Bakken and Permian: Deal Metrics in the Two Hottest Plays

Ward Polzin
July 11, 2012
Industry Leading Investment Banking Practice

Top Energy Advisor(1) ($ in millions)

<table>
<thead>
<tr>
<th>Firm</th>
<th>2010 - 2012 YTD # Deals</th>
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<tr>
<td>Barclays</td>
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<td>Goldman Sachs</td>
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<td>Bank of America Merrill Lynch</td>
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<td>Deutsche Bank</td>
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Overview

- Coverage of Midstream/MLP, OFS, Power and Upstream sectors
- Senior execution expertise in M&A, Corporate Finance, A&D and Capital Markets
- Industry/engineering expertise integrated into IB effort across all sectors
- Three-year old team achieved >25% market share(1) in 2010

Advisory
- Sell-side & Buy-side
- Joint Ventures
- Opinions
- Special Committee
- Strategic advisory
- Restructuring

Capital Markets
- Public Equity
- Hybrids
- Fixed income
- Private placements
- QIU

Banking Expertise

Overview:
- Goldman Sachs
- JPMorgan
- Scotia Waterous
- Barclays
- Deutsche Bank
- Credit Suisse
- Credit Suisse
- Barclays
- Morgan Stanley
- Deutsche Bank
- Morgan Stanley
- Deutsche Bank

Engineering Talent

Overview:
- Newfield
- ConocoPhillips
- ExxonMobil
- Marathon
- Burlington Resources
- El Paso
- bp

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<tr>
<th>Region</th>
<th>TPH Investment Banking</th>
<th>TPH Research</th>
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</table>
| Bakken | ■ Current Sell-side: Helis Oil & Gas  
■ Current Sell-side: Cornerstone Natural Resource  
■ Buy-side: Crestview Partners acquisition of Samson Investment Company  
■ Buy-side: Statoil ASA acquisition of Brigham Exploration  
■ Sell-side: Citation Oil & Gas Corp. sale to multiple buyers  
■ Sell-side: Kaiser Francis Oil Company  
■ Sell-side: TRZ Energy (Tracker) sale to Hess  
■ Sell-side: American Oil & Gas sale to Hess  
■ Atium investment in Triangle Petroleum  
■ Capital markets: Oasis IPO/high yield & multiple BEXP follow-on offerings | ■ Upstream companies covered with Bakken exposure: 12  
□ Selected Bakken operator coverage: CLR, EOG, HES, NFX, OAS, OXY, STO, WLL, XOM  
■ Published detailed Williston Basin primer |
| Permian | ■ Buy-side: Apollo & Riverstone acquisition of El Paso’s upstream business  
■ Buy-side: Laredo Petroleum acquisition of Broad Oak Energy  
■ Sell-side: DGX Resources sale to undisclosed buyer  
■ Sell-side: Eagle Oil and Gas to Comstock Resources  
■ Sell-side: RKI Exploration & Production equity Investment  
■ Sell-side: Yates Drilling Company to undisclosed buyer  
■ Buy-side: Crestview acquisition of equity in Select Energy Services  
■ Sell-side: Arena Resources merger with SandRidge Energy | ■ Upstream companies covered with Permian exposure: 24  
□ Selected Permian operator coverage: APA, APC, BRY, CXO, DYN, EOG, OXY, PXD, SD, WLL, XEC  
■ Published detailed Permian Basin primer focused on the Spraberry Trend in March 2009 |
| Eagle Ford | ■ Sell-side: Antares Energy sale to Chesapeake  
■ Buy-side: CNOOC/Chesapeake Joint Venture  
■ Sell-side: Pioneer Joint Venture with Reliance  
■ Buy-side: Large integrated  
■ Buy-side: Potential $400MM private equity investment | ■ Upstream companies covered with Eagle Ford exposure: 15  
□ Selected Eagle Ford operator coverage: APC, EOG, GDP, HK, NFX, PXD, ROSE, SM  
■ Recently released “Shallow Dive” into Eagle Ford in 2010  
■ Continuing close coverage of well results in play |
| Haynesville | ■ Sell-side: Ellora Energy sale to ExxonMobil  
■ Sell-side: Undisclosed Private Company to undisclosed buyer  
■ Buy-side: Large public company seeking to establish E Tx position  
■ Regency/GE/Alinda Haynesville Expansion Project (midstream) | ■ Upstream companies covered with Haynesville exposure: 13  
□ Selected Haynesville operator coverage: APC, BG, CHK, GDP, RRC, XCO, XOM  
■ Significant recent focus on midstream issues in basin |
| Marcellus | ■ Buy-side: $400MM Private Equity Joint Venture  
■ Buy-side: Enervus Joint Venture with Chief for $406MM  
■ Buy-side: Potential $500MM Private Equity investment  
■ Sell-side: Quest Resources Corp to Multi | ■ Upstream companies covered with Marcellus exposure: 16  
□ Selected Marcellus operator coverage: CHK, COG, CRZ, RRC, SWN, UPL, XCO  
■ Released in-depth report on the play simultaneously with initiation of Cabot in June |
| Niobrara | ■ Sell-side: DIA mineral lease sale  
■ Sell-side: Undisclosed private company  
■ Sell-side: Joint Resources  
■ Buy-side: CNOOC/Chesapeake Joint Venture | ■ Upstream companies covered with Niobrara exposure: 14  
□ Selected Niobrara operator coverage: APC, CHK, CLR, EOG, NBL, SM |
| Utica | ■ Sell-side: Marquette sale to Hess  
■ Sell-side: PDC Energy Joint Venture | ■ Upstream companies covered with Utica exposure: 8  
□ Selected Utica operator coverage: APC, CHK, HES |
Commodity Prices Set the Stage
Long Term Oil Price is Key

