



# Billings Refinery

November 19, 2013

Dear Council Member:

The minutes from our October 8, 2013 CAC meeting are attached. I apologize for not getting them to you before our November 12 meeting.

Please note that the minutes from our November 12 meeting will be forthcoming.

The next CAC meeting will be on **TUESDAY, DECEMBER 10, 2013** at the Phillips 66 Learning Center, our usual location. Dinner will be served from 5:00 to 5:30 and the meeting will run from 5:30 to 7:30 p.m.

Sincerely,

Ann L. Clancy, Ph.D.  
Meeting Facilitator  
Meeting Facilitator

**Meeting Location: ConocoPhillips Learning Center  
415 South 24<sup>th</sup> Street**

**PHILLIPS 66 BILLINGS REFINERY  
CITIZENS ADVISORY COUNCIL  
October 8, 2013**

**MEETING MINUTES**

- Present:** Council members: Ken Ard, Keith Beartusk, Bob Carr, Paul Miller, Mark Pagano, John Pulasky, Jim Ronquillo, Emily Schaffer, Andrew Sullivan, Dolores Terpstra, Michele Zahn, Stella Ziegler  
Phillips 66 management: Colin Franks, Randall Richert  
Facilitator: Ann Clancy
- Absent:** Steve Arveschoug, Paul Dextras, Ralph Hanser, Mark Hilbert, Lance Johnson, Joshua Juarez, Shirley McDermott, Julian Stoll
- Guests:** Melanie Schwartz, Member Investor Director, Big Sky Economic Development  
Eileen Morris, Ziggy Ziegler  
Process Plant Technology Students: Nate Christiansen, Luke Hill, Joseph Wyatt, Connor Gregg, Andrew Zawislawski, Dan Johnson,

**AGENDA**

- Welcome/Introductions
- Energy Sector Discussion Panel
- Refinery Update
- Next Meeting: November 12, Transportation Panel Discussion

**WELCOME/INTRODUCTIONS**

Guests were welcomed and CAC members introduced themselves. Six students from the City College Process Plant Technology program attended as well as two guests, Eileen Morris and Ziggy Ziegler, of two CAC members,

Ann Clancy provided background on how the energy sector panel discussion was developed. It began as an activity identified in the annual CAC retreat session held in January 2013 to develop a CAC meeting focused on energy with representatives from different aspects of the industry. A team was formed that was headed by Steve Arveschoug and included the following CAC members: Ken Ard, Mark Pagano, Jim Ronquillo, Colin Franks and Ann Clancy. The team met a number of times and developed a list of possible panel members as well as a theme and focus for the panel discussion.

**ENERGY SECTOR DISCUSSION PANEL**

- **Panel Theme:** How Different Sectors of the Regional Energy Industry Impact Each Other.
- **Panel Focus:** Understanding the Perspectives and Interrelationship of the Different Energy Sources in the Region.
- **Panel Moderator:** Melanie Schwartz, Member Investor Director, Big Sky Economic Development

• **Panel Members:**

- Rhyno Stichfield, Montana Wind Resources
- Doug Hansen, MDU Natural Gas
- Matt Jones, BNSF
- Brad Hanson, Signal Peak Energy (Bull Mountain Coal Company)
- Bruce MacIntyre, Keystone Pipeline
- Carl Perkins, Phillips 66 Refinery

Each of the panel members gave a short presentation on the panel theme and focus which was followed by a question/answer period.

**Renewable Energy Resources – Montana Wind Resources**

Rhyno Stichfield, CEO of Montana Wind Resources, LLC, gave a brief presentation on the demand and development of wind power across the U.S. and in Montana. He stated that nationwide the 4<sup>th</sup> quarter of 2012 saw 8,385 mw's installed (approximately 70 Judith Gaps). The total year end was 13,131 mw's and the total U.S. capacity was 60,007 mw's. During 2012, he noted that wind energy became the number one source of new U.S. electricity generating capacity, providing some 42% of all new generating capacity.

He described Montana as a leader in wind potential in the U.S., second only to Texas (currently generating 10,000 mw's) in terms of its capacity for producing 4,700 MWs. The demand for wind power is expected to grow in the following states:

California	33% by 2020
Colorado	30% by 2020
Nevada	25% by 2025
Oregon	25% by 2025
Washington	15% by 2020

While Montana is a candidate to increase its production of wind power, due to its geographic isolation it continues to be challenged with the task of transmission across long distances. In terms of unit price, Judith Gap sells wind power to Northwestern Energy for \$46.09/mw, which is less than what Colstrip sells its power for (\$62.92). Rhyno concluded that wind power is becoming competitive as an energy source, even receiving a subsidy, but it is the only one that has to be renewed.

