



# BNK

P E T R O L E U M

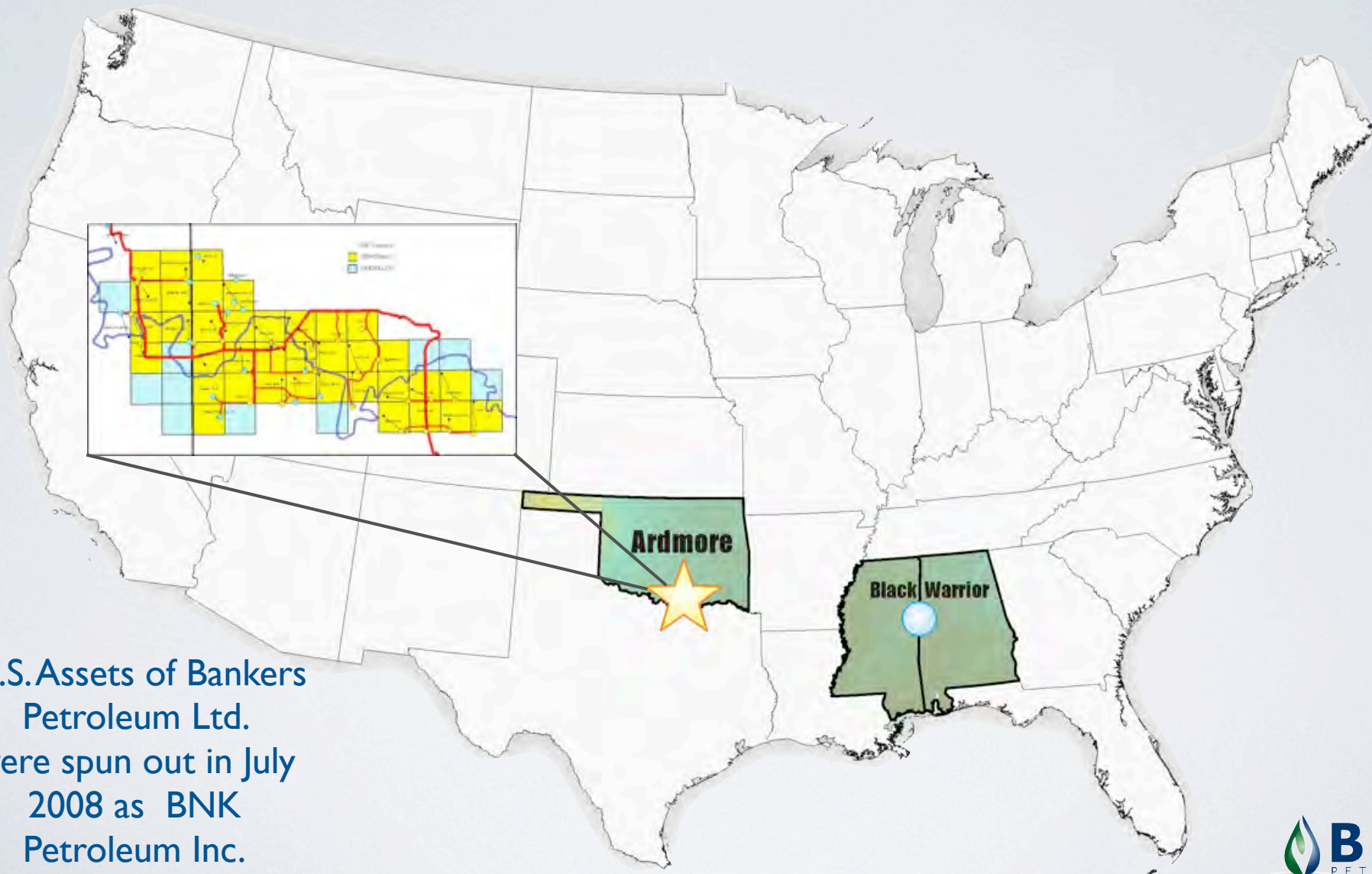
BNK Petroleum, Inc.  
Corporate Presentation  
December 2011

# DISCLAIMER

This presentation contains forward looking information including estimates of reserves and estimated net present values of future net revenue associated therewith, expectations regarding future production including anticipated timing, future expansion plans including natural gas production, drilling and well spacing, future land acquisitions, potential partnerships, risk mitigation strategies, estimated capital requirements and planned capital expenditures, general operational and financial performance in future periods, and our 2010 strategies and goals in the U.S. and Europe.

Forward looking information is based on management's expectations regarding future growth and results of operations, and is based on estimations and assumptions including as to future operating costs, forecast prices and costs, estimated production, capital and other expenditures (including the amount, availability, nature and sources of funding), plans for and expected results of drilling activity, costs associated with and effect on results of operations of environmental compliance, future royalty rates, commodity prices and foreign exchange rates, future economic conditions and political and regulatory stability in the countries in which BNK operates and globally, and involves significant known and unknown risks and uncertainties, which could cause actual results to differ materially from those anticipated. These risks include, but are not limited to: the risks associated with the oil and gas industry (e.g., operational risks in development, exploration and production; delays or changes in plans with respect to exploration or development projects or capital expenditures; the uncertainty of reserve estimates; the uncertainty of estimates and projections relating to production, costs and expenses, and health, safety and environmental risks), risk associated with equipment procurement and equipment failure, risks related to international operations, the risk of commodity price and foreign exchange rate fluctuations, risks related to future royalty rate changes and risks and uncertainties associated with securing and maintaining the necessary regulatory approvals and financing to proceed with the continued expansion of our various existing and proposed projects. In addition, the recent financial crisis has resulted in significant economic uncertainty and resulting illiquidity in credit and capital markets which increases the risk that actual results will vary from those implied or expressed by forward looking information and these variations may be material. These and other risks and uncertainties are described further in BNK's Annual Information Form for the year ended December 31, 2010, which is available at [www.sedar.com](http://www.sedar.com). Certain assumptions relating to reserves and resources and estimated future net revenue associated therewith are contained in BNK's annual filings regarding oil and gas disclosure - Form 51-101F1. The Corporation assumes no obligation to update or revise the forward-looking information to reflect new events or circumstances, except as required by law. All references to barrels of oil equivalent (boe) are calculated on the basis of 6 Mcf : 1 bbl. This conversion ratio is based on an energy equivalency conversion method primarily applicable at the burner tip and does not represent a value equivalency at the wellhead. Boes may be misleading, particularly if used in isolation. The discounted and undiscounted net present value of future net revenues attributable to reserves do not represent fair market value.

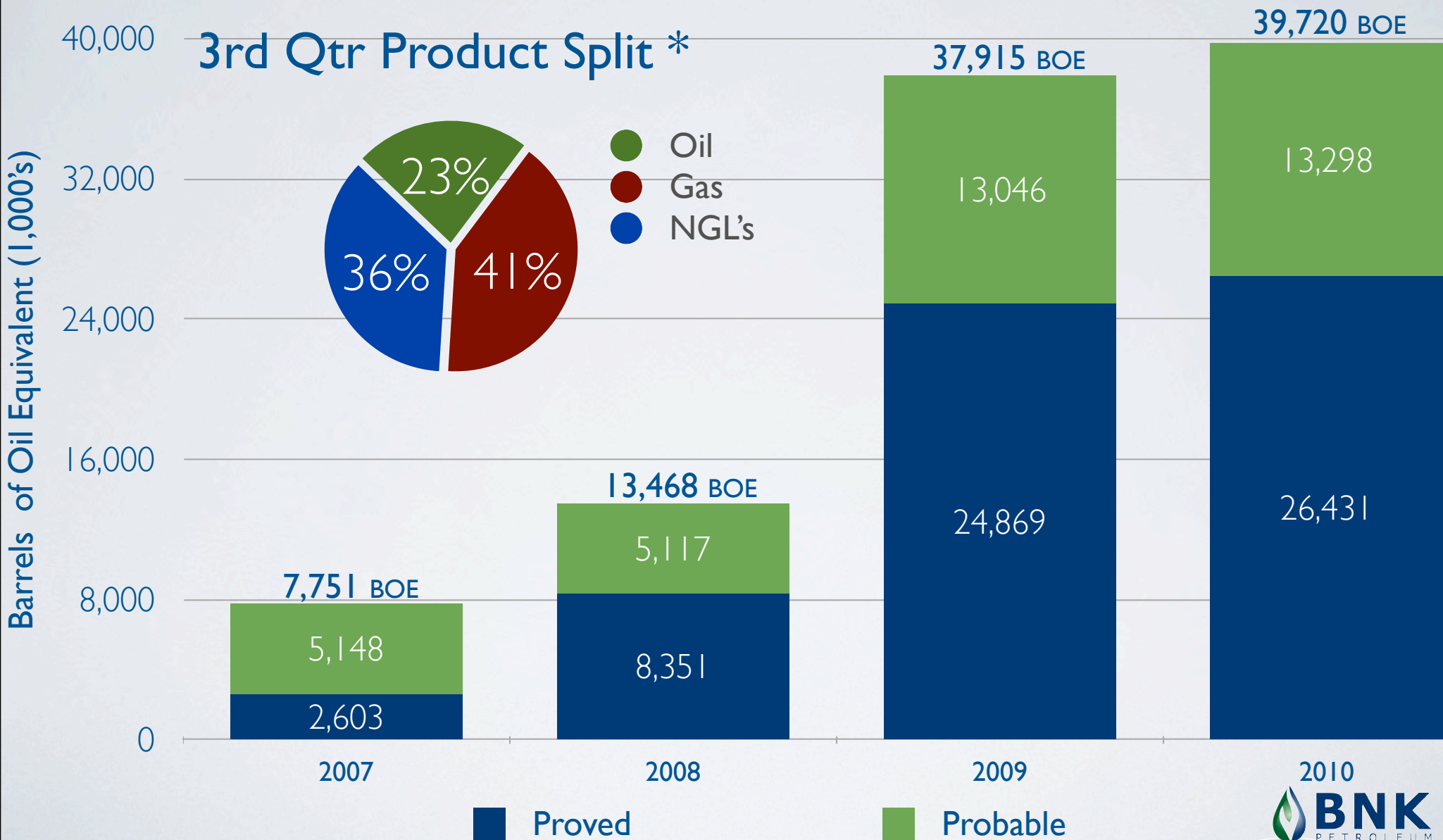
# HISTORY



U.S. Assets of Bankers  
Petroleum Ltd.  
were spun out in July  
2008 as BNK  
Petroleum Inc.



# BNK YEAR END RESERVES



\* May differ from MHA 12/31/10 Reserve Report



# TISHOMINGO RESERVES

(Woodford Shale, Ardmore Basin - Oklahoma, USA)

## MHA Engineering Reserve Report - BNK Net Interest

### Forecast Price 10% Discount Case

	December 31, 2008 (Pre-Tax)		December 31, 2009 (Pre-Tax)		December 31, 2010 (Pre-Tax)	
<b>Proved Developed Prod</b>	4,046 boe	\$51.7 mil	4,288 boe	\$45.1 mil	4,860 boe	\$65.2 mil
<b>Proved Undeveloped</b>	4,305 boe	\$58.4 mil	20,581 boe	\$127.3 mil	20,581 boe	\$145.0 mil
<b>Proved Dev Non Prod</b>	-	-	-	-	1,099 boe	\$13.6 mil
<b>Total Proved</b>	8,351 boe	\$110.1 mil	24,869 boe	\$172.4 mil	26,431 boe	\$223.8 mil
<b>Probable</b>	5,117 boe	\$77.7 mil	13,046 boe	\$68.8 mil	13,289 boe	\$91.2 mil
<b>Total Proved + Probable</b>	<b>13,468 boe</b>	<b>\$187.8 mil</b>	<b>37,915 boe</b>	<b>\$241.2 mil</b>	<b>39,720 boe</b>	<b>\$315.0 mil</b>

1) Derived from the Evaluation of the PN&G Reserves of BNK Petroleum, Ardmore Basin OK as of each respective year prepared by MHA Petroleum Consultants, Inc.

