

# PARTNER UPDATE

FALL 2007



## 14th Annual Natural Gas STAR Implementation Workshop

**October 22-24, 2007, Houston, Texas**

In Houston, Texas, this fall, the Natural Gas STAR Implementation Workshop will provide Natural Gas STAR partners and other interested parties with an opportunity to obtain information about the most current and cost-effective methane emissions reduction technologies and practices, and to exchange ideas with other Gas STAR partners and other stakeholders. Sessions will focus on current climate policy activities, advanced technologies for finding gas leaks, recommendations for measuring difficult gas leaks, as well as our partner awards ceremony and sector break-out sessions.

You can also visit [epa.gov/gasstar/workshops/imp\\_workshops.htm](http://epa.gov/gasstar/workshops/imp_workshops.htm) to find the full agenda, workshop details, and online registration. Sponsorship is also available to interested companies. Please see page 7 for more information.



2006 Natural Gas STAR Annual Implementation Workshop Attendees.

 **Methane to Markets Partnership Expo**  
BEIJING, CHINA  
30 OCTOBER – 1 NOVEMBER 2007



Please see page 9 for more information on the **Methane to Markets Partnership Expo: A Forum for Projects, Technology, Financing & Policy 30 October–1 November 2007 \* Beijing, China**

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## Partner Profile



### Implementing Innovative Emission Reduction Technologies: EnCana Oil & Gas (USA) Inc.

**E**nCana Oil & Gas (USA) Inc. (EnCana) has taken a proactive role in the Natural Gas STAR Program and is now implementing and testing new methane emission reduction technologies and activities to benefit the company, its community, and the environment.

EnCana, with U.S. operations located in Colorado, Wyoming, and Texas, joined Gas STAR in November 2004. The company primarily implements Gas STAR at its exploration and production (E&P) facilities, but also owns and oper-

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# 2007 Natural Gas STAR Reporting Summary

## Another Outstanding Year...

**N**atural Gas STAR partners have done it again—in the Program's 15th year, partners have achieved outstanding methane emission reductions. As the 2007 reporting season closed, partners reported reducing nearly 86 billion cubic feet (Bcf) of methane emissions in 2006. These emission reductions, voluntarily undertaken by Natural Gas STAR partner companies, have cross-cutting benefits on domestic energy supply, industrial efficiency, revenue generation, and greenhouse gas emission reductions.

Partners implemented more than 50 different technologies and practices in 2006, illustrating that they have committed to reducing methane emissions through a wide range of activities. As partners continue to report new technologies and practices each year, the top emission reduction opportunities for each industry sector change from year to year. The top technologies and practices implemented in 2006 by Natural Gas STAR partners include:

### Production

- ★ Perform reduced emissions completions
- ★ Install plunger lifts
- ★ Identify and replace high-bleed pneumatic devices

- ★ Install smart lift automated systems on gas wells
- ★ Install vapor recovery units (VRUs)

### Processing

- ★ Directed Inspection & Maintenance (DI&M): aerial leak detection using laser and/or infrared technology
- ★ Pipeline replacement and repair
- ★ Redesign blowdown/alter ESD practices
- ★ Improve measurement systems to track gas loss
- ★ Eliminate unnecessary equipment and/or systems

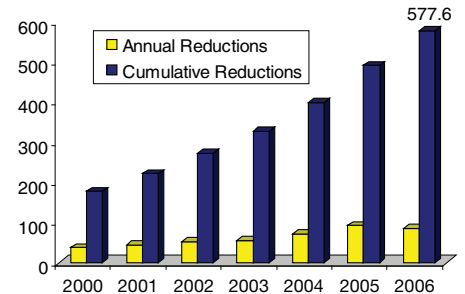
### Transmission

- ★ Use fixed/portable compressors for pipeline pumpdown
- ★ DI&M at compressor stations
- ★ Install VRUs on pipeline liquid/condensate tanks
- ★ Use of turbines at compressor stations

### Distribution

- ★ DI&M at surface stations
- ★ Redesign blowdown/alter ESD practices
- ★ DI&M: survey and repair leaks
- ★ Inject blowdown gas into low pressure system

**Natural Gas STAR Methane Emission Reductions (Bcf)**



More information on these technologies and practices, and many others, is available on the Gas STAR Web site at: [epa.gov/gasstar/techprac.htm](http://epa.gov/gasstar/techprac.htm).

Gas STAR will distribute benchmarking reports to partners in late fall. The 2007 benchmarking reports will be individually generated to summarize each partner's progress and allow them to compare their emission reduction activities with those of partners in the same oil and gas sector. Natural Gas STAR partners' achievements will be posted on the EPA Natural Gas STAR Program Accomplishments page of the Gas STAR Web site, located at [epa.gov/gasstar/accomplish.htm](http://epa.gov/gasstar/accomplish.htm), by the end of September.

EPA congratulates all reporting partners on another exceptional year and thanks them for their efforts!

Please note that the 2005 numbers represented in the graph differ from the numbers on the current Accomplishments Page of the Gas STAR Web site because of reports submitted after the close of the 2005 Reporting Season. Updated data will be posted to the Web site soon.

