Real-Time Remote Monitoring Systems for Data Collection and Evaluation

Remote monitoring systems have been designed, installed, and operated for the monitoring of various parameters in groundwater, surface water, and air. Remote monitoring provides real-time accessibility of data that is continuously logged from virtually any type of transducer with output capability. The data is able to be viewed and downloaded remotely from any computer, and also provides remote real-time data monitoring for up-to-the-minute results.

Multiple sensors from various locations can be connected to one data management system, which are typically web-based, and accessible from most computers, tablets, and smartphones. In addition to tracking and trending of the parameter data, remote monitoring can be a reliable means to increase safety and security with a host of alarm notifications (e.g., audible, visual, email, text, or phone). There are numerous applications when remote monitoring can be implemented, nor are these applications limited to areas with cellular coverage; communication via satellite telemetry is also available. Here are examples of some of our most recent applications:

- **Liquid Level and Flow Monitoring** – in tanks, ponds, or impoundments. Applications can include anything from freeboard monitoring to alarm notification of containment breaches to stream flow estimates. Flow rates and flow volume data can also be monitored from process streams such as fresh water supply, water treatment, or recirculation lines.

- **Enhanced Baseline Data** – Establish baseline conditions in surface water and groundwater and air in dwellings, well headspaces, and atmosphere. Continue monitoring during and after drilling/completion activities and compare to pre-drilling data to verify that conditions are not changed during well drilling, fracturing, or completion activities. Remote monitoring systems can also be installed on water wells to monitor natural fluctuations of methane and other parameters with regards to well use, weather changes, and other events.

- **Methane Gas Monitoring** – Monitor methane from low parts per million (ppm) through % LEL and up to 100% volume. Real-time methane gas monitoring has been used at residences, wells, and in the atmosphere at the well pad as a safeguard to operators or property owners. It can easily be programmed to "alert" select responders at a particular threshold. The methane data can also be integrated for comparison to a host of other parameters such as water level, water quality, or...
Well Pad Monitoring and Emergency Response – GES has implemented equipment to remotely monitor methane gas on well pads and on well pad perimeter areas. The monitoring units are fully-integrated with data tracking, remote access via cellular modem, and alarm notification. This real-time, continuous data allows field staff to focus on other tasks while the automated system receives and tracks the necessary data.

Secondary Containment Monitoring – GES has provided remote monitoring of various primary and secondary containment devices, including tank/drum storage, impoundment liners, and well pad surface liners. Many of these solutions include local audio/visual alarms as well as alerts via e-mail/phone.

Weather Data – Remote monitoring can track weather parameters continuously and have pre-set alarm conditions to notify you of action levels. Data from multiple weather stations can be viewed from one location/website. Many weather stations can be powered via solar panels.

Well Pad Security – Wireless surveillance with night vision cameras and live web-viewing with continuous monitoring service can prevent and deter vandalism. If needed, the monitoring service can alert 911 to respond. The security systems have significant flexibility including wireless and solar capabilities and are available as fixed or mobile units. They can also be a useful tool for investigating safety incidents using the video footage. Most of our well pad security solutions have involved self-powered 24/7 surveillance systems with four-cameras and lighting (typically less than $4,500 per month for all equipment, materials, and labor).

Contractor Management & HSSE Stewardship at Well Pads & Construction Sites

The increase in unconventional oil & gas activity in the US has created a need for additional contractor management, including health and safety stewardship at well pads, processing facilities, and pipeline construction sites. Due to this increase in high-risk construction and drilling activity, GES has been providing contractor oversight services to help clients manage field work and comply with health and safety requirements. Through our licensed LPS behavior-based HSSE program, we have been able to provide field oversight of activities, while also acting as “eyes and ears” on-site for our clients. Lessons learned from these activities include:

- Early morning and post-lunch tailgate safety meetings are a great way to remind contractors of the hazards of their work and current site situations (weather, logistics, new site activities/hazards, etc.)
- Performing periodic reviews of various field activities can be a positive way to ensure proper procedures are followed and remind staff of task hazards.
- Auditing all on-site workers, including new contractors and employees, for necessary PPE and relevant training/compliance requirements can be very helpful in minimizing the likelihood of compliance/safety risks. In some cases, site-specific HSSE training may be provided.
- On-site oversight can ensure that job safety analyses (JSAs) are available for all work activities and are properly being followed. Some clients allow the safety oversight professional to develop field JSAs as needed for new tasks, so that site work can be performed safely and can proceed without delay.
- The on-site contractor and safety manager can also help perform other tasks, such as inspect E&S controls, audit and track wastes, report and respond to spills, and track permit compliance.
- The results show that it is working. GES’ E&P division has had a 0.00 TRIR for the past three years and zero incidents in 2012. Subcontractors managed by GES have had a 0.00 TRIR for the past 2.5 years.
EQuIS Environmental Database Integration for Pre-Drill “Baseline” Sampling and Waste Management

