



REVOLUTION

The ~~Evolution~~ of the Domestic
Exploration and Production Industry
1981-2011

Dave Donegan

Sinclair Oil & Gas Co.

2012 WPMA National Convention & Convenience Store Expo,
February 21 - 23, Las Vegas, NV

Sinclair Oil & Gas Co.

- Upstream subsidiary of a private integrated oil company – primary objective is attractive rate of return projects in US
- SOC refines and markets more than SOG produces – secondary objective is to partially hedge downstream activity



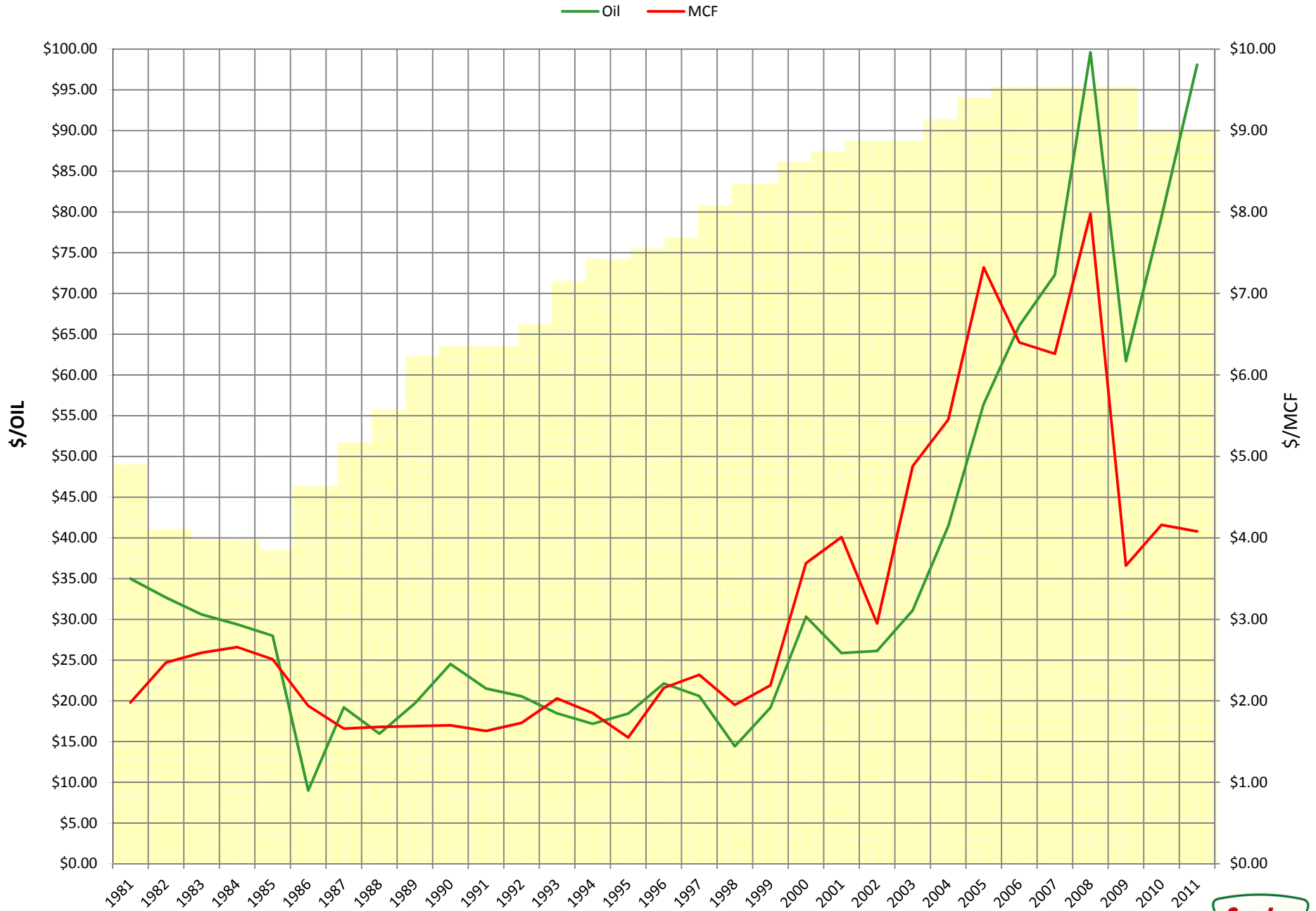
Sinclair Oil & Gas Strategy