## Methane to Markets Oil & Gas Subcommittee Aberdeen Meeting Minutes Finalized

**T**he Methane to Markets Oil & Gas Subcommittee held its most recent meeting in Aberdeen, Scotland, from April 30—May 2, 2007, and has posted its finalized minutes and related presentations

online at: [methanetomarkets.org/resources/oil-gas/index.htm](http://methanetomarkets.org/resources/oil-gas/index.htm)

Meeting discussion topics included:

- ★ Achievements made by partners since the last subcommittee meeting

- ★ Plans and activities related to the 2007 Partnership Expo in Beijing, China

- ★ An update on Natural Gas STAR International

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## Methane to Markets Oil & Gas Subcommittee Upcoming Meeting in Beijing, China

**T**he next Oil & Gas Subcommittee meeting will be held in conjunction with the 2007 Partnership Expo in Beijing, China. *\*Please note, many attendees will need*

*visas, so please plan ahead.*

### Oil & Gas Subcommittee Meeting

#### Logistics:

November 1, 2007  
China World Hotel

No. 1 Jianguomenwai Avenue  
Beijing 10004 China

Please visit [methanetomarkets.org/expo/docs/agenda.pdf](http://methanetomarkets.org/expo/docs/agenda.pdf) to view the agenda.

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## Announcing the STARtracker Webcast for Production Partners

**J**oin us for a free Webcast that will highlight a new opportunity for production partners to use a Web-based application for tracking and reporting methane emissions. The application can be hosted on individual production companies' Web servers and will allow each user to track and catalog methane emission reductions across the company.

**Wednesday,  
September 26, 2007  
12:00—1:30 PM EST**


The conference call number will be distributed closer to the date of the Webcast.

The key features of STARtracker that will be discussed include the application's ability to centralize data, allow

users to input and access data from any location, and simplify management and reporting.

For more information or to request a copy of STARtracker on CD, please contact Suzie Waltzer at (202) 343-9544 or [waltzer.suzanne@epa.gov](mailto:waltzer.suzanne@epa.gov). The Gas STAR Program will be providing copies of the CD to Implementation Managers of Gas STAR production partner companies.

The Gas STAR Program is providing this open source application free of charge to partner companies and interested parties, but it is not an EPA program or document. EPA is distributing this application as a courtesy to our partners and interested parties, but EPA

will NOT provide technical support for installation, training, operation, or further development. As COMM Engineering developed the original application, companies can consider contacting COMM to arrange technical support. Gas STAR would like to thank  for donating STARtracker and making this tool available to all partners.

#### Natural Gas STAR Program:

Suzie Waltzer, EPA  
(202) 343-9544

[waltzer.suzanne@epa.gov](mailto:waltzer.suzanne@epa.gov)

#### General Webcast Information:

Sheri Lausin, ICF International  
[slausin@icfi.com](mailto:slausin@icfi.com)



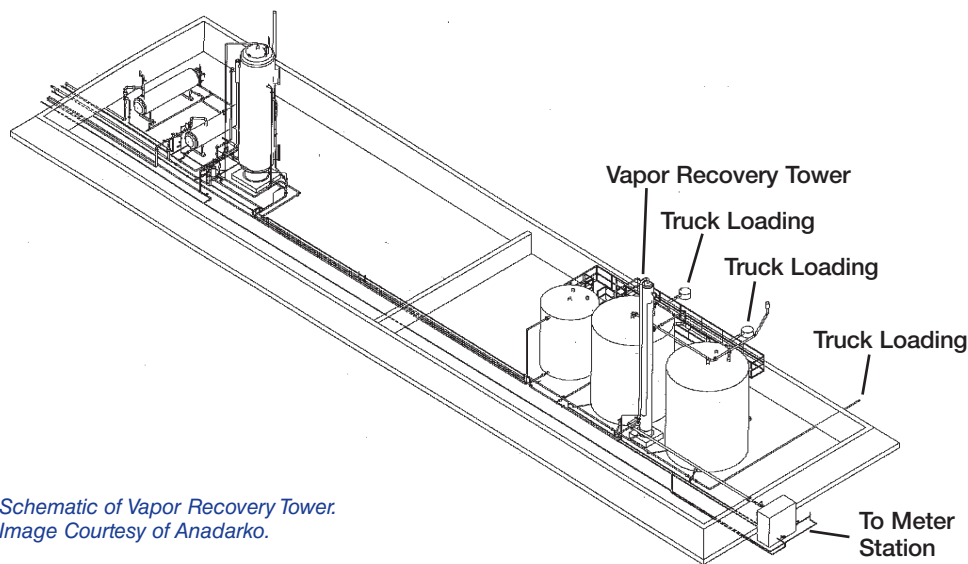
## Anadarko Improves Operations With Vapor Recovery Towers

**S**ince Anadarko Petroleum Corporation (Anadarko) voluntarily signed a Gas STAR Memorandum of Understanding as a production sector partner, the company has continued to find ways to reduce methane emissions, improve safety conditions, and keep more natural gas in the sales pipeline. Marty Bludau, a construction foreman with Anadarko, helps the company utilize vapor recovery towers (VRTs) to achieve these goals.