EarthSoft’s Environmental Quality Information System (EQuIS) has quickly become the industry standard for managing environmental data across various oil and gas plays. It is an effective tool for managing large volumes of field and laboratory data, including data collected from pre-drilling (baseline) sampling, waste management, air management, and compliance/inspection events such as erosion and sediment control inspections. Having field and laboratory data in an easy-to-access database facilitates the ability to meet data quality objectives and regulatory obligations. It has also proved extremely advantageous for emergency responses and spill sites, when accurate and legally-defensible information is needed immediately to respond to regulators and for community and media relations.

GES is participating in the Marcellus Shale Coalition’s (MSC’s) database task force committee to implement EQuIS with operators throughout the Marcellus and Utica shale plays. The EQuIS database will allow regulators to access the environmental data for the entire MSC and streamline the regulatory process, reducing the need for paper reports.

As a member of the MSC task force, GES has been able to provide input on standardizing the many different implementations used by various companies already using EQuIS. Because of our relationships and consulting experience in the oil and gas industry, GES has been able to offer innovative solutions to help clients efficiently integrate their existing data (from another database or paper copies) into EQuIS. We’ve also helped identify and implement tools to automate processes and reduce client and consultant effort, including automatically generating client letters to residents with their baseline sampling data.

GES to Co-Host EQuIS Awareness Event Mar 14

GES and EarthSoft are very pleased to host an EQuIS awareness event in Canonsburg, PA for operators in the Marcellus and Utica Shale regions. This complimentary invitation-only event will be held on March 14th, 2012 and will provide valuable insights into the powerful capabilities of this software and the intricacies of its implementation and management, including the operator’s perspective. Contact Robin Raudenbush for more information.

Value Engineering Yields Big Savings for Well Pad and Road Construction

Under the recent natural gas pricing pressures, exploration and production companies have been looking carefully at their operations to find cost efficiencies. In one recent cost-saving example, GES worked with our client to implement cost controls like design standardization for well pad and lease road construction. The operator has
realized a 40% cost savings by implementing many of these suggestions in a revision of their program for procuring and executing construction services. For GES, it was an opportunity to provide our client with a “value proposition” that will deliver real and immediate savings in operating costs.

GES field inspections identified significant issues such as, using too much fill, unnecessarily cutting into embankments/slopes, and not following pad design plans. GES met with the construction team to discuss a number of geotechnical, civil design, and construction techniques that would lower operating costs.

The following recommendations were made for future pad design and construction:

- Integrate geotechnical engineering considerations into each pad design, including soils characteristics and earth moving volumes
- Conduct a subsurface investigation for all sites with substantial topographic relief or other challenging subsurface conditions such as shallow groundwater or rock
- Develop a standard construction bid package with payment and measurement components
- Create an active bidding environment for a group of select contractors to realize the best cost efficiencies upon contract award
- Bundle several well pads in a given region to afford the lowest bid contractor some economy of scale for the costs of bid preparation and pricing
- Develop unit rates and a clear definition of all extras or contract change orders
- Utilize a competent earth science consulting firm to provide Construction Quality Assurance (CQA) to ensure construction is per the contract terms

“We are constantly challenging our project teams to find innovative ways to reduce client costs while providing quality services,” said Chuck Whisman, GES’ E&P sector leader. “We’ve even recently developed unit costs for air permitting in oil and gas plays, so that clients can realize fairly large cost savings on routine permitting tasks.”

Working Safely: Another Year in Exploration & Production With a 0.00 TRIR!

