Oil and Natural Gas Industry 2019 and Beyond

By: Tammy Watkins Cody

Cody Bannister from OPA-OKOGA, which was previously known as OIPA, spoke at our March meeting. In 2018 Oklahoma Oil & Gas Association (OKOGA) and the Oklahoma Independent Petroleum Association (OIPA) merged. This merger created the largest statewide oil and gas advocacy organization in the United States, representing more than 1,300 companies. With OIPA-OKOGA joining forces they have created a unified voice in highlighting the positive impact the Oil and Natural Gas Industry is having on the State of Oklahoma.

The positive impact from the Oil and Natural Gas Industry within the State of Oklahoma are as follows:

- Oil and Gas jobs are ranked #1 in Oklahoma in pay and job availability.
- $1 out of every $3 spent in Oklahoma comes from the Oil and Natural Gas Industry.
- 1 out of every 6 jobs in Oklahoma is tied to the Oil and Natural Gas Industry (half of all non-farm employment earnings).
- 25% of all taxes paid in Oklahoma come from the Oil and Natural Gas Industry (Gross Total Production, Income Tax, Corporate Taxes, Motor Vehicle Taxes, ETC.).

Not only is the Oil and Natural Gas Industry having a positive economic impact in Oklahoma, it is also creating a change in the way the industry as a whole is functioning. In 2005 marginal wells produced 29% of the U.S. domestic oil but 85% of the oil production in Oklahoma. These statistics were great for Oklahoma, but then add the Horizontal Drilling factor and it helped Oklahoma even more. Horizontal drilling changed the face of Oklahoma’s oil and natural gas industry, opening new areas to exploration and production and breathing new life into the state’s historic oil and natural gas fields. Today, production from horizontal wells in what were once deemed “unconventional” formations now account for 90% of the oil production in Oklahoma even though marginal well production has remained relatively consistent. The formations that have made these wells valuable come from the production growth primarily from exploration in Oklahoma’s SCOOP, STACK and Merge plays, some of
From the Editor,

April and Spring bring Regional meetings to the Association. Central will be the first to hold their meeting, and the remaining three will all fall on the same weekend. Have you signed up for your Region’s meeting? Have you ever attended another Region’s meeting? When we had 7 or 8 Regions, you could really see the diversity of ADDC. I’m curious to see what impact the reorganization will have on that diversity. I’m sure some differences will remain.

In this issue you will find the 5 proposed bylaw amendments. Please read each carefully and discuss them in your club. If you have questions, ask. If you believe that an amendment needs to be corrected, or revised, you have the ability to propose an amendment to the amendment. Your club Parliamentarian can help you understand how that may be done.

You may have noticed that the ADDC website went down for a while. This was something that fell through the cracks during the transition from employing an ADO Manager to using a management firm. It has since been corrected, the sight is back up, and the management company is in the process of updating the website. Contact a board member if you have any questions or concerns.

As last month I promised to finally ask for company support. It sounds like an excuse, but we didn’t have a meeting, so I didn’t ask. Maybe I’m just a chicken, but I want to find the perfect opportunity. My fear is if I pick the wrong moment, I will be shot down. But I will ask, at least then I can say I tried. Updates to come.

Until next month,

Maggi Franks
April 2019

This past month has been a very busy one. There has been a lot of planning going on to host the regional meetings. As far as the regions are concerned, we open a new chapter this year with having the four new regions as opposed to seven. You don’t want to miss out on attending the very first meeting of your new region. Also, consider attending another regional meeting besides your own; it is the perfect opportunity to meet new people and gain “greater knowledge” so that you may provide “greater service”.

All of the club presidents have received the proposed amendments. There are five proposed bylaw amendments and five proposed standing rules amendments. You will have the opportunity to discuss these at Open Forum at your region meetings as well as at your regular monthly meetings. Come to Convention informed and educated so the best decisions can be made for our Association.

Remember that all clubs must submit a TAXE-1 form to Bonnie Fish, bfishepa@suddenlink.net, Tax Exempt chairman. Deadline to submit the form is May 15, 2019.

It is also time to think about where you are now and where you want to be next year. Your club president has received the nominating information from the Nominating Committee chairman, Linda Rodgers. The deadline for nominations to the ADDC Board is June 7, 2019. We have so many talented members who are more than qualified to be a part of the ADDC Board. Be courageous -- take that next step.

We did get the ADO moved this last month to our new management company, Charity Rising, in Paris, Texas. They are in the process of updating and getting all of our current information on the website. This is quite a task; please be patient. I am very excited about this new direction for our Association and I hope you are as well.

Upcoming Events:

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<tr>
<th>Region Meeting</th>
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<td>Central Region Meeting</td>
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<td>Northeast Region Meeting</td>
<td>North Canton, OH</td>
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<td>Southeast Region Meeting</td>
<td>Victoria, TX</td>
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<tr>
<td>West Region Meeting</td>
<td>Pampa, TX</td>
<td>April 26-27</td>
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68th Annual ADDC Convention

September 25-28, 2019

Kansas City, Missouri

Marriott Kansas City Country Club Plaza

More information on the convention will be forthcoming as we are in the process of finalizing the plans.

Terry Ligon

Remember – Your attitude determines your direction.
(continued from page 1)

the most attractive oil and natural gas plays in the nation.

The importance on the Oil and Natural Gas Industry is also effecting Energy Exports, another benefit to Oklahoma. In 2015, the federal government ended the 40-year ban on crude oil exports imposed following the 1973 OPEC oil embargo. With the export ban in place it created refining constraints and transportation bottled necked, thereby hampering domestic production and these man-made obstacles devalued U.S. oil prices compared to worldwide prices. With the export ban lifted, crude oil net imports are now declining with increasing domestic production. As of 2007, the U.S. was importing 30% of energy consumed. Today we import under 8%. By 2020, it was projected the U.S. would be a net energy exporter. The United State of America actually became a net oil exporter in 2018.