Vapor Recovery Tower. Photo Courtesy of Anadarko.

VRTs reduce methane emissions by capturing flash vapors during pressure changes. According to Anadarko, VRTs provide the added benefit of keeping air out of the captured flash gas. Flash emissions occur when oil and condensate are trans-



Schematic of Vapor Recovery Tower. Image Courtesy of Anadarko.

ferred from a pressurized vessel, such as a separator or heater treater, to non-pressurized atmospheric storage tanks. Traditionally, flash gas resulting from these pressure changes was captured from the atmospheric storage tanks by VRUs, vented to the atmosphere, or burned in a flare.

Anadarko uses two different size VRTs based on the anticipated oil volumes from the well. For lower-volume tank batteries expected to collect 1,500 barrels per day or less, Anadarko employs smaller towers measuring 35 feet tall with 20-inch diameters. For tank batteries that collect more than 1,500 barrels per day, Anadarko relies on larger towers measuring 40 feet tall with 48-inch diameters. VRTs are utilized in the production process either following a low-pressure separator at less than 250 pounds per square inch (psig) or following a heater

### Benefits of VRTs Include:

- ★ The opportunity to have 100 percent compression.
- ★ Safety enhancements resulting from the elimination of oxygen from the system.
- ★ The ability to consistently meet important pipeline specifications of less than one percent oxygen.

treater at less than 80 psig, and before the storage tanks, which operate at close to atmospheric pressure. Once the appropriate equipment is in place, the process is fairly straightforward:

- ★ First, the oil enters the tower approximately 5 to 7 feet from the top and builds until the level exceeds the oil outlet at 23 feet.

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# Technology Spotlight

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- ★ Next, the oil enters a downcomer within the tower and travels down, then back up, in a U-shaped pattern, thereby creating an oxygen-free system. The tower is held at near 0 psig by automated recycling of the VRU compressor, which is possible with a throttle-type recycle controller.
- ★ Finally, the vapors gather at the top of the tower and are compressed directly into a sales line.

VRTs have been so effective in capturing valuable hydrocarbon product, that between 1993 and 1999, Anadarko netted between \$7 million and \$8 million in additional sales (after factoring in the capital costs and research and development expenses) that would have otherwise been lost. To realize this additional revenue, Anadarko spends approximately \$11,000-\$15,000 to purchase and install each VRT system, and now has more than 300 units in operation.

In addition to the added revenue, VRTs allow 100 percent vapor compression opportunity and provide a safe method for collecting and shipping natural gas from the production site.

Atmospheric tanks also have working and breathing losses. As the liquid is drawn out of a tank, air is introduced, which provides a source of oxygen. A VRU operating to remove excess vapors in an atmospheric tank may create a vacuum that could introduce air into the system. According to Anadarko, the VRT configuration allows for an oxygen-free system, sig-

nificantly enhancing safety. Additionally, because the oxygen specification for natural gas sales is very low, it is important to maintain tight control and prevent the introduction of oxygen.

According to Bill Grygar, Anadarko's Natural Gas STAR Implementation Manager, "using VRTs benefits our company three-fold; we found a cost-effective way to improve working and safety conditions, protect the environment by reducing methane emissions, and increase our revenue. As such, Anadarko continues to implement new towers on an as-needed basis."

To learn more about VRTs contact Marty Bludau ([Martin.Bludau@anadarko.com](mailto:Martin.Bludau@anadarko.com)) or review his presentation from the May 17, 2007, Production Technology Transfer workshop in College Station, Texas, which is available online at [epa.gov/gasstar/workshops/collegestation-may2007.htm](http://epa.gov/gasstar/workshops/collegestation-may2007.htm).



Vapor Recovery Tower. Photo Courtesy of Anadarko.



## Vapor Recovery Tower (VRT) FAQs

### 1) What is the primary reason to use a VRT?

The VRT allows companies to capture high BTU flash vapors without contaminating the captured gas with air.

### 2) What are the benefits of using a VRT?

Companies can capture valuable hydrocarbon product allowing for 100 percent vapor compression opportunity for emissions that might otherwise be vented to atmosphere. VRT's also provide a safer method for collecting natural gas from the production site.

### 3) Does the VRT require any special operator training?

Not really. The VRT operates without moving parts and with a gravity feed to the storage tanks. The VRU compressor requires some training to ensure that the compressor does not pull a vacuum on the VRT.

### 4) What type of compressor is used to gather gas off the VRT?

Companies usually use a screw type compressor to gather and compress the VRT vapors. Discharge pressures are usually 30-60 psig.

# Update: Proposed Climate Change Legislation Relevant to the Natural Gas Industry

**T**he last issue of the *Partner Update* provided an overview of the greenhouse gas (GHG) cap and trade legislation introduced thus far in Congress and explained the legislation's relevance to the natural gas sector. This included a discussion of the key components of each bill, describing the types of sources covered and the point at which GHG emissions are regulated. This article updates and expands on relevant information related to the GHG cap and trade bills including results of a recent U.S. Environmental Protection Agency (EPA) economic assessment of the Lieberman-McCain bill.