Today’s Question: At what oil price do we drop rigs?

Source: Bloomberg as of 7/2/2012.
Negative Gas Outlook Impacting Deal Metrics

Source: Bloomberg as of 7/2/2012.
Recent Decline in NGL Prices

Source: Bloomberg as of 7/2/2012.
Note: Representative consists of barrel 40% ethane, 10% normal butane, 25% propane, 15% natural gasoline and 10% iso butane.
Liquids Rig Count Shift Has Been Dramatic

U.S. Onshore Rig Count

Source: Baker Hughes as of 6/29/2012.
Note: “Peak 3Q09” defined as 9/12/2008, “Trough 2Q09” defined as 6/5/2009, and “Near-Term Peak” as 10/7/2011.
Permian and Bakken Driving Oily Rig Shift

Selected Oily Rig Count: ~940

- Bakken: ~215

Source: TPH Research as of 7/2/2012.
Bakken Vaults North Dakota to #2 US Producer

March 2012 Production by State (Mbbl/d)

- Texas (TX): 1,790 MMbbl/d
- North Dakota (ND): 587 MMbbl/d
- Alaska (AK): 579 MMbbl/d
- California (CA): 548 MMbbl/d
- Oklahoma (OK): 226 MMbbl/d

Source: Baker Hughes Montana and North Dakota rig count, HPDI and EIA.
Note: HPDI production data reported with a 3 month lag.
Note: Texas, North Dakota and Alaska production per state industrial commissions.
Bakken Rig Count Close to a Peak?

Has Bakken rig count peaked in the 200 - 225 rig range in light of the current commodity backdrop?

Source: HPDI and RigData as of 7/2/2012.
Deal Flow Follows Commodities
Gas Down, Oil Up: Shocking!

Source: IHS Herold as of 7/2/2012.
Deals Shifting to Oil/Liquids-Rich

<table>
<thead>
<tr>
<th></th>
<th>2010 Deal Count</th>
<th>2011 - 2012 YTD Deal Count</th>
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<tbody>
<tr>
<td>Gas Deals</td>
<td>53%</td>
<td>Gas Deals 32%</td>
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<tr>
<td>Oil Deals</td>
<td>47%</td>
<td>Oil Deals 68%</td>
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Source: IHS Herold as of 7/2/2012. Includes transactions greater than $50 million in which United States is the primary country. Note: Oil and gas transactions are separated on the basis of reserve composition.
Diversity Among Oil/Liquids-Rich Deal Flow

2011 - Present Deal Count

- Bakken: 29%
- Eagle Ford: 27%
- Utica: 13%
- Granite Wash: 2%
- MS Lime: 6%
- Niobrara: 8%
- Permian Shale: 15%