**Natural Gas Industry – MDU Resources**

Doug Hansen, Director of the Rocky Mountain Region for MDU Resources, gave a presentation on the role of natural gas as one of the energy sectors in the region. MDU was founded in 1924 as a small electric utility serving a handful of farm communities on the border of Montana and North Dakota. The company realized early on the value of delivering a variety of services and grew a core line of businesses. Today, it is a multi-billion-dollar corporation with operations and customers across the country, headquartered in Bismarck, N.D. Since 1948, MDU stock has been traded on the New York Stock Exchange. MDU Resources operates in three major areas: regulated businesses, such as utilities and pipelines; oil and natural gas exploration and production; and construction companies.

The company's oil and gas operations are spread throughout eight states in two regions including the Rocky Mountain Region and the Mid-Continent and Gulf State regions. The Rocky Mountain Region is currently the most active area holding the majority of reserves and production.

### Exploration and Production

Fidelity Exploration & Production Company, headquartered in Denver, is responsible for natural gas and oil acquisition, exploration, development and production activities. The company has been part of MDU Resources since the late 1920s, when it was formed to produce natural gas for a company power plant. The company's legacy gas fields continue to generate revenue and Fidelity is an active player in the Bakken and other emerging oil fields like Paradox Basin in Utah and Heath Shale in central Montana.

### Regulated Businesses

MDU has provided electricity and natural gas to homeowners and commercial and industrial businesses for more than 90 years. Today, it owns four utility companies that operate in eight states and serves nearly a million customers, one of which is Montana-Dakota Utilities Co. providing natural gas and/or electric service to parts of Montana, North Dakota, South Dakota and Wyoming. The service area covers more than 168,000 square miles and serves about 355,000 customers. The regulated businesses include natural gas and electric distribution, electric power production and transmission, wind generation and landfill methane recovery.

### Pipeline and Energy Services

The company provides pipeline and energy services spread primarily through five states which includes both transmission and gathering pipeline operations (also known as "midstream" services). WBI Energy Transmission owns and operates more than 3,700 miles of natural gas transmission pipeline in Montana, North Dakota, South Dakota and Wyoming, including the largest gas pipeline system in the Bakken oil and gas area. The company also owns three underground storage fields in Montana and Wyoming that provide natural gas storage services to local distribution companies, producers, marketers and others. The company's storage field near Baker, Montana, is the largest underground storage field in North America.

### Construction Materials and Contracting

Knife River Corp. became part of MDU Resources in the 1940s. The company is one of the top 10 aggregate producers in America and is one of only three companies that remains US-owned and operated. Knife River mines aggregates and markets crushed stone, sand, gravel and related construction materials, including ready-mix concrete, cement, asphalt, liquid asphalt and other products. Knife River companies are physically located in 13 states but operate in 17 states in the central, western and southern United States, including Alaska and Hawaii. MDU Construction Services Group, Inc. designs and builds gas pipelines and electric power lines as well as expanding into utility excavation; communication; inside electrical wiring, cabling and mechanical work; fire suppression systems; the sale and distribution of electrical materials; and the manufacture and distribution of specialty equipment. This company has done design-build work on major sports arenas and Las Vegas casinos, and also sends companies into areas ravaged by storms to restore power to utility customers.

### **Rail Transportation – BNSF Railway Company**

Matt Jones, Regional Director for Public Affairs for Montana and Wyoming, presented information on how BNSF has played an important role in Montana's economy. The company is Montana's primary freight rail transporter with access to a 32,500-mile network that links Montana's industries to domestic and international markets. Montana is also part of the Great Northern Corridor which spans the northern US between the Pacific Northwest and Chicago and key southern points in Canada. BNSF moves cargo from four different economic sectors: natural resources (coal), agriculture, consumer items and industrial products. It annually moves about 57,000 carloads of wheat, barley and other agricultural products. It is the state's leading

coal hauler, moving annually more than 230,000 carloads of Montana coal to plants in 12 other states and serves 5 of the 6 top oil producing counties in Montana.