## Update: Greenhouse Gas Cap and Trade Bills

There are now 10 cap and trade bills for controlling GHG emissions that have been introduced in the 110th Congress. Since the last issue of the *Partner Update*, the Bingaman-Specter bill has been introduced and is no longer in draft form. This bill is an economy-wide bill, covering all major sectors of the economy, and is therefore more relevant to the natural gas sector than the power sector only bills. In the version of the bill introduced in Congress, the point of regulation changed from an upstream approach to a hybrid approach. The hybrid approach means that it would not only establish emis-

sions caps for transportation fuels and the upstream natural gas sector but also for large emitters downstream. Similar to the draft version, the Bingaman-Specter bill also contains provisions for early action such as credit for reductions registered with the Department of Energy's 1605b program, state or private registries, as well as EPA's Climate Leaders Program.

## Recent Activities Related to Proposed Climate Change Legislation

Earlier this year, Senators Lieberman and McCain asked the EPA and the Energy Information Administration (EIA)

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## Update: Major Components of Proposed Cap and Trade Legislation for Controlling Greenhouse Gas Emissions\*

|                                   | Economy-wide | Power Sector | Down-stream | Upstream | Hybrid | Determined by EPA | Early Action |
|-----------------------------------|--------------|--------------|-------------|----------|--------|-------------------|--------------|
| <b>Lieberman-McCain (S. 280)</b>  | X            |              |             |          | X      |                   | X            |
| <b>Olver-Gilchrest (H.R. 620)</b> | X            |              |             |          | X      |                   | X            |
| <b>Sanders-Boxer (S. 309)</b>     | X            |              |             |          |        | X                 | X            |
| <b>Kerry-Snowe (S. 485)</b>       | X            |              |             |          |        | X                 |              |
| <b>Waxman (H.R. 1590)</b>         | X            |              |             |          |        | X                 |              |
| <b>Draft Bingaman-Specter**</b>   | X            |              |             |          | X      |                   | X            |
| <b>Feinstein-Carper (S. 317)</b>  |              | X            | X           |          |        |                   | X            |
| <b>Carper (S. 1177)</b>           |              | X            | X           |          |        |                   | X            |
| <b>Alexander (S. 1168)</b>        |              | X            | X           |          |        |                   |              |
| <b>Sanders (S. 1201)</b>          |              | X            | X           |          |        |                   |              |

\* The text for each bill can be found online at [thomas.gov](http://thomas.gov).

\*\* The only information that changed in the table above from the June issue is related to the Bingaman-Specter (S. 1766) bill.

# Don't forget! Register today for the 14th Annual Natural Gas STAR Implementation Workshop!

**The Implementation Workshop will take place October 22–24, 2007, at the Hyatt Regency in Houston, Texas.**

This year's workshop comes at a time of heightened interest in greenhouse gas reductions, and is a forum for sharing solutions and optimal ways to reduce methane emissions. The workshop will include partner company presentations on new experiences with reducing methane emissions. Expert speakers will focus on a range of issues including:

- New methods to capture methane emissions
- Mitigation projects with positive economics
- Technology demonstrations
- Environmental, policy, and market issues faced by partner companies

This year's workshop will also include a free field trip on Wednesday, October 24 to Kinder Morgan Midcon Texas Pipeline Corporation's Sugarland Compression Station.

More than 140 participants gathered at last year's workshop to network, share information and celebrate the achievements of this important voluntary partnership, and we expect at least that level of participation again this year!

## **Registration and information on the workshop facility, hotel, and sponsorship opportunities are now available on the Natural Gas STAR Web site at: [epa.gov/gasstar/workshops](http://epa.gov/gasstar/workshops)**

- Workshop location: Hyatt Regency in downtown Houston.
- Hotel reservations: Call the Hyatt at (713) 654-1234 and reference the EPA Natural Gas STAR Workshop to receive the special conference rate by September 24, 2007.
- Sponsorship information: Available online, or contact Erin Pittorino, ERG ([erin.pittorino@erg.com](mailto:erin.pittorino@erg.com)).

If you have any questions please contact Suzie Waltzer, EPA ([waltzer.suzanne@epa.gov](mailto:waltzer.suzanne@epa.gov)) or Erin Pittorino, ERG ([erin.pittorino@erg.com](mailto:erin.pittorino@erg.com)).

We look forward to seeing you in Houston!

### **October 22, 2007**

Reception

6:00 PM—7:30 PM

### **October 23, 2007**

Workshop

9:00 AM—5:00 PM

Awards Presentation

1:00 PM—1:45 PM

### **October 24, 2007**

Workshop

8:30 AM—11:30 AM

Field Trip

11:30 AM—5:00 PM

**Hyatt Regency • 1200 Louisiana Street • Houston, Texas, USA 77002**

**Please visit [epa.gov/gasstar/workshops/imp\\_workshops.htm](http://epa.gov/gasstar/workshops/imp_workshops.htm) to register and for additional information**



## Partner Profile

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ates many midstream facilities including four large gas plants and many compressor stations. In 2006, EnCana reported more than 16 billion cubic feet (Bcf) of methane emission reductions from its operations. The company attributes its successful methane emission reduction program to its entire operations staff's involvement in implementing Natural Gas STAR recommended technologies and from corporate support.