Source: IHS Herold as of 7/2/2012.
Note: Deal value >$50 million. Reflects transactions where United States listed as primary country. Excludes JVs.
Conventional Oil Metrics Stable

Source: IHS Herold as of 7/2/2012.
Note: Deal value >$50 million. Reflects transactions where United States listed as primary country. Excludes JVs.
Bakken Deal Specifics
Strong Deal Market Throughout the Basin

- **Kodiak - Peak**
  - 15K acres, $7,600/acre, 500 boe/d, 4Q 2010

- **Magnum Hunter - Baytex**
  - 50K acres, $5,200/acre, 1,300 boe/d, 2Q 2012

- **Statoil - Brigham**
  - 375K acres, $12,500/acre, 16,800 boe/d, 3Q 2011

- **Crescent Point - Anschutz**
  - 25k acres

- **Petro-Hunt**
  - 51K acres

- **Oasis**
  - 2 undisclosed transactions, 16.7K + 10K acres, $3,000/acre, 300 boe/d, 4Q 2010

- **Petro-Hunt**
  - 5K acres

- **Ursa**
  - 100K acres

- **Petro-Hunt**
  - 22K acres

- **GMXR-Undisclosed**
  - 26K acres, $2,165, 1Q 2011

- **Citation**
  - 30K acres

- **Kodiak - BTA**
  - 13.5K acres, $17,400/acre, 3,000 boe/d, 3Q 2011

- **Hess - Tracker**
  - 167K acres, $8,000/acre, 4,400 boe/d, 4Q 2010

- **Petro-Hunt**
  - 12K acres / 5K acres

- **Hess - American**
  - 85K acres, $5,400/acre, 167 boe/d, 3Q 2010

- **Linn - Concho**
  - 11K acres, $17,500/acre, 1,350 boe/d, 1Q 2010

- **Kodiak - North Plains**
  - 50K acres, $11,800/acre, 3,500 boe/d, 4Q 2011

- **Enerplus - Peak**
  - 47K acres, $9,800/acre, 800 boe/d, 3Q 2010

- **Occidental - Anschutz**
  - 180K acres, $7,800/acre, 5,500 boe/d, 4Q 2010

Note: TPH estimates of current market conditions.
Deal Metrics Remain Stable

- Median $/Acre
- Median $/Acre

Constant ~$90/bbl price deck = Constant valuation

Median $/Acre = ~$6,600

Bakken Deal Flow Shaped by Large Transactions

- OXY / Anschutz: $1.4 Bn
- HES / Tracker: $1.0 Bn
- Statoil / BEXP: $4.7 Bn
- HK/GEOI: $945 MM

Source: Company Investor Presentations and press releases.

(1) Adjusted $/acre estimate excludes PDP and does not correct for developed acres. PDP valued at $50,000 boe/d.
Strong Deal Metrics Throughout the Basin

Factors Impacting Value:
- Bakken and Three Forks present?
- Offset well performance
- Is the area “de-risked”?
- # of wells/DSU?
- Deeper Three Forks?

Acreage values are after subtracting current production at $50,000 boe/d

Note: TPH estimates of current market conditions.
Bakken Pure Play Public Companies...A Tale of the Tape

Source: FactSet as of 7/2/2012.
Bakken: OAS, KOG, NOG, TPLM and BEXP (until acquired by STO).
Transition: AREX, EOG, ROSE, SD and SM.
High Growth Oil: CLR, CNO, DNR and OAS.
Oily: BRY, CWEI, PXD, PXP, REN, VQ and WLL.
GOM / Gulf Coast: ATPG, CPE, CXPO, EPL, EXXI, MCF, PO, SFY, SGY and WTI.
Focused Gas Growth: CAG, CEP, WKK, RRC, SNW and UPL.
Diversified Gas Growth: CHK, DYN, ECA, EDX, FST, NFX, QEP, XCO, and XEC.
Small Cap Gas: BBG, CRK, GMXR, PETD and PVA.
Permain: AREX, CWEI, CNO, LPI and PXD.
Marcellus: GOG, RRC and EQT.
Permian Deal Metrics
Stacked Oil Plays Drive the Permian