The company has major rail yards in White Fish, Havre, Glasgow, Forsyth and Billings, which is where the division headquarters are located. Matt reported that there has been a lot of activity in Montana in 2013. The company has spent \$115 million to maintain and expand infrastructure and is hiring 250 people this year. There is a major relationship between the railroad and the energy industry especially shipping coal mined from the Powder River Basin and bringing carloads of materials into Montana for developing natural gas and oil wells. He noted that the quickest growing sector is industrial products, especially crude oil from eastern Montana and western North Dakota. The company anticipates double digit growth in these areas. Matt also noted that Montana Rail Link is an important partner as it serves the refineries in the Laurel and Billings areas.

Capital commitments in 2013 include investing about \$4.1 billion in capital expansion and maintenance across its system, including acquiring new locomotives and freight cars and investing in intermodal expansion and efficiency projects. Over the past three years, BNSF has invested nearly \$360 million in Montana for capacity expansion and maintenance. Since 2010, BNSF has been instrumental in locating 41 new or expanded facilities in Montana, thereby providing more than \$80 million in investments. The combined payroll in Montana is around \$150 million. The BNSF Foundation also contributes annually to local charities.

**Coal Mining – Signal Peak Energy (Bull Mountain Mine #1)**

Brad Hanson with Signal Peak Energy, LLC has more than 37 years of experience in mining. He presented some history of Bull Mountain Mine #1 which was originally opened by the Meged family in 1970 as a surface mine but was then developed to include an underground operation. Ownership of the mine changed hands over the years until it was closed in 1993. From 1970 to 1992 about 15,000 tons of coal were mined annually. The mine reopened in 1997 and in 2005 Airlee became directly involved with the mine operation assuming financial control and also establishing new management under the name of Bull Mountain Coal Mining, Inc. The mine was purchased in 2008 by Signal Peak Energy. In 2011, a Swiss company became involved and the company is now privately owned by First Energy, Boich, and Gunvor. Its capacity is estimated at 20 million raw tons that could be mined over the next 30 years. Brad estimated the local economic impact of the mine in 2012 to be (amounts million):

<b>Production Statistics:</b>	<b>2012</b>	<b>8 Mos. 2013</b>
Raw	9,137	8,064
Clean	5,708	5,869
Sales	5,717	5,211

<b>Financial:</b>		
Real Estate Taxes	1,928	1,488
Severance Taxes	2,917	3,148
Gross Proceeds Taxes	1,829	1,974
RITT	293	315
Local Taxes/Ton sold	1.22	0.89

Labor	29,598	21,104
Benefits	9,699	6,888

Avg. Employee Count	316	331
Average Labor	\$ 124,358	\$ 126,852

The mine has its own rail spur that is 35 miles long and the company imposes environmental dust standards on the transportation of the coal by covering the loads with latex at a cost of \$16 per car sealing. Installation of the Signal Peak load out area cost \$130 million and it crosses Yellowstone and Musselshell Counties. There is an average of two trains per day with the capacity to expand to 7+ trains per day

#### How Different Sectors of Energy Industries Impact Each Other

Brad provided his perspective on how U.S. energy sources have changed over the years and how they tend to impact each other:

- Since the mid-20<sup>th</sup> century, coal use has increased as a primary energy source for electric power generation.
- Recent increases in domestic production of petroleum liquids and natural gas have prompted shifts between the uses of fossil fuels (largely from coal fired to natural gas fired power generation).
- A growing economy leads to greater electricity use, especially in developed countries where economic growth outpaces electrical growth.
- Renewable energy sources provided 14.2% of the U.S. net electrical generation during the first half of the year. During the same period in 2012, renewable energy accounted for 13.57% percent of net electrical generation. They now account for almost the same share of electrical generation (6.71%) as does hydropower (7.49%). Ten years ago non hydro renewable provided only 2.05% of net U.S. generation.
- Increased renewables are displacing both coal and natural gas.
- U.S. oil booms won't make it energy independent from the Middle East as the price of oil is truly global. If something happens to disrupt production in a major oil exporting country, the supply of crude would contract and the oil shale in Bakken wouldn't be enough to shield U.S. drivers from even more expensive gas. What protects U.S. consumers is better fuel efficiency and alternatives like wind, biofuels, natural gas and electric cars which cut oil demand.
- Increased Asian demand contributed to record level coal exports from the U.S. in March 2013. Exports included 6.3 million tons steam coal and 7.7 million tons metallurgical coal. The top 5 destinations of exported coal during March were China, Netherlands, United Kingdom, South Korea, and Brazil.
- Two things are driving the export market: America as a low cost producer and domestic demand being affected by natural gas, renewables, and EPA regulations.
- China consumes nearly as much coal as the rest of the world combined as the result of a more than 200% increase in electrical growth. China now accounts for 47% of the 8.1 billion tons global coal consumption.
- Within 4 years, China will consume more oil than U.S. and pay more for it. China will look more towards the OPEC suppliers and less to the U.S. The US is divesting Far East ownership of oil production and moving back to North America. Four years ago no one said the U.S. would be a major oil producer.