- Focus on unconventional reservoirs with low geologic risk and lots of running room – in particular we target “shale” plays
- Opportunistic rather than geographic strategy
- Small staff but leverage geologic expertise in shale reservoirs and operational expertise in horizontal drilling and multi-stage hydraulic fracture stimulation



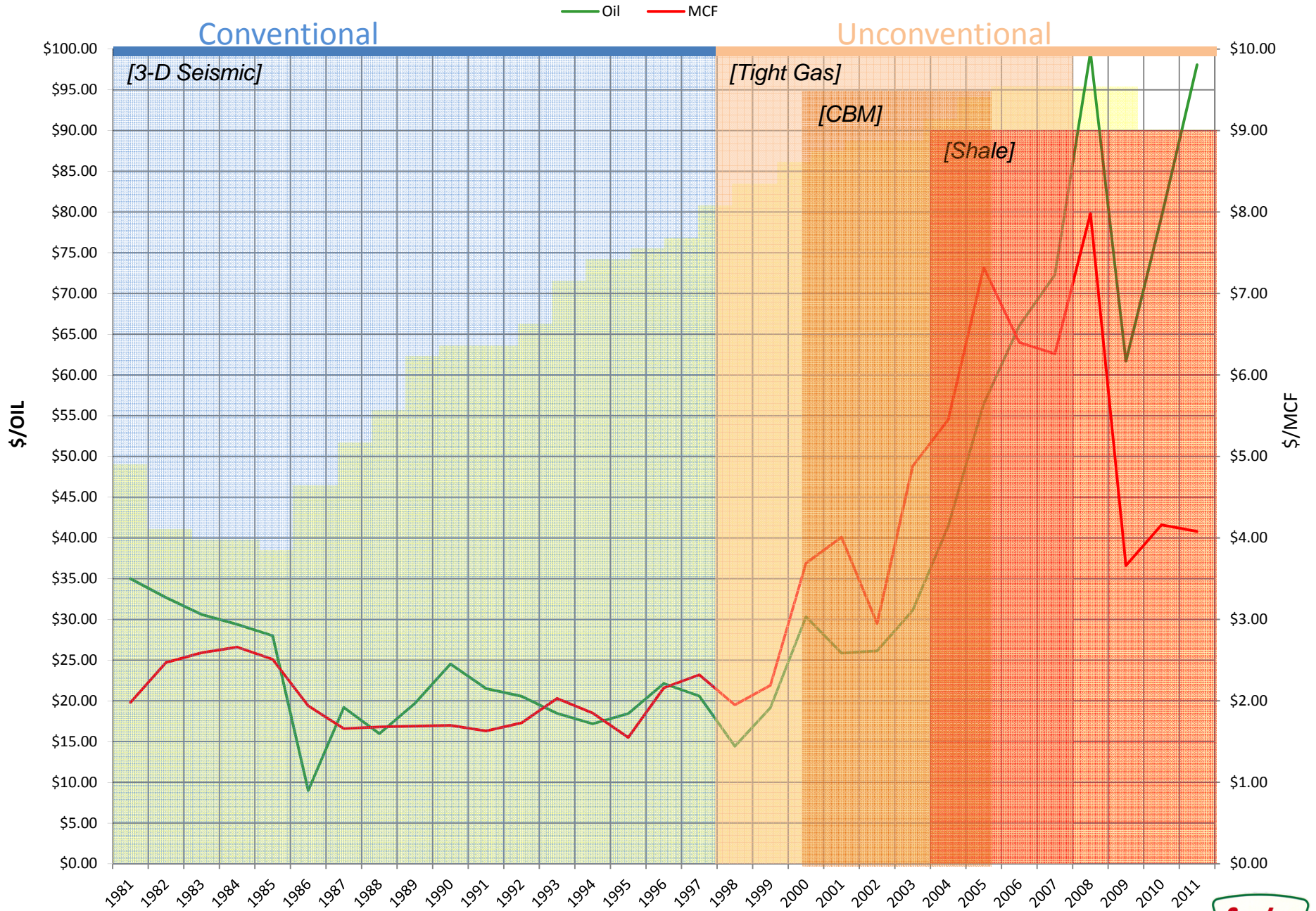
- Current activity in Bakken (MT/ND), Woodford (OK), Wolfcamp(TX), Cain and A1 Carbonate (MI), Marcellus and Utica (WV)
- Typically try to partner with other operators, enter plays early but not first
- *Partner of choice!*