Current Permian Drilling Activity

Source: HPDI and RigData.
Permian M&A Deal Flow

2009 - 2012 YTD Deal Flow

- Conventional: 25%
- Delaware: 22%
- Wolfberry: 53%

75% of deals in "resource" plays

Source: IHS.
Industry Weighted Towards Oily Production

Wolfcamp and Bone Spring Production

10-Yr oil production up ~153%

Source: HPDI.
Note: Includes all Texas producing wells with Wolfcamp, Bone Spring or Trend Area as a target reservoir; Excludes wells with field reported as Spraberry.
Midland University Lands Wolfcamp Results

Pioneer Natural Resources
Two recent IPs > 800 boe/d

El Paso
Recent IP > 1,300 boe/d

EOG Resources
Recent IPs up to 2,000 boe/d

El Paso
Initial IPs ranging from 300 - 600 boe/d

Approach Resources
Multiple recent IPs of > 1,000 boe/d

Source: HPDI. All horizontal and vertical Wolfcamp, Wolfberry, and Wolffork permits from 1/1/2011.
The Evolution of a Permian Play...Wolfberry 2009

Andrews Country
Max: $1,554/acre
Shaw Interest, Inc. October 2009

Crane County
Max: $207/acre
San Luis Energy October 2009

Upton County
Max: $289/acre
Pioneer Nat. Resources October 2009

Reagan County
Max: $566/acre
Windsor Permian, LLC April 2009

Crockett County
Max: $301/acre
WTG Exploration October 2009

Pioneer Southwest / PXD
8/31/2009
$171 million

Concho / Terrace Petroleum
11/23/2009
$260 million

UT Lands 2009 Lease Sale
157 Tracts Sold for average $287/acre
Highest bid $1,555/acre

(1) $/acre estimate excludes PDP and does not correct for developed acres. PDP valued at $50,000/Boe/d.
The Evolution of a Permian Play...Wolfberry 2010

Andrews County
Max: $3,587/acre
Private Broker
September 2010

Crane County
Max: $455/acre
San Luis Energy
September 2010

Upton County
Max: $1,610/acre
Private Broker
September 2010

Reagan County
Max: $1,626/acre
El Paso E&P
September 2010

Crockett County
Max: $1,797/acre
El Paso E&P
September 2010

Berry Petroleum / Undisclosed
10/25/2012
$180 million; $12,903/acre(1)

Energen / Undisclosed
8/23/2010
$185 million; $18,678/acre(1)

Energen / Undisclosed
8/23/2010
$75 million; $7,239/acre(1)

UT Lands 2010 Lease Sale
510 Tracts Sold for average $985/acre
Highest bid $3,587/acre

(1) $/acre estimate excludes PDP and does not correct for developed acres. PDP valued at $50,000/Boe/d.
The Evolution of a Permian Play...Wolfberry 2011

- Andrews Country
  Max: $10,000/acre
  PDC Energy
  September 2011

- Concho / PDC Energy
  12/23/2011
  $175 million; $11,765/acre\(^{(1)}\)

- Crane County
  Max: $511/acre
  SandRidge Energy
  September 2011

- Upton County
  Max: $5,580/acre
  ConocoPhillips
  September 2011

- Berry Petroleum / Undisclosed
  4/28/2011
  $123 million; $16,333/acre\(^{(1)}\)

- Laredo Petroleum / Broad Oak
  6/16/2011
  $1.0 billion; $9,273/acre\(^{(1)}\)

- Reagan County
  Max: $5,580/acre
  ConocoPhillips
  September 2011

- Crockett County
  Max: $5,580/acre
  ConocoPhillips
  September 2011

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UT Lands 2011 Lease Sale
496 Tracts Sold for average $2,245/acre
Highest bid $10,000/acre

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\(^{(1)}\) $/acre estimate excludes PDP and does not correct for developed acres. PDP valued at $50,000/Boe/d.
The Evolution of a Permian Play...Wolfberry 2012

Andrews County
Max: $3,000/acre
Windsor Petroleum
March 2012

Energen / Undisclosed
2/10/2012
$66 million; $20,563/acre(1)