Championing EnCana's Natural Gas STAR Program participation has been at the forefront of Implementation Manager Scott Mason's agenda. Through Mr. Mason's efforts to involve EnCana's operations staff in Gas STAR, managers and staff members began to attend Natural Gas STAR technology transfer workshops. Returning to EnCana from the workshops, the staff members were "really invigorated and wanted to take charge of implementing Gas STAR technologies to reduce emissions because they understood that [Gas STAR activities] mean more gas to markets and less environmental impacts on the local community and the areas they live in" according to Mr. Mason. He has enjoyed watching operations staff take ownership of the

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—Scott Mason, EnCana

program and run with it. EnCana is experiencing rapid growth, and it is difficult to manage all of the activities, but Gas STAR has been a priority with everyone on the EnCana operations team. EnCana is excited to continue working with Gas STAR and using the technology transfer workshops and technical assistance as a springboard for the implementation of even more innovative emission reduction activities.

"EnCana is experiencing rapid growth, and it is difficult to manage all of the activities, but Gas STAR has been a priority with everyone on the EnCana operations team."

—Scott Mason, EnCana

EnCana has made environmental innovation part of its corporate policy. The company operates two programs, the Environmental Innovation Fund and the Energy Efficiency Fund, both focused on lessening impacts to the environment. Larry Weiers, vice president of energy technology/research in Calgary, Alberta, Canada, manages both programs.

Through the Environmental Innovation Fund, EnCana supports the development of new environmental technologies that can benefit the company, the energy sector and the community as a whole. These innovations might originate inside the company and be brought to the fund for assessment, or they can be brought to EnCana by outside parties.

The fund has its own budget and assesses projects to determine if they are viable technologies to be considered for funding. Mr. Mason and the operations staff have submitted three requests for funding for typical Gas STAR technologies to be implemented in Colorado, including the replacement of high-bleed pneumatic devices with

low-bleed pneumatic devices on separators and the replacement of gas actuated chemical pumps with solar powered chemical pumps. Mr. Mason is optimistic that the fund will accept their requests as feasible technologies. However, if they do not receive support from the fund, he is committed to implementing the technologies using his own operations' budget.

In addition, EnCana launched the Energy Efficiency Initiative in early 2007 to achieve measurable reductions in energy usage and greenhouse gases (GHGs) in its internal operations and in the community. The initiative focuses on improving facilities' energy efficiency, encouraging employees to reduce their energy consumption at work and at home, and sponsoring community projects that promote responsible energy use and GHG emission reductions.



Internal View of Auxiliary Burner Unit and Venturi.  
Photo Courtesy of EnCana.

### Current Technologies

EnCana already has several Gas STAR recommended technologies in place to reduce the company's methane emissions. Current emission reduction activities include:

#### ★ Replacing High-Bleed with Low-Bleed Pneumatic Devices on Separators

EnCana has replaced approximately 800 high-bleed level con-

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# Methane to Markets Partnership Expo

BEIJING, CHINA  
30 OCTOBER – 1 NOVEMBER 2007  
[methanetomarkets.org/expo](http://methanetomarkets.org/expo)



## A Forum for Projects, Technology, Financing, and Policy

The Methane to Markets Partnership Expo is the premier international forum for promoting methane recovery and use project opportunities and technologies.

The Expo is sponsored by the Government of China National Development and Reform Commission (NDRC), U.S. Environmental Protection Agency, and the Methane to Markets Partnership.

By NDRC Invitation, ALL of the major oil and gas companies of China will attend this event, including key oil and gas officials from NDRC itself. Along with Chinese oil and gas companies, companies from throughout the world, including PEMEX and several multinationals, have stated their intent to attend and present at the Expo. These operators will share their approaches to gas capture projects, and many contractors with worldwide experience will share their expertise.

## Join the International Methane Community

- ★ Showcase project opportunities and technologies.
- ★ Meet with potential project partners and financiers.
- ★ Learn about the latest technologies and services.
- ★ Explore key technical, policy, and financial issues.
- ★ Interact with high-level government agencies from 20 partner countries.

## Why Attend?

The Methane to Markets Partnership Expo is the methane event of the year. The Expo's comprehensive technical and policy program, trade show, and networking opportunities will bring you up to speed on the latest projects, technologies, and development opportunities in the field of methane recovery and use from around the world.

The Expo will also feature international project opportunities, many with completed pre-feasibility studies in search of financing, technology, and project development partners.

## Who Should Attend?

- ★ Project Developers and Financiers.
- ★ Policymakers and Government Representatives.
- ★ Manufacturers and Vendors.
- ★ Industry Representatives.
- ★ Site Managers.