2) Proved reserves are those reserves that can be estimated with a high degree of certainty to be recoverable. It is 90% likely that the actual remaining quantities recovered will exceed the estimated proved reserves.

3) Probable reserves are those additional reserves that are less certain to be recovered than proved reserves. It is equally likely that the actual remaining quantities recovered will be greater or less than the sum of the estimated proved plus probable reserves.

4) Estimated net present value of future net revenues using a 10% discount rate, calculated after deduction of forecast royalties and overrides in place as of December 31, 2010, operating expenses, capital expenditures and well abandonment costs but before corporate overhead or other indirect costs, including interest and income taxes using the Sproule December 31, 2008, 2009 and 2010 price forecast. Future Net Revenue does not necessarily represent fair market value.

5) Refer to slide 2 for forward looking information disclaimer and advisory and additional cautionary statements regarding assumptions, risks and uncertainties.



# EUROPE



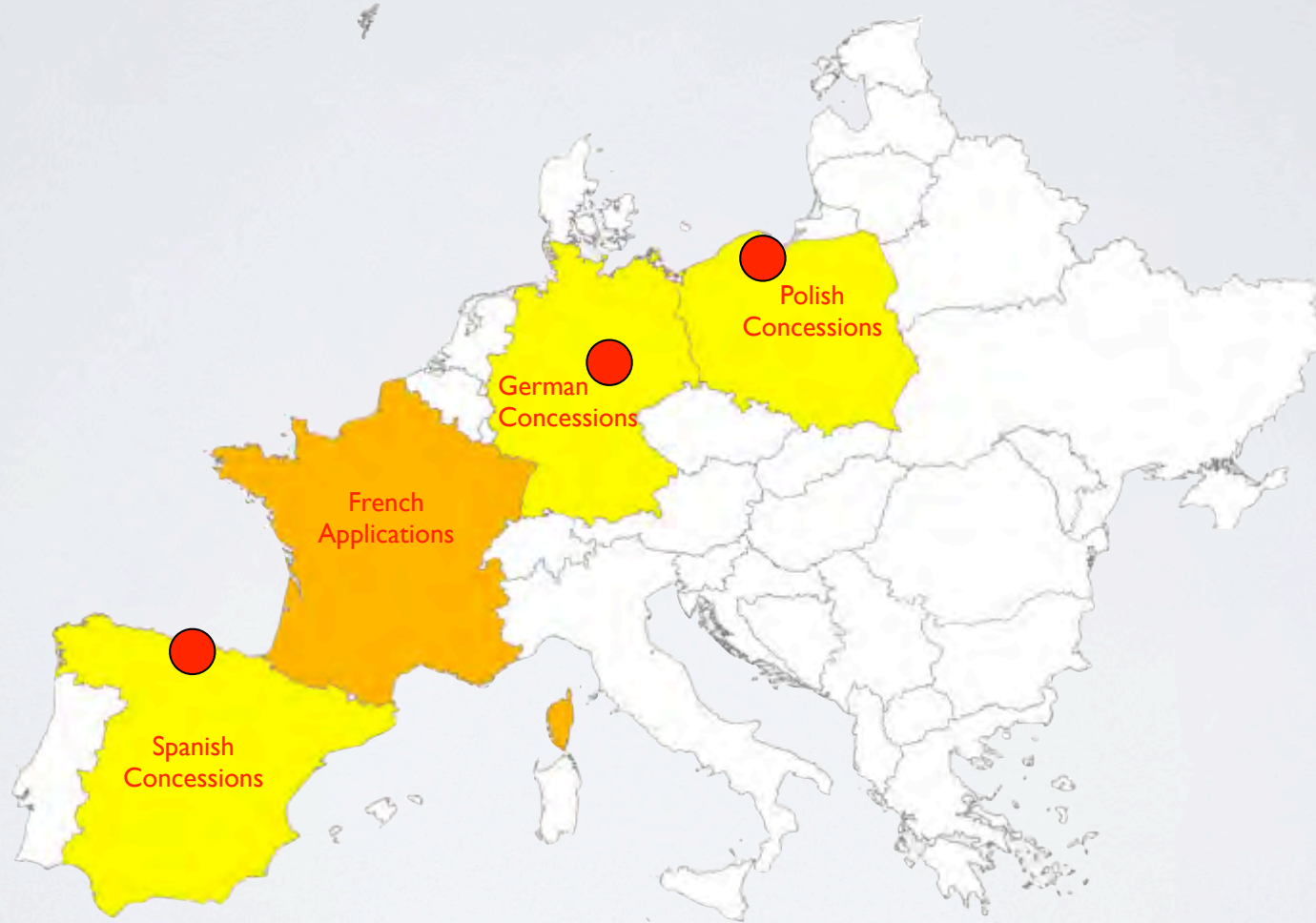
# TERMS

	Woodford / Haynesville	U.S. Non- proven Areas	Baltic Poland	Germany	Spain
Royalties	18% - 25%	12.5% to 20% Avg. 18.75%	~1%	10-20%	0%
October Gas Prices (approx)	~\$3.50 - \$3.80	~\$3.65 - \$4.00	~\$9.37*	~\$9.25- \$10.05	\$13.60**
Corporate Tax Rate	35%	35%	19%	~30%	35-40%

\* <http://en.gaz-system.pl/taryfa/cena-referencyjna-gazu.html> is the link to Polish prices for long term dedications - not spot  
Based on a USD \$1 = 3.05 PLN exchange rate