For the second consecutive year, GES’ E&P business unit (including four recently-expanded offices in PA and WV) and our subcontractors have ended 2011 with a 0.00 OSHA TRIR (total recordable incident rate). We are very proud of these statistics as much of our work throughout the Marcellus Shale includes high-risk activities performed under difficult field conditions while exposed to wildlife, biological, and other hazards. GES ended the year with a 0.26 TRIR across all business sectors throughout all 34 U.S. offices. Our Loss Prevention System (LPS) behavior-based HSSE program has been a key factor in our safety success.
AIR PERMITTING REQUIREMENTS CHANGED IN PENNSYLVANIA AND OHIO

The following bulletins detail new reporting and permitting requirements in Pennsylvania and Ohio relating to oil and gas production sites.

PADEP Update: Emissions & Source Reporting

On December 6, 2011, the Pennsylvania Department of Environmental Protection (Department) notified 99 owners and operators of unconventional natural gas development activities of the need to submit data on their facilities’ air emissions for the 2011 calendar year. The source reports for this notification are due to the Department by March 1, 2012.

As of January 27, 2012, the Department is now requiring any other owner or operator that engages in unconventional natural gas development, who did not receive the initial December 6, 2011 notice, to submit a complete source report (including emissions) for the 2011 calendar year within 60 days of notice in the PA Bulletin (January 28, 2012). In accordance with 25 Pa. Code 135.3 (c), an extension of time may be granted for reasonable cause. Otherwise, based on the above referenced announcement and the official notification published in the PA Bulletin on January 28, 2012 (Vol. 42, No. 4), all “non-notified” owners and operators of unconventional gas development activities will need to submit source reports by March 28, 2012.

The following sources are now subject to reporting requirements:

- Compressor stations;
- Dehydration units;
- Drill rigs;
- Fugitives (such as connectors, flanges, pump lines, pump seals, and valves);
- Heaters;
- Pneumatic controllers and pumps;
- Stationary engines;
- Tanks;
- Pressurized vessels and impoundments;
- Venting and blow down systems;
- Well heads and completions.

Moving forward, source reports and annual emissions inventories will be due to the Department by March 1 each year. GES is currently working with some of our clients to develop comprehensive reports to satisfy Department requirements. For additional information on the requirements of the
Ohio EPA Issues Final Air General Permit for Oil and Natural Gas Production Well Sites

On February 1, 2012, the Ohio Environmental Protection Agency (Ohio EPA) issued a final general permit to cover oil and gas well-site production operations. General Permit 12 (GP 12) is unlike existing general permits issued by Ohio EPA in that it will address multiple air contaminant sources under a single permit. GP 12 will apply to non-Title V facilities and facilities classified as an area source for hazardous air pollutants (HAPs).

The following air contaminant sources are regulated under a GP 12 permit application:

- Glycol dehydration units;
- Internal combustion engines;
- Storage tanks;
- Loading racks;
- Flares;
- Combustion devices; and
- Equipment leaks.

The general permit requirements for oil and gas well site production operations will require that VOC emissions are controlled. A single flare, multiple flares or a combination of condensers and flares can be used to control VOC emissions from the glycol dehydration units and flash tank equipment. Triethylene glycol dehydration units will be required to meet requirements under 40 CFR 63 subpart HH (National Emission Standards for Hazardous Air Pollutants from Oil and Natural Gas Production Facilities).

A facility that plans to install any air contaminant source that is regulated under other General Permit requirements (OAC rule 3745-31-29) should apply for that specific general permit separately from the GP 12 application.

Air contaminant sources that are exempt or meet de minimis emissions levels will not be included in the issued general permit; however, the emissions from any exempt or de minimis emission source must be considered in the evaluation of the total potential to emit from the facility.

Ohio EPA believes that a general permit can be issued in less than four weeks from receipt of the general permit application. A permit fee of $2,300 will be required after the permit is issued.

GES has been one of the first consultants to prepare permit applications in Ohio for oil and gas well production operations. In fact, Ohio EPA has asked our clients for permission to use the permit application package prepared by GES as the basis of expectation for all operators in Ohio. For additional information on if you qualify to use or the requirements of GP 12, please contact Patrick Flynn.
GES Qualified Under Colorado’s Voluntary Baseline Groundwater Quality Sampling Program

GES has been accepted as a qualified consultant to perform field sampling under Colorado’s new voluntary Baseline Groundwater Sampling Program. This program is co-sponsored by the Colorado Oil & Gas Association (COGA) and the Colorado Department of Natural Resources.

