Spotlight on 2007 Natural Gas STAR Award Winners

This year was another outstanding year for the Natural Gas STAR Program, and our partners are the reason for the Program’s success. Gas STAR partners reported methane emissions reductions of 86 billion cubic feet (Bcf)—nearly double the methane emissions reductions reported by partners just five years ago. In addition to reporting an impressive total of emission reductions, partners continued to report a wide variety of innovative technologies and practices.

To acknowledge partners that have achieved outstanding methane emission reduction successes, EPA recognizes partners at the Natural Gas STAR Annual Implementation Workshop each year. Recognition is based on methane emission reductions achieved, implementation of a variety of technologies and practices, and support of Program activities, initiatives, and outreach. To be eligible, partners must submit an annual report to EPA each spring. At this year’s workshop, EPA acknowledged the following companies as Natural Gas STAR award winners.

Continued on page 5 ★ ★ ★

Partner Profile

ConocoPhillips Canada—Results of a Successful Fugitive Emissions Management Program

ConocoPhillips Canada is committed to implementing efforts to identify and reduce methane emissions from its operations and to document and share the positive results across their Canadian operations and internationally within the company. At the recent Natural Gas STAR Annual Implementation Workshop in Houston, Texas (see page 2 for more details), ConocoPhillips Canada Engineer, Roxanne Pettipas, shared her experiences implementing innovative methane

Continued on page 4 ★ ★ ★
14th Annual Natural Gas STAR Implementation Workshop

—in a Time of Heightened Interest in Greenhouse Gases Such As Methane, New and Innovative Approaches to Making an Impact

October 22-24, 2007
Houston, Texas

The 2007 Natural Gas STAR Annual Implementation Workshop, recently held in Houston, Texas, attracted 170 attendees, bringing together experts from the oil and gas industry to discuss the latest cost-effective technologies and practices to reduce methane emissions. Speakers covered a variety of topics including greenhouse gas management programs and strategies, new and innovative methods to capture methane emissions, and remote sensing technologies and advanced practices to detect leaks. Keynote speakers included Janet Peace (Pew Center on Global Climate Change), who provided an overview of proposed climate change legislation as relevant to the oil and gas industry, and Judith Moorad (Shell Oil Company), who addressed Shell’s membership in the U.S. Climate Action Partnership.

The meeting began on Monday, October 22, with a welcome reception. The first full day of the workshop included a discussion of partner greenhouse gas management programs and strategies and featured Ms. Peace’s keynote address on Global Climate Change. Programs and strategies discussed included Occidental Petroleum Corporation’s corporate social responsibility initiative, El Paso Corporation’s California Climate Action Registry (CCAR) Climate Action Leadership Initiative, and TransCanada’s program to track air contaminants and greenhouse gas emissions. The day also included the Natural Gas STAR partner awards ceremony and sector specific break-out sessions in which partners discussed cost-effective methane emission reduction technologies and practices.

Day two included Ms. Moorad’s keynote address, followed by a session on advanced technologies and practices to detect natural gas leaks. The workshop concluded with a field trip to Kinder Morgan’s Midcon Texas Pipeline Corporation Sugarland Compression Station, where Kinder Morgan staff performed demonstrations of an infrared camera and ultrasound technology on a simulated gas leak.

The full agenda and workshop presentations are available online at epa.gov/gasstar/workshops/imp_workshops.htm.

First Methane to Markets Partnership Expo: International Partnership Advances Methane Emissions Reduction

The 2007 Methane to Markets Partnership Expo was held October 30 - November 1, 2007 in Beijing, China. China’s National Development and Reform Commission (NDRC) and the U.S. Environmental Protection Agency jointly hosted the Expo. The three-day Partnership Expo attracted more than 700 participants representing 34 countries, securing its place in history as the largest gathering in the world to advance methane recovery and use projects.