\*\* Southwest Europe LNG marker

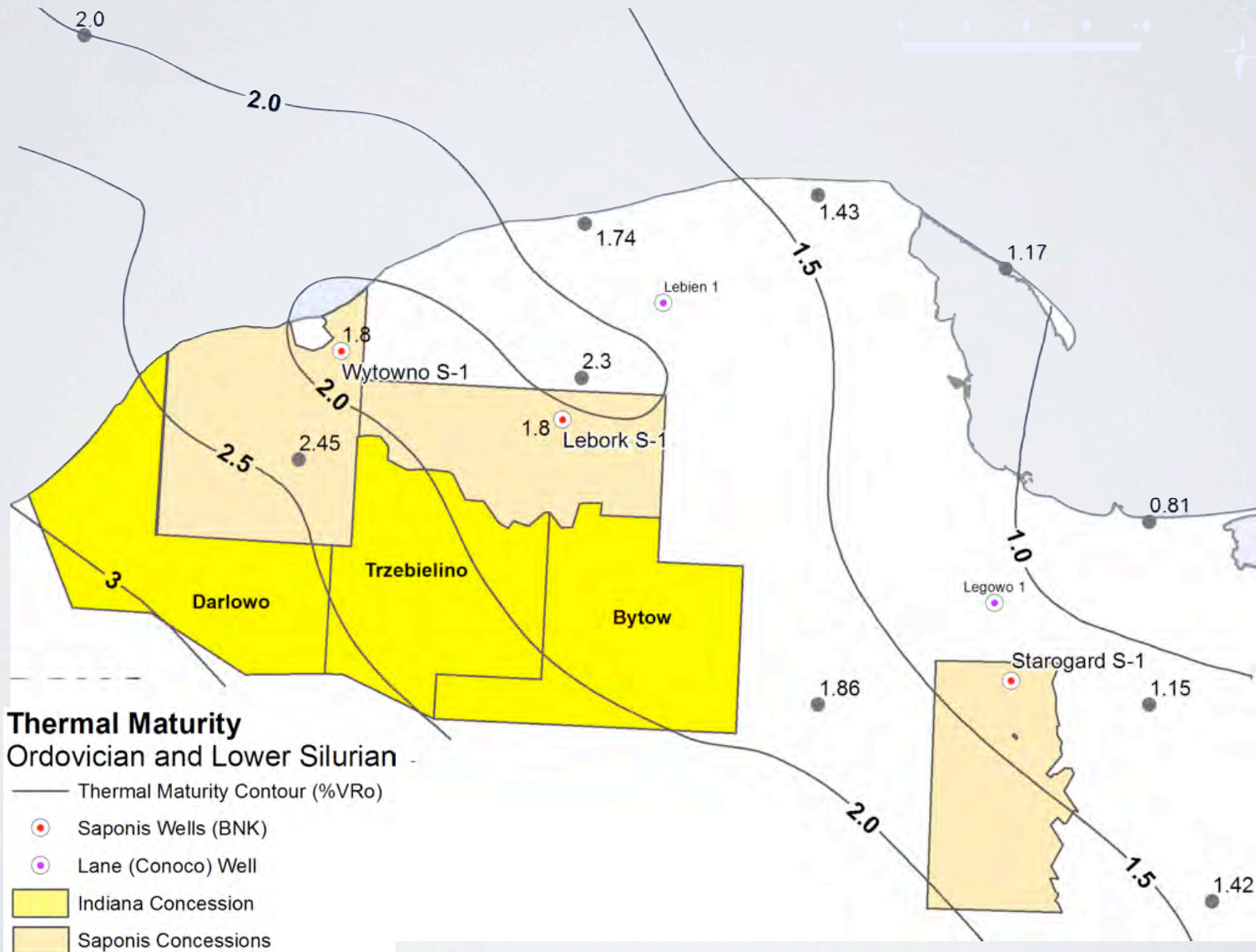
# EUROPEAN PROJECTS





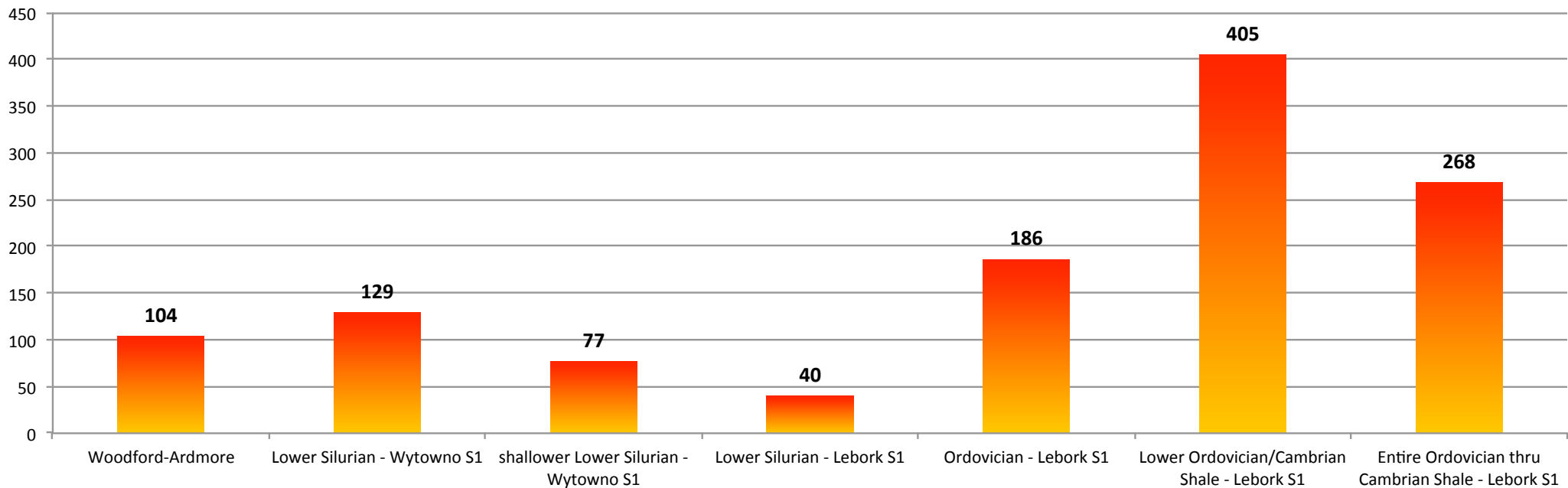
# POLISH THERMAL MATURITY

## Thermal Maturity of Lower Silurian and Ordovician



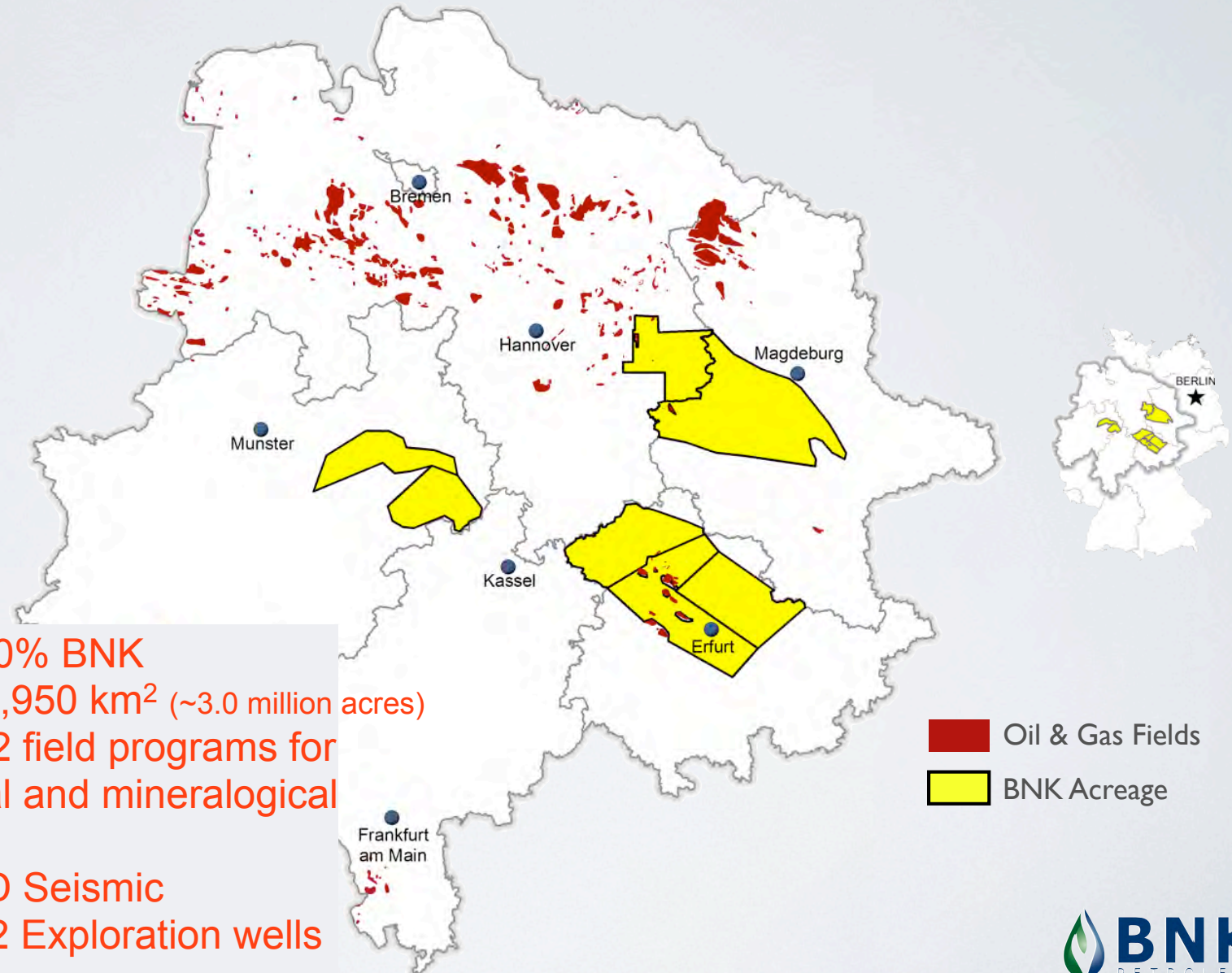
# DESORPTION VALUES

Total Desorbed Gas (scf/ton)



Desorbed gas is gas that is measured coming off core samples plus the calculated amount lost as the core is brought to the surface

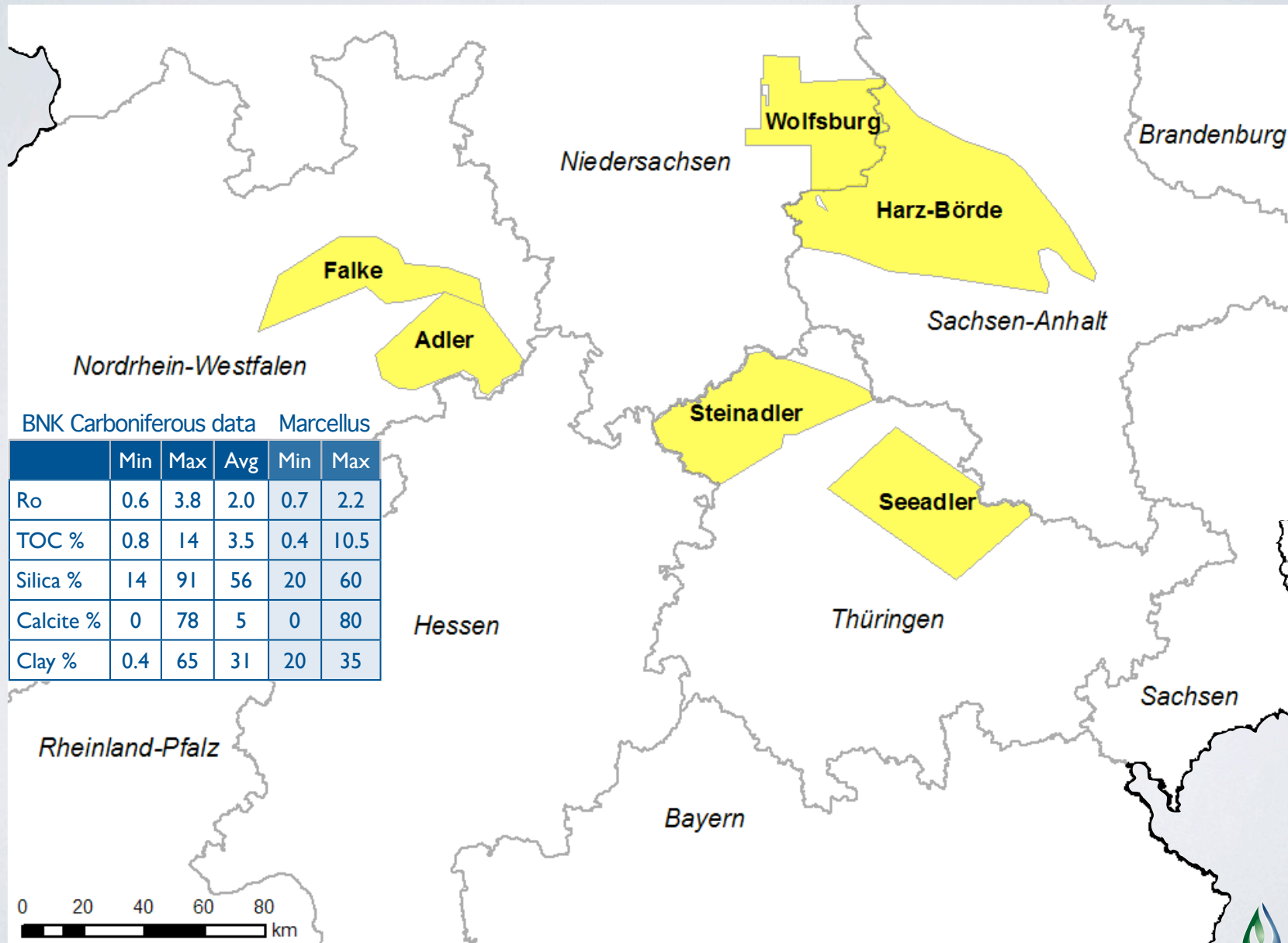
# GERMAN PROJECTS



## BNK Deutschland - 100% BNK

- Concessions of 11,950 km<sup>2</sup> (~3.0 million acres)
- 2010: Completed 2 field programs for geochemical and mineralogical analyses
- 2012: Acquiring 2D Seismic
- 2013: Drill up to 12 Exploration wells