COGA developed this program to demonstrate that drilling operations do not pose a threat to Colorado’s groundwater resources. The sampling program, the first statewide voluntary groundwater monitoring program in the nation, proactively addresses groundwater quality concerns associated with the drilling and hydraulic fracturing of oil and gas wells.

Under the program, oil and gas operators will collect data before drilling begins and within one to three years after drilling is complete for newly developed or expanded wells/pads. Sampling will be conducted at two downgradient groundwater features within a half-mile radius of the well pad. The program also outlines procedures for sample collection related to complaints of specific changes in water quality.

GES has been approved by COGA as qualified to perform sample collection for laboratory analysis. Laboratory results will be provided to the landowner within three months, and with landowner consent, sampling data will be provided to the Colorado Oil and Gas Conservation Commission (COGCC), who will manage it in their central database. This data will also be made public and posted on the COGCC’s website.

GES can provide additional related services throughout the state, including air quality services, data management and validation; GIS mapping; safety, compliance, and permitting services; waste management; and spill response.

For more information, please contact Chuck Whisman.
PADEP Issues New Requirements for Facility Emissions Reporting

Effective for Operating Year 2011

On December 6, 2011, the Pennsylvania Department of Environmental Protection (PADEP) notified 99 owners/operators of natural gas production and processing facilities in unconventional shale formations across the state that they must submit data on their facilities’ air emissions for 2011. These companies will also be required to develop a comprehensive emissions inventory for reporting purposes. Reports for the 2011 calendar year are due by March 1, 2012.

The PADEP will use this data to develop its first emissions inventory for the unconventional gas industry for reporting to the USEPA. It is expected that PADEP will use the requested data as the basis for planned State Implementation Plan (SIP) modifications.

Given that PADEP’s request comes late in the year, there is a short period for emissions reporting and a very limited time to qualify the data. Industry-specific regulations will be developed based on submitted data, regardless of its quality. PADEP has not provided concrete details on the calculation methodology to be used for establishing the new inventory, which may lead to variability in the data submitted across the industry.

These inventories are to include point sources, area sources, mobile sources and biogenic sources, and must contain sufficient information to allow PADEP to complete a full inventory of the natural gas industry for submission to the USEPA by December 2012. Reports submitted to the agency shall include general information regarding each facility including production data, hours of operation, control equipment installed, fuel usage, frac water processed, as well as emissions from the following identified sources:

- Stationary engines, including compressor engines
- Heaters
- Tanks/impoundments
- Dehydration units
- Pneumatic pumps
- Fugitive emission sources (e.g. connectors, flanges, pump seals, tanks etc)
- Venting and blowdown activities
- Drill rigs
- Well heads and well completions

For additional information on the requirements of the inventory and how it will affect you, please contact Patrick Flynn or Charles Whisman.
EPA Proposes New NSPS and NESHAP Rules for Upstream and Midstream Oil and Natural Gas Operations

Recently, the US EPA (EPA) published a proposal to establish New Source Performance Standards (NSPS) and National Emissions Standards for Hazardous Air Pollutants (NESHAPS) intended to regulate emission sources spanning upstream and midstream operations beyond current regulations. If enacted, these regulations may have material impacts for oil and natural gas exploration, production, transmission, and storage facilities across the United States.

The EPA’s proposed rules are specifically focused on comprehensively regulating VOC, SO2, and HAP emissions from non-combustion sources affiliated with the upstream and midstream oil and natural gas industry that are currently not covered by existing NSPS or MACT standards.

These regulatory actions will likely prompt state-level authorities, particularly those authorities within the Appalachian Basin, to establish a more rigorous permitting framework. We anticipate that these state agencies will not wait for the final rules to be published before making such changes. GES can assist with determining the potential impacts of the proposed rules on your operations, as well as assist with developing a compliance strategy that aligns with the new rules.

Please see the attached file for a comprehensive review of the proposed changes and what they may mean for you. For additional information, please contact Patrick Flynn or Charles Whisman.
FOCUS ON SAFETY, COMPLIANCE, LIABILITY MANAGEMENT

Effective Spill Response Can Lead to PADEP ACT 2 Release From Liability

Regulatory release of liability, or case closure, can be obtained in Pennsylvania for environmental releases. In our industry, releases may be caused by vandalism, truck accidents, tank/pond overflows, well failures, and piping and tank leaks.