#### **Keystone Pipeline – Bruce MacIntyre**

Bruce MacIntyre, Director of Business Advocacy & Government Affairs with the Chamber of Commerce, gave an update on the status of the Keystone Pipeline. He reported that the process to see the pipeline built is now in its fifth year. When finally built, it will have a transport volume of about 830,000 barrels of crude oil a day. Bruce stated that the State Department is responsible for making recommendations to the President because of the trans-border nature of the pipeline. While pipelines are usually under the jurisdiction of the Energy Department, this

situation is considered different because a special permit is required to cross borders. The State Department has assumed responsibility for all 1200 miles of the pipeline.

Hearings were held three years ago, one in Glendive, and busloads of supporters from Billings travelled to attend the hearing. Supporters were drawn from a wide range of perspectives from union members to business owners and government officials, all supporting economic development, increased employment and reduction on oil dependence. About 300 people participated in the hearing.

In May 2013, Bruce visited Washington, D.C. on Chamber business. With the help of Senator Baucus, who is chair of the Senate Finance Committee, he and other representatives were able to meet with the Assistant Secretary of State and her staff for about 45 minutes. Her department is responsible for making evaluations and recommendations on the pipeline. About 990,000 unique comments have been recorded in the hearings that the department is now sifting through and about half of the comments are pro versus against the pipeline.

Bruce reported that the environmental community is working hard to slow the process down and is focused on concerns about the aquifer in Kansas being negatively impacted. There are 15-20 resolutions to approve related to the pipeline and he suggested that it might require a change in U.S. administration to see the pipeline move forward. President Obama is in a unique position in that two of his major support groups are labor and environmentalists, who are opposed on this issue. Bruce believes the pipeline will be built eventually which will bring in money for Montana workers. If the pipeline were not to be built, the crude oil would head west at a great loss to the rest of the country. Bruce pointed out that the environmental impact will be there no matter what the outcome. The cost to build the 1200 miles of pipeline is currently estimated at \$3 billion.

### **Phillips 66 Refinery – Impact of the Energy Sectors on the Refinery**

Carl Perkins, Billings Refinery Operations Manager, reported on the impact of the different energy sectors on refinery operations. Phillips 66 owns 13 refineries that produce about two million barrels of oil a day. The Billings refinery's capacity is at 60,000 barrels a year with 45% of that being diesel and another 40% being gasoline.

In terms of wind energy, Carl reported that Phillips 66 has a Sustainable Technologies group that is working on air and water energy projects including a possible wind farm in Texas to produce electricity for the facilities there. The three highest areas for wind production are Texas, Kansas and Montana. The company is supportive of developing alternative energies but so far there does not seem to be a high enough return in terms of cost/benefit ratios for air and water projects.

Regarding natural gas, Carl noted that most of the refinery's power grid is drawn from the local utility company. The refinery uses about \$12 million a year in electricity. Shale oil production in the Bakken and elsewhere all help the refinery as the price of natural gas has come down. When the Bakken began producing sweet crude oil and natural gas, ConocoPhillips shut down a lot of its drilling and went to shale drilling. The refinery purchases enough natural gas to heat 44,000 homes a year.

Montana Rail Link (MRL) supports and supplies the refinery. Ten rail cars of petroleum coke are moved from the refinery by rail as well as clarified heavy oil used to make tires. The refinery also uses rail to ship butane. MRL supports the Jupiter plant as well. The refinery ships petroleum coke by rail to the west coast to be sent overseas. Phillips 66 is looking at petroleum

coke opportunities, such as combining petroleum coke with wood processing to make pellets to use as a fuel.

The Billings refinery will compete somewhat with the new Dakota Prairie Refinery project being constructed by MDU Resources. The refinery will operate a 20,000 barrel per day topping plant in southwestern North Dakota to process Bakken crude and the diesel produced will be marketed with the Bakken region.

Phillips 66 is a great supporter of the Keystone Pipeline as a way to support energy independence for the country. The company prefers to have Canadian oil come to the U.S. to be processed in the Gulf Coast rather than be sent overseas. Right now, Canadian crude oil is relatively cheap and abundant for U.S. refineries in this area. After the pipeline is built, the regional refineries will have to compete. Once the pipeline is operational, the Billings refinery expects the cost of crude oil to increase by \$3 to 5 a barrel and that the refinery will make less money.

