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## **HONORARY LIFE MEMBERS**

C. W. Byrer  
D. Uhrin

Spring is a time of renewal – crocus and daffodils have bloomed, hardwoods are budding, and many of us are busy placing ferns on the porch alongside colorful annuals. It is therefore timely, that **renewal** provides the theme for this quarter's news. Highlights of the Forum's annual conference and Board meeting are re-capped followed by a very positive summary of coal production/exports. Recent projections of natural gas/CBM production and updates of proved reserves are also presented. The newsletter closes with a measured introduction of the history of CBM development in the Powder River Basin. "Measured" is appropriate – like applying fertilizer sparingly to delicate sprouts at this time of year.

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## **NACBM FORUM HOLDS ITS 58<sup>TH</sup> SESSION**

The Forum held its annual session on Wednesday April 18, 2018 at the Hilton Garden Inn at Southpointe, Canonsburg PA. The session consisted of the following presentations:

1. Current legal/regulations affecting the coal/CBM industries
2. Worldwide and U.S. CBM/CMM activities
3. Applying shale completion techniques to deep coals
4. Rare earth recovery from acid mine drainage
5. Rare earth elements in coals
6. CBM and CMM recovery and utilization in 21<sup>st</sup> century
7. Production decline from horizontal wells
8. U.S. natural gas environmental profile
9. Longwall ventilation investigations

The luncheon keynote speaker was Mr. Michael Carey of Murray Energy Corporation. Mr. Carey professionally delivered contemporary information regarding coal production, policies/regulation, and the future for coal.

## **NACBM FORUM CONVENES ITS ANNUAL MEETING**

The Forum held its annual meeting on Wednesday April 18, 2018 at the Hilton Garden Inn. Board members heard reports from the President, Dr. Pramod Thakur, and Vice-President/Treasurer, Dr. Kashy Aminian. Dr. Thakur reported that coal production was up last year and has stabilized at about 790 million tons. Exports in 2017 were also up and the overseas demand is expected to remain strong in the future. He pledged that the mission of the Forum, mine safety and production of coal seam gas, will remain unchanged. Subsequently, the Forum elected its Board of Directors and corporate officers for the upcoming year. Elected to the Board were: C. Eckert, J. D'Amico, B. De Maagd, J. R. Duda, G. Kozera, M. Mosser, J. Reilly, G. Rodvelt, F. Ruiz, S. Schatzel and K. White.

Elected as honorary life members were Charles W. Byrer and David Uhrin, both *founding fathers* of the Forum. Re-elected as officers of the corporation were Dr. Pramod Thakur – President; Dr. Kashy Aminian – Vice-President/Treasurer and Mr. Ihor Havryluk – Secretary.

### **2018 SPRING SESSION CLOSING REMARKS**

Mr. Ihor Havryluk, Secretary, and a founding member of the Forum, presented closing remarks at the spring session.

To wit –

As we heard earlier today, the coalbed methane/coalmine methane activity in the U.S. is relatively low. This can be attributed mainly to the development of shale gas. What is encouraging however, is the development of coal seam gas overseas, such as in Australia, China, Kazakhstan and other countries. The coal seam gas/coalbed methane resource is very large and estimated to be between 15,000 and 30,000 Tcf. Moreover, the technology that is currently used to produce shale gas can be used to produce coal seam gas.

In the Appalachian Basin, Consol Energy split into a natural gas company, CNX Resources, and a coal company, Consol Energy Inc. in November 2017. According to the gas company's annual report, the company holds 530,000 net acres in the Marcellus shale and about 652,000 net acres in the Utica shale. The company also has 2.2 million acres in the region's coalbed methane/coal seam gas play. Do you think the gas company is going to run out of natural gas in the near future?

The natural gas company, CNX Resources, started out as a coalbed methane producer to make its underground mines safer to produce coal and to generate additional revenue developing natural gas. This is consistent with Jim Walter Resources operations in the Warrior Basin of Alabama. It is my opinion that the Forum was instrumental in the start of the natural gas company and its continued growth. So, keep the faith!

### **COAL EXPORTS UP SIGNIFICANTLY**

The U.S. Energy Information Administration reported in its brief, *Today in Energy*, that U.S. coal exports were 97 million short tons during 2017. That tonnage reflects a 61% increase in coal exports – a significant jump – from the 2016 level. Europe is the largest recipient for U.S. coal although exports to Asia more than doubled in 2017 to 32.8 million short tons. Steam coal accounted for most of the increase in 2017 exports. India, South Korea, and Japan were three of the top five recipients of U.S. steam coal exports in 2017. India, the largest importer of steam coal from the United States, imported 7.6 million short tons from the United States in 2017 mainly to fuel growing electricity capacity in the country. Although India produces enough coal to meet most of its domestic needs, a substantial portion of India's new coal-fired power plants require coal with higher quality and energy content than the coal that is typically produced in India, resulting in these power plants having to import coal from elsewhere. Transportation costs also factor into U.S. operators' [financial] decisions of whether to ship coal to Asia. More than 60% of U.S. coal exports to Asia originate from Norfolk, Virginia, and Baltimore, Maryland, and requiring a journey of up to 45 days. *Today in Energy* (April 19, 2018) can be accessed at <https://www.eia.gov/todayinenergy/detail.php?id=35852> .