Immediately following an environmental release, it is important to interface with PADEP personnel. An experienced on-site professional will assist the process by quickly developing and implementing site-specific action plans that may involve release characterization, soil and water sampling, excavation or other necessary remediation procedures, reporting, and may often have community education and monitoring components as well. Off-pad sampling may be required and may be compared to pre-drilling baseline sampling data to show that the release did not cause a change in soil, groundwater, or surface water conditions. Immediate action which follows regulatory requirements can prevent off-pad environmental impacts or further migration of the environmental release.

Over the past eighteen months, our teams in the Marcellus Shale Play (throughout our five PA and WV offices) mobilized safely and quickly to tackle oil and gas industry spills across the region. Our spill response best practices come from more than 25 years experience – including some of PA’s largest liquid petroleum spills in recent history – and an understanding of the requirements of the PA Land Recycling & Environmental Standards Act (Act 2). Proper spill response, regulatory coordination, and expedited characterization and remediation can prevent larger environmental impacts and protect corporate reputation with improved agency and community relations.

Well Pad Inspections for Safety, Erosion Compliance

Routine performance of well pad compliance inspections and audits can help prevent environmental releases and other HSSE incidents by identifying potential environmental liabilities and health and safety concerns before incidents occur. Audits bring a fresh set of trained eyes to help protect workers and the environment. Observations are often used to provide data for contractor scorecard evaluations, and may be used as a basis for necessary HSSE training to help contractors learn from the valuable feedback we’ve obtained. Audit tasks typically include a detailed walk-through of the well pad, interviews with personnel, review of pertinent documents, and completion of a comprehensive audit checklist. Using our licensed Loss Prevention System (LPS) behavior-based HSSE management system, we can also complete a Near Loss Investigation of each recognized hazard to identify the root cause and work with our client to develop an effective solution. The lessons learned from these investigations and audits are an effective mechanism to improve or develop existing or new guidance and requirements. They also allow for a
documented follow-up to ensure that the root cause of the hazard is addressed.

Erosion and sediment (E&S) control audits, which may be combined with an HSSE audit, help to ensure that E&S controls are in place and functioning as required by regulations and as outlined in site-specific permits and/or plans. Field inspections can also be used for the development of as-built drawings and plans, including well head piping and instrumentation diagrams (P&IDs) and site plans.

**Remote Monitoring of Air and Water Data Aids Sampling and Monitoring Efforts**

GES has been designing and installing remote monitoring equipment to log continuous real-time measurements of water (surface water and groundwater) and air (atmospheric and subsurface) parameters using custom built controls that are internet accessible. Real-time monitoring can be very effective for enhanced baseline sampling data (to show seasonal/weather variations or fluctuations from residential well pump cycling), as well as complaint or stray gas incident sites (such as continuous real-time LEL monitoring in dwellings). Our next E&P update will discuss real-time monitoring in much more detail.

**Save the Date: GES to Host HSSE Forum Oct 5**

GES is very pleased to host a Health, Safety, Security, and Environment (HSSE) forum in Canonsburg, PA for operators in the Marcellus Shale region. The agenda will address many of the challenges faced today and help achieve our common goals for safety and environmental and compliance, safe field operations, and effective subcontractor management.

This complimentary invitation-only forum will include a variety of presentations to educate, identify solutions, and present best practices. The program will incorporate lessons learned from our experience with Fortune 500 oil and gas companies with extensive HSSE, integrity management, and operations management programs.

We look forward to receiving your input on and questions on planned topics, to include:

- Improving Subcontractor Competency and Safety
- Developing HSSE, Operations, and Integrity Management Programs
- Spills and Emergency Responses (including Closure and Spill Prevention)
- Well Pad Inspections and Audits
- Fleet Vehicle Safety and Monitoring Programs
- Remote Monitoring
- Well Pad Security

Please email Chuck Whisman with questions or comments. More info to come! Assisting our clients with a behavior based LPS-licensed HSSE program, GES has not had a lost-time injury since March 2004 (with more than 10 million hours worked) and has a year-to-date TRIR of 0.00.
GES Opens New Offices in Marcellus Shale Play

GES is pleased to announce the opening of two new offices dedicated to supporting the oil & gas E&P industry. Our Williamsport PA office (GES’ fourth office in the state) opened in November 2010 and the Fairmont WV office opened in January 2011.