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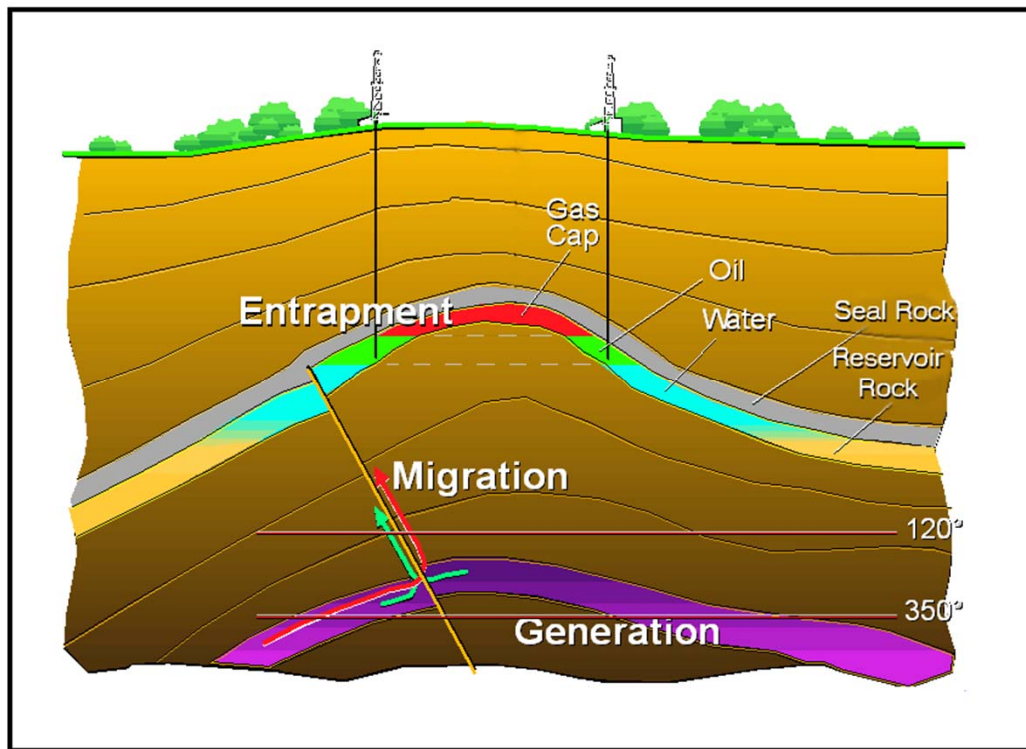


Industry Fears 1981-2011

- Natural Gas Bubble
 - Natural Gas Shortage → LNG Critical Bridge
 - Natural Gas Supply Overhang
(U.S. is the Saudi Arabia of Natural Gas)
- Energy (“Oil”) Independence
 - Energy Security
 - Peak Oil



Old School – Conventional Reservoirs



Target discrete geologic features that trap hydrocarbons
(Source, Reservoir, Trap, Seal)

Hard to find but easy to produce – geologically intensive

New School - Unconventional Reservoirs

(CBM, gas shale, oil shale, tight gas/oil, tar sands)

- Self sourcing reservoirs frequently laterally extensive
- Easy to find but hard to produce – operationally and engineering intensive (typically poorer quality reservoirs).
- Low geological risk but highly sensitive to commodity prices.