The Partnership Expo featured the collaborative efforts of governments, private sector entities, development banks, non-governmental organizations, financial and technical experts, researchers and other interested parties to advance cost-effective, near-term methane recovery and use as a clean energy source. More than 90 emissions reduction projects in 11 countries were featured at the Expo “Methane Capture Marketplace.” Collectively, these projects could yield an estimated annual methane emissions reduction equivalent to 11.5 million metric tons of carbon dioxide equivalent (MMTCO2E) by 2015.

In addition, the three-day Expo included concurrent technical breakout sessions for four industry sectors—Agriculture, Coal Mining, Landfills, and Oil & Gas Systems. The Oil & Gas Sector sessions focused on case studies, policy and regulatory issues, and climate change. Other issues unique to the Oil & Gas Sector were covered including natural gas compression and methane leak detection; upstream production (e.g., oil and gas wells); gas processing, transmission and distribution; and associated gas produc-
At the most recent Natural Gas STAR Annual Workshop, Janet Peace, Senior Economist for the Pew Center on Global Climate Change, presented the latest data on greenhouse gas (GHG) emissions and provided workshop attendees with basic information on the status of climate change policy.

Ms. Peace noted an evident increase in awareness of climate issues amongst the general public, companies, the media, and other organizations due to a shift in state and federal regulatory actions, increased environmental stewardship by large corporations (e.g., U.S. Climate Action Partnership), and growing concerns regarding extreme natural disasters. The 110th Congress has also been involved in, or considered, numerous climate-related bills (approximately 150) and hearings (approximately 120), and 17 states have GHG targets in place, further signifying the increased interest in climate policy.

Pew Center on Global Climate Change

Established in 1998 as a nonprofit, nonpartisan organization, the Pew Center on Global Climate Change brings together business leaders, policymakers, scientists, and other experts to provide reliable information and innovative solutions in an effort to address global climate change.

Web site: pewclimate.org

Continued on page 8 ★ ★ ★

Fig. 1 Sources of Abatement Modeling S. 280

S. 280 allows offsets and international credits to make up 30% of the total allowance submissions requirement. It is estimated that by 2030, 56 Bcf of the projected credits and domestic offsets will be realized as methane offsets from the oil and natural gas sectors.

Source: EPA, 2007. This figure, referenced on page 8, illustrates the expected sources of emissions abatement based on Senate Bill S.280—“Climate Stewardship and Innovation Act of 2007.”
emission reduction projects at gas processing plants in Canada through the company’s Energy Efficiency and Fugitive Emission Management Program. Based on a successful fugitive emissions pilot study in Canada, Ms. Pettipas and her staff have traveled around the world educating their peers about these activities, and the company has started to implement full-scale projects within Canadian operations.

Ms. Pettipas’ presentation focused on the key findings of ConocoPhillips Canada’s fugitive emissions pilot study, and how the company is expanding its efforts to improve energy efficiency and reduce fugitive emissions. Ms. Pettipas explained that the energy industry’s operations result in two types of emissions to the atmosphere: those that are intentional, such as venting, and those that are unintentional such as fugitive leaks due to such problems as worn parts, improper equipment assembly, and defects.

Ms. Pettipas explained that because fugitive emissions are invisible and come from small, leaking components, they typically go unnoticed. She and her team realized that the company needed to evaluate new leak detection and measurement technologies that would allow them to identify leaks and determine actual fugitive emission rates for their facilities. By doing this, the team would be better positioned to solicit companywide buy-in to support additional emission reduction efforts. Several drivers provided support for the project, including the potential product savings from reduced leaks, new emissions regulations in Canada, a continued emphasis on health and safety operation standards, and ConocoPhillips’ corporate goal to reduce emissions.

The pilot study consisted of evaluations at 22 facilities—nine gas plants and 13 compressor stations. The team used GasfindIR® technology to conduct optical emission detection as it provides visible imagery of leaks in real-time. The team also used a High Flow® Sampler to measure the volume of the leaks found. The pilot study allowed the team to obtain fugitive emission data, complete analyses, and develop recommendations for applying its methodology throughout Canada through the Canadian Association of Petroleum Producers (CAPP) Best Management Practices program. The pilot study also received a CAPP Steward of Excellence Award in the Environment category in May 2007.