# BNK OUTCROP WORK

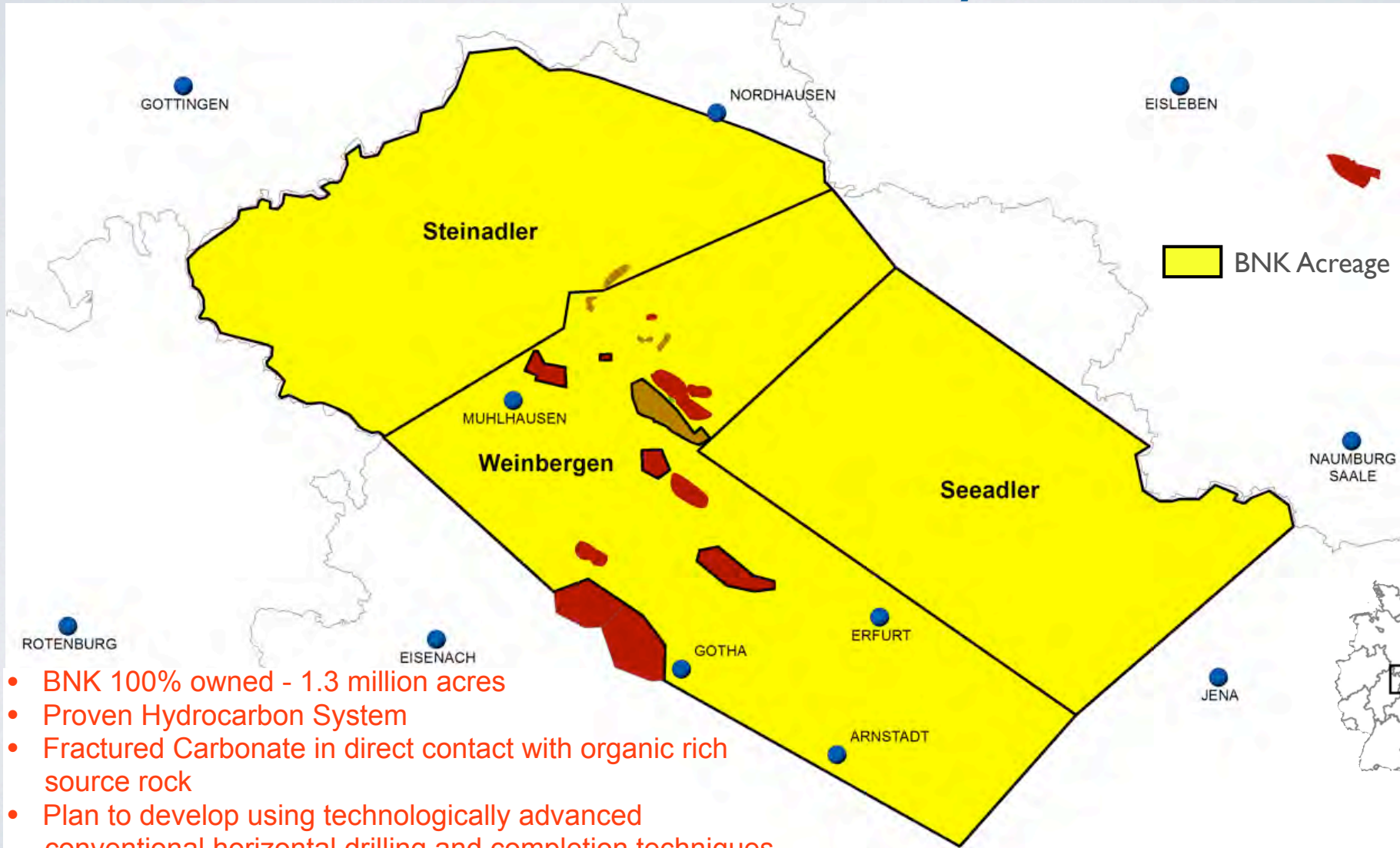


\* Bakken Oil Generation Window



# THURINGIA

## Fractured Carbonate Play

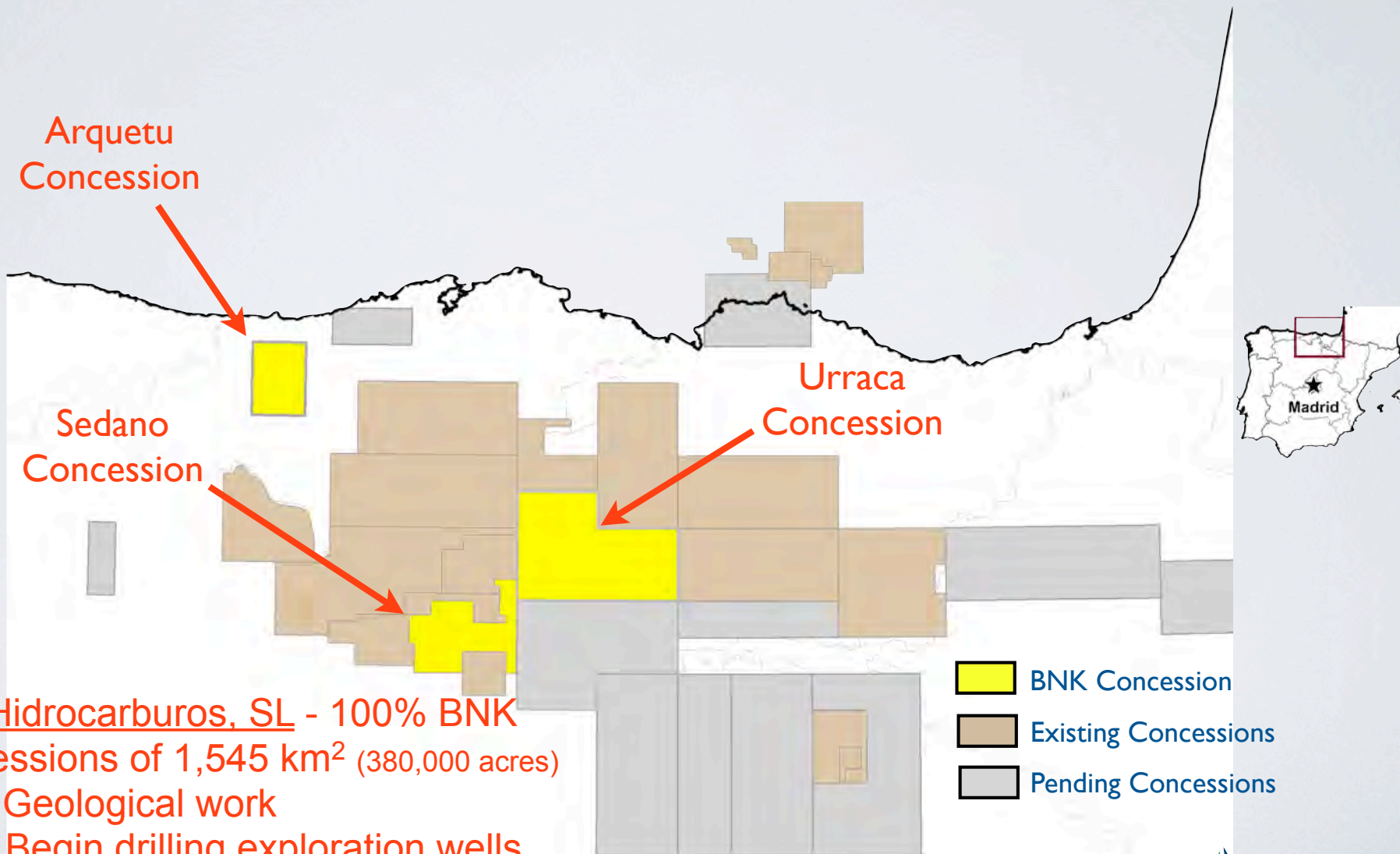


- BNK 100% owned - 1.3 million acres
- Proven Hydrocarbon System
- Fractured Carbonate in direct contact with organic rich source rock
- Plan to develop using technologically advanced conventional horizontal drilling and completion techniques

Vintage Oil Field Vintage Gas Field



# SPANISH PROJECT



- Trofagas Hidrocarburos, SL - 100% BNK
- Concessions of 1,545 km<sup>2</sup> (380,000 acres)
  - 2011: Geological work
  - 2012: Begin drilling exploration wells

Existing and Pending Concession data from published reports and other sources

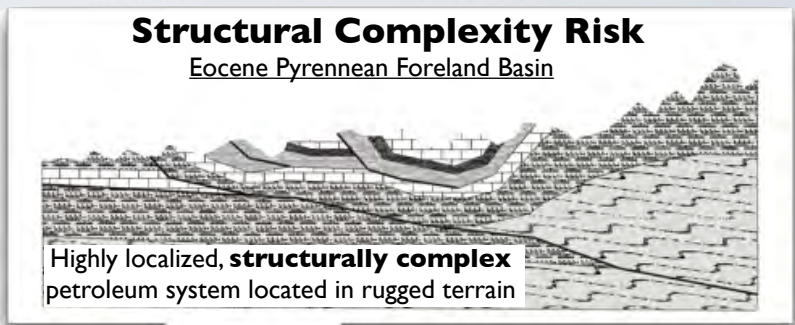
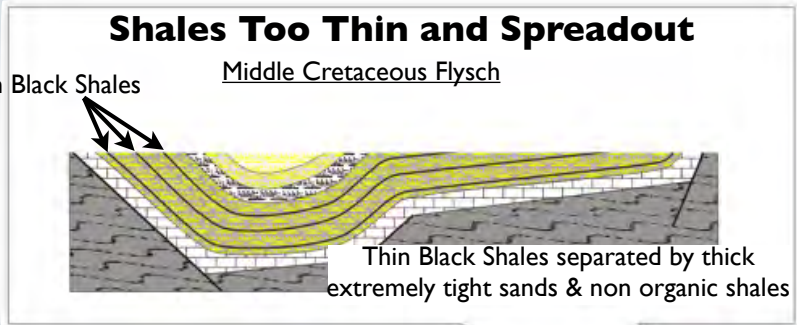


# BASIN EVALUATION

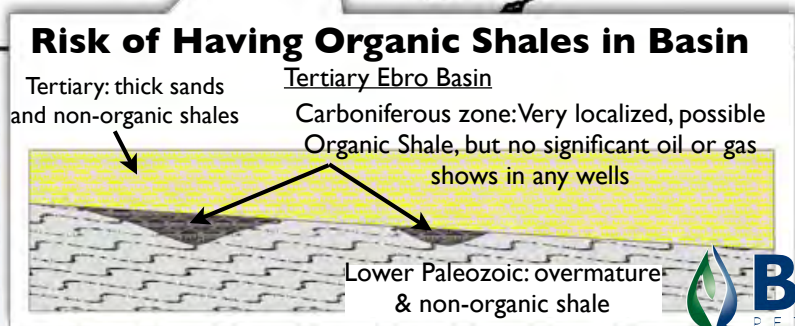
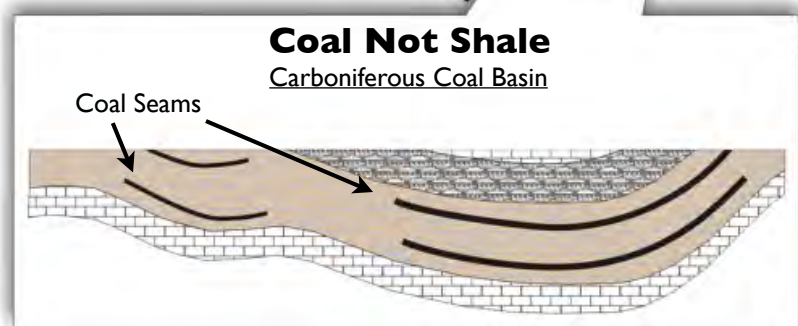
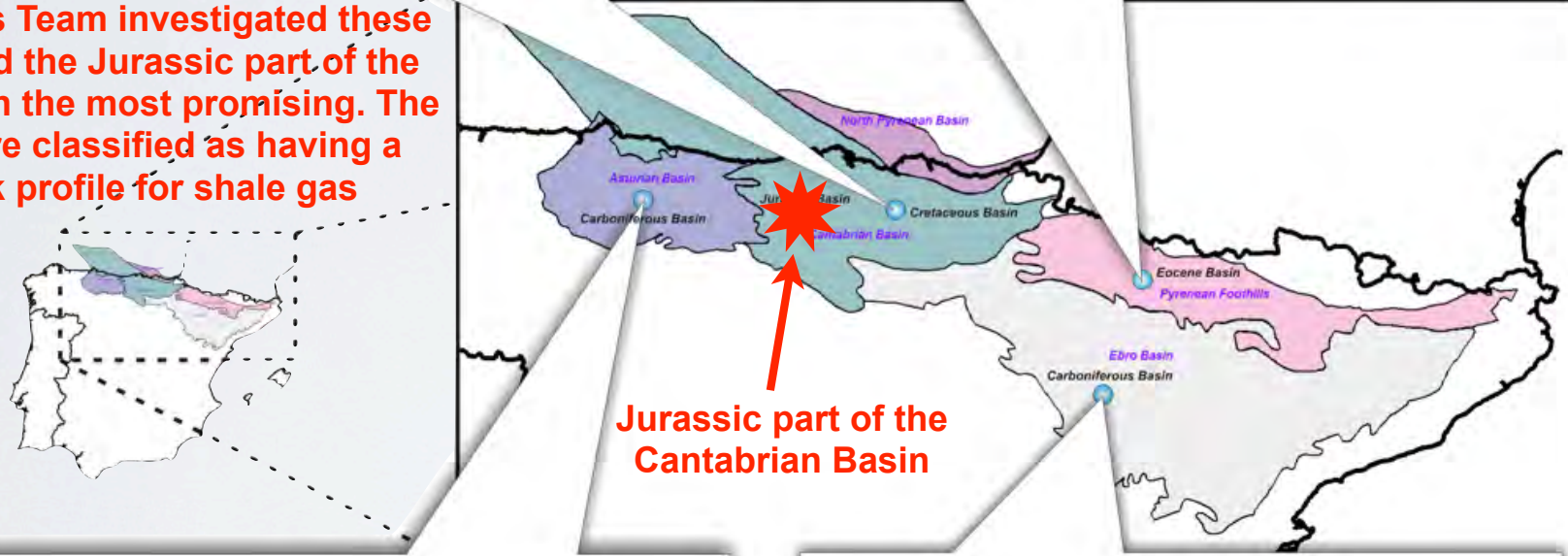
## (BNK'S STANDARD APPROACH)