It takes people like OIPA-OKOGA, you and me advocating for the Oil and Natural Gas Industry to make sure people hear and see the real impact the Oil and Natural Gas Industry is making on our

Four Regions of ADDC

Central Region
Butler County
Dallas
Enid
Fort Worth
Graham
Great Bend
Liberal
Lone Star of Dallas
Oklahoma City
Red Earth
Tulsa
Wichita
Wichita Falls

Southeast Region
Baton Rouge
Corpus Christi
El Dorado
Lafayette
Laurel
Morgan City
New Orleans
No. Harris/
Montgomery County
Red River
San Antonio
Victoria
Westbank

Northeast Region
Bay Area
Buckeye
Heartland Southern
Illinois
Ohio Valley
Oil Heritage
Penn York Oil &
Gas Affiliates
Three Rivers
Tri-State
Tuscarawas Valley
West Virginia

West Region
Abilene
Alberta Foothills
Amarillo
Artesia
Bakersfield
Edmonton
Farmington
Grand Prairie
Midland
Pampa
Roswell
San Angelo
Theory meets application: Machine learning techniques for geothermal exploration

by Pennsylvania State University 4/22/19

When Jing Yang, assistant professor of electrical engineering, began looking for practical applications to her machine learning research, partnering with Chris Marone, professor of geosciences, for his work on safe and efficient geothermal exploration and energy production, was a perfect fit.

Yang and Marone were recently awarded a 2019 Penn State Multidisciplinary Seed Grant for their collaborative research "Machine learning approaches for safe geothermal exploration."

"I've been working on machine learning for a number of years," said Yang. "My research is more on the theoretical side, and I want to show how theory can be related to practice. Energy-related applications could be the place where machine learning techniques can manifest a great impact."

The work aims to use machine learning both to better predict seismic activity during geothermal exploration and to optimize geothermal energy production.

Geothermal systems require the creation of fractures through hydraulic stimulation. This fracture formation and stimulation is associated with microearthquakes (MEQs) that can damage buildings and other surface structures. Marone and Yang hope that by using Yang's machine learning (ML) algorithms they will be able to forecast and predict seismic events such as MEQs.

"We are very interested in whether certain precursors exist for microearthquakes so that we can predict when a major seismic activity is going to happen in the near future, upon which some immediate actions can be taken before anything destructive happens," said Yang.

A critical component to this research is the ability of ML algorithms to predict this seismic activity on a large scale. The researchers currently have had success with gathering data and forecasting seismicity in the lab, but they need to ensure that they can make these predictions at field scale.

"I have thousands of sensors generating measurements in a streaming fashion, analyzing the data streams in real-time is extremely challenging. The problem becomes even more complicated when many events happen at the same time," said Yang. "So the question is] how could we locate or more accurately infer those events happening beneath the surface from streaming data."

The second goal of the project is to safely extract the optimal amount of geothermal energy in the hydraulic fracturing process.

"We want to carefully control the amount of fluid injected into the ground so that we can achieve high production of geothermal energy, and at the same time ensure that it doesn't cause damage to the site, the surface structures and so on," said Yang.

To do this, Yang and Marone will develop a safe reinforcement learning framework. This will entail creating scalable algorithms to handle unknown environments and that will be able to be transferred from the lab to field use.

Marone and Yang plan to use results from this preliminary effort to develop a larger funded project and to extend this work beyond geothermal energy production into other areas.

"The safe reinforcement learning techniques that I'm developing allow a learning agent to maximize production while ensuring safety. But safety isn't just an issue for geothermal exploration," said Yang. "Safe reinforcement learning can have very important applications in other domains like autonomous driving. For example, we want a car to automatically learn the environment and continuously adapt its motion accordingly. At the same time, we want to ensure that the car does not make reckless decisions in the face of uncertainties in the predicted consequences.

"So safety during learning is definitely a very important issue there," Yang added. "And the techniques developed here can potentially be modified and adapted to ensure safety with autonomous driving and other situations."
“North America Upstream Industry Trends”
Amy Groeschel

Amy Groeschel is the Principal Research Analyst at IHS Markit. Amy pointed out the material presented was the product of her team of colleagues and not just her individual work. I believe it was both to acknowledge their contribution and to show the value the team can provide to their clients.

The presentation covered: Oil prices  US production  Where capital is being spent  Why the Permian the place to be  Which E&P’s are spending  What are the trends for costs  What is causing constraints in the Permian

To look at oil price forecasts, we should start by looking at the end of last year. The major drop in oil prices lead to higher uncertainty on both demand and supply. Other contributing factors to weakening demand were the Venezuela crisis and the policy changes in Iran. As we move forward into 2019, these issues will continue to persist.

US crude production depends on price, capital discipline and ultimate capex by the North American E&Ps. Broken by operators, private companies will spend slightly more; US Independents will be fairly flat and then global E&Ps will probably overspend particularly in the Permian basin as they gain entry.

The Permian basin continues to dominate spending but activity in other basins is increasing because of capacity constraints. However, the Permian Basin remains the largest and more importantly the lowest-cost source of supply in the United States, as well as the core driver of incremental growth.

The US unconventional play will draw an increasing share of capex from majors and regional players. Additionally, capex base declines accelerated sharply during 2018 to 2.6 mmbl/d following a resurgence in drilling activity in 2017. Companies will spend the same amount as 2018 but in 2019 that will only translate to 1.2 mmbl/d in growth due to accelerating base declines as you spend more. These strong base declines will drive operating spending in North America, as well as a strong focus on labor and well services.

Unconventional costs will flatten into 2019 because of oversupply in key service sector segments. Drilling and completion costs drive unconventional costs overall. Costs will however rise through the rest of the forecast as supply and demand tighten. Onshore drilling faces a market where the high-end segments are at full utilization but there is still a general oversupply. Rigs with 1,500 hp and up have high utilization rates while at the same time drillers have reported that the super-spec sub-category of rigs remains at full utilization. The market seems to be doing a good job converting high-spec rigs into super-spec. New pipeline capacity allows the Permian to surge later in 2019 because of DUCs (drilled but uncompleted wells).

While pipeline constraints out of the Permian are being addressed through de-bottlenecking and expansion, the backlog of DUC’s will likely be liquidating. This new pipeline capacity will allow the Permian to surge later in 2019. With key service sector segments oversupplied and pipeline constraints being addressed, it’s the “last mile” of the local logistical constraints that are limiting the Permian.

Submitted by Donna C. Taylor
Desk and Derrick of Dallas
March 19, 2019

TO: ADDC Board, Region Directors and Members
FROM: 2019 Rules Committee
RE: Amended Proposed Amendments

It has come to my attention that a comma was left out of the Proposed Amendment No. 5, Article XII – Committees, Section 1 to the Bylaws. A comma was missing between Membership and Program, they will remain separate not combined. I have corrected this omission.

I am resenting the Proposed Amendments as corrected.

Directors, please distribute to your club presidents as soon as possible. If anyone has any questions please contact me as soon as possible.

