The Illinois Basin, New Albany Shale

...Is the Next Big U.S. Oil Play
What was once considered land that was already past its prime is now the hot topic of conversation, and the next lucrative business idea. While it is common to hear talk of the top oil producing areas in the United States like North Dakota, the next big oil play is happening in an underrated but auspicious area, the Illinois Basin.

The Illinois Basin

The Illinois Basin is approximately 60,000 sq. miles, and covers parts of southern Illinois, southwest Indiana and northwest Kentucky. The first oil and gas boom experienced in this basin was in the early 1900s.

By the 1930s, seismic technology became available and improved the process enough to provide a second boom in the basin. This second period of success lasted through the 40s and 50s, with a peak production in 1940 at 147.6 million barrels of oil.

Over the years, 4 billion barrels of oil and 4 trillion cubic feet of natural gas have been produced in Illinois using conventional methods. However, many people believe there is much more to uncover beneath this basin, and the reason lies in the geologic formation known as the New Albany Shale.
New Albany Shale

The New Albany Shale is much like the illustrious Bakken Shale underneath the Williston Basin in that it was formed in the same period of time, and is similar in porosity and size. The New Albany Shale comes from the Devonian Age, and formed approximately 350 million years ago in what was once a shallow sea, and is now the eastern portion of the United States.

Other major plays that have come out of these shale formations:
- Woodford Shale under the Andarko Basin
- Marcellus Shale under the Appalachian Basin
- Antrim Shale under the Michigan Basin
- Eagle Ford Shale in Texas
- Williston Basin, North Dakota

These have formed the reputation of some of the most prolific source rocks on the continent.

As these other shale plays in the U.S. have been great successes, and because the New Albany Shale is so similar in geology to the formations that brought success, there has begun a magnificent re-birth of oil production in the Illinois Basin.

In 2002, a study showed that the New Albany Shale was deep enough to have generated an estimated 300 billion barrels of oil. This means that even if only a fraction of that oil can be recovered, this basin has the potential to become a massive oil play. Again, using conventional methods, there have been almost 90,000 wells drilled in the Illinois basin, 32,000 of which are still producing today! The next step is developing the potential of this area using a combination of new and improved drilling techniques.
Drilling Methods

First patented in 1891 by Robert E. Lee, horizontal drilling is not a new concept. However with advances in technology and necessity to meet rising demand, there is an increased focus on accessing less accessible reservoirs, and therefore constant improvements on the process of drilling.

Now accounting for 5 – 8% of active onshore wells in the United States, and increasing every year, horizontal drilling has become an extremely important technology.

Horizontal wells increase the exchange surface between the well and reservoir rock and create a longer drain hole, and because of this, horizontal wells can produce up to ten times more than vertical wells.

The Illinois Basin contains many productive Lower Mississippian Carbonate reservoirs, much like the Appalachian Basin, that are ideal for horizontal development. When practiced alongside hydraulic fracturing, horizontal drilling can convert unproductive shale structures into fantastic reservoir rocks.

Tapping the Gas

Horizontal drilling and hydraulic fracturing have made it feasible to extract huge amounts of natural gas trapped in shale formations. Here’s how they work.

A rig drills down into the gas-bearing rock, which can be 7,000 feet or more below the surface. The well is lined with steel pipe.

The well is sealed with cement to a depth of 1,000 feet or more to prevent fluids or gas from seeping into the groundwater.

A pump truck injects a mix of sand, water, and chemicals into the well.

Tanker trucks deliver water for the fracturing process.

A rig charges blast holes through the well casing and into the surrounding rock.

Sand, water, and chemicals are pumped in at high pressure to further fracture the rock.

Gas escapes through fissures propped open by sand particles and rises to the surface.

Recovered water is stored in open pits, then taken to a treatment plant.

Natural gas flows out of well.

Natural gas is tracked to a pipeline for delivery.

Sources: Chesapeake Energy, Al Granberg, WSJ research
Areas of mechanical weakness in rock are called fractures (ie: faults, joints, styolites). Open-mode fractures and faults have been observed in the New Albany Shale. Around 66% of the produced oil comes from the area of thermally-mature New Albany Shale source rocks, which suggests the primary hydrocarbon movement was upwards through faults and fractures and into the reservoir strata above.
About Our Project

After decades of lip-service, and in spite of a less than cooperative regulatory environment, the United States is poised to become the top energy producer in the world and be energy independent in a way NEVER before seen in modern America.

While it is true our resources are finite, our ability to find, isolate, and extract our precious hydrocarbons is at an all time high. Excellence in technology and science has served, to a tremendous degree, this new level of abundance.

The focus of the next “BIG PLAY” is in progress right now. The target: the “Illinois Basin’s, New Albany Shale”. This basin spreads through Indiana, Illinois, and Western Kentucky, and carries with it the D.N.A. of the previous hot spots in the continental United States; those being the Williston Basin, (Bakken Shale of North Dakota) and the Eagle Ford Shale of Texas. These areas, along with a couple others, have a HUGE proven daily production and MASSIVE in place reserves.