- BNK's highly experienced shale gas team of Geoscientists:
  - Search literature to identify potential shale intervals
  - Conduct further science to narrow down viable prospects
    - Obtain all available data (i.e. mud and electric log data and existing seismic)
    - Conduct field outcrop acquisitions and sample existing core data
    - Perform critical rock property screenings (i.e. TOC, maturation, mineralogy etc..)
  - Generate basin play concept model
    - Compare to known successful shale analogs
- Pursue acreage in basins that meet BNK's criteria, that have the best looking characteristics and lowest risk profile for shale gas production
  - Many basins are reviewed, few are pursued

# EXAMPLE: SPANISH ASSESSMENTS

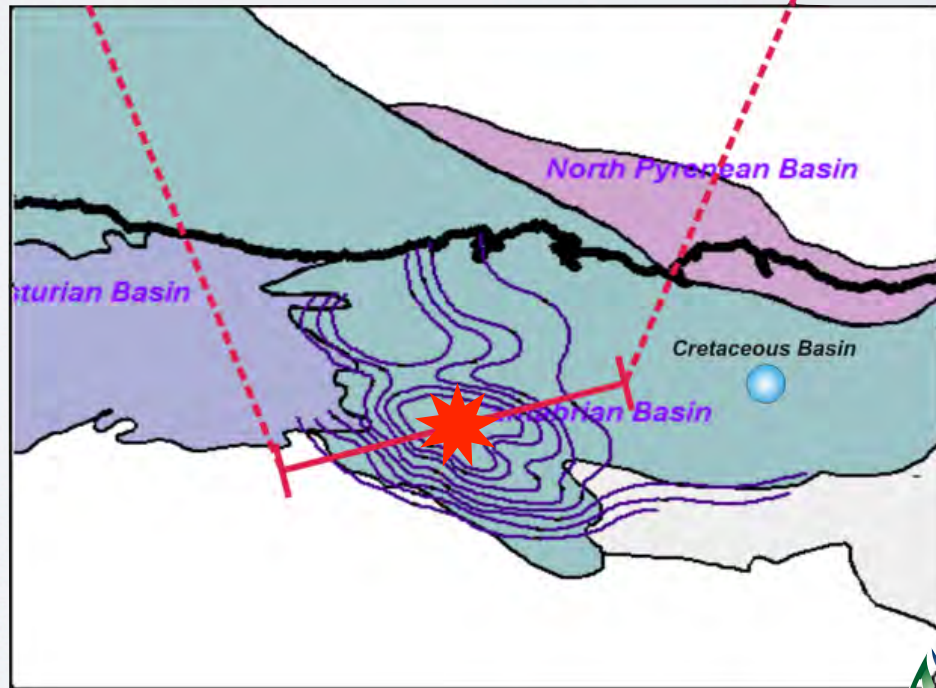
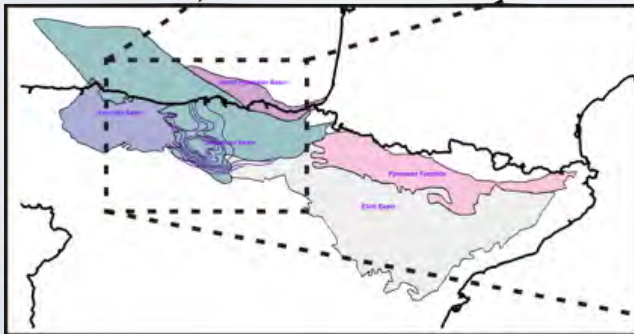
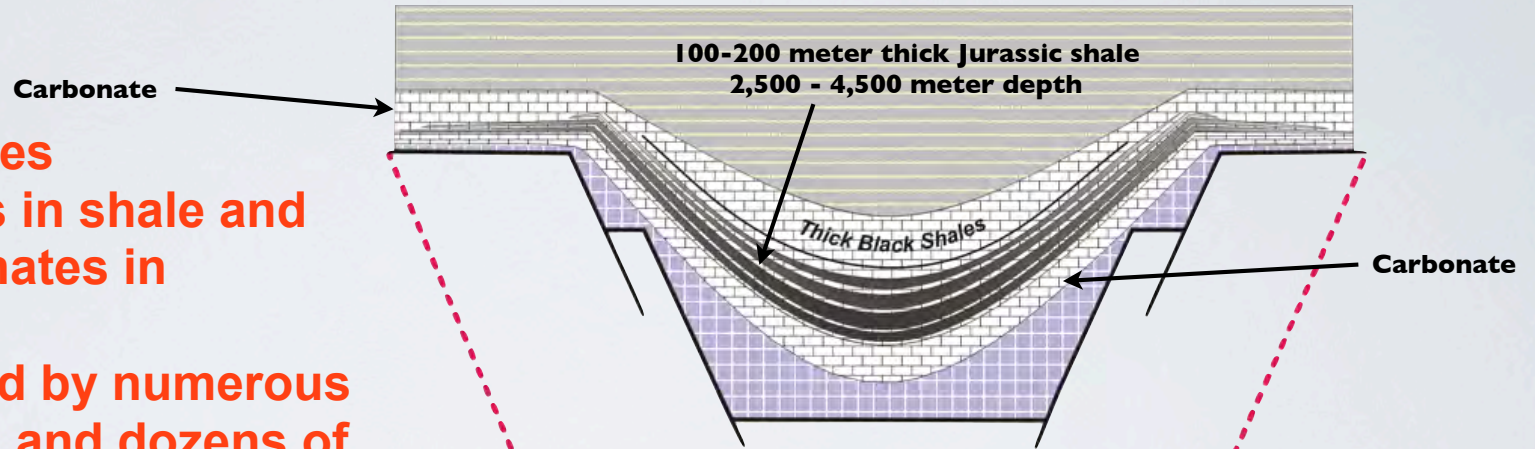


**BNK's Shale Gas Team investigated these basins and found the Jurassic part of the Cantabrian Basin the most promising. The other basins were classified as having a much higher risk profile for shale gas production**



# BNK JURRASIC SHALE PROJECT

- Thick black shales
- Gas & Oil shows in shale and fractured carbonates in existing wells
- Structure defined by numerous 2D seismic lines and dozens of wells
- Jurassic shale that has 1.3 - 5% Total Organic Carbon



# ACREAGE IN EUROPE

	Gross Acres *	Net Acres *	Comments	Commitments
Poland, Baltic Basin	730,000	195,000	Saponis - Farmed out to RAG & Sorgenia, partner LNG. BNK Manages Saponis	Drilled 1st well on each concession, acquiring 407 km of seismic in 4th quarter 2011. Have to drill and test 2nd well by June 2014 on each concession
Poland, Baltic Basin	880,000	880,000	Indiana - 3 concessions awarded Mar 2010 - acquiring 333 km Seis	Begin drilling 1st Qtr 2012, requirement to begin operations by Sept 2012 for 1st wells and drill & test 2nd well on each concession by June 2014.
Germany, North Rhine-Westphalia	500,000	500,000	2 Concessions awarded in Nov 2009	1st year geological work, 2nd year geological work & 2D Seismic, 3rd year vertical well, 4th year vertical well, 5th year horizontal well
Germany, Lower Saxony	300,000	300,000	1 Concession awarded in Dec 2009	1st year geological work, 2nd year geological work & 2D Seismic, 3rd year vertical well, 4th year vertical well, 5th year horizontal well
Germany, Thuringia	770,000	770,000	2 Concessions awarded in Jan 2010	1st year geological work, 2nd year geological work & 2D Seismic, 3rd year vertical well, 4th year vertical well, 5th year horizontal well
Germany, Saxony Anhalt	840,000	840,000	1 Concession awarded in May 2010	1st year geological work, 2nd year geological work & 2D Seismic, 3rd year vertical well, 4th year vertical well, 5th year horizontal well
Spain, Cantabrian Basin	62,000	62,000	1 Concession awarded in April 2011	1 year geological work, wells in years 2, 4, 5 and 6
Spain, Cantabrian Basin	234,000	234,000	1 Concession awarded in Sept 2011	1 year geological work, 2 wells in years 2, 3, 4, and 3 wells in year 5
Spain, Cantabrian Basin	85,000	85,000	1 Concession awarded in Nov 2011	1 well in 1st year with 2nd well started, 1 well in year 2 and three wells in each of years 3 & 4
Germany, Thuringia	535,000	535,000	1 Concession awarded in Nov 2011	1st year geological work, 2nd year geological work & 2D Seismic, 3rd year vertical well, 4th year vertical well, 5th year horizontal well
<b>Total</b>	<b>4,936,000</b>	<b>4,401,000</b>		

\* Acreage numbers approximate - Still awaiting other potential acreage grants that have been applied for



# BNK'S PHILOSOPHY

- Small Footprint of operating area
- Environmentally sound practices used
- Minimize interruptions to local community
- Monitor Environment to verify no changes
- Open opportunities for input and information exchange with communities and regulators
- Responsible neighbor, work with local communities as a good partner/citizen
- Employ local workforce
- Employ advanced industry knowledge
- Utilize local personnel & services that are available
- Help Europe meet it's energy needs, emissions targets, increase tax revenues and create good paying jobs

# GOING FORWARD

- Accelerate exploration in Poland, Spain and Germany
  - Polish Plan:
    - Restimulate Lebork S-1 well and stimulate Starogard and Wytowno wells
    - Finish acquiring 2D seismic
    - Drill 3 Indiana concession wells
    - Drill 2 Saponis concession wells
  - Spanish Plan:
    - Permitting for first 2 exploratory wells to be drilled in 2012
  - German Plan:
    - Permitting and acquisition of 2D seismic program
- Drill development wells in Tishomingo Field, Oklahoma, Woodford shale project staying within cashflow
- Continue to add staff - looking for additional quality people as we move more into operations and add more projects

# SUMMARY

- 2P Reserves of \$315 million NPV 10%\* (Backstop asset)
- 1st Mover advantage Europe - 3+ years into it
- Experienced Shale Gas team selecting and operating projects
- Diversification - 5 Basins in Europe currently (4.4 million acres)
- Credit facility of \$32 million, ~\$20 million drawn
- Symbol: BKX on the TSX (Toronto Stock Exchange)
- Total Common Shares: 144 million
- Total Fully Diluted: 154 million

\* MHA 12/31/10 Reserve Report as disclosed in other slides

# MANAGEMENT TEAM

- **Wolf E. Regener, President and CEO**

Mr. Regener brings over 24 years of conventional and unconventional E&P experience to BNK Petroleum, Inc.. In his role as Executive Vice President of Bankers Petroleum Ltd., and President of its wholly-owned US subsidiary, Mr. Regener was instrumental in the formation of BNK Petroleum, Inc., and its subsequent spin-off. His career also includes key senior executive positions with Tartan Energy, Alanmar Energy, and R&R Resources. With an extensive operations and finance background, Mr. Regener has been at the forefront of BNK Petroleum's acquisition of unconventional gas projects on an international scale. He holds a Business of Economics degree from the University of California, Santa Barbara, and has served on the Board of Directors of the California Independent Petroleum Association for over fifteen years.