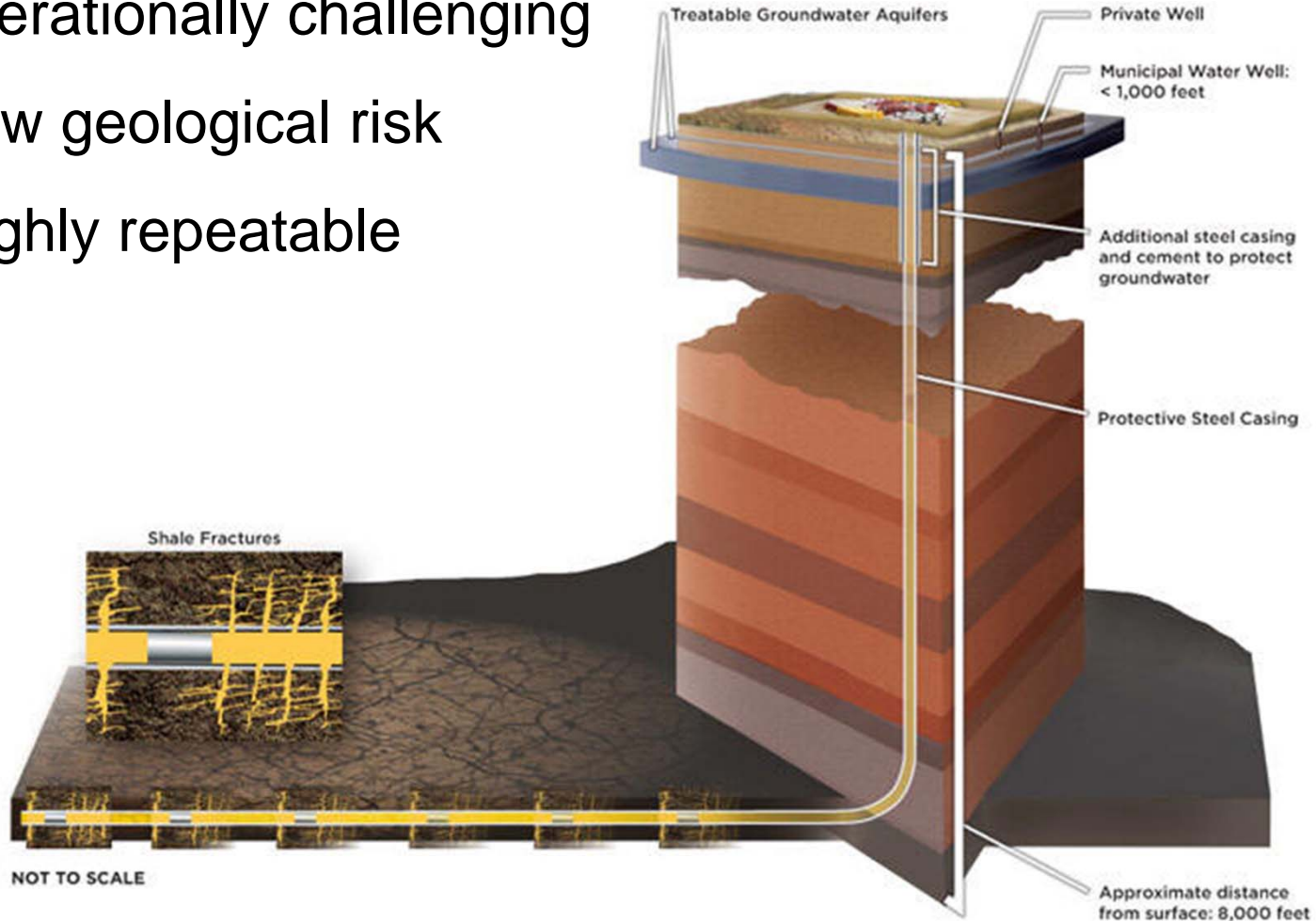
What Changed?