In addition to the “target formation” (New Albany Shale) there are known producers in the area from formations both ABOVE and BELOW, providing us with multiple pay zones. The Stones River, the Sunny Brook, the Murfreesboro, and the Knox are ALL producing formations in the greater Tennessee and Kentucky region. Chances of a “dry-hole” are slim indeed. From all the information gathered thus far, the hit rate in Breckinridge and Meade counties is over 90%

With new and advanced drilling methods & proven completion technologies (fracking), wells are being completed with daily production from 33 barrels (Bbls) to 300 bbls per DAY. Most are also dual producers in that they also produce natural gas and have anywhere from 5 to 7 pay zones. Forty (40) acre spacing allows for HUNDREDS of wells to be drilled on these gently rolling hills of accommodating terrain.

Companies have been quietly gathering acreage and been active in this market for the last 15 months. While mostly ALL drilled wells thus far are being reported as tight holes (no production information required for the first 12 months), there have been zero dry holes.

Patriots has secured something unique to the industry. It’s called the “Production Deficiency Protection Plan”. This essentially acts as a hedge against any losses of your investment capital. If, at the end of 10 years from the commencement of the Partnership, there is a deficiency between your initial capital contribution and what the program has paid in returns, the plan makes up the difference, and you get a check for whatever the the deficiency amount would be. There are only a very select few throughout the entire oil and gas industry that meet the standards to make this Capital Protection plan available!

Patriots Energy Group, Inc. has selected rights for locations on 40,000 acres of this prime oil & gas producing property.
Overview of New Albany Shale Play in the Western Kentucky Portion of the Illinois Basin

The New Albany Shale is predominately an organic-rich, brownish-black shale that is present in the subsurface throughout the Illinois basin and covers an area of approximately 60,000 square miles in parts of Kentucky, Illinois and Indiana.

Since the initial discovery of oil within the Illinois Basin in 1886, an estimated four (4) billion barrels of oil and four (4) trillion cubic feet of natural gas have been produced primarily from conventional reservoirs (sandstones and limestones) of Late Mississippian and Pennsylvanian age(1). Oil characterization and source rock analysis indicates that the New Albany Shale is the primary source rock for the basin-wide hydrocarbon production. Organic geochemical correlations indicate that more than 99% of discovered petroleum in the basin was derived from the New Albany Shale(2).

The total natural gas content of the New Albany Shale (Devonian and Early Mississippian) in the Illinois basin has been estimated at 86 trillion cubic feet(3). Although the New Albany Shale has produced commercial quantities of natural gas for more than 100 years from many fields in southern Indiana and western Kentucky, only a small fraction of its potential has been realized(4). Production of natural gas from the New Albany shale in western Kentucky can be traced back to Meade and Breckinridge Counties with development from the Doe Run Gas pool (Meade County) in 1863 and the Cloverport Pool (Breckinridge County) in 1889(5).

The thickness of the organic-rich shale facies varies from 0 to over 300 feet going from basin edge to center and occurs at depths ranging from the surface to in excess of 5,000 feet below ground surface in the center of the basin.

Current recovery of the black shale gas in vertical wells is typically estimated at 15% To 20% of gas-in-place. Depending on the location and depths, the New Albany Shale has been considered to have great potential for natural gas reserves with gas-in-place (GIP) measures ranging from 8 billion cubic feet (bcfg) of gas per square mile to 20 or more bcfg/square mile(6).

Until recently the New Albany Shale in western Kentucky has been considered a low volume, low pressure long lived natural gas “resource play” with very few reports, if any, of commercial oil production. As such, most all of the studies and research conducted to date has been relative to and geared toward natural gas potential and production of this vast resource.

The release of a revised completion report on April 30, 2012, for Endeavor Energy Resources’-Burton #4 well located in Breckinridge County, KY show this well, originally completed as a gas well, producing 5.5 barrels of oil from the upper most member of the New Albany Shale formation at a depth of about 1,710 feet. Since the release of the revised completion report four (4) additional oil wells have completed in the New Albany Shale. Initial Potential (IPs) of these new wells have ranged from 5 BO and 21 thousand cubic feet per day (Mcf/d) to 49 BO and 100 Mcf/d all from depth of less than 2,000 feet. Permit activity available through the Kentucky Division of Oil and Gas show a significant increase in approved New Albany Shale drilling in the last year and 13 new permits issued in the week ending April 25, 2014.
The New Albany Shale oil play in western Kentucky is in its infancy and associated oil reserves are difficult to estimate at this time. However, the following key elements make the New Albany Shale an extremely attractive drilling and exploration target:

- Source rock for over 4 billion barrels of oil and 4 trillion cubic feet of natural gas;
- Recent discovery of commercial oil reserves (1 well is reported to have produced over 8,000 barrels of oil within a relatively short time frame)(7);
- Known natural gas potential;
- Shallow depths (less than 2,000 feet);
- Relatively low drilling and completion cost;
- Low risk of encountering the shale (present throughout the basin); and
- Potential to encounter prolific shallower reservoirs during drilling (serendipity).