Of the leaks identified, 77 percent were found to be leaking components (111 components in total), while the other 23 percent originated from other emission sources such as venting. Overall, 72 percent of the emissions originated from compressor buildings, 20 percent from process buildings, and 4 percent each from outside piping and storage tanks.

Taking Efforts Canada-Wide

In September 2007, Ms. Pettipas and her team began field assessments through a Canadian companywide fugitive emission management program that has been implemented, with assistance from two outsourced vendors to provide additional resources. The program aims to assess facilities on a two year rotational period and will be embedded into the company’s operations and facility design processes. In addition, it is expected to provide ConocoPhillips Canada with data to develop individual emission reduction reports/results for participating facilities, and allow them to create a robust repair tracking/data management system.

As part of this effort, ConocoPhillips Canada’s internal Energy Efficiency and Product Recovery Team hopes to evaluate other pipeline and wellsite emission reduction opportunities, share its education and knowledge throughout the company and the industry, and strive to find additional emission reduction opportunities.

To view Ms. Pettipas’ full presentation, in addition to other presentations from the 2007 Natural Gas STAR Annual Implementation Workshop, please visit epa.gov/gasstar/workshops/14th_agenda.html.
Production Partner of the Year: EnCana Oil & Gas Inc.

EnCana Oil & Gas reported the largest normalized emission reductions for all production partners in 2006. EnCana has taken full advantage of the tools and resources offered by Gas STAR including attending and co-sponsoring the largest Technology Transfer Workshop. EnCana has shown enthusiasm for continuing its participation in Gas STAR and using the Program’s workshops and using Gas STAR technical assistance as a springboard for implementing even more innovative emission reduction activities.

Transmission Partner of the Year: Columbia Gas Transmission Corporation

For 2006, Columbia Gas Transmission reported the second highest normalized reductions of all partners in the Transmission sector. The company realized all reductions reported through the implementation of new technologies and practices. The company has worked to ensure that it stays on top of its Gas STAR participation by updating its Implementation Plans, implementing a new Work Management System to enable its field personnel to enter reduction activities when they happen, and hiring consultants to help identify additional opportunities to reduce methane emissions from the company’s transmission systems.

Processing Partner of the Year: Enbridge Energy Partners, Inc.

From participating in workshops to contributing to the Partner Update, Enbridge is consistently engaged in Gas STAR. In 2006, the company reported the highest normalized reductions of all Processing partners in the Program. The 2007 Processing Partner of the Year award is

Distribution Partner of the Year: Alliant Energy

Alliant Energy joined Natural Gas STAR in 2003 and has submitted an annual report each year since then. The company reported the second highest normalized reductions of any Distribution partner in 2006, and all reported reductions were the result of new technologies and practices implemented by the company. Please note that Alliant Energy representatives are not pictured here.

Rookie of the Year: Southwestern Energy Company

Southwestern Energy Company joined Natural Gas STAR as a Production partner in 2005 and submitted its first report in 2007 detailing its 2006 emissions reductions activities. The company submitted the highest normalized reductions of all “rookie” partners for 2006 and also reported implementing a variety of technologies and practices, including five PROs.

Implementation Manager of the Year: Scott Mason, EnCana Oil & Gas Inc.

Over the course of the past year, Scott Mason has been critical in leading EnCana’s Natural Gas STAR participation. Mr. Mason strongly encouraged EnCana’s operations staff to get involved in Gas STAR and begin implementing Gas STAR recommended technologies and practices. Through his efforts, operation managers and staff began to attend Natural Gas STAR Technology Transfer Workshops, returning with an invigorated attitude toward implementing Gas STAR technologies and practices to reduce emissions. As EnCana’s activities expand, Mr. Mason

Continued on page 6 ★ ★ ★
Spotlight
Continued from page 5 ★ ★ ★

has shown a strong interest in continuing the work underway with Gas STAR by collaborating with others and considering new technologies and practices to further reduce methane emissions.