Crane County
Max: $525/acre
Henry Energy LP
March 2012

Upton County
Max: $7,058/acre
Veritas Energy Partners
March 2012

Reagan County
Max: $5,814/ace
Pioneer Nat. Resources
March 2012

Crockett County
Max: $2,507/ace
Petrohawk Properties
March 2012

UT Lands March 2012 Lease Sale
86 Tracts Sold for average $645/acre
Highest bid $7,123/acre

(1) $/acre estimate excludes PDP and does not correct for developed acres. PDP valued at $50,000/Boe/d.
Wolfberry / Wolfcamp Acreage Now First In Class

Source: Company Investor Presentations and press releases.
Note: $/acre estimate excludes PDP and does not correct for developed acres. PDP valued at $50,000/Boe/d.
Avalon / Bone Spring Production Rapidly Increasing

- Oil (Boe/d): 1,500 to 75,000
- Gas (Boe/d): 600 to 900
- Well Count: 30,000 to 45,000

First Avalon Shale Horizontal Producer

Source: HPDI.
Recent Industry Results in the Delaware

Bone Spring (2\textsuperscript{nd}/3\textsuperscript{rd})
XEC: 7 recent wells
IPs 560-1,100 boe/d

Avalon Shale
CHK IP of 1,160 boe/d

Avalon Shale
CXO IP of 1,368 boe/d

Avalon Shale
EOG IP of 1,474 boe/d

Wolfbone
CXO IPs of 200-450 boe/d
CRK IPs of 150-300 boe/d

Avalon Shale
Devon IP of 950 boe/d

Delaware Sands
Yates IPs of 794 - 1,067 boe/d

Avalon Shale (Loving)
APC TC IP ~800 boe/d (60% liquids)

3\textsuperscript{rd} Bone Spring (Ward)
APC TC IP ~700 boe/d (85% liquids)

3\textsuperscript{rd} Bone Spring
CHK IP of 2,200 boe/d

Source: Company Investor Presentations, HPDI: Vertical Wolfbone and all horizontal permits since 7/1/2011.
Recent Notable Delaware Basin Transactions

- **June 2011 Land Auction**: $5,076 - $5,630/acre
- **September 2011 Land Auction**: $6,150/acre
- **August 2010 Land Auction**: $5,313/acre
- **May 2010 Land Auction**: $3,957/acre
- **April 2011 Land Auction**: $4,200/acre
- **Concho / Undisclosed**: 11/2/2011 $330 million; $2,237/acre\(^{(1)}\)
- **Comstock Resources / Eagle Oil & Gas**: 12/5/2011 $333 million; $5,970/acre\(^{(1)}\)
- **Clayton Williams**: March 2012 $3,333/acre
- **Forest Oil Corp. / Undisclosed**: 2/16/2012 $103 million; $1,635/acre\(^{(1)}\)

Source: Company Investor Presentations and press releases.

\(^{(1)}\) $/acre estimate excludes PDP and does not correct for developed acres. PDP valued at $50,000/Boe/d.
Conclusions
Metrics Should Increase With Drilling

- **Type Curve Established**
  - Widespread Horizontal Results

- **Type Curve Being Established**
  - Focused Horizontal Results

- **Little to No Horizontal Results**

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<th>Price ($/acre)</th>
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<td>$20,000</td>
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<tr>
<td>$2,000</td>
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<td>$0</td>
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Source: IHS Herold and TPH research.
Permian - Right Place at Right Time

- Oil prices to remain strong
- Liquids pricing strong enough
- Oil deals increasing
- Horizontal applications
- Vertical - accessing new pay
- Scale - running room
- Multiple targets
- Open for business
**Bakken Themes – Now and In The Future**

**Major Themes and Catalysts as the Bakken Continues to Evolve**

1) **Completion Technology**
   - Continues to Advance
2) **Well Performance**
   - IPs Define Sweet Spots
3) **Infill Drilling/Spacing**
   - Denser Over Time with Pad Drilling
4) **Three Forks**
   - Similar to Bakken and Contiguous
5) **Deep Three Forks**
   - Emerging Value
6) **Drilling Costs**
   - Improve With Time
7) **Western Rough Rider**
   - Core Extends West of the Nesson

*Bakken Values will Rise*
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