- **Warren J. Nelson, Vice President and CFO**

Mr. Nelson brings over 35 years of broad based public company experience to the Company. Among other positions, Mr. Nelson's career has included Chief Accounting Officer and Acting CFO of Smith International, Inc., the NYSE Listed Fortune 500 multi-national manufacturer of products and services to the oil service industry; CFO, and in his last year CEO, of Huntway Refining Company, a NYSE publicly traded refiner; Interim CFO of Venoco, Inc. a U.S. oil and gas producer; founder and Director of AmeriTies Holdings; and Audit Manager at Price Waterhouse & Co. Mr. Nelson is a CPA and has his MBA in Finance from the University of California, Berkeley, California.

- **Martin E. Robert, Vice President Operations and Engineering**

Mr. Robert has extensive managerial and operational experience in Canada, France, The Netherlands, Russia and Argentina. Until recently, Mr. Robert was the President and CEO of ArPetrol Inc, a private oil and gas company with assets in Argentina. Previously Mr. Robert held the positions of Vice President of Engineering and International Operations at Vermilion Energy Trust (TSX) and President of Vermilion REP SA operating in France. Mr. Robert is a Petroleum Engineer and graduated with Honors from Queens University with a Bachelor of Science degree in Chemical Engineering.

- **Mark A. Shemaria, Manager, Health, Safety and Environment**

Mr. Shemaria brings over 29 years of managerial and operational experience for oil and gas operators and service companies in the USA. He has held various and increasing responsibilities in all aspects of E&P Health, Safety and Environmental management. Mr. Shemaria holds a Bachelor of Science degree in Industrial Technology and a MBA from the California State University Long Beach

- **Steven M. Warshauer, Ph.D., Vice President of Exploration**

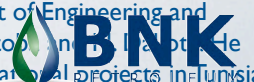
Dr. Warshauer brings over 25 years of experience as a geologist and manager in international and domestic exploration, operations, research and training. Most recently Dr. Warshauer was Senior Geological Advisor for Devon's European Unconventional Resource Team. His career also includes working for Tenneco, British Gas and Dominion Exploration & Production Inc. He is experienced in the evaluation of unconventional resources such as shale gas, tight gas sands and CBM. In addition he brings vast experience in the generation of conventional oil and gas projects, as well as extensive basin analysis work.

- **James M. Hill, Vice President of New Ventures**

Mr. Hill brings 29 years of oil industry experience in basin exploration and development with various oil companies including Chevron. He began his his career with the USGS, where a majority of his time was spent on research on the Monterey Shale ending with his Masters Thesis on the Monterey Shale.

- **Paul Codd, Engineering and Operations Manager**

Mr. Codd brings over 22 years of managerial and operational experience in Canada, Russia, North Africa and the USA. Most recently Mr. Codd was Vice President of Engineering and C.O.O. of publicly traded Renegade Petroleum Ltd. and its private predecessor, Renegade Oil & Gas, with Bakken and Mississippian assets in Saskatchewan, Manitoba and Alberta. He has held various and increasing engineering responsibilities in all aspects of operations and reservoir exploitation, domestic start-up's and managed several international projects in Indonesia, Egypt, and Colombia. Mr. Codd holds a Bachelor of Science degree in Chemical Engineering from the University of Calgary.



# BOARD OF DIRECTORS

- **Ford Nicholson, Chairman**

Ford Nicholson is the President of Kepis & Pobe Financial Group which specializes in developing international energy and other natural resource assets. Over the past 25 years Ford has provided executive management to several international projects. He was a co-founder and Director of Nations Energy Ltd. producing heavy oil in Kazakhstan, a founding shareholder and former board member of Bankers Petroleum Ltd. producing heavy oil in Albania. Ford was also a board member of Tartan Energy Inc, a heavy oil company based in California. Ford is a member of the President's council for the International Crisis Group. Mr. Nicholson has recently joined the board of InterOil Corporation listed on the NYSE, a fully integrated company developing LNG for Asian markets.

- **Bob Cross, Director**

Mr. Cross has more than 20 years of experience as a financier in the mining and oil & gas sectors. He is a co-founder and Non-Executive Chairman of Bankers Petroleum Ltd., Non-Executive Chairman of B2Gold Corp., co-founder and Chairman of Petrodorado Ltd., and until October 2007, was the Non-Executive Chairman of Northern Orion Resources Inc. Between 1996 and 1998, Mr. Cross was Chairman and Chief Executive Officer of Yorkton Securities Inc. From 1987 to 1994, he was a Partner, Investment Banking with Gordon Capital Corporation in Toronto. He has an Engineering Degree from the University of Waterloo, and received his MBA from Harvard Business School in 1987.

- **General Wesley K. Clark, Director**

General Wesley K. Clark, (retired) served 38 years in the United States army. His last military position was NATO's Supreme Allied Commander and the Commander-in-Chief of the US European Command. He now heads his own strategic advisory and consulting firm, Wesley K. Clark & Associates and is active in the energy, banking and business services field. He is a noted author and television commentator, a Senior Fellow at UCLA's Burkle Center and works with numerous not-for-profit efforts, including the International Crisis Group. He graduated first in his class from West Point and received a BA and MA as Rhodes Scholar at Oxford and numerous honorary degrees. Among his awards are the Presidential Medal of Freedom, the Silver Star, Purple Heart and honorary knighthoods from the United Kingdom and the Netherlands.

- **Eric Brown, Director**

Mr. Brown currently holds the position of Regional Managing Partner for the Meyers Norris Penny, LLP, Alberta Advisory Services practice. He possesses many years of experience in publicly traded company governance as a Director of companies listed on Canadian stock exchanges (TSE, VSE, ASE, CDNX) and has served as a Chartered Accountant and as Chairman and member of public company audit committees.

- **Victor Redekop, Director**

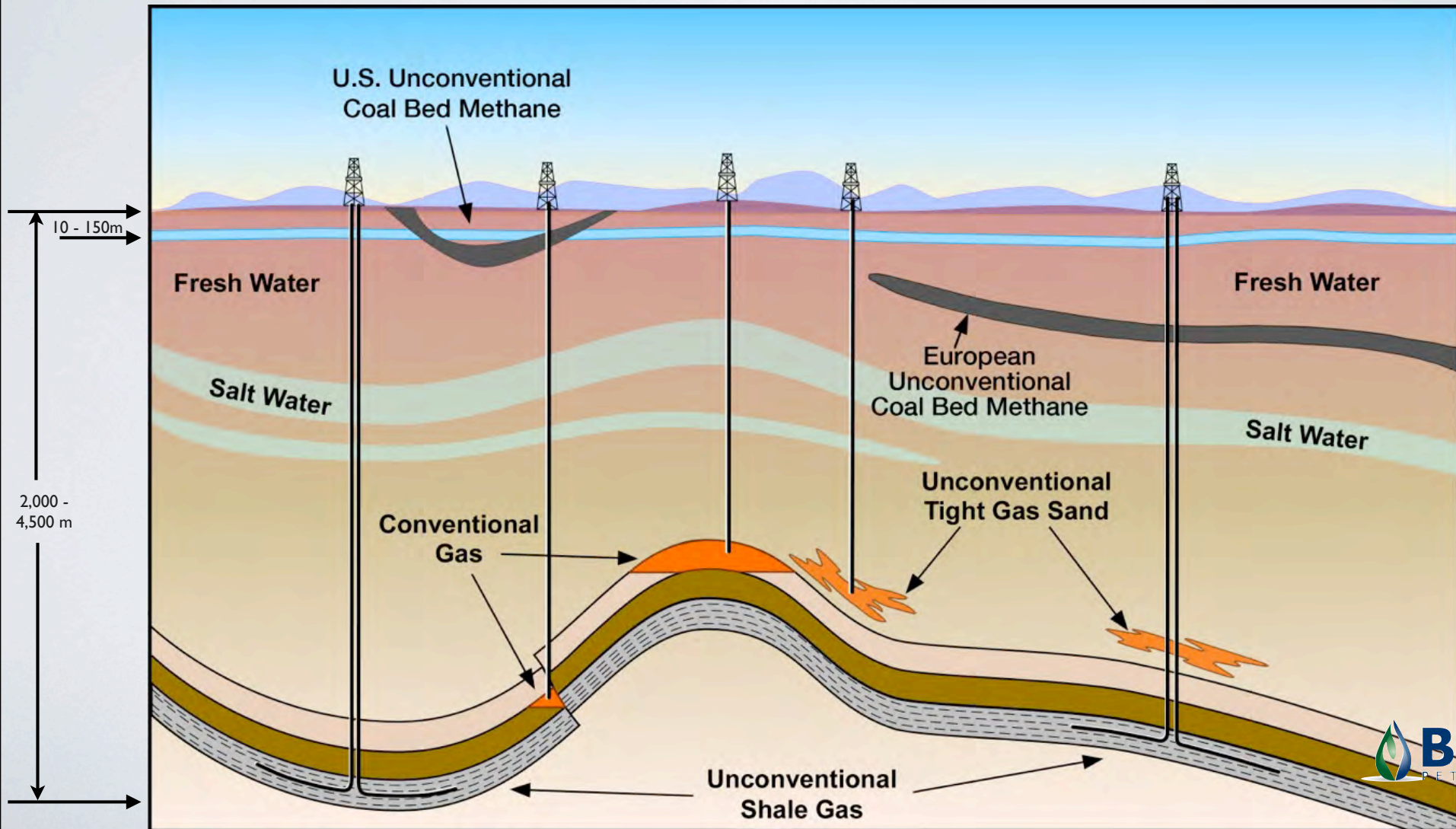
Mr. Redekop is President of Simmons Energy Services, a privately held provider of drilling and maintenance equipment and services to oil and gas companies internationally. He has over 30 years of experience in various aspects of the oil and gas industry.

- **Wolf E. Regener, President and CEO**

Mr. Regener brings over 24 years of conventional and unconventional E&P experience to BNK Petroleum, Inc.. In his role as Executive Vice President of Bankers Petroleum Ltd., and President of its wholly-owned US subsidiary, Mr. Regener was instrumental in the formation of BNK Petroleum, Inc., and its subsequent spin-off. His career also includes key senior executive positions with Tartan Energy, Alanmar Energy, and R&R Resources. With an extensive operations and finance background, Mr. Regener has been at the forefront of BNK Petroleum's acquisition of unconventional gas projects on an international scale. He holds a Business of Economics degree from the University of California, Santa Barbara, and has served on the Board of Directors of the California Independent Petroleum Association for over fifteen years.