So sorry if this has caused anyone any inconvenience. Thank you for your understanding.

Warmest regards,

Val Blanchard
2019 Rules Committee Chairman
Proposed Bylaws Amendments

Proposed Bylaw Amendment Number 1:
Article IV – Association Distribution Office, Section 2

Amend by deleting the words “person or persons” between the words “a” and “to” and between the words “Such” and “shall” and inserting the words “person(s) or management company.”

Currently Reads:
The Board of Directors shall employ a person or persons to perform such duties at this office as the Board shall specify. Such person or persons shall be responsible to the Board of Directors and work under the supervision of the President.

Amend to Read:
The Board of Directors shall employ a person(s) or management company to perform such duties at this office as the Board shall specify. Such person(s) or management company shall be responsible to the Board of Directors and work under the supervision of the President.

Rationale:
For: Membership requested the Board look into use of a management company contract to replace the ADO office and manager. Suggested by members and it lets us choose the most cost effective method to handle the duties. After learning what a management company can provide for us at such and amazing cost, this just makes sense. We should have made this change long ago.

Against:

Proposed by:
ADDC Board of Directors

ADDC Board of Directors  8  For  0  Against  0  Abstain
Rules Committee  4  For  0  Against  0  Abstain
Proposed Bylaw Amendment No. 2:
Article V – Association Membership, Section 1(d), second last sentence

Amend by inserting the words “or email” between the words “mail” and “vote”. Changed to Arial 12

Currently Reads:

(d) The Board of Directors may by majority vote discipline or suspend a club for good cause, such as failure to meet its financial obligations or noncompliance with these bylaws and the known policies of the Association. The Board of Directors may by unanimous vote expel such club; provided a copy of such charges has been mailed to the club; provided that the club is afforded a thirty (30) day period in which to reply to such charges and notice of pending action; and provided further that an opportunity for a hearing before a committee of three appointed by the Association President is granted if the club requests. Such hearing shall be held within a period of sixty (60) days following the expiration of the thirty (30) day period hereinbefore mentioned, and the findings thereof shall be referred to the Association Board of Directors for final action. Such action shall be taken at either the next regularly scheduled meeting of the Board, at a special called meeting, or by mail vote. The decision of the Board shall be final.

Amend to Read:

(d) The Board of Directors may by majority vote discipline or suspend a club for good cause, such as failure to meet its financial obligations or noncompliance with these bylaws and the known policies of the Association. The Board of Directors may by unanimous vote expel such club; provided a copy of such charges has been mailed to the club; provided that the club is afforded a thirty (30) day period in which to reply to such charges and notice of pending action; and provided further that an opportunity for a hearing before a committee of three appointed by the Association President is granted if the club requests. Such hearing shall be held within a period of sixty (60) days following the expiration of the thirty (30) day period hereinbefore mentioned, and the findings thereof shall be referred to the Association Board of Directors for final action. Such action shall be taken at either the next regularly scheduled meeting of the Board, at a special called meeting, or by mail or email vote. The decision of the Board shall be final.

Rationale:
For: The majority of the Board of Directors business is handled by email between meetings of the Board.
This is necessary housekeeping to align with the way we currently handle business.
More cost effective and timely to do emails.

Against:

Proposed by:
ADDC Board of Directors

ADDC Board of Directors  8  For   0  Against   0  Abstain
Rules Committee  4  For   0  Against   0  Abstain
Proposed Bylaw Amendment #3
Article V – Association Membership, Section 3, 2nd Paragraph

Amend by deleting in its entirety and insert new paragraph: “Each club shall schedule a minimum of five (5) educational program presentations a year, four (4) of which must be directly related to these industries. The remaining program presentation may be on Desk and Derrick orientation, Bylaws, socio-economic responsibilities or professional self-development.”

Currently Reads:
Each club shall schedule a minimum of nine educational program presentations a year, six of which must be directly related to these industries. The remaining program presentations may be on Desk and Derrick orientation, socio-economic responsibilities or professional self-development.

Amend to Read:
Each club shall schedule a minimum of five (5) educational program presentations a year, four (4) of which must be directly related to these industries. The remaining program presentation may be on Desk and Derrick orientation, Bylaws, socio-economic responsibilities or professional self-development.

Rationale:
For: Clubs are finding it more difficult to meet the nine meeting requirements. Many organizations have a quarterly meeting instead of monthly and many clubs do not meet during July and August.

Against:

Proposed by:
ADDC Board of Directors

ADDC Board of Directors  8  For   0  Against   0  Abstain
Rules Committee        4  For   0  Against   0  Abstain
 Proposed Bylaw Amendment Number 4:
Article VII – Dues and Fees, Section 1(c)

Amend by inserting the words “or ADDC Treasurer, as directed by the Board” between the words “Office” and “with” and between the words “Office” and monthly”.

Currently Reads:

(c) Annual dues are payable February 1 of each year and shall be submitted to the Association Distribution Office, with checks made payable to the Association of Desk and Derrick Clubs, within thirty (30) days. Annual dues for members added after February 1 shall be submitted to the Association Distribution Office monthly, with no dues to be submitted after November 30 each year.

Amend to Read:

(c) Annual dues are payable February 1 of each year and shall be submitted to the Association Distribution Office or ADDC Treasurer, as directed by the Board, with checks made payable to the Association of Desk and Derrick Clubs, within thirty (30) days. Annual dues for members added after February 1 shall be submitted to the Association Distribution Office or ADDC Treasurer, as directed by the Board monthly, with no dues to be submitted after November 30 each year.

Rationale:
For: The transition from ADO to a management company has necessitated this housekeeping change.
This is necessary housekeeping to allow for the option of using a management company for ADO. Necessary to keep accounting timely.

Against:

Proposed by:
ADDC Board of Directors

ADDC Board of Directors  8  For   0  Against   0  Abstain
Rules Committee       4  For   0  Against   0  Abstain
Proposed Bylaw Amendment No. 5:
Article XII – Committees, Section 1

Amend by deleting in its entirety and inserting new paragraph: The Standing Committees of the Association shall be the following: Club Bylaws/Manual Review, Education/Certification, Finance Review, Membership Program, Public Relations, Rules, and Tax Exempt Committees. Special committees may be created from time to time as deemed necessary by the Board of Directors.

Currently Reads:

The Standing Committees of the Association shall be the following: Club Bylaws Review, Education, Membership, Program, Public Relations, Rules and Tax Exempt Committees. Special committees may be created from time to time as deemed necessary by the Board of Directors.