## A High Quality Technical and Policy Conference

The Expo's unique, high quality technical and policy sessions focus on:

- ★ Opportunities to advance methane recovery and use projects.
- ★ Case studies of successful projects.
- ★ Technology overviews/technical perspectives.
- ★ Financing options.
- ★ Policy and regulatory issues.

## The Expo Venue

The Expo will be held at the China World Hotel, a world-class facility in the heart of Beijing.

## Additional Information

Please visit [methanetomarkets.org/expo](http://methanetomarkets.org/expo) for the latest information on the Expo. For additional inquiries about the Expo or sponsorship opportunities, please contact either Roger Fernandez or our in-country hosts at the China Coal Information Institute.

### Methane to Markets Oil and Gas Subcommittee

Roger Fernandez

E-mail: [fernandez.roger@epa.gov](mailto:fernandez.roger@epa.gov)

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### China Coal Information Institute

(Attention Ms. Liu Xin)

E-mail: [cbmc@public.bta.net.cn](mailto:cbmc@public.bta.net.cn)

Tel: 86-10-84657948 or 86-10-84657806



# Legislation

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to conduct a technical and economic analysis to estimate the costs of their bill, The Climate Stewardship and Innovation Act (S. 280), to the U.S. economy. As discussed in the last issue of the *Partner Update* and summarized in the table on page 6, the key components of S. 280 include an economy-wide cap and trade system that takes a hybrid approach to regulating emissions sources. This means that the bill covers all major sectors of the economy and requires both stationary sources (e.g., power plants and large industrial sources) to hold allowances for their emissions and petroleum producers to hold allowances for the transportation fuel they sell.

\*Some of the key findings from the EPA analysis of the S. 280 include:

- ★ Relative to the reference scenario, S. 280 would reduce U.S. GHG emissions by about a quarter in 2030 and by about 44 percent in 2050. Compared to historical emissions, emissions under S. 280 would be approximately 1 to 3 percent lower than 2000 levels in 2030, and 1 to 5 percent lower than 1990 levels in 2050.
- ★ The electricity sector provides the greatest source of emission reductions largely through the expansion of nuclear power (up to a 150 percent increase) and deployment of carbon capture and storage (CCS).
- ★ In 2095, if S. 280 becomes law and international climate policies described in the Senate scenario of the analysis are carried out,

**Overview of Cap and Trade:** Cap and trade is a market-based mechanism for reducing emissions from a group of sources throughout a broad geographic region. This approach has been used since the early 1990s by EPA's Acid Rain Program (established under Title IV of the 1990 Clean Air Act Amendments) to reduce sulfur dioxide (SO<sub>2</sub>) emissions from power plants on a national level. EPA also runs a nitrogen oxide (NO<sub>x</sub>) cap and trade program and has promulgated the Clean Air Interstate Rule to lower the existing caps for the SO<sub>2</sub> and NO<sub>x</sub> programs. Under this type of approach, the cap establishes a maximum amount of emissions per compliance period, for all affected sources. Authorizations to emit in the form of emission allowances are then distributed to affected sources, and the total number of allowances cannot exceed the cap. To comply with a cap and trade program, affected sources are required to report their emissions and submit an equivalent number of allowances at the end of the compliance period (e.g., one year). Individual control requirements are not specified; instead, sources have flexibility in how they comply and can either limit emissions to meet the number of allowances allocated to them or trade (buy and sell) allowances.

then global CO<sub>2</sub> concentrations are estimated to be approximately 481 parts per million (ppm), compared to approximately 718 ppm in the reference ("without measures") case. Under S. 280, the analysis suggests that the U.S. contributes about 25 ppm to this reduction. (Note: in 2005 global CO<sub>2</sub> concentrations were approximately 380 ppm).

Detailed information on the results of EPA's assessment of S. 280 can be found at [epa.gov/climatechange/economicanalyses.html#s280](http://epa.gov/climatechange/economicanalyses.html#s280). In addition, EIA's analysis of the bill was released on August 6, 2007 and can be found at [www.eia.doe.gov](http://www.eia.doe.gov).

## Upcoming Actions

In June 2007, Senators Joseph Lieberman (ID-CT) and John Warner (R-VA) announced that they would develop a new, bipartisan, economy-wide, cap and trade climate bill. The new bill will draw upon S.280 and the results of EPA's analysis, the other existing cap and trade bills described in the table above, as well as new ideas. They introduced an annotated table of con-

tents, detailing the major portions of their new bill on August 2, 2007 ([lieberman.senate.gov/documents/acsa.pdf](http://lieberman.senate.gov/documents/acsa.pdf)). Senators Lieberman and Warner plan to introduce the bill in September and then bring it before their committee, the Subcommittee on Private Sector and Consumer Solutions to Global Warming (this is a subcommittee that falls under the full Senate Environment and Public Works Committee), shortly thereafter.

Senator Boxer, the Chairwoman of the full Senate Environment and Public Works Committee, has pledged her support for the Lieberman and Warner effort and stated that she would hold a hearing for their bill, as well as the other GHG cap and trade bills that have been introduced this year. However, at this point, it still remains unclear what type of cap and trade bill, if any, will come out of the 110th Congress. As the situation develops, the *Natural Gas STAR Partner Update* will continue to provide information and updates on issues relevant to climate change and the natural gas sector.



