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**COAL SEAM GAS:
THE NEXT SHALE GAS REVOLUTION?**

REMINDER

The 56th Coalbed Methane Forum will be held on Tuesday May 17, 2016 at the Hilton Garden Inn at Southpointe near Canonsburg PA. Presentations will cover international and domestic coal seam gas activities; impact of EPA regulations on electricity costs; use of shale gas technologies for coal seam gas developments and implications of the Paris agreement on climate change. Luncheon keynote speaker will be Mr. Chris Hamilton of West Virginia Coal Association. For full presentation agenda and registration information, please contact Dr. Kashy Aminian at 304-293-3964 (kaminian@wvu.edu). For forum sponsorship information, please contact Ms. Beth De Maagd at 412-389-8467 or e-mail at demaagdconsulting@gmail.com.

NATURAL GAS TO BE TOP ELECTRICITY GENERATOR IN 2016

Natural gas will power a larger share of electricity generation in 2016 in the United States. The latest short term outlook from the US Energy Information Agency, expects gas to fire 33.4 percent of electricity this year compared to 32 percent for coal. Between 2000 and 2008 coal supplied about 50 percent of the total power generation. However, beginning in 2003, due to the large amounts of natural gas produced from shale formations, the gap between coal and gas narrowed and finally in 2016 natural gas is expected to surpass coal in mix of fuel used for us power generation. The expected share of the other sources is expected to be as follows: nuclear – 19 percent; renewables (non-hydro) – 8 percent; hydro – 6 percent and all others - about 1 percent (Pittsburgh Tribune Review March 9, 2016 p. B8, 9)

World-wide energy consumption is expected to increase by 34 percent by 2035 due to the expected growth in the world economy as well as rising global population. Fossil fuels will remain the dominant source of energy powering the global economy. Demand for natural gas will grow by 1.8 percent per year making it the fastest growing fossil fuel. Oil is projected to grow steadily at 0.9 percent per annum. In contrast, coal demand is projected to slow sharply at 0.5 percent per year as compared with almost 3 percent for the past 20 years. Renewables (including biofuels) will grow rapidly at 6.6 percent per annum, rising from 3 percent today to about 9 percent in 2035. Both hydro and nuclear energy are projected to increase steadily, growing at 1.8 and 1.9 percent per annum respectively. (BP Energy Outlook to 2035).

GLOBAL RESOURCES OF COAL SEAM GAS

Coal is the most abundant fossil fuel in the world today, and wherever you have coal you have coal seam gas. Total proven coal reserves exceed one trillion tons. It is mined in sixty countries around the world that produce nearly 8000 million tons of coal per year. The global resources of the coal seam gas are estimated to be 35,000 TCF as compared to US natural gas resources of about 2515 TCF. These coal seam gas resources can be developed using the technology currently used to produce natural gas from shales. The argument that fossil fuels reserves will soon run out, is moot. The potential of shale gas and coal seam gas, both in the United States, and worldwide, is unlimited. (US information Potential Gas Committee)

LIQUIFIED NATURAL GAS (LNG): GREATER ROLE IS MEETING WORLD'S ENERGY NEEDS

With the projected demand for natural gas to grow at 1.8 percent per year, liquefied natural gas (LNG), the means by which natural gas is shipped across the world's oceans, will play a major role in meeting the demand. Global supply is expected to increase by more than one-third over the next five years, from 247 metric tons (Mt) in 2015 to 356 Mt in 2020. Much of the new supply will come from Australia and the United States, which are now poised to join the current leading producer, Qatar, to comprise the new Big Three of LNG by decade's end. It is envisioned by the natural gas producers, that the fuel will become a global commodity like crude oil with development of regional LNG trading hubs in their own rules as so that LNG can assume a greater role in meeting the world's energy needs. (The Wall Street Journal Feb. 24, 2016 p. A8)

Of interest to quarterly readers, some of the Australian LNG projects use coal seam gas (CSG) as feed. The Gladstone LNG plant on the east coast of Australia is supplied from CSG fields developed over the past six years by Santos, LTD Total SA and Kogas. Two other coal seam gas LNG projects also have started on the east coast of Australia. Conoco Phillips and Origin Energy LTD; and Britain's BG Group PLC and Royal Dutch Shell PLC. Overall, there is a large amount of coal seam gas currently in Australia which can be used a model for global coal seam gas development. (Personal Communications, Santos LTD)

US COAL TECHNOLOGIES MAY BE USED IN CHINA

It is possible, even likely, that some of the US clean coal technologies being developed at the National Energy Technology Laboratory may be tested in China, since China is building new coal powered plants, whereas, US is not. China has not only surpassed the US in coal production and consumption, it has a more diverse portfolio in coal uses than US, where 90 percent is used for electric power generation. In China, a coal power plant built in a city combines power generation with steam production for a local heating system. Another plant is considering buying technology developed in US to convert coal into synthetic gas, the first step in converting coal into chemicals. (The Pittsburgh Post Gazette, March 15, 2016 p. 1, 2).

SUSTAINING SOURCES OF METHANE

Duke Energy is expanding its investment in renewable energy from livestock waste. The company has contracted with Carbon Cycle Energy to build and own a North Carolina plant that collects methane from pig and chicken waste; for enough refined gas for Duke Energy to generate electricity to power about 10,000 homes a year. The company already is using methane from smaller projects in North Carolina. (New York Times Mar. 22, 2016 p. B2)

PUBLICATION OF INTEREST

"The Green and the Black" by Gary Sernovitz (St. Martin's; 280 pages)

The Complete Story of the Shale Revolution, the Fight over Fracking, and the Future of Energy.

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