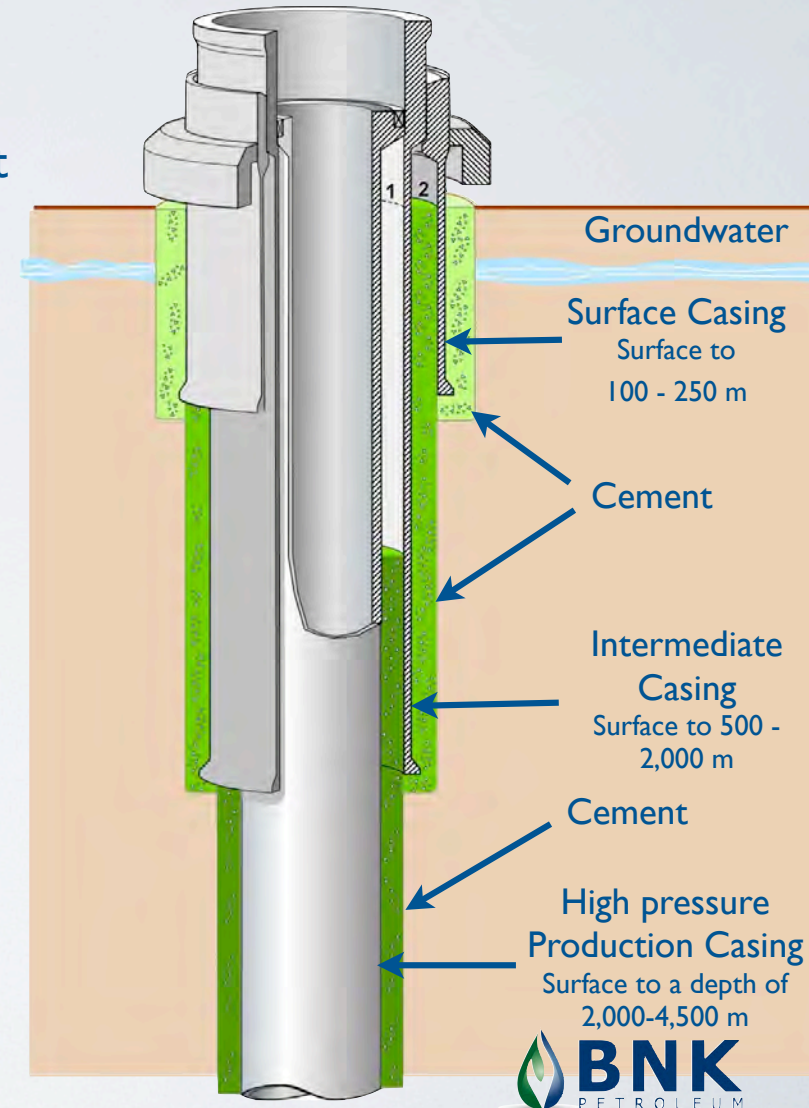
# PROTECTION OF FRESH WATER

- Deep depth, salt water aquifers below fresh water



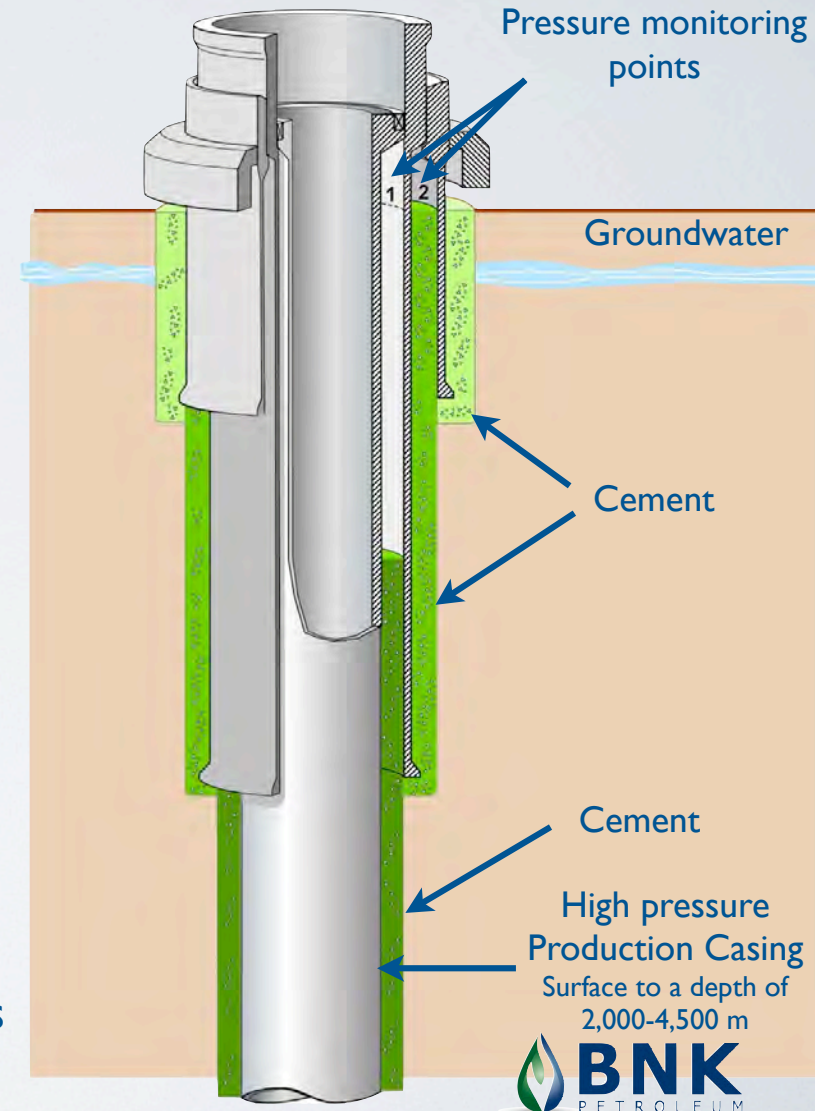
# PROTECTION OF FRESHWATER

- Baseline sampling of local environment
- Install and cement steel pipe “surface casing” from below fresh water zones to surface. To confirm competent cement isolation:
  - Run sophisticated tools to verify cement integrity
  - Pressure test casing & cement
- If successful then drill to next depth and install 2nd steel pipe “intermediate casing” and cement, from deeper interval to surface, again to insure competent cement:
  - Run sophisticated tools to verify cement integrity
  - Pressure test casing & cement
- If successful then drill to total well depth and install 3rd steel pipe “high pressure production casing” and cement in place
  - Run sophisticated tools to verify cement integrity



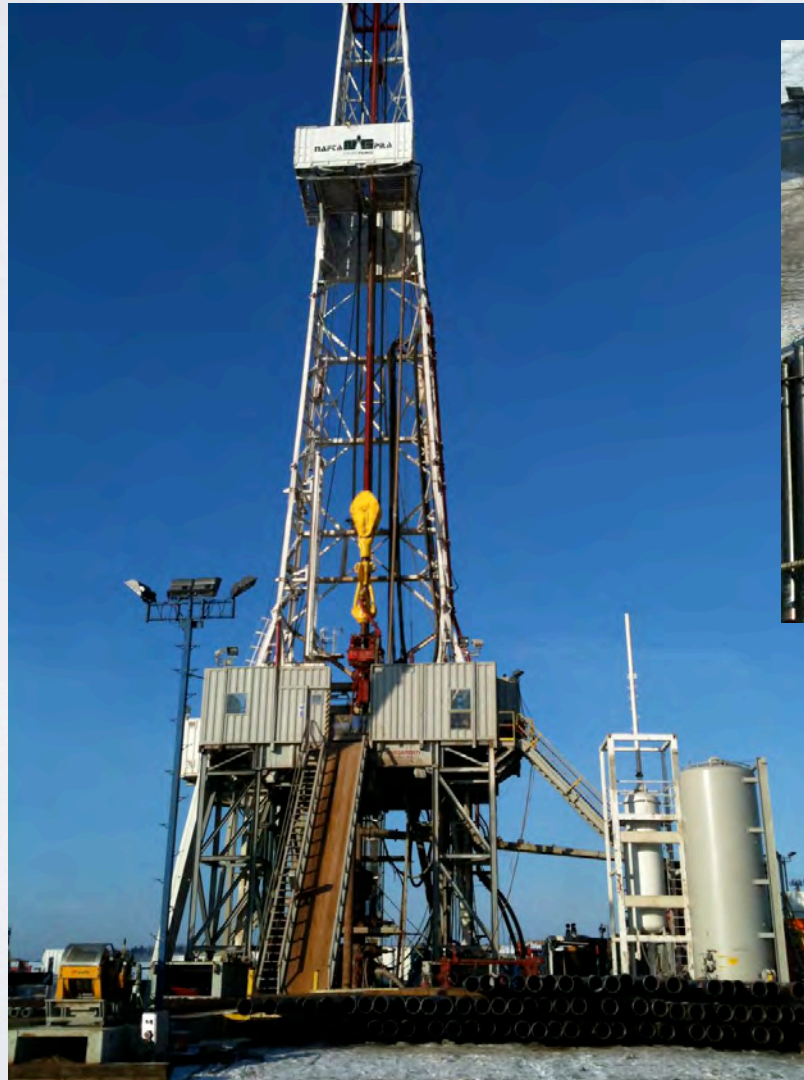
# PROTECTION OF FRESHWATER

- After successful testing, the local environment is evaluated and compared to baseline ensuring that operations have not negatively impacted the area.
- Rock samples taken while drilling are analyzed and a stimulation is designed utilizing the most environmentally friendly additives that have been approved by regulators.
- The production casing is pressure tested a second time to pressures encountered during the stimulation to again confirm complete integrity
- When a fracture stimulation is performed pressures are monitored between the steel pipes, “casings”. If pressure is detected then the stimulation is immediately stopped.
- After the stimulation operations fluids flow back from the well and are directed into tanks/containers on the drilling location and then recycled if the project is in development mode or properly disposed of during exploration activities