# Partner Profile

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tion. The company hopes to have all of its gas actuated chemical pumps in Colorado replaced by the end of 2008.

## ★ Installing Vapor Recovery Units

EnCana had two vapor recovery units (VRUs) running in 2003, and added an additional unit in 2004. A cost-benefit analysis was used to assess the VRUs, but it was not the only deciding factor to implement this technology. Both cost-benefit analyses and environmental impacts influenced this decision.

## Pilot Projects—Continuing Innovation

EnCana is proving its commitment to reducing methane emissions by going above and beyond the noteworthy activities it has already implemented by initiating several new emission reduction pilot projects. EnCana's pilot projects include:

## ★ Consolidating Water Hauling

EnCana staff installed pipelines from multiple tank batteries in its South Piceance field to move water to a centralized location. An efficient pipe system eliminates the need for a water hauler to visit each pad to remove water. EnCana is currently assessing the potential to move all liquids, including condensate, under pressure to the central location. If moving all of the liquids under pressure proves to be successful, EnCana operations staff might be able to install a VRU at the central location to capture methane emissions that would otherwise be vented.

## ★ Operating a Quantum Leap Dehydrator

The quantum leap dehydrator (QLD) traps hazardous air pollutants and methane emissions with a contained vacuum. The trapped emissions are either recycled as vapor to power the QLD generator, or stored as condensate or oil, which

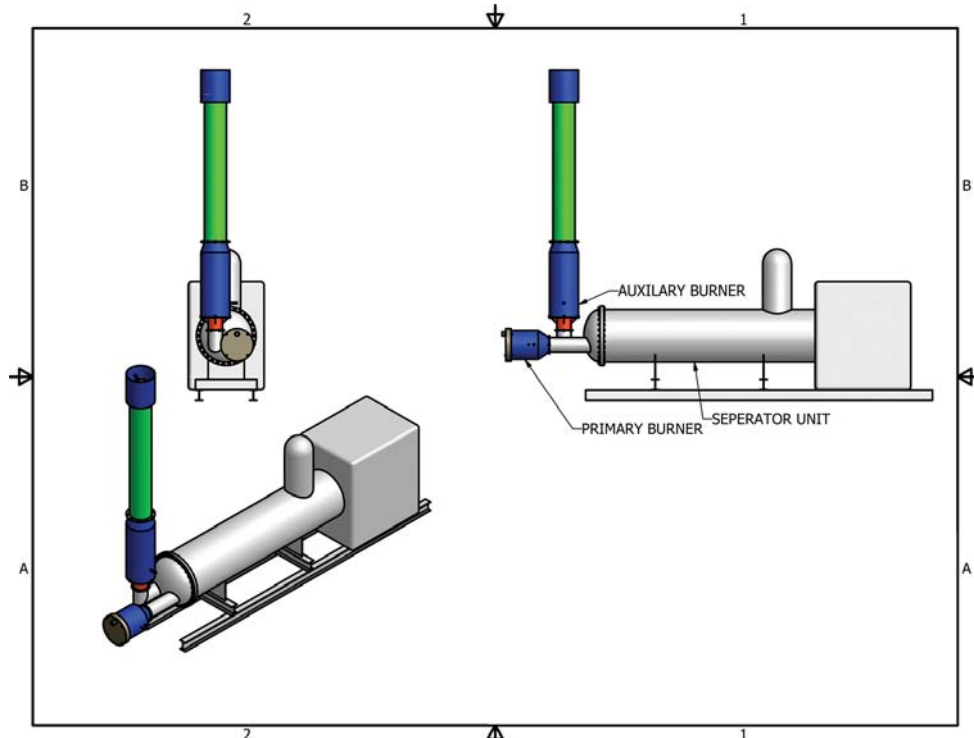


Auxiliary Burner Unit. Photo Courtesy of EnCana.

is sold in the production stream. Jonah Field, located about 30 miles south of Pinedale, Wyoming, is the only EnCana field currently operating a QLD. Field staff have performed emissions tests on two units. Tests on the small engine that drives the process have demonstrated positive results. If the QLD passes the long-term reliability test, the company will begin to implement this technology throughout its operations. EnCana began implementing this dehydrator technology in 2007, as part of its continuing investigation for emission reducing technologies for its midstream operations, with a particular focus on dehydrators.

## ★ Utilizing a BTEX Condenser and Venturi System

Midstream operations are using a BTEX condenser and venturi system to capture still vent emissions from glycol dehydrators and route these emissions to plant inlets in low-pressure fields. The condenser removes liquids from the still vent gas stream and the remaining vapors are routed through the venturi valve. The venturi utilizes a high-pressure motive gas from the compressors to boost the pressure of the still vent gases and move these vapors to the inlet of the station. This process provides an innovative solution to a methane stream that is typically combusted or vented.



Separator Unit Assembly. Image Courtesy of EnCana.