Combining the aforementioned attributes with current fracking and horizontal drilling technologies the New Albany Shale is anticipated to become another significant resource play within the United States.

Prepared by:

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Energy Resources LLC
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References
(3) Bookout, J.F. Chairman, Unconventional gas sources-Volume III, Devonian Shales: National Petroleum Council Committee on Unconventional Gas Sources. 1980
Patriots Energy Group, Inc.

New Albany Shale Play/Fairway Map w Recent Permits

Legend
- Selected Lease Holdings
- Wells Select 1000
  - <all other values>
- PLOTS Symbol
  - D&A
  - GAS
  - LOC
  - O&G
  - OIL
  - SRV
  - NALB Deepest Pay
  - New Permits Last 12 Months

Only Wells with Total Depth Greater than or Equal to 1,000 FT are shown on the Map.

Number below the well spot is the reported "Total Depth" of the Well
NALB=New Albany Shale Well

The data contained herein are based on multiple public domain data sets. No attempt to verify and/or reconcile the data has been conducted.

Geographic Coordinate System:
GCS North America 1983;
Projected Coordinate System:
NAD 1983 State Plan KY FIPS 1600

1:170,000
1 inch = 14,167 feet

Map Prepared by J. Johnson, RPG
4/30/2014
Who We Are

The leadership of Patriots Energy Group, Inc., is composed of an elite group of prominent and experienced businessmen, who have been responsible for projects involving hundreds of millions of dollars.

Mark W Wheeler - President

Mark Wheeler has over thirty-five years of business experience and four years of military experience. He attended the US Naval Academy where he received a bachelors degree in mechanical engineering and management, and went on to receive his MBA in general management from San Diego State College. He is well-versed in executive management, technical design and development management; financial product development, international finance, international marketing, e-commerce operations, financial products risk management, project management, staff management, strategic planning, systems design and development, hardware and software sales. All of these skills make him a great leader and an excellent source of wisdom and experience in the financial industry.

Mr. Wheeler will also use the services of professional petroleum consultants, engineers and geologists as required for the prospect and lease acquisition, prospect evaluations, geological analysis, project engineering, drilling and completion and equipment design for the production techniques related to this program. With his experience and the utilization of services of consulting specialists, Mr. Wheeler will provide the program with greater opportunities to effectively perform in its business of exploration and production of oil and gas.

James C Johnson – Consulting Geologist

With a background in subsurface geology and petroleum exploration and development, James Johnson provides diverse experience and expertise in the oil and gas industry. He holds degrees in geology from University of Kentucky and University of Oklahoma and a degree of Hydrogeology from University of Minnesota. Johnson has put in seven years of mid-continent exploration and development and five years specifically in the Illinois and Appalachian Basins. He uses stratigraphic, structural, and sedimentological analysis to define reservoir and fracture characteristics, delineate facies tracts and interpret depositional environments. Having an extensive history of fieldwork and multiple qualifications, Johnson brings a great deal of knowledge to the team.

Louis Judd - Contracted Field Supervisor

Louis Judd, a U.S. Army Veteran, is the president and operator of B&J Oil Company, and has been involved in the Oil & Gas industry for over thirty years. Throughout this period of time he has accumulated a vast supply of knowledge and experience in all facets of the oil & gas industry and has personally invested in the production of oil & gas for over twenty years. Combined with his decades of experience on the field he also has served on the Board of Directors of the Kentucky Oil & Gas Association.
Who We Are

BOARD OF DIRECTORS

Mr. Ken Furst – Chairman

Mr. Furst has previously been employed by Wall Street firms in key executive positions. Most recently, he served as Vice President of Bulk Acquisitions for Option One Mortgage. He was responsible for supervising the due diligence process for bulk sale acquisitions, including portfolio analysis and credit decisions. Mr. Furst has personally signed off on over 1.8 Billion Dollars in transactions on an annual basis.

Mr. Karl Gashler

Karl Gashler is a graduate of the United States Air Force Academy, with distinction. Mr. Gashler was the top graduate of the USAF F-16 Fighter Pilot School and Luke Air Force Base F-16, overall Top Gun of the Year 2003. Mr. Gashler is a combat decorated fighter pilot with 99 combat missions in the Middle East. In addition, Mr. Gashler oversaw a $200 Million Dollar sensitive Department of Defense foreign military assistance program. Mr. Gashler is fluent in Mandarin Chinese and achieved a Perfect Score on the Defense Language Proficiency Test. After leaving the Air Force Mr. Gashler has successfully developed commercial real estate.

Mr. David Acosta

David Acosta was the Point Man for the North Las Vegas Police SWAT Team for 6 years. He served as specialist in linguistics and as a tactile liaison between the FBI and the North Las Vegas SWAT Team. As Team Leader, he provided personal protection in Afghanistan for United States Deputy Under Secretary of Defense, Paul Brinkley and his staff. Mr. Acosta has owned and operated his own business, Key Group Security Professionals. Most recently, Mr. Acosta is the founder of Critical Incident Management Solutions.