal is to identify, facilitate, or positively influence the development of 1500 MW of CHP in Louisiana, Oklahoma, and Texas. Our strategy to accomplish this goal has been to create a "community of enthusiasm for combined heat and power in our region." By engaging a larger group of stakeholders in this effort and by increasing knowledge of CHP technologies among end-users, we hope to initiate a few early projects that can help accelerate CHP adoption in the region.

To support the program goal, the GCAC established a plan to engage in the following activities:

- **Engage with Stakeholders:** Identify and engage with CHP supporters in the region and with natural allies to identify opportunities, needs, and to identify regional CHP champions.



- **Create Educational Materials:** Develop materials needed to highlight the advantages of CHP and to communicate them to our regional target audience.
- **Communicate Our Message:** Create a website dedicated to CHP in the region that can become a portal for education, communication, and community building. Engage in a public awareness campaign to raise awareness of CHP and GCAC activities.
- **Support Early Adopters:** Build technical capability within HARC to support end-users exploring CHP options.

## **Accomplishments**

Throughout this initial year of operation, the GCAC has engaged in each of the four planned activities. The Center's activities and work products have been well received within the region, and we can report that the GCAC has:

- built a stakeholder network that is assisting our efforts
- produced high quality reports and presentations
- created a widely viewed CHP website
- successfully communicated the value of CHP to potential end-users, policy makers, and the public

As a result of these successful activities, the Center has dramatically increased its visibility within the region as a source for CHP information and assistance.

### **A. Stakeholder Engagement**

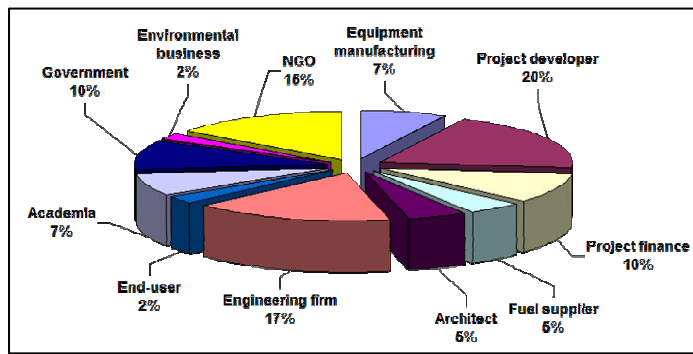
The primary strategy to engage with stakeholders was to convene a Roadmap Workshop to solicit stakeholder opinions about the best opportunities for CHP in the region, the areas of highest need, and ideas for how the GCAC should focus its resources for greatest impact. Working with our supporters at DOE and SECO, the GCAC identified natural allies in all three states of the region including CHP equipment suppliers, project developers, university researchers (including the Industrial Assessment Centers), electric utilities, natural gas utilities, environmental organizations, policy makers, regulators, lobbyists, and other interested parties.

#### ***Gulf Coast CHP Roadmap Workshop***

The GCAC held its Roadmap workshop on April 26-27, 2005 in The Woodlands, Texas. A total of 43 people representing 31 stakeholder organizations attended the event. Attendees, who represented equipment manufacturers, project developers, utilities, regulators, government, and academia, identified important market sectors where the Center should focus. These included large and medium-sized industrials, institutional buildings, opportunity fuels and agriculture, and commercial/green buildings.

The workshop provided the framework for the Regional Action Plan, a guiding document describing the Center’s mission, goal, objectives, actions and organizational structures. The Action Plan highlighted 28 high level actions that were prioritized into high, medium, and low priority tiers. The following six actions were given high priority for the Center’s immediate action:

- Hospitals and Institutional Buildings: Focus immediate attention on highlighting CHP to hospitals and institutional buildings generally by creating targeted educational materials and workshops.
- Develop project support capabilities and provide technical assistance to potential CHP adopters.
- Engage and educate the Green Building community about CHP and leverage LEED requirements for CHP promotion.
- Conduct an institutional buildings market study to identify and quantify CHP opportunities in hospitals, colleges and universities, state government buildings, and military installations.
- Develop a regional benefits and barriers study
- Support the development and initial activities of a regional CHP Initiative organization.



Ongoing Stakeholder Relations

Following the Roadmap Workshop, stakeholder engagement continues to be a priority for the Center. A feature was added to the GCAC website to allow interested parties to register with the Center, and today, we have over 420 individuals registered to receive information from the GCAC. Stakeholders and website registrants were periodically provided with information produced by the Center, activities updates, and emails with topical information. These communications reinforce the Center’s leadership role in regional CHP and help to maintain familiarity with our goals, activities, and accomplishments.