Continued on page 13 ★ ★ ★

## Partner Profile

Continued from page 12 ★ ★ ★

### ★ Installing a Two-Stage Unit to Capture Vent Stream

EnCana has also begun to use a Two-Stage Unit made by Leed Fabrication in the DJ Basin site located in Colorado. The Two-Stage Unit collects the vent stream from a condensate tank at an E&P site and either combusts the vapors to reduce volatile organic compounds (VOCs), or uses them as fuel gas for the separator heater. EnCana facilities in the Denver, Colorado area are under

regulatory requirements to eliminate VOCs, and the Two-Stage Unit, although still in the research phase, allows for lower condensate producing wells to be controlled in an economically efficient manner. The unit produces approximately 17 percent fuel savings and allows EnCana to put condensate tank vapors to use. Currently EnCana has four operating Two-Stage Units. The units are proving to be so successful at reducing methane venting and saving money by keeping the product in the system that the company is considering installing the technology at operations in the Piceance Basin in northwest Colorado and expanding the units

in the Denver area by more than 60 wells.

### The Future

As EnCana continues to expand its Gas STAR activities, the company is interested in collaborating with manufacturers of oil and gas equipment to produce devices to minimize methane emissions and eliminate the need to retrofit. EnCana would like to create a forum for equipment vendors, and other parties in the natural gas industry, to discuss new technologies, minimum standards for oil and gas equipment, and partnership opportunities.

For more information please contact Scott Mason at (720) 876-5889 or [Scott.Mason@encana.com](mailto:Scott.Mason@encana.com).



Photo by Foto/FX.

# Calendar 2007 UPCOMING EVENTS

## GAS STAR TECHNOLOGY TRANSFER WORKSHOPS

### Production

- ★ **Glenwood Springs, Colorado**  
September 11, 2007  
Hotel Colorado  
Glenwood Springs, Colorado  
Sponsored by: Williams Production Company, Williams Midstream, and EnCana USA
- ★ **Durango, Colorado**  
September 13, 2007  
Sponsored by: ConocoPhillips Petroleum Company
- ★ **STARtracker Webcast**  
Wednesday, September 26, 2007  
2:00 – 1:30 PM EST

These are events that the Natural Gas STAR Program is currently planning. For updates and further information, please check out [epa.gov/gasstar/workshops.htm](http://epa.gov/gasstar/workshops.htm) or contact Roger Fernandez at [fernandez.roger@epa.gov](mailto:fernandez.roger@epa.gov) or (202) 343-9386. Additionally, are you a Gas STAR Endorser and have an event you would like listed here? Please notify Gas STAR about it.

### GAS STAR IMPLEMENTATION WORKSHOP

- ★ **Houston, Texas**  
October 22 - 24, 2007  
Hyatt Regency Houston  
Houston, Texas

Join Gas STAR partners and other interested parties to:

- Obtain information about methane emissions reduction technologies and practices.
- Exchange ideas with other Natural Gas STAR partners and other interested parties.
- Attend sessions on leak detection and measurement technologies and our partner awards ceremony.
- Participate in sector break-outs.

Visit [epa.gov/gasstar/workshops/imp\\_workshops.htm](http://epa.gov/gasstar/workshops/imp_workshops.htm) to find the full agenda, workshop details, and online registration.

### METHANE TO MARKETS WORKSHOP

- ★ **Methane to Markets Partnership Expo**  
*A Forum for Projects, Technology, Financing and Policy*  
October 30–November 1, 2007  
Beijing, China

- Join the international methane community and:
- Showcase project opportunities and technologies.
- Meet with potential project partners and financiers.
- Learn about the latest technologies and services.
- Explore key technical, policy, and financial issues.

More information in English is available online at [methanetomarkets.org/expo/](http://methanetomarkets.org/expo/).

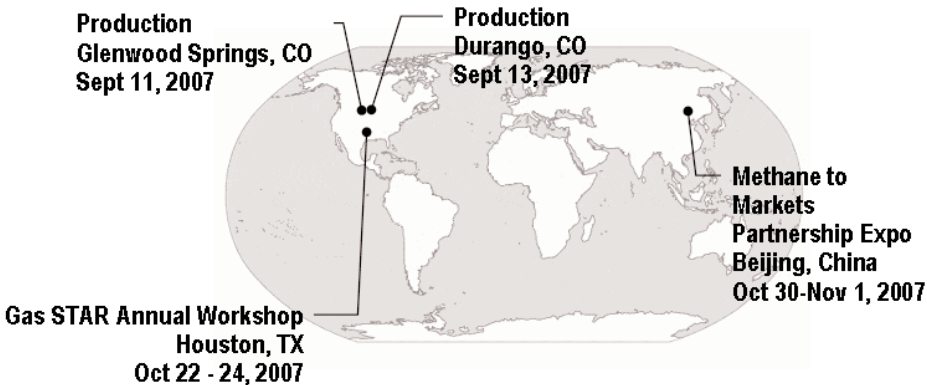


Photo by Getty Images.

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For additional information on topics in this *Update*, please contact Suzie Waltzer.