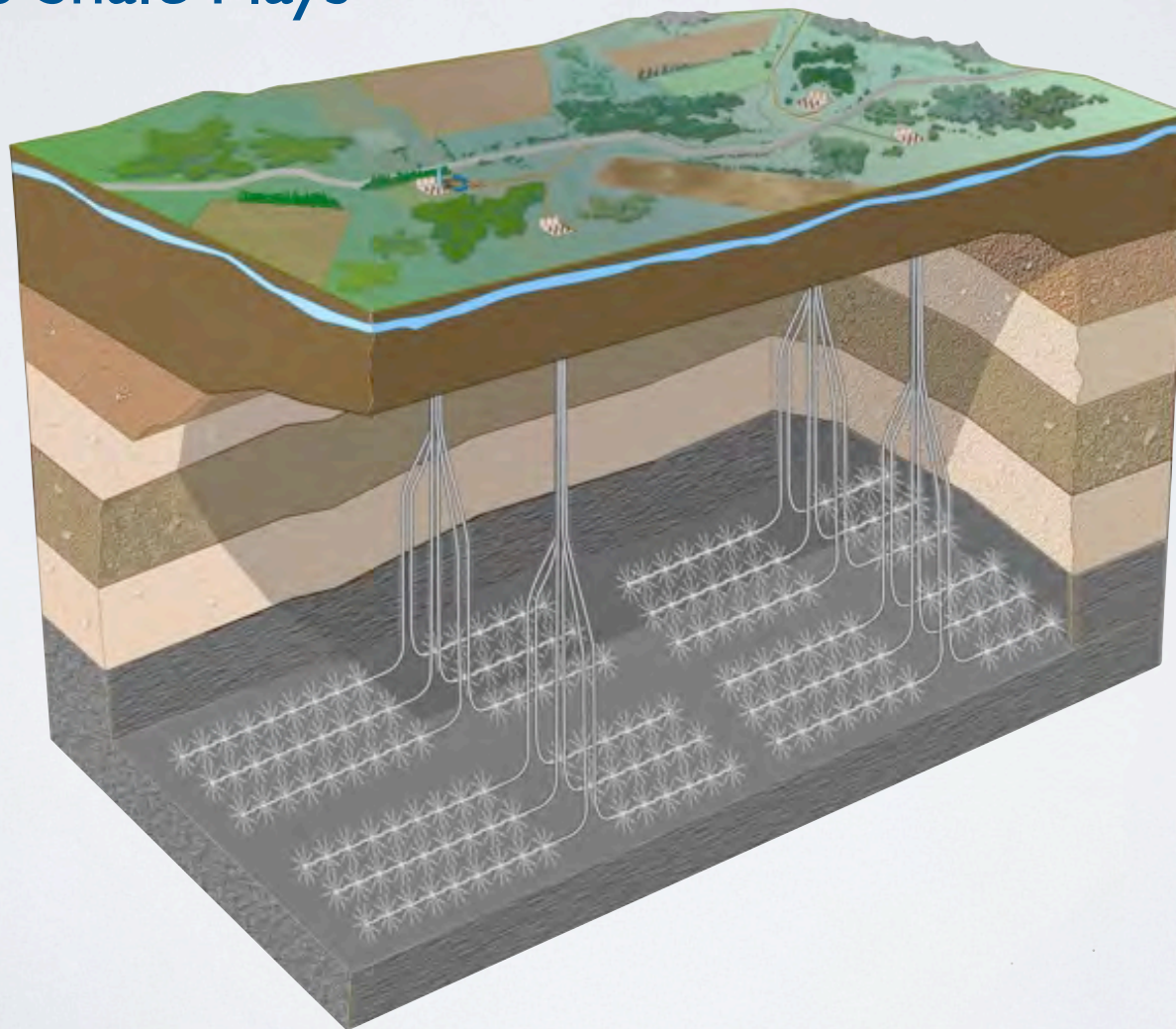
# SHALE MYTHS

- Myth - Europe does not have adequate rigs and services



# SHALE MYTHS

- Myth - Surface Footprint will be the same in Europe as in US Shale Plays



# GASLAND & OTHER FALLACIES

- **Gasland Movie Claims that fire from tap is due to hydraulic fracture stimulation**
  - Water well actually was drilled through 4 different coal beds before encountering potable water interval \*
  - Fire from tap was in Colorado not Pennsylvania where the Marcellus development is taking place (and most of the movie)
  - Gas was proved to be Biogenic not Thermogenic - from Colorado Oil and Gas Conservation Commission Investigation
  - Water quality problems of the Denver Basin's bedrock aquifers are known to contain troublesome amounts of hydrogen sulfide, methane, iron, fluoride and sodium. (1976 report from Colorado Division of Water Resources - Ground Water Resources of the Bedrock Aquifers of the Denver Basin Colorado Romero, J C 1976. p 109 12 plates, 28 fig, 7 tab, 66 ref, 2 append.)\*\* - which is before fracking activity took place.
- **Myth perpetuated by Duke University - Methane in water wells near shale gas wells caused by fracking**
  - No brine nor frac additives were found in ANY of the water wells sampled - even in the areas where shale gas development were most active - if there was direct contact then there would have been.
  - Researchers “were also forced to admit that methane is a natural, common constituent found in just about every water well across the entire region (85 percent of them, to be exact), with thermogenic methane – as opposed to the biogenic stuff – identified in the vast majority of those, even in areas where no development has taken place.” \*
  - Jackson (researcher) concedes that the study does not have baseline data and said he expected the criticism.” (NY Times/E&E News, May 9, 2011)
  - Jackson said the study was indeed not random, but that was because they needed homeowners permission to test their water.” (CNN, May 9, 2011)
  - Surface geochemical tests have been used to find gas and oil, so not surprising that naturally occurring gas concentrations would be higher in certain areas where productive oil and gas wells are

\* <http://www.energyindepth.org/in-depth/frac-in-depth/history-of-hf/>

\*\* <http://www1.kisr.edu.kw/webpages/H2S/a%20rotten%20egg%20odor.htm>

# FALLACIES CONTINUED

- Cornell University claims the greenhouse gas footprint of shale gas is at least 20 percent greater and perhaps twice as great on the 20-year horizon
  - **Carnegie Mellon University Report, August 5, 2011**, states that shale gas GHG's are comparable to those of imported liquefied natural gas and are 20-50% lower than coal in the absence of effective carbon capture and storage processes. The report also states that that shale gas might be slightly less CO<sup>2</sup> friendly (3%) than conventional gas production. This is due to the assumption that 30 days of initial venting and flaring of production takes place. In Poland BNK is flowing back wells directly through separators and all gas gets flared immediately no venting. . \*
  - Error in factor of Methane vs CO<sup>2</sup> effect of global warming potential (GWP) - They used a natural gas figure is that is 45% higher than what is cited in the UN's Intergovernmental Panel on Climate Change (IPCC) in 2007.
  - Error in estimation of pipeline leakage - They estimate between 1.4 and 3.6 percent of all natural gas produced leaks off into the atmosphere during the transmission process. They took this number from figures reported in the Fort Worth Basin Oil & Gas magazine which also states that losses are "frequently more of a measurement and reconciliation issue than a loss issue." They also use long-range transmission losses reported from Russian pipelines.
  - Error in timeline calculation used. They used a 20 year timeframe to study the GWP instead of the more common 100 year timeframe. According to the United States Environmental Protection Agency, methane disperses after 9 to 15 years, while CO<sup>2</sup> remains for 100 years
  - Error estimation of the volume of gas vented during completion. They assumed that all methane emitted during the development process is leaked (vented) and none is burned off (flared)
  - Study is biased as funding for the study came from the Park Foundation (an active anti-frac'ing organization) Natural Resources Defense Council, Earthworks, Riverkeeper and American Rivers.
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\* Online at [stacks.iop.org/ERL/6/034014](http://stacks.iop.org/ERL/6/034014)

All else above from <http://www.energyindepth.org/2011/05/five-things-to-know-about-the-cornell-shale-study/>

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# PROMINENT U.S. QUOTES

- **IEA Golden Age of Gas Scenario, World Energy Outlook 2001, special report** quotes that the EPA has stated “total emissions from production are only slightly higher than for conventional gas; and both the water and climate impacts can be mitigated using existing techniques.” (page 62)
- **The Global Warming Policy Foundation regarding Cornell University’s Claim** “[Howarth’s conclusion] requires unrealistic assumptions about: the quantity of methane that leaks during fracking, production and transport; the lack of methane leaks from coal mines; the residence time of methane in the atmosphere; and the greenhouse warming potential of methane compared with carbon dioxide. ... And Howarth gets his numbers on high gas leakage from shale gas wells from unreliable sources, his numbers on gas leakage from pipelines from long Russian pipelines, and assumes that ‘lost and unaccounted for gas’ is actual leakage rather than partly an accounting measure. He also fails to take into account the greater generating efficiency of gas than coal.”
- **Lisa Jackson, President Obama’s EPA Administrator:** “I’m not aware of any proven case where the fracking process itself has affected water.” (5/24/11)
- **Taury Smith, Top NY State Geologist and Self-Described Liberal Democrat:** “He said he has been examining the science of hydrofracturing the shale for three years and has found no cases in which the process has led to groundwater contamination.” (Albany Times Union, 3/14/11)
- **John Hanger, Governor Rendell’s Department of Environmental Protection Secretary and Founder of PennFuture:** Pennsylvania’s Chief Environmental Regulator said on Friday he saw no evidence that the chemicals used in the shale gas drilling process known as hydraulic fracturing contaminates underground water supplies. ... “It’s our experience in Pennsylvania that we have not had one case in which the fluids...have returned to contaminate ground water,” Hanger said. ... Hanger said the public and the media appear to overestimate the risks of hydraulic fracturing. “There’s a lot of focus in the media and the public on the problems that we have not had,” he said. (Reuters, 11/4/10)



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# SHALE COMPARISONS \*

	Horn River	Barnett	Fayetteville	Woodford	Haynesville	Marcellus	BNK Poland Ord/Alum	German BNK	Bakken	German BNK Posidonia
Depth, ft	6,000 - 9,000	6,500-8,500	1,500-6,500	6,000 - 11,000	11,000 - 13,000	4,000-8,000	7,000-14,500	4,500 - 10,000	7,000 - 11,000	4,000 - 6,500
Gross Thickness (ft)		150-700	50-325	320 - 400	1200 - 1300	50-300	55 - 490 **	150 - 900	10-20 (upper) 15-40 (lower)	~120
Net Thickness (ft)	450 - 525	100-600	20-200	300 - 380	200 - 350	45 - 225	45 - 275 **	100 - 750	10-20 (upper) 15-40 (lower)	~100
Thermal Maturity Ro	2.2 - 3.8	0.8 - 1.3	High >3.0	0.9-1.7	1.8-2.5	0.7-2.15	1.2-3.0 **	0.6 - 3.8 Avg 2%	0.4 - 0.6 (generation)	0.2 - 1.7 Avg 0.5
TOC, %	0.5 - 10%	4.5	4.0-9.5	6% - 6.5%	.5 - 4%	0.4-10.5%	.7 - 9.9%	0.8-14.1% Avg 3.5%	1.0 - 20% Avg 11- 12%	1.0-18.7% Avg 8.4%
Silica Content	45 - 60	35 - 50%**	20 - 60%	52% - 70%	34%	20-60%	56% / 25%	14 - 91% Avg 56%	10-40% (upper) 10-30% (lower)	4 - 29% Avg 18%
Calcite Content					35 - 60%	0 - 80% Avg 10%	10% / 36%	0 - 78% Avg 5%	15-50% (upper) 20-40%(lower)	0 - 77% Avg 21%
Clay Content		< 35%**	20 - 40%	<30%	20 - 35%	20 - 35%	34% / 39%	0.4- 65% Avg 31%	20-80% (upper) 20-70% (lower)	17 - 72% Avg 50%
Total Porosity, %	2.0 - 4.5	4.5	2 to 8	4% - 12%	8 - 15%	1.6 - 7.0	Avg 4.0 / 4.6	?	8-10% (middle member)	?
Permeability (mD)	150 - 450			145 - 206			80-386 Avg 199 / 201-231 Avg 214	?	?	?
Gas-In-Place, BCF/Section	130 - 320	50 to 150	25 to 60	80 to 300	200 to 250	20 - 100	?	?	?	?
Pressure Gradient (psi/	0.65	0.46 - 0.50	?	0.43	Over pressured	0.45 - 0.60	Possibly Over pressured	?	?	?
EUR per well	?	2.65 BCF	2.2 BCF	> 2.0 BCF	6.5 BCF	?	?	?	?	?

\* Compiled from various sources that BNK believes to be accurate, but not verified, Baltic data is from Leborg S-I well. - German data from BNK's outcrop studies undertaken in 2010 which consisted of 115 analyzed samples of the 228 samples that were taken. Avg numbers are averaged from all analyzed samples in said interval(s).

\*\* Estimated target interval values are on Saponis and Indiana concession blocks only and do not include Lower Silurian shale which is +500 feet thick.