▪ Austin Energy	▪ CPS San Antonio
▪ Gulf Coast Power Association	▪ TREIA
▪ SECO	▪ Capstone
▪ Burns & McDonnell	▪ Centerpoint Energy
▪ Solar Turbines	▪ CoServ
▪ Texas Industries of the Future	▪ EPA
▪ Public Utility Commission of Texas	▪ USCHPA
▪ Cinergy	▪ USGBC

GCAC success depends critically on support from key stakeholders, and in our ability to use their knowledge and skills to advance our mission. In the last year, we have solidified relationships with a large number of organizations and businesses. A partial list is shown in the table on the prior page.

Stakeholders have become a vital component supporting the Center's activities. They are a continuing source of information used by the Center including information on CHP equipment performance, products, and services. Stakeholders have also been engaged to provide input and editing on reports and presentations. The results achieved by the GCAC thus far are a product of the good relationships we've built with stakeholders.

## **B. Educational Materials**

The production of education materials for use by parties in the region was an early goal of the Center. Materials were compiled from national and international sources and organized on the Center's website in an easy to understand and access format. Attention was given to providing a snapshot of current CHP activities in the region, and providing regional useful content to inform and guide interested parties. Educational materials included reports covering technical, market, environmental, and regulatory issues of importance to CHP, case studies, the installations database, and original reports written by the GCAC staff. Early development of these materials was essential as they also became a primary source of content for the staff presentations that formed a central part of our outreach program.

### Case Studies

An important aspect of our educational materials was the development of case studies highlighting actual installations. Case studies illustrate how CHP technologies are used and discuss their benefits and costs. In the last year, the GCAC located over twenty case studies highlighting projects, technologies, and approaches likely to be of interest in the Gulf Coast region. In addition, the Center has completed case studies for the following facilities:

- Bayer-Calpine (Baytown, TX) – A 700-MW combined-cycle cogeneration system comprised of three natural gas-fired combustion turbines and one steam turbine.
- Cargill Meat Solutions (Friona, TX) – Biogas Recovery System
- Louisiana State University (Baton Rouge, LA) – A 20-MW natural gas-fired turbine with a heat recovery steam generator.
- HEB Supermarket (San Antonio, TX) – A 60-kW Capstone microturbine with an 18-ton broad single-effect absorption chiller

### Reports and Presentation Materials

GCAC staff wrote reports as needed to support the mission. Key reports include:

- May 2005: Roadmap Workshop Minutes
- May 2005: GCAC Action Plan
- May 2006: Benefits and Challenges Report

During this first year in operation, the GCAC engaged in basic technology, market, and policy research to understand pressing CHP issues, opportunities, status. This information was used to build interesting and educational CHP presentations intended for a wide range of audiences. This work formed the basis for much of our outreach program.

In addition, the GCAC participated in a number of industry events and conferences where staff had an opportunity to obtain CHP education beneficial to the region. GCAC staff participated in monthly calls to stay up to date on progress being made by CHP Initiative programs around the country and on semiannual call for Application Center managers. Other key events include:

- Austin, TX: CHP Roadmapping Workshop
- Irvine, CA: Waste Heat to Power Workshop/Heatmap Training
- Washington DC: USCHPA Policy Day (2005)
- Washington DC: USCHPA Policy Day (2006)
- Washington DC: DER Peer Review Meeting
- New York City: WADE & USCHPA Conference

### **C. Communicating Our Message**

The GCAC outreach strategy includes a multitude of outlets including:

- a website with comprehensive CHP information
- targeted CHP workshops
- presentations at conferences and professional society meetings
- one-on-one communications with interested parties