Southwest Gas Corporation (10 years)

Southwest Gas Corporation also received a Continuing Excellence award (10 years) but is not pictured. For more information about specific award categories and criteria, visit epa.gov/gasstar/news/winners.htm.

EPA recognized the following five partners for their continuing commitment to the Natural Gas STAR Program and for implementing voluntary cost-effective technologies and practices to reduce methane emissions:

Northern Natural Gas Company (5 years)

Consumers Energy (10 years)

Chevron Corporation (12 years)

Southwest Gas Corporation also received a Continuing Excellence award (10 years) but is not pictured.

Great Lakes Gas Transmission Company (12 years)

EPA would like to welcome three new partners to the Gas STAR Program.

DOMESTIC PARTNERS

Chesapeake Energy Corporation

Chesapeake Energy Corporation is the largest independent producer and third-largest overall producer of natural gas in the United States. Headquartered in Oklahoma City, Chesapeake’s operations are focused on exploratory and developmental drilling and corporate and property acquisitions in the Mid-Continent, Fort Worth Barnett Shale, Fayetteville Shale, Permian Basin, Delaware Basin, South Texas, Texas Gulf Coast, Ark-La-Tex, and Appalachian Basin regions of the United States. The company has developed a Corporate Responsibility Policy that outlines its commitment to conducting its business operations ethically and legally and in a manner that is financially, environmentally, and socially responsible while continuing to deliver sustainable value creation to shareholders through strong financial performance. For further information on the company, please visit chkenergy.com.

Corning Natural Gas Corporation

Corning Natural Gas Corporation, headquartered in Corning, New York and incorporated in 1904, is a gas distribution company that provides natural gas, transportation, storage and other unbundled energy services. The company’s service territory, encompassing an area of about 400 square miles, is located in the Finger Lakes area of the Southern Tier of New York State, serving 15 townships with 385 miles of pipeline through 14,000 meters, and providing natural gas service to approximately 14,500 customers. For more information, please visit the company’s Web site at corninggas.com.

INTERNATIONAL PARTNER

Oil and Natural Gas Corporation Ltd. (ONGC)

ONGC is the only fully-integrated petroleum company in India, operating along the entire hydrocarbon value chain. ONGC owns and operates more than 15,000 kilometers of pipelines in India, including nearly 3,800 kilometers of sub-sea pipelines. ONGC ranks as the number one Oil & Gas Exploration & Production (E&P) Company in Asia, as per Platts 250 Global Energy Companies List for 2007. ONGC’s overseas arm, ONGC Videsh Limited (OVL), operates projects in Brazil, Colombia, Cuba, Egypt, Iraq, Iran, Libya, Myanmar, Nigeria, Qatar, Russia, São Tomé and Principe, Sudan, Syria, and Vietnam. OVL is further pursuing oil and gas exploration blocks in various oil and gas rich countries. For more information, please visit the company’s Web site at ongcindia.com.
In the News
Continued from page 2 ★ ★ ★

tion and utilization. In addition to technical presentations, methane emissions reduction case studies were presented by the Chinese National Petroleum Company, Chinese National Offshore Oil Company, SINOPEC, Petróleos Mexicanos (PEMEX), Eni, TransCanada, Cherkasytransgaz, and Total E&P.

The Partnership Expo and the concurrent Oil & Gas Sector sessions went a long way to advance collaborative project development and implementation through voluntary, international cooperative efforts. Participants left the Expo invigorated and committed to achieving the Partnership’s important goals. The full Expo agenda and proceedings are available through the Methane to Markets Web site at methanetomarkets.org/expo.

Natural Gas STAR Featured in Industry Publications
Two recent articles may be of interest to Natural Gas STAR Partners and others in the industry.