### **CAC Member Questions/Answers**

The following CAC member questions/comments were recorded:

- *In moving coal product by rail, is it a common practice that Bull Mountain engages in the environmental technology of covering coal dust?* No it is not. It is a requirement of Burlington Northern however.
- *How is the dust identified?* BNSF has identified coal dust in certain locales, such as Powder River Basin around its busiest loading facilities. The rail company has seen dust accumulate in the ballast of the tracks which can destabilize the tracks. It was identified as a problem and a rule was proposed to the appropriate regulatory body. Many shippers have complied but not all. The regulation has not yet been approved by the Surface Transport Board.
- *Any advancements in technology for wind energy since it cannot be relied upon as a consistent energy source?* New technology is emerging in the area of large scale storage of the power in batteries about the size of 40 shipping containers. Another advancement is to spread the energy out over an area. It is an industry given that wind energy cannot provide 100% capacity.
- *What is the methane gas partnership with the city and MDU Resources?* There was a problem with leakage of methane gas out of the landfill and how to mitigate it or capture it. MDU built a gas extraction process facility which has been a great win for the city, less so for the company. It is complex to lay in wells and horizontal tubes to capture the gas.
- *What is the average wage for workers at Bull Mountain?* The future looks good for students who wish to go into this industry.
- *What about MDU jobs?* There are postings all over the U.S. especially for technical people.
- *What jobs in refining?* Demographics of the workforce are shifting and the Billings refinery is now hiring new operators at about 15 per year as well as more maintenance personnel. Turnover at the refinery is about 20 jobs per year.
- *What about jobs in the other areas?* Knife River has a large portfolio of projects coming up which will need construction workers. The job outlook at BNSF is promising as the U.S. has become the breadbasket of the world and the rail company is moving a lot of wheat. It will also continue to be moving coal, especially with opportunities for exporting up to 100 million tons. Rail companies also move industrial products and support the Bakken area.



- *Any technology transformations expected in the energy sectors?* Lower natural gas prices will help produce more fertilizer in the Midwest and more people are consuming more goods. Some of the largest rail customers are now trucking companies. Since the recession, the domestic intermodal has been very strong. In terms of rail, it was at peak volume in 2006 and BNSF is at about 80% of that so far in 2013.
- *How much does a train engine cost?* Not sure.
- *For Bull Mountain Coal Company, how thick are the coal seams?* The thickest upper seam is between 9-17 feet; 500 feet below is another seam at 8 feet.
- *In the U.K. and Europe, they sell more diesel than gasoline. Do you see that trend coming here?* Diesel has the most energy per gallon and the most miles per gallon. Not sure if that trend will come to the U.S. Europe has a tax structure which favors diesel.
- *Do all coal trains have to come back empty?* There are dedicated cars for coal because it is uneconomical to clean them out. There would need to be another product that could be set in coal dust which hasn't currently been identified.
- *How many train cars are turned around?* BNSF has 1500 trains on its system overall. Coal is a significant piece of that business and half of them return empty.
- *How many gallons of fuel does a locomotive carry?* Think it's 5,000.
- *There are rumors of more trains coming through Billings. Is that true?* We have no projection for Billings but we do project a steady growth of 15-20%. MRL may be increasing their number of trains.
- *What's the coal tonnage of a train unit?* 15,000.
- *If Otter Creek is developed, what are the projections?* There would be peak production of 20 million tons per year. BNSF has stepped up to invest in this as well as MRL.
- *What are the elephants in the room regarding global warming?* For the refinery, emissions have different levels. There is a Sustainable Technology group in Phillips 66 trying to minimize the refinery's footprint and one option may be biodiesels.

## **REFINERY UPDATE**

**Safety:** There was one eye injury in August that was a reportable. Otherwise the safety record has been good in 2013.

**Environmental:** There have been four recordable events so far this year. Last week there was a mechanical failure which caused too much H<sub>2</sub>S in the system. A permit to reduce the level of arsenic in the waste water treatment discharge should be finalized by May of 2014.

**Operations:** The plant is running well now. There were some reliability issues in the first six months but those have been addressed.

## **NEXT MEETING: November 12, 2013**

- Welcome/Introductions
- Energy Sector Discussion Panel
- Refinery Update
- Next Meeting Agenda: December 10