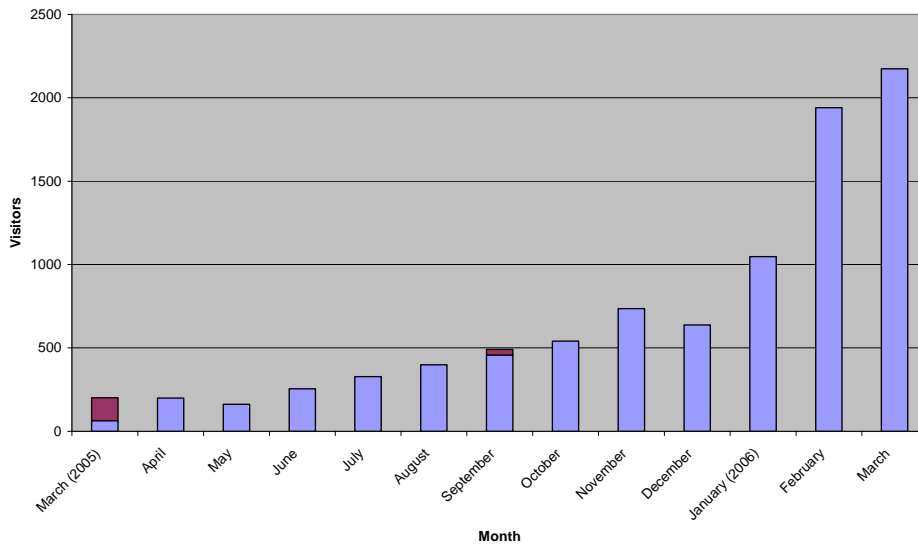
### Gulf Coast CHP Website

The GCAC website ([www.gulfcoastchp.org](http://www.gulfcoastchp.org) and [www.chpcentergc.org](http://www.chpcentergc.org)) is a primary outreach tool for the Center. The website is continuously updated as more information and data is produced and acquired by the Center. The website contains information covering a wide range of CHP topics including technical specifications, product information, regulatory reviews, environmental benefits, and state specific information. Originally launched on March 18, 2005, the website was overhauled in January 2006.



As a result of the excellent content, intuitive organization, and ongoing updates, the website has proved to be a valuable tool for the Center. Interest in the website has increased along with the extent and success of our outreach program, which highlights the Center and the website, but we believe the website's compelling content results in additional word of mouth and repeat visits. Since its initial launch in early 2005, the number of visitors to the site has increased steadily to over 2000 unique visitors per month. After the improvements were posted in January 2006, visitation to the site doubled as shown in the figure below.

**Visitors by Month**



### Technical Workshops

Stakeholder input at the April Roadmap Workshop and prior experience gained by other Application Centers indicated that technical workshops targeted toward specific applications or areas are effective outreach devices. Including the Roadmap Workshop, the GCAC presented four workshops this year as shown in the table below.

The workshops delivered thus far are introductory in content. Segments of the workshops addressed the concepts and issues of CHP to hospital administrators, architects, engineers, facility owners and operators, and energy managers, among other interested parties. In the last 12 months we have directly reached over 200 people in Texas, representing over 80 different organizations.

<b>Workshop Title</b>	<b>Market Area</b>	<b>Number of Attendees</b>
Roadmap Workshop	Stakeholders	43
Energy-Saving Solutions for Hospitals	Hospitals	19
CHP: Energy For A New Generation (Houston, TX)	Commercial & Institutional Buildings	53
CHP: Energy For A New Generation (Austin, TX)	Commercial, Institutional & Industrial	104
	<b>Total Number of Attendees</b>	219

Conferences and Professional Societies

GCAC staff capitalized on several opportunities to speak at conferences, professional association meetings, and workshops in the last year. Events of note include:

- May 2005: IETC Energy Manager’s Workshop
- May 2005: IETC Conference
- July 2005: ESCO Conference
- Sept 2005: RARE Workshop
- Sept 2005: AEE Houston Chapter Meeting
- Mar 2006: ASME Houston Chapter Meeting
- May 2006: IETC Conference

Government Outreach

During the first year in operation, the GCAC has made a deliberate effort to educate state officials and regulators about CHP. While some state officials have participated in technical workshops, one-on-one meetings were held with the following officials:

Louisiana

- May 2005 & May 2006: Department of Natural Resources

Oklahoma

- None

Texas

- April 2005: TCEQ Staff
- Nov 2005: City of Houston
- Feb 2006: Public Utility Commission
- Mar 2006: City of Houston

- April 2006: General Land Office, PUC, & TCEQ
- April 2006: Railroad Commission
- April 2006: Public Utility Commission

#### **D. Support For Early Adopters**

The GCAC team has engaged with several potential adopters in the last year including hospitals, universities and commercial facilities. Assistance included a wide range of project support services including management education, technical information, project development guidance, vendors and equipment manufacturer location, and feasibility analyses.

GCAC staff has worked diligently with Oak Ridge National Lab to learn and use the BHP screening software and with the Mid-west RAC screening tool for feasibility analyses. As a result, we were able to perform a formal feasibility analysis for three potential adopters; two hospitals and one university. Additionally, we provided educational and general project assistance for a number of other potential adopters including hospitals, industrials, and local governments.

#### **Conclusion**

The Gulf Coast Regional CHP Applications Center has successfully raised the profile of CHP in the Texas, Louisiana, and Oklahoma, especially in the commercial and institutional building sector. Our outreach strategy has provided information to thousands of people and organizations through our website and by participation in workshops and events. As a result, a number of CHP projects are now moving forward in Texas.