- Paradigm shift- What constitutes an economic reservoir?
- Technology
 - Horizontal drilling
 - Multi-stage hydraulic fracture stimulation

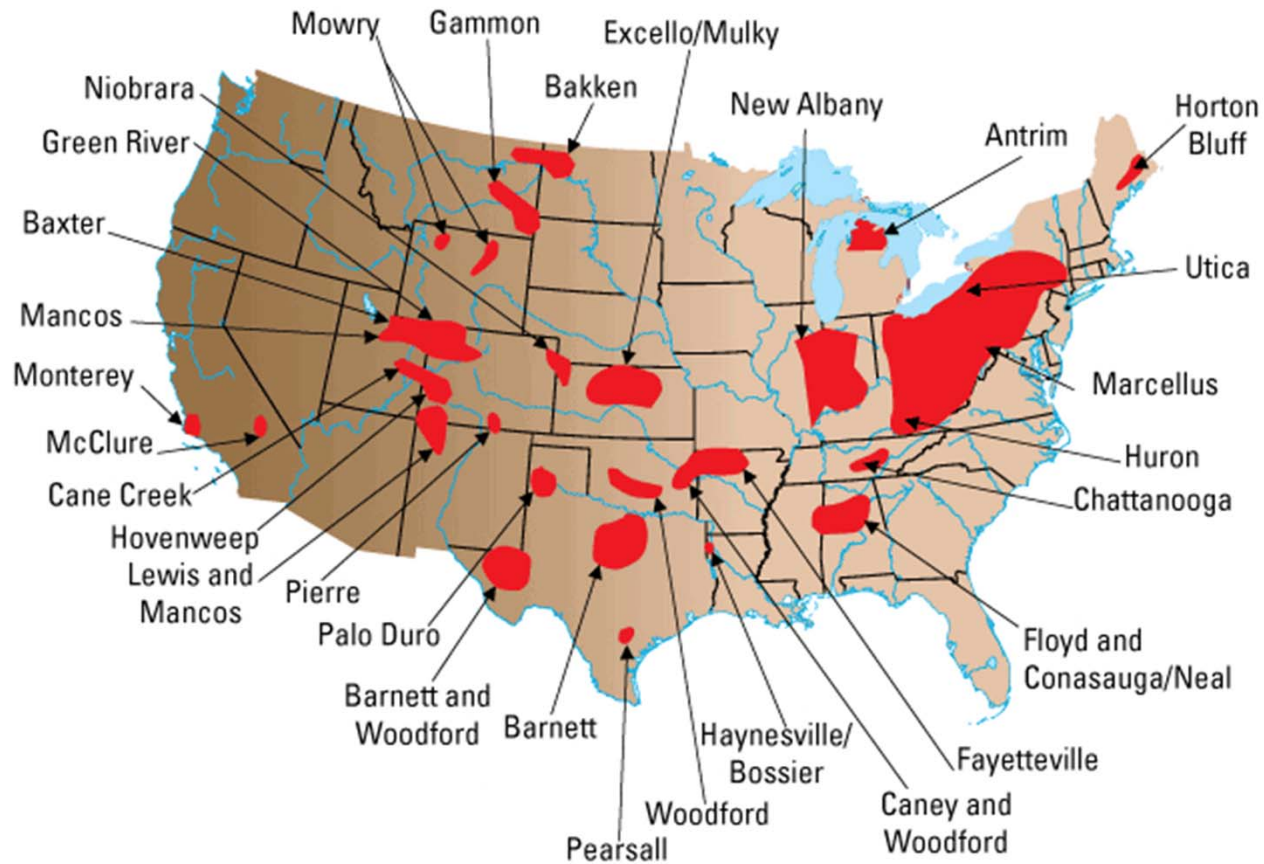


New School

- Easy to find but operationally challenging
- Low geological risk
- Highly repeatable