Amend to Read:

The Standing Committees of the Association shall be the following: Club Bylaws/Manual Review, Education/Certification, Finance Review, Membership, Program, Public Relations, Rules, and Tax Exempt Committees. Special committees may be created from time to time as deemed necessary by the Board of Directors.

Rationale:

**For:** With the reduction in membership in recent years we needed to look at combining and merging committees. There were too many committees with fewer members and some committees crossing lines. As it had become so hard to find members to serve on the various committees of the Association, this move is necessary with our declining membership numbers.

**Against:**

**Proposed by:**
ADDCC Board of Directors

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<td>Rules Committee</td>
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Why pipelines matter

- Miles Morin Morin is executive director of the Virginia Petroleum Council.
- Apr 25, 2019

As you power up your laptop, turn on your kitchen lights, or crank up your thermostat, understand that it takes infrastructure to maintain the quality of life we enjoy. Energy is the backbone of our economy, which is why natural gas pipelines and other infrastructure are essential to maintaining the everyday conveniences we depend on to live our lives.

So why all the attention on natural gas pipelines in our area? In recent years, one of the largest deposits of natural gas was discovered in areas stretching from West Virginia to New York. Known as the Marcellus and Utica deposits, the discovery was tremendous in its scope. These deposits have the capacity to make the U.S. energy independent for years to come.

Energy independence is a huge deal for working families. Being dependent on Russia or the Middle East for our fuel sources leaves us vulnerable to huge price increases like those that have occurred multiple times in recent decades. In fact, the price of energy is low right now in large part because of the abundance of natural gas in the United States. The bottom line is that families and businesses both benefit from low-cost and reliable sources of energy.

The discovery of huge natural gas deposits comes at an important time because coal plants, for decades the principal source of electric generation in the U.S., are shutting down in large numbers. This switching from coal to natural gas has actually led to an 11% reduction in our country’s total carbon emissions since 2000.

As Jason Bordott, the highly respected Director of Columbia University’s Center on Global Energy stated, “The U.S. has led the world in emissions reductions in the last decade, thanks in large part to cheap gas displacing coal.” Wind and solar power will play an increasingly important role in energy production, but they currently account for about 8% of all U.S. electricity generation, according to the U.S. Energy Information Administration. More importantly in the short term, wind and solar are intermittent sources of electricity, meaning they generate power only when the sun is shining or wind is blowing. Over time, there will likely be storage solutions to address this problem. But until that occurs, utilities will be faced with the option of either running coal plants or converting to natural gas — which emits half the carbon — to meet public energy demands.

The Mountain Valley Pipeline (MVP) and Atlantic Coast Pipeline (ACP) will connect these vast new natural gas deposits with markets in Virginia and other states. And make no mistake, the gas will flow locally in the Roanoke Valley on MVP, with two taps already announced in Franklin County and Montgomery County. Franklin County currently has no access to natural gas, which makes the area uncompetitive for many economic development projects.

The former Franklin County Administrator stated that the county wouldn’t even be considered for large industrial projects without access to natural gas. Now the county has an industrial park near one of the new taps, which will provide incentives to locate projects in this area.

There are currently two natural gas pipelines serving our region, both originating in the Gulf Coast. Roanoke Gas has stated that absent a prolonged economic recession, they will reach a supply availability deficit in the near future. This is no idle threat. The utility serving large areas of New York recently announced a moratorium on new natural gas hook-ups in Westchester County because they lack the supply pipelines needed to connect markets and consumers. Other regions of the country are already suffering the severe consequences of their failure to ensure infrastructure is adequate to meet public demand. In New England in recent years, energy providers had to import liquefied natural gas from Russia because they were denied permission to build the needed pipelines to serve their consumers. The result was massive price increases during cold weather periods paid by hardworking families, with the blame resting squarely on their government leaders who lacked the will and foresight to improve their energy infrastructure.

The construction of MVP resulted in the hiring of 2,500 workers during the summer. More than 800 of the workers were Virginia residents paid an average of $57,000 a year. While opponents of the project have slowed progress and the number of employees has been reduced, this has only hurt working families trying to make ends meet.

Finally, the six counties where MVP will be located will benefit from $7 million a year in collective new property tax revenue to be paid by Mountain Valley. These funds will support local schools, law enforcement and other vital services.

Natural gas pipelines play an important role in keeping our energy costs low and our overall quality of life high. While they may operate out of sight, their value to the public must be brought into view.
Global Oil & Gas Discoveries to Witness Major Uptick in 2019

Rimmi Singhi
ZacksApril 17, 2019

Investors need to pay close attention to Anadarko Petroleum (APC) stock based on the movements in the options market lately.

With conventional oil and gas discoveries on the rise, 2019 is likely to be the best year for oil and gas exploration since the oil market slump. Global oil and gas finds are on a remarkable recovery track since 2018, reversing the declining trend during the 2014-2017 period, and yielded around 9.4 billion barrels of oil equivalent (Boe) by the end of the year. Markedly, Guyana, Russia and the United States topped the list of the countries with significant finds.

The discovery trend continues in 2019, with many promising high-impact finds. Notably, the global finds yielded around 3.2 billion Boe at the end of the first quarter, with the majority of volumes recorded in February. Various energy biggies are focused on bolstering their resource base and Exxon Mobil Corporation XOM — a Zacks Rank #3 (Hold) company— is leading the way, per latest reports by Rystad Energy. You can see the complete list of today’s Zacks #1 Rank (Strong Buy) stocks here.

Let’s take a detailed look at the important oil and gas discoveries so far this year.

ExxonMobil accounted for 1.2 billion Boe or around 40% of the total volumes in the first quarter, courtesy of three major offshore discoveries. The super major was credited with this year’s biggest find in the Glaucus-1 well, located off the coast of Cyprus, yielding 682 million Boe (90% gas). The initial interpretation of well data suggested that the discovery comprised 5-8 trillion cubic feet of natural gas resource. After a string of 10 discoveries offshore Guyana in the past two years, the U.S. oil major announced two more discoveries in the region, namely Tilapia-1 and Haimara-1. Tilapia-1, located 5.5 kilometers west of the Longtail-1 well, encountered 93 meters of high-quality oil-bearing sandstone. Haimara-1, located 31 kilometers east of the company’s Pluma-1 discovery, encountered 63 meters of high-quality, gas-condensate bearing sandstone reservoir.