The offices are currently home to 60 field technicians, engineers, and environmental professionals providing environmental engineering, consulting, and support services to our clients. Staff members geared up by completing rigorous orientation and training, and are now in full swing performing field services such as baseline sampling, waste management, engineering/geology support, and emergency response services. We’ve also added staff to our Altoona and Pittsburgh-area offices to handle our clients’ needs for baseline sampling, waste management, engineering and geological consulting, and emergency response services. Read about our impact on the PA economy in Tales from the Shale Rush in the Williamsport Sun-Gazette.

Aquifer Study for Natural Gas Storage Underway in Michigan

GES’ Michigan office is performing an evaluation to support potential development of an underground salt cavern for natural gas storage for a pipeline company. The availability of sufficient volumes of water for solution mining of subsurface salt formations is a critical component for a viable strategy. The GES team is evaluating critical aquifer characteristics to make the final water source determination for the targeted bedrock units. Characteristics of import include depth, thickness, extent, volume, sustainable yield, and salinity. Findings will be used to prepare: a preliminary conceptual site model of the region; a work plan to assess bedrock water quality and hydraulic properties; iso-concentrations of salinity, TDS, and conductivity; and iso-pach and potentiometric maps. Subsurface cross-sections will illustrate the distributions of the targeted water-bearing units.

GES Evaluates Pilot Study for Gulf of Mexico Oil Spill

GES conducted an evaluation of a 14-day field pilot study performed to determine the feasibility of recycling oil sorbent booms used in the Gulf of Mexico during the Macondo oil spill. Literally miles of sorbent boom that had been in the Gulf was recovered and staged at a Mississippi shore base.

The field trial was completed and GES reviewed and documented the sorbent through-put over the course of 14 days, identified any inefficiencies, performed a cost-benefit analysis and evaluated the scale-up potential and associated cost to process remaining sorbent materials.
The process, performed by Mobile Fluid Recovery, Inc., utilized a patented centrifuging process that could potentially reduce the environmental footprint of the clean-up efforts by removing the crude oil and salt water from the sorbent materials, enabling the material to be transported to plastic recycling facilities as an alternative to final deposition in a landfill. The plastic recycling facilities densify and compound the material into an injection moldable polypropylene resin. Upon completion of the process, the resin can be blended into other end use options (i.e. boardwalks, picnic tables, park benches) or used to create automotive products (i.e. packaging pallets, containers and vehicle components).

Closure Pending at On-Shore Crude Oil Spill in Mississippi

GES recently completed an aggressive chemical oxidation remediation project at the site of a large crude oil spill.

The 336,000-gallon spill, which occurred in 1999 as the result of a pipeline release, had impacted over 55 miles of shoreline with oil flowing overland and into a local river. After 11 years of response and remediation activities (and a cost over $20 million) contaminant concentrations were still well above cleanup levels across the spill area.

GES applied chemical oxidation to the site using both short-term HypeAir and continuous-operation HypeAir-EX technologies over a 10-week period. The project was completed for less than $160,000, and resulted in a 99% decrease in benzene and 80% decrease of total diesel range organics. More than 1,300 pounds of ozone and 4,400 gallons of 17.5% hydrogen peroxide solution were injected. The Mississippi DEQ has indicated that the site would receive closure following well abandonment activities.

Whitetail Natural Gas Services

Whitetail Natural Gas Services, LLC was formed by GES in 2010 to support the midstream natural gas sector with engineering and technical support services. Whitetail offers a comprehensive life-cycle approach, assisting clients from the initial conception to implementation re-evaluation, and divestiture. This is made possible by the long and diverse experience of Whitetail’s leaders, each of whom has more than 30 years in the natural gas industry. Richard Bohr and Doug Stearns have the knowledge that comes from hands-on experience combined with executive-level management expertise. Richard was recently named vice-chair of the Gas Use Committee of the Marcellus Shale Coalition.

Whitetail, a member of the American Gas Association, will be exhibiting at the Marcellus Midstream event in Pittsburgh on March 21-23.

Announcing Natural Gas Vehicles Initiative

GES and Whitetail are sponsoring a private-public collaboration to lead the development of a sustainable transportation program that promises great economic and environmental benefits to the citizens of Pennsylvania. The session will bring together a select group of stakeholders and experts in the field: representatives from the statehouse, governor’s office, and transportation agencies; natural gas producers, fuel distributors, and automakers; and interested parties from academia and policy organizations. The session will focus on the opportunities and challenges in developing a statewide NGV system and will culminate in an action plan.