U.S. Shale Plays



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City of Denton Airport 2H

Avg 206 BPM & 7500 psig

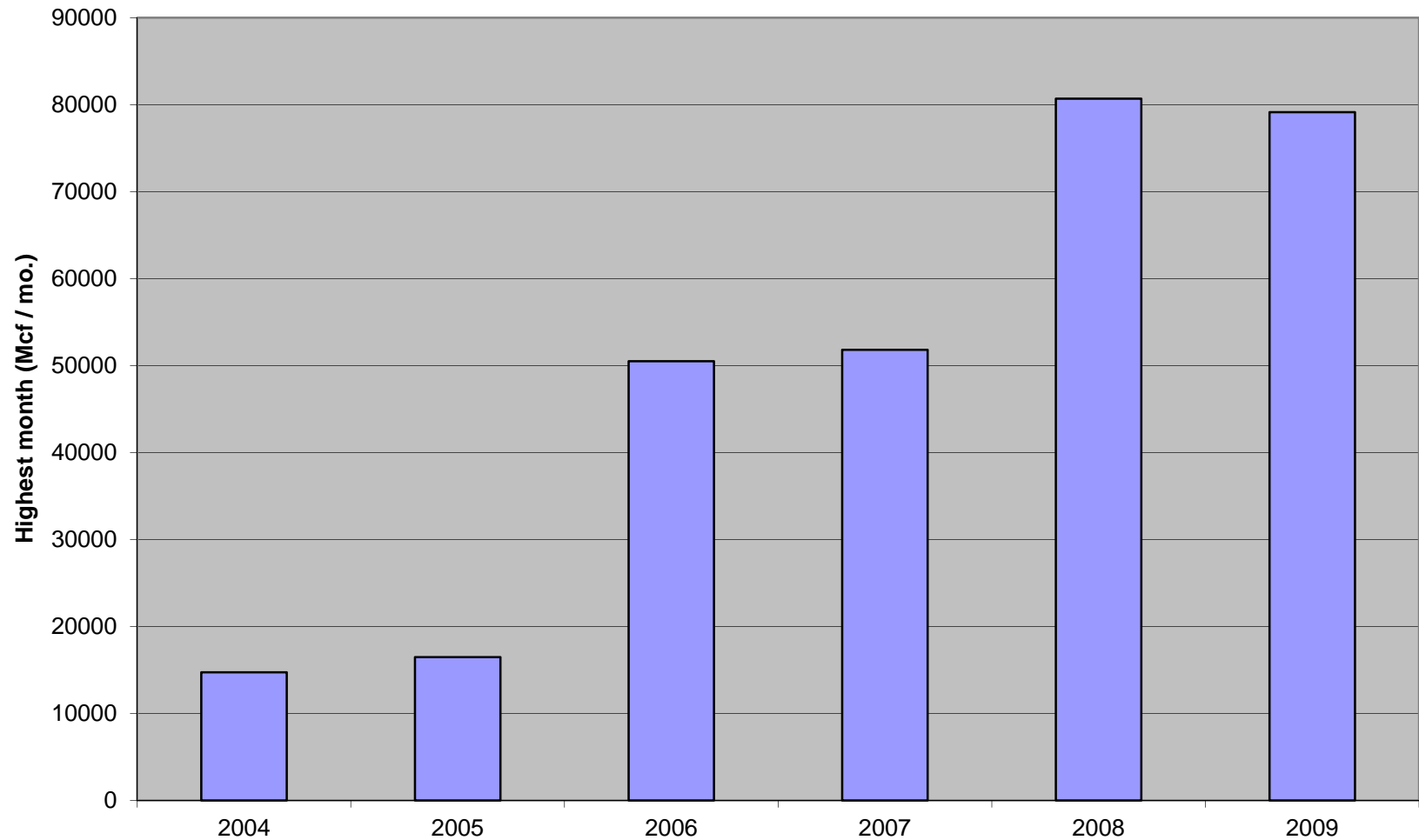
61,000 HHP on location



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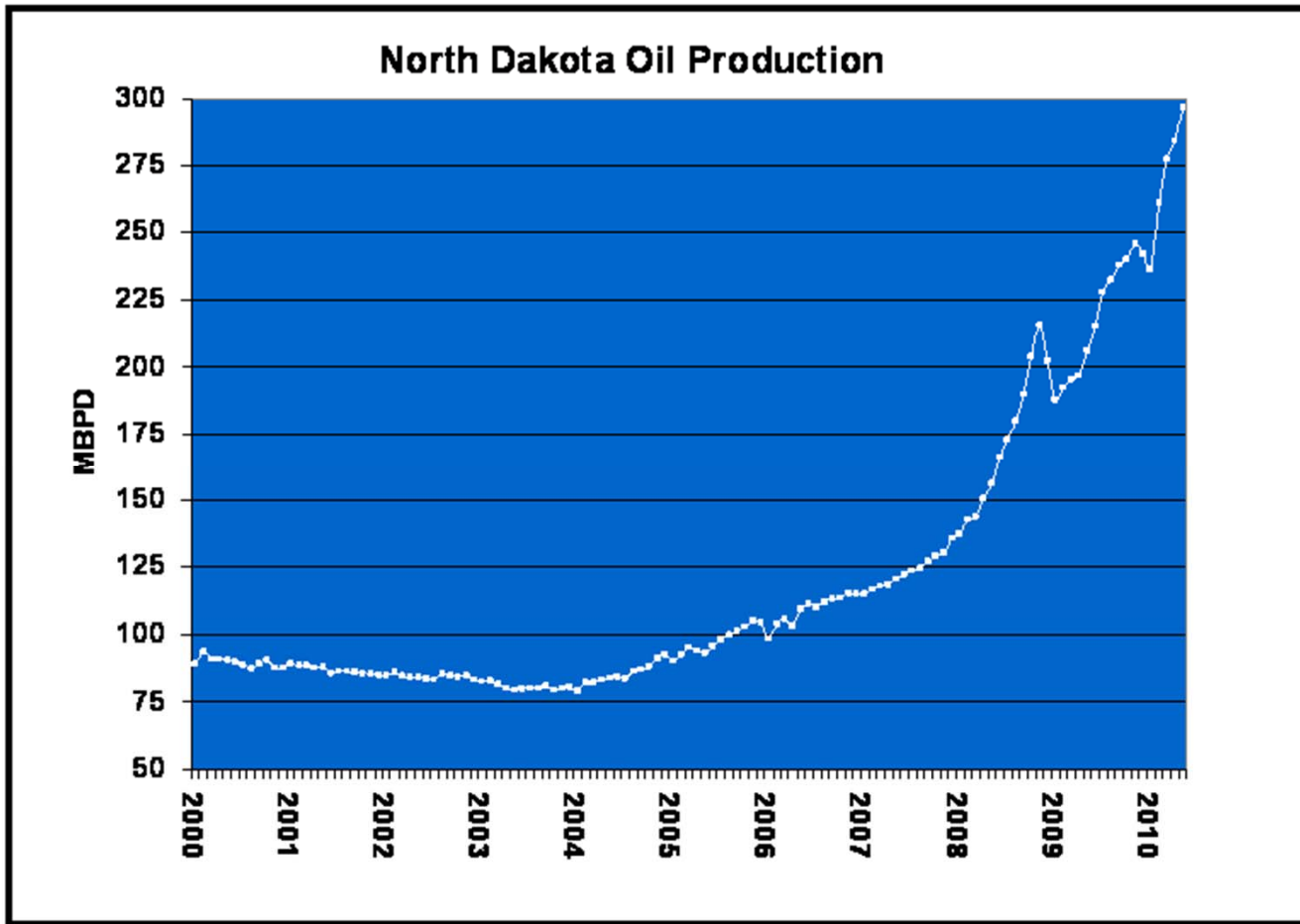