French energy giant TOTAL S.A. TOT registered the second largest find in the Brulpadda prospects, offshore South Africa, which could contain 1 billion barrels of total resources. The company produced 558 million Boe, comprising 40% liquids. Brulpadda is one of the high-profile gas-condensate prospects and the company plans to acquire 3D seismic this year, post which it intends to drill up to four exploration wells on the license. Riding on the clean energy wave, TOTAL and CNOOC Limited discovered natural gas and condensate field in the North Sea. While CNOOC is the operator of the Glengorm prospect (located offshore North Sea) with 50% stake, TOTAL has 25% interest.

Another European biggie Eni S.p.A E also reported finds offshore Angola and Egypt. The company made important oil find in Block 15/06 in the Agogo exploration prospect, which is estimated to hold light oil in place in the range of 450-650 million barrels, with expectation of further upside potential. Eni’s advanced and complicated proprietary seismic imaging technologies have significantly helped in the planning and drilling of the Agogo prospect. It also made a gas discovery in the Nour exploration prospect located in Eastern Egyptian Mediterranean.

Repsol SA REPYY made the largest onshore discovery of the quarter with its Kali Berau Dalam gas find in Indonesia. The prospect, located onshore Central Sumatra, is expected to hold natural gas of around 1.5 trillion cubic feet, which will translate to more than 250 million Boe.

Other relevant discoveries included Aker BP’s —subsidiary of BP plc BP—Froskelar oil & gas find offshore Norway, and Murphy Oil’s MUR first discovery offshore Mexico in the Cholula prospect.

Notably, 35 more high impact exploration prospects are likely to be drilled this year, of which three are underway. These include Royal Dutch Shell plc’s RDS.A Peroba well (with estimated recoverable resources of 5.3 billion Boe) located offshore Brazil, Eni’s Kekra well (with estimated recoverable resources of 1.5 billion Boe) and TOTAL’s Etzil well (with estimated recoverable resources of 2.7 billion Boe) offshore Mexico.

One thing worth noticing is that the offshore discoveries are likely to constitute the bulk of volumes this time around as well, similar to last year. The push for new oil and gas finds is showing no signs of abatement and if this continues at the same pace, volumes are likely to rise 30% from last year, which will mark the highest levels since the crude downturn.

Radical New Technology Creates $12.3 Trillion Opportunity

Imagine buying Microsoft stock in the early days of personal computers... or Motorola after it released the world’s first cell phone. These technologies changed our lives and created massive profits for investors.

Today, we’re on the brink of the next quantum leap in technology. 7 innovative companies are leading this “4th Industrial Revolution” - and early investors stand to earn the biggest profits.
Proposed Standing Rule Amendment #1
Standing Rule #5

Amend by deleting in its entirety and renumbering the remaining items.

Currently Reads:

Each year a scrapbook shall be compiled and presented to the President of the Association. Scrapbooks and other Desk and Derrick memorabilia may be donated at any time to the Scrapbook Committee or to the Association Distribution Office to compile a history of the Association.

Amend to Read:

Rationale:

For: Due to technology, a scrapbook is no longer being done. Members freely share pictures and scrapbook is just done digitally. This is more necessary cleanup to align us with current actual activities.

Against:

Proposed by:
ADDC Board of Directors

ADDC Board of Directors   8 For    0 Against    0 Abstain
Rules Committee           4 For    0 Against    0 Abstain

Proposed Standing Rule Amendment No. 2:
Standing Rule #9 b

Amend by deleting the words “Association Board approval” between the words “receive” and “by” and inserting the words “approval of the Immediate Past President”.

Currently Reads:

b. Any club sales item and accompanying printed materials bearing the words “Desk and Derrick,” “D&D,” “Association of Desk and Derrick Clubs,” “ADDC,” and/or the trademark (insignia) must receive Association Board approval by application through regional directors.

Amend to Read:

b. Any club sales item and accompanying printed materials bearing the words “Desk and Derrick,” “D&D,” “Association of Desk and Derrick Clubs,” “ADDC,” and/or the trademark (insignia) must re-
ceive approval of the Immediate Past President by application through regional directors.

**Rationale:**

**For:** The IPP has the time and knowledge to review these items for correctness.
This is not something the Board needs to approve.
The approval of club sales items was not something that needed the attention of the entire Board.
Assigning that duty to the IPP makes perfect sense.

**Against:**

**Proposed by:**
ADDC Board of Directors

ADDC Board of Directors  8 For  0 Against  0 Abstain
Rules Committee  4 For  0 Against  0 Abstain

**Proposed Standing Rule Amendment No. 3:**
Standing Rule 11 c
Amend by striking ‘$20,000’ between the words ‘exceed’ and ‘the’ and insert ‘$50,000’.

**Currently Reads:**

c. Should the balance in the Convention Fund exceed $20,000, the Association Board may transfer,
as the need arises, no more than $10,000 in any one year to the General Fund. Up to $5,000 addi-
tional funds may be transferred to meet legal obligations. The transfer of funds shall be communicat-
ed to clubs within thirty (30) days.

**Amend to Read:**

c. Should the balance in the Convention Fund exceed $50,000, the Association Board may transfer,
as the need arises, no more than $10,000 in any one year to the General Fund. Up to $5,000 addi-
tional funds may be transferred to meet legal obligations. The transfer of funds shall be communicat-
ed to clubs within thirty (30) days.

**Rationale:**

**For:** The Convention fund currently has a balance of $140,000 (+/-) in the account. The conventions
in recent years have not made enough money to recoup what has been transferred out of the fund
for ADDC operational expenses over the last several years.
In the past, several conventions lost money, for example 2016 was a $40,000 (+/-) loss. If the Board
continues to approve the transfer of money to cover operational expenses for the ADDC Account
without money being put back into the fund and should another convention end with a significant
negative balance, this account will not have the funds to pay the difference and be unable to sustain
itself. Because of these reasons we propose this account must have a minimum of $50,000 at all
times.
With the goal of being good financial stewards it is important to protect our assets now and in the
future.

Against:

Proposed by:
Desk and Derrick Club of Abilene

ADDC Board of Directors  8 For  0 Against  0 Abstain
Rules Committee  4 For  0 Against  0 Abstain

Proposed Standing Rules Amendment No. 4:
Standing Rule #13
Amend by deleting in its entirety and inserting new paragraph: “Allocation of General funds for ex-
penses for the Association Board to attend the ADDC Convention shall be made only if sufficient
funds are available within the operating budget. Financial assistance shall be limited to economical
airfare (other transportation not to exceed airfare), registration and hotel accommodations as out-
lined in the Board of Director Procedures. These expenses shall only be covered if the Board mem-
ber’s company does not reimburse the Board member. Board members should submit before Budg-
et and Planning a proposed budget of anticipated costs.”