### **EIA's ANNUAL ENERGY OUTLOOK**

The U.S. Energy Information Administration (EIA) released its *Annual Energy Outlook 2018* (full report) in February 2018. <https://www.eia.gov/outlooks/aeo/> The Outlook provides modeled projections of domestic energy markets through 2050, and it includes cases with different assumptions regarding macroeconomic growth, world oil prices, technological progress, and energy policies. Energy market projections are subject to much uncertainty, as many of the events that shape energy markets and future developments in technologies, demographics, and resources cannot be foreseen with certainty. As such, it is imperative that readers understand that projections in the *Annual Energy Outlook 2018* (AEO2018) are not predictions of what will happen, but rather modeled projections of what may happen given certain assumptions and methodologies.

In the AEO2018 reference case, (dry) natural gas production is projected to increase from over 27 Tcf in 2017 to nearly 43 Tcf in 2050. The 16 Tcf increase over the study period represents an annual growth rate of 1.4 percent. As one would expect, the increase is basically attributable to the drilling of shale gas and tight oil plays. Through 2050, coalbed methane production is projected to decrease from nearly 1 Tcf/year (2017) to 500 Bcf in 2050 (Table A-14). Total coal production is modeled with a resultant 0.1 percent/year decrease yielding a tonnage of 747 million short tons in 2050. Noteworthy, coal production east of the Mississippi River is projected to increase by 0.3%/yr over the period of interest (Table A-15).

The 2018 EIA Energy Conference is scheduled for June 4-5, 2018 at the Washington Hilton, Washington DC. The conference complements release of the *Annual Energy Outlook* and details of the 2-day event, including registration, are available at <http://wxq47w.attendify.io/>.

### **CBM PROVED RESERVES UPDATED**

*U.S. Crude Oil and Natural Gas Proved Reserves, Year-end 2016* was released by the U.S. Energy Information Administration in February 2018. <https://www.eia.gov/naturalgas/crudeoilreserves/> In 2016, U.S. total natural gas proved reserves increased from 324.3 trillion cubic feet (Tcf) to 341.1 Tcf. The incremental 16.8 Tcf represents a 5% increase in reserves. Proved reserves of coalbed methane (aka coalbed natural gas) totaled 10.6 Tcf in 2016, reflecting a 15% drop (1.9 Tcf) from year-end 2015. States with the highest volumes of CBM proved reserves are Colorado followed by New Mexico and Virginia, respectively. Since 2013, Virginia has experienced a 53% increase in proved reserves --- to 2.12 Tcf at year-end 2016. State level data are published as Table 15 in the report listed above.

*Proved reserves* are estimated volumes of hydrocarbon resources that analysis of geologic and engineering data demonstrates with reasonable certainty (assumes a probability of recovery of 90% or greater) are recoverable under existing economic and operating conditions. Reserves estimates change from year to year as new discoveries are made, as existing fields are thoroughly appraised, as existing reserves are produced, as prices and costs change, and technologies evolve.

### **UPS AND DOWNS OF CBM IN THE POWDER RIVER BASIN**

Though originally published in 2015, it is worthwhile highlighting Dustin Bleizeffer's saga of coalbed methane development in the Powder River Basin (PRB). Bleizeffer's work, titled *Coal-bed Methane: Boom, bust and hard lessons*, is available at <https://www.wyofile.com/coal-bed-methane-boom-bust-and-hard-lesson/>. The story begins with "Today Wyoming's coal-bed methane gas play in the Powder River Basin is a bust. Few of the 24,000 wells drilled during the heyday..." That's as much as you'll get here so as to not steal Dustin's thunder nor spoil the read. The well and production data behind Dustin's compelling account of CBM development in the PRB are available at <http://wogcc.state.wy.us/coalbedchart.cfm>.

### **FORUM'S MISSION STATEMENT**

**THE NORTH AMERICAN COALBED METHANE FORUM WAS ESTABLISHED IN 1985 TO ADVANCE MINE SAFETY AND TO INCREASE PRODUCTION OF COALBED METHANE AS A WORLD-WIDE ENERGY RESOURCE. THE FORUM PROVIDES AN OPPORTUNITY FOR AN EXCHANGE OF INFORMATION ON COALBED METHANE RESEARCH AND TECHNOLOGY BETWEEN THE PUBLIC AND PRIVATE INDUSTRY SECTORS.**