The American Oil & Gas Reporter article, “Reducing Emissions Can Boost Profits,” provides an overview of the Natural Gas STAR Program and its accomplishments to date. In addition, this article provides information on methane emission reduction technologies and practices relevant to natural gas production companies. To view this article, please visit the Gas STAR Web site at epa.gov/gasstar/pdf/aogr_2007.pdf.

The second article, “Technology Drives Methane Emissions Down, Profits Up,” published in the Oil & Gas Journal, provides an overview of cost-effective mitigation technologies and case studies of international companies that are implementing this type of emission reduction technologies and practices, such as upgrading compressors, replacing pneumatic devices, and conducting leak surveys. The examples provided in this article demonstrate that recovering methane emissions improves the environment and generates substantial economic and energy benefits. The article also provides an analysis of methane emission reduction project potential in the five countries discussed in the case studies. To view this article, please visit the Gas STAR Web site at epa.gov/gasstar/pdf/ogj_article110707.pdf.

To view other technical articles, please visit the Reports and Technical Articles section of the Gas STAR Web site, located at epa.gov/gasstar/reports.htm.

Academic Paper Demonstrates Link Between Methane Emissions and Increased Ozone
Proceedings of the National Academy of Sciences (PNAS) published an article in 2006 titled, “Global Health Benefits of Mitigating Ozone Pollution with Methane Emission Controls,” which explores the connection between reducing methane emissions and decreasing surface-level ozone, which results in substantial global decreases in premature mortality. According to the paper, “methane mitigation offers a unique opportunity to improve air quality globally and can be a cost-effective component of international ozone management, bringing multiple benefits of air quality, public health, agriculture, climate, and energy.” To read more about this topic, please visit the Reports and Technical Articles section of the Gas STAR Web site, located at epa.gov/gasstar/reports.htm.

EPA Issues New Methane to Markets Grants Solicitation
EPA has issued a request for proposals to support the Methane to Markets Partnership by funding projects and activities that advance methane recovery and use as a clean energy source. EPA expects to award up to 40 cooperative agreements ranging in value from approximately $100,000 to $700,000. EPA seeks proposals from organizations including international governments, not-for-profit organizations, states, local governments, and universities to promote project development internationally. See EPA’s Methane to Markets Grants page, epa.gov/methanetomarkets/grants.htm, for more information.

Natural Gas STAR Site Visit—Occidental Oil & Gas Corporation, Long Beach, California
Following a technology transfer workshop in Long Beach, California, on August 21, 2007, Occidental Oil & Gas Corporation (Oxy) and its subsidiary, Tidelands Oil Production Company, hosted a site visit to their Wilmington Field Operations. Participants visited Tidelands Molecular Gate® gas treatment unit, which had been the subject of a presentation at the workshop the previous day, and Island White, which is one of four Oxy-THUMS offshore artificial islands in Long Beach Harbor where crude oil and associated gas are produced.

Molecular Gate® Acid Gas Removal Unit
A representative of Engelhard, the Molecular Gate® technology provider, described the acid gas removal unit,
which is the first commercial application of this technology. Prior to installing the
technology in 2002 at this site, the poor-
quality associated gas was flared, which
wasted the hydrocarbons (including
methane). Tidelands implemented a
solution using Engelhard’s novel fixed-
bed adsorption medium, which accom­
plishes three gas-treatment processes in
one unit: removing water, acid gases
(primarily carbon dioxide), and heavier
hydrocarbons. The resulting 0.5 MMcf
per day of recovered gas is sold to a
local utility. The tail gas from the unit is
used to fuel several 2000 bhp
Waukesha, 16-cylinder internal combus­
tion engines to drive water injection
pumps. This substantially reduces
Tidelands’ electricity demand for these
pumps, returning produced water back
to the crude oil reservoirs.