Currently Reads:
Convention expenses of the Association Board shall be included in the Association budget and paid
from the general fund.

Amend to Read:
Allocation of General funds for expenses for the Association Board to attend the ADDC Convention
shall be made only if sufficient funds are available within the operating budget. Financial assistance
shall be limited to economical airfare (other transportation not to exceed airfare), registration and ho-
tel accommodations as outlined in the Board of Director Procedures. These expenses shall only be covered if the Board member’s company does not reimburse the Board member. Board members should submit before Budget and Planning a proposed budget of anticipated costs.

Rationale:

For:  It is important that any board costs or reimbursements are always transparent and are not
open to confusion or misunderstanding by the board or the membership. This is a current practice
that we follow and have followed per board procedure, however, board procedure is a board con-
trolled document which members do not have input or say. I understand that it should be a part of
the standing rules for transparency and protection of not only the Association but the board mem-
bers as well. This will also put us in line with Regional Bylaws and most Club Bylaws/Standing Pro-
cedures.

Against:  This is not necessary. Our Bylaws, Standing Rules and Board Procedures already sup-
port this. We already are required to present a balanced budget, whether or not it includes costs for
the Board to attend convention. The Board Procedures already limits travel expenses to lodging,
Proposed Standing Rules Amendment No. 5:

Standing Rule #14 c.

Amend by deleting the words “Desk and Derrick Journal” between the words “the” and “will” and inserting the words “ADDC Insight”.

Currently Reads:

c. Credentials distributed by the ADDC Nominating Committee, which may also appear in the Desk and Derrick Journal, will be the only material released on the candidates for Association office.

Amend to Read:

c. Credentials distributed by the ADDC Nominating Committee, which may also appear in the ADDC Insight, will be the only material released on the candidates for Association office.

Rationale:

For: This is cleanup. We no longer publish the DDJ.

Cleanup.

This is just necessary cleanup.

Against:

Proposed by:

Desk and Derrick Club of Baton Rouge

For: 8 For 0 Against 0 Abstain

Rules Committee 4 For 0 Against 0 Abstain
Ashley Furniture Industries Invests in Solar Energy

GlobeNewswire - April 23, 2019

Work on first of ten manufacturing and distribution facilities will begin this week

ARCADIA, Wis., April 23, 2019 (GLOBE NEWSWIRE) -- Ashley Furniture Industries, Inc. (Ashley) has committed to a multi-phase effort to reduce the company’s energy footprint. Ashley, the World’s largest furniture manufacturer, has selected ten of its largest U.S. facilities to receive solar installations this year as part of the first phase of the initiative. Construction on the first solar array in Romeoville, Illinois, begins this week.

Across the ten advanced manufacturing and distribution and fulfillment facilities identified, electrical energy consumption exceeds 100 million kWh (kilowatt hours) annually. Phase one of the project will be a $29 million investment for Ashley. By installing solar, the company expects to offset its electrical energy needs by 35% using clean energy from the sun.

“We need a lot of energy to manufacture our products and it only makes sense to use renewable sources,” said Ron Wanek, Founder and Chairman, Ashley Furniture Industries, Inc. “This is a long-term investment, not only for Ashley, but for our environment. We are taking proactive steps and hope to see others in our industry join us.”

Ashley anticipates a cost savings of more than $5 million in the first year, with potential for even greater annual savings as energy prices continue to increase over time.

“Saving on energy costs will allow us to further invest in our employees and facilities, pass cost savings on to our customers, and give back to the community. These solar panels are just one more example of Ashley’s sustainability in the global marketplace and in our local communities,” said Todd Wanek, President and CEO, of Ashley Furniture Industries, Inc.

The Romeoville location, a 454,525-square-foot retail distribution center, will utilize 2,640 roof-mounted solar panels and 10 inverters for a total system capacity of 726 kWd. The solar energy produced from this site alone will exceed 856,700 kWh per year, which is equal to the amount of power consumed by 72 average American households.

Ashley has partnered with SunPeak, a leading developer in the solar industry, to design and install its solar systems. SunPeak has worked with other large, national brands including Tyson Foods and American Family Insurance.

“We did our due diligence when selecting a solar provider. We interviewed dozens of companies nationally and felt strongly that SunPeak was best suited to perform the scope of this work, to our quality standards, in a timely manner,” said Todd Wanek. “An unexpected benefit was being able to partner with another Wisconsin-based company to create greater economic impact in the state where it all started.”

“We are extremely proud to partner with Ashley. The impact of this project portfolio is significant. For each location identified, we have designed an extremely efficient, roof-mounted solar system,” said Chad Sorenson, President, SunPeak. “In total, these systems will generate more than one trillion kilowatt hours of clean energy over the next thirty years. That’s enough energy to power 3,000 homes for the next three decades.”

Ashley’s solar energy initiative will complement their world-class advanced manufacturing facilities. Throughout the company’s advanced manufacturing and warehousing operations, solar energy will be utilized to charge IoT (internet of things) systems, automation and robotics, and battery-powered industrial vehicles.

Other Ashley solar project sites include three locations in California as well as Florida, Mississippi, North Carolina, Pennsylvania, Texas and Ashley’s advanced manufacturing headquarters in Arcadia, Wisconsin. All projects in this first phase are expected to be completed by the first quarter of 2020.

Ashley Furniture Industries, Inc. (Ashley) feels that every person deserves more value for their money. Established in 1945, Ashley is the largest manufacturer of home furnishings in the world, and was named one of America’s Best Employers by Forbes in 2017. From design through fulfillment, Ashley is committed to delivering the world’s best home furnishing values, selection and service, and earning the loyalty and trust of its customers every day. Visit Ashley online at www.ashleyfurnitureindustriesinc.com and “like” Ashley Furniture Industries, Inc. on Facebook.

SunPeak is a leading, full-service solar photovoltaic developer specializing in commercial and industrial applications. Based in Madison, Wisconsin, the company works across the nation helping businesses, health care facilities, municipalities and educational institutions reduce their electrical costs and enhance their sustainability efforts using solar energy. SunPeak uses a value-added, comprehensive approach with its customers, partnering with them from the earliest stages to educate, assess, design, construct and ultimately maintain a solar installation through the expected thirty-year life of the system. By using only top-quality components and talent and managing every aspect of the process, SunPeak builds an unparalleled...
U.S. cancels waivers to Iranian oil sanctions

By Alex Mills

Forty years ago Iran used the “oil weapon” against the United States as it sought to influence its support of Israel. Today, President Trump is using the “oil weapon” in an attempt to stop Iran’s attempt to develop nuclear capability.