Woodford Shale Initial Production Rates



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ND Rig Count

2009: avg. 50

2010: avg. 114

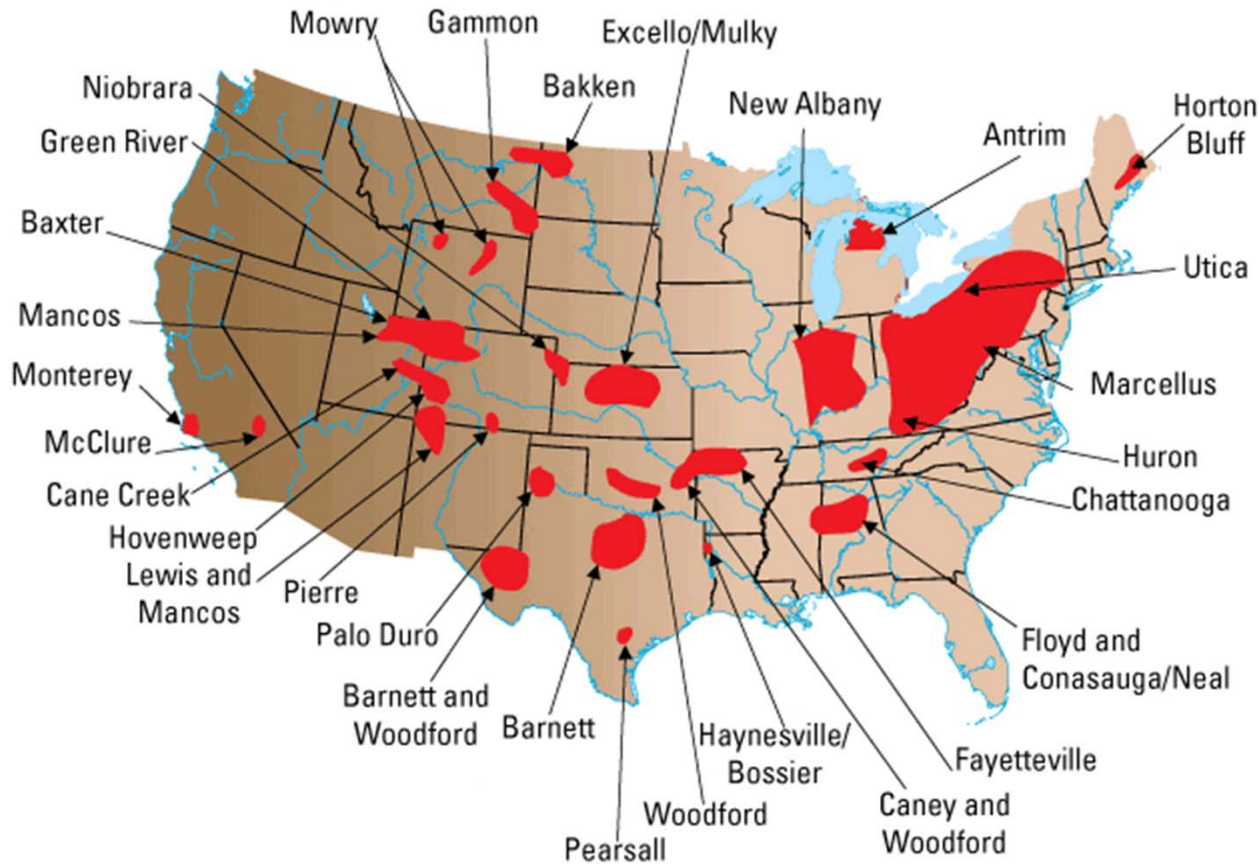
Dec 2011: 203



2010 NDIC BAKKEN / THREE FORKS ASSESSMENT

	Three Forks	Bakken	Total
Original Oil in Place	20 billion	149 billion	169 billion
Expected Ultimate Recovery	1.9 billion	2.1 billion	4.0 billion





While there are significant potential accumulations

There are also significant operational, regulatory and public use issues



Conclusions

- Hydrocarbons are a finite resource. Peak oil... maybe but at what price?
- E&P business is changing. Driven by:
 - New ways of thinking
 - New technologies to achieve what was previously inconceivable
- Future: who knows, but first step is exporting shale development technology internationally



- “Oil is found in the minds of men”- Wallace Pratt, a pioneer Petroleum Geologist and one of the men who built both the Humble and Standard Oil Companies.
- “We usually find oil in a new place with old ideas. Sometimes, we find oil in an old place with a new idea, but we seldom find much oil in an old place with an old idea. Several times in the past we have thought that we were running out of oil, when actually we were running out of ideas.” –University of Tulsa Petroleum Geology Professor Parke A. Dickey, September 1958
- “Bear in mind, Gentlemen, that in questions of science the authority of a thousand is not worth the humble reasoning of a single individual.” – Attributed to Galileo Galilei by Francois Arago, 1859





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