Oxy-THUMS Artificial Islands
Oxy-THUMS produces oil and associat-
ed gas from the giant Wilmington Field
via four artificial islands located in Long
Beach Harbor. The islands are named
for astronauts Grissom, White, Chaffee,
and Freeman, who gave their lives dur­
sing service in the U.S. space program.
Each island is largely self-sufficient, oper­
ating its own production facilities and
conducting drilling and well servicing
operations. Wellheads on the islands are
located within group cellars, straddled by
the camouflaged drilling rigs that move
around on steel tracks. Well spacing in
the cellars is very close—about 4 feet
apart—and oil-producing and water
injection wells are drilled specifically to
reach the underlying offshore oil-produc­
ing zones. The oil production wells utilize
electric submersible pumps. All oil and
gas produced is shipped to shore via
sub-sea pipelines. The two islands clos­
est to the shoreline incorporate flood­
lighted waterfalls, decorative concrete

Ms. Peace also discussed the elements
of different climate change policies,
such as cap and trade (i.e., setting a
cap on emissions and allowing emitters
to trade emission permits), offsets (i.e.,
reducing, avoiding, or sequestering
GHG emissions from a specific project
that counteract an emitter’s GHGs), and
increased research development and
deployment (RD&D) of clean energy
technologies. Activity within the 110th
Congress has included seven Senate
bills and three House bills that call for
some form of cap and trade and that
include various provisions for offsets
and RD&D. Ms. Peace stated that a
cap and trade law will have the most
significant impact on the electricity
industry but will also greatly involve all
of the other energy sectors. She also
stated that Pew believes passage of a
cap and trade bill is plausible by the
end of 2008 and likely by the end of
2010. One of the more prominent bills
being considered is Senate Bill
S. 280—“Climate Stewardship and
Innovation Act of 2007” (introduced in
This bill aims to increase GHG emission
reductions in the United States by
establishing tradable allowances, sup­
porting climate change-related tech­
nologies, and ensuring consumer
benefits. Specifically, the bill calls for a
60-percent reduction in greenhouse gas
emissions from 1990 levels by 2050.
The act would divide the economy into
sectors—electricity, transportation,
industry, and commercial—each subject
to separate, sector-wide emissions cap,
while allowing inter-sector trading. The
bill would also establish a national GHG
database and registry and contains pro­
visions to encourage the innovation and
deployment of advanced, climate-friendly
technologies. Figure 1, displayed on
page 3, illustrates the expected sources
of emissions abatement based on an
EPA study.
This free Webcast focused on reducing methane emissions from the natural gas distribution sector. Key topics included: inserting gas main flexible liners; performing pipeline pump-downs, and Directed Inspection and Maintenance (DI&M) programs and infrared leak detection. Presentations provided detailed information, based on Natural Gas STAR Partner experiences, that participants can use to conduct feasibility assessments of these practices at their operations.

Please note: copies of the audio and video for this Webcast are available. If you would like a copy, please contact Jerome Blackman at blackman.jerome@epa.gov or (202) 343-9630.

2008 Technology Transfer Workshops:

These are the events that the Natural Gas STAR program currently has planned for 2008, however this is not a complete list. For further information and the most up-to-date list of 2008 workshops as they become available, please visit epa.gov/gasstar/workshops.htm or contact Jerome Blackman at blackman.jerome@epa.gov or (202) 343-9630.

★ Production
Denver, Colorado
April 29, 2008
Sponsored by: Marathon Oil Corporation

★ Production
Rock Springs, Wyoming
May 1, 2008
Sponsored by: EnCana USA

★ Offshore Production
New Orleans, Louisiana
May 2008
Co-sponsored by: Shell Oil Company and Chevron Corporation

★ Production and Processing
Midland, Texas
July 2008
Sponsored by: Chevron Corporation

Are you a Gas STAR Endorser, and do you have an event you would like listed here? Please notify Gas STAR about it by e-mailing gasstar@erg.com.

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Natural Gas STAR Partner Update ★ Winter 2007