President Trump’s administration said on Monday any country purchasing oil from Iran after May 1 will face sanctions and all waivers have expired. The administration previously had announced sanctions against the purchase of Iranian oil but had granted waivers several countries including China, India, Turkey, South Korea, Japan and U.S. allies in Europe such as France, Germany and England.

The waivers, which have lasted six months, allowed these countries to import limited amounts of oil from Iran.

Iranian exports have been around 1 million barrels per day (b/d) with China purchasing roughly 500,000 b/d, and China said this week it opposes U.S. unilateral sanctions.

Other countries have voiced their opposition, also.

France and the European Union both said they will abide by the terms of the Iran nuclear accord with world powers even after the latest U.S. move. France and its European partners intend to continue efforts to ensure that Iran derives economic benefits as long as Tehran complies with its nuclear obligations.

Bloomberg reported Europe’s insistence on standing by the Iran nuclear deal, known as the JCPOA, risks further inflaming tensions with the Trump administration as it seeks to force Tehran to renegotiate the terms of the accord to include Iran’s non-nuclear ballistic missiles and influence in the wider Middle East.

Germany, France and the U.K. have already created a special purpose vehicle for trade with Iran designed to get around U.S. sanctions. Work on the INSTEX mechanism to facilitate financial transactions for European companies trading with Iran is “progressing positively with a view to a near completion,” the French ministry said.

Trump administration officials were concerned that the removal of the waivers would cause oil prices to spike, which happened on Tuesday. Crude oil immediately jumped about $2 per barrel internationally and in the U.S. to $74.26 for Brent crude and $65.93 for West Texas Intermediate.

Markets calmed down later in the week after Saudi Arabia said there is plenty of oil, and the Trump administration said it has secured assurances from Saudi Arabia and United Arab Emirates that they could cover the reduction. However, Saudi Arabia and UAE are under constraints of an OPEC agreement to reduce exports that has been effective since December.

The Trump administration also has noted that the increase in U.S. oil production, which is at an all-time high, could be used to offset the loss of oil available on the international markets noting the exports of U.S. crude and refined products are at record highs, too.

Iran has responded with a threat to disrupt all oil exports through the Persian Gulf’s Strait of Hormuz, which is used to ship oil from Saudi Arabia and Iran.

-30-

*Alex Mills is the former President of the Texas Alliance of Energy Producers. The opinions expressed are solely of the author.*
Modeling River Boulders to Improve Hydropower Sustainability

Large stones in streams provide crucial habitat for fish. Modeling the boulders and streamflow offers fresh insights into how water engineering projects alter aquatic habitats.

SOURCE: Water Resources Research

Boulders provide habitat for fish in alpine streams by creating calm zones in their downstream wake. A new model offers scientists and engineers an approach to better characterize these features and develop more ecologically sound water projects.

Credit: Pxhere (CCO Public Domain)

By Aaron Sidder 30 April 2019

The development of water infrastructure is central to the success of human society. Water engineering supports renewable energy, agricultural irrigation, urban development, and industry. But the expansion of water infrastructure significantly alters the natural flows of affected streams. As flows change, environmental impacts follow; some effects are evident, but some are difficult to identify. One thing is clear, however: As streams change, so does fish habitat.

Several software products exist to model habitat availability for fish and other aquatic species, including Computer Aided Simulation Model for Instream Flow and Riparian (CASiMir) and Physical Habitat Simulation software (PHABSIM). These models establish a threshold for minimum streamflow, below which the habitat for fish decreases significantly.

These models are sensitive to low-velocity regions in streams, like quiet zones along banks, but the software packages lack the resolution—and computing power—to represent smaller features like boulders. The big stones in streams, collectively known as macroroughness elements, create still zones in their downstream wakes. Such features provide critical habitat and refuge for fish, especially in alpine environments downstream of water projects.

Building on earlier analyses, Niayifar et al. introduced a new analytical approach that models the calm zones behind boulders in alpine streams. The model is physically based, meaning model inputs can be easily obtained through common field methods like aerial surveys. The authors applied the model using four different statistical stone size distributions and evaluated how different-sized rocks affected the stream’s minimum flow thresholds. Other parameters, like the number of stones in a stream and its width and slope, can also be varied in the model. Using this foundation, the authors developed a case study and applied the model to a multiobjective optimization problem for hydropower system operational policies.

Consistent with established understanding, the authors found that larger stones create more wake area and contribute more to fish habitat. However, stone size decreases moving downstream, which results in fewer ecologically suitable areas for fish and lower flow thresholds. In other words, smaller stones can free more water for engineering projects because they do not yield as much fish habitat.

The results suggest that the minimum flow needed for fish habitat changes across space as a result of stone size while also shifting through time as a stream’s geomorphology evolves. The results validated the methodology developed in the study and provide a different approach for determining minimum flow thresholds.

From a practical standpoint, the presented approach offers water managers a tool to evaluate the ecological impacts of proposed hydropower locations and altered stream flows. As water resources grow increasingly strained from human population growth and climate change, the new methodology may help promote more environmentally sustainable river management policies. (Water Resources Research, https://doi.org/10.1029/2018WR022860, 2018)

—Aaron Sidder, Freelance Writer
ST. CLAIRSVILLE — Representatives from the oil and gas industry and area businesses joined residents for an opportunity to meet and exchange information about the status and immediate future of the oil and gas industry at the Ohio Valley Regional Oil and Gas Expo at the Carnes Center on Wednesday. The event saw new and returning guests and heavy foot traffic.

Natalie Brown, president of MPR Transloading & Energy Services, who helped organize the event, said it boasted 108 exhibitors, including pipeline and excavation companies and related businesses.

“We have great traffic flow throughout the day. A lot of networking going on,” she said, adding that the attendance appears to have increased from prior years.

Brown said a networking dinner was held on Tuesday evening, featuring Mike Chadsey, director of public relations with the Ohio Oil and Gas Association; Brad Maddox, vice president of drilling and completions for EQT; and Charlie Schliebs, co-founder and managing director of Stone Pier Capital, co-founder and board member of the Energy Innovation Center Institute, and chairman of the Northeast Petrochemical Conference. Brown said they updated attendees on issues such as the number of rigs in the area. Others spoke about the potential of placing a saltwater disposal site in the area and the need to be responsible while welcoming the industry.

She noted the influx of oil and gas business is usually followed by excavation and construction companies, related trades and an outgrowth of other enterprises such as restaurants.

“It’s one business after another,” Brown said.

“The industry is alive and well here in Belmont County,” Chadsey said Wednesday. “There’s a lot of opportunities, either to be a supplier, a contractor, a vendor or to work directly in oil and gas.”

Gabe Hays was present, representing the Give Belmont County Community Foundation and as a board member of the Ohio Valley Oil and Gas Association. He looked forward to educating people about the industry and its impact. He said there are currently 630 well-drilling permits in Belmont County, with 14 active rigs.

“The count’s lower than it has been in the past, but they’re also going a lot further (with horizontal drilling) than they used to,” Hays said. “They can cover more land per rig per well pad.”

He said the expo has no shortage of local businesses looking for employees in welding, civil engineering and others.

“We’re all searching for good employees in the local environment,” Hays said.
Belmont County Tourism Director Barb Ballint saw potential for tourism and the hospitality fields and a chance to promote the area’s attractions.

“They’re bringing their families and they’re looking for things to do,” she said.

Belmont County Port Authority Director Larry Merry added that the expo represents a chance to learn about new technology and how it might impact the course of the industry.

He pointed out an early fire detection system offered by the Reltek corporation. Another piece of technology on display was a harness device for manhole rescue and for cleaning fracking tanks.

“We’ve been here for probably five years in a row. We come back every year because it’s been a good show for us. We meet a lot of our customers that are in this area. We talk about upcoming projects and what they’ve got going on,” Jim Burton of State Electric Supply said. He said they learned about incoming power plants in surrounding counties.

“We have been here every year, this is our eighth year,” Rob Hetzel of Wheeling Spring Service and Truck Parts said. “A lot of new companies come into the area. We get exposure that way, and at the same time we’ve got regular customers that we deal with ...We’ve found it’s a good resource for us. You’re always learning more about the industry, and that gives you some insight about what your customers are needing.”

Nicole Sturgeon of Century Hospitality said they have attended multiple years.

“We’re really excited for the future,” she said. “Lots of people in the area. It’s a very big influx, so we’re very excited. It keeps us very busy.”

“There’s a lot of good foot traffic for all the companies in the oil and gas field, so it gives us a good chance to get all of our product out there and our name out there,” Megan Normal of Oil and Gas Safety Supply said, adding that in June they will be expanding into the former Toys R Us building at the Ohio Valley Mall. “We’re really looking to expand.”

Representatives from the University of Akron also were present to speak about their bachelor’s degree program in surveying and mapping offered at the Belmont College campus.

“We’ve been able to partner with businesses for co-ops and internships and job placement,” Kelly Herold, assistant dean with the university, said.

Jeffrey Weimer II of GMS Oil & Gas Services of Pennsylvania, said this was their first year of participation.

“We’re a new company. We need to get our name out there and grow our client base,” he said.

Members of the general public also attended and took the opportunity to ask questions of industry representatives about their operations.

“I came out to see what I could find out, because they’re going to be drilling a well close to me,” Bob McFarland of St. Clairsville said.

“We’re property owners, so we’re trying to figure out what’s going on,” Don Barbe of Morristown said, adding that his questions were answered to his satisfaction. “We got to talk to some of the companies that are drilling (around our property).”

In attendance were Belmont County Commissioners Josh Meyer, J.P. Dutton and Jerry Echemann, who was visiting for his first time as an elected official.

“I’m very impressed with how it’s organized. Very impressed with the crowds,” Echemann said.
Welcome Back to the ADDC Store

Have you always wanted an ADDC shirt, and just didn’t know where to get it? How about a cap with our Logo. Or maybe just something small to put on your desk.

The Store is now OPEN!!!

Three times this year we will be taking orders for a modest offering of ADDC promotional good. Orders will be placed on June 15\textsuperscript{th}, August 30\textsuperscript{th} and November 15\textsuperscript{th}, and shipped within 10-15 days. Just think you can have a new Polo Shirt by Convention or Christmas! Items are available to members only. Orders must be placed by the cutoff date. No stock will be carried at ADO, so if you place a request after the order dates, your order will fall into the next quarter’s order.

Check out our new items! Hoodies, Color changing Mugs, and Multi tools! Also, now choose the color of your shirts or hoodies! Great gift ideas for your club President, board of directors or members!
## ADDC STORE

### ORDER FORM

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<thead>
<tr>
<th>Description</th>
<th>Size / Color</th>
<th>Price</th>
<th>Qty.</th>
<th>Total</th>
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| Subtotal                                   |              |       |      |       |

| Shipping and Handling                      |              |       |      |       |
| Under $25.00 - $7.00                       | Shipping and Handling |       |      |       |
| Under $100.00 - $15.00                     | Total        |       |      |       |
| Over $100.00 - $22.50                      |              |       |      |       |

Orders due by June 15th, August 30th, and November 15th

Send checks made payable in US Funds to:
ADDC
C/O Maggi Franks
5448 Longview Dr
Cross Lanes, WV 25313
About Our Association

MOTTO
Greater Knowledge—Greater Service

PURPOSE
The Association of Desk and Derrick Clubs (ADDC), an international non-profit organization, is a premier provider of energy education and professional development. ADDC’s purpose shall be to promote the education and professional development of individuals employed in or affiliated with the petroleum, energy and allied industries, and to educate the general public about these industries as well as the companies and global communities the members serve.

MISSION STATEMENT
Our mission is to enhance and foster a positive image to the global community by promoting the contribution of the petroleum, energy, and allied industries through education by using all resources available.

2018 ADDC Board of Directors

<table>
<thead>
<tr>
<th>2018 ADDC Board of Directors</th>
<th>President</th>
<th>Terry Ligon</th>
<th><a href="mailto:terryligon@hotmail.com">terryligon@hotmail.com</a></th>
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<td>Keith Atkins</td>
<td><a href="mailto:keith.atkins@murphyusa.com">keith.atkins@murphyusa.com</a></td>
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<tr>
<td>Treasurer</td>
<td>Evelyn Green</td>
<td><a href="mailto:evelyn@gbcminerals.com">evelyn@gbcminerals.com</a></td>
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<td>Immediate Past President</td>
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<td><a href="mailto:christina4th@gmail.com">christina4th@gmail.com</a></td>
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