# **2013 SPEE Annual Meeting**

Coeur d'Alene, Idaho

# A&D Market Update & Valuation Metrics for Oil & Gas Properties

June 11, 2013

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# **SECTION 1**

# Raymond James | albrecht Introduction

**RAYMOND JAMES ENERGY INVESTMENT BANKING** 

# RAYMOND JAMES<sup>®</sup> albrecht

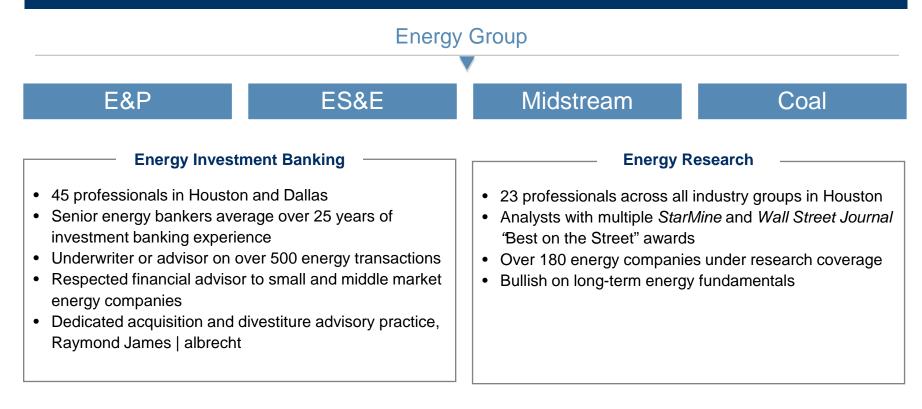
THE LARGEST, MOST EXPERIENCED and MOST TECHNICALLY ORIENTED ACQUISITION & DIVESTITURE TEAM

## **ACQUISITIONS & DIVESTITURES // ADVISORY PRACTICE**

Bob Albrecht President, Co-Head of A&D 713.951.9586 Chris Simon Managing Director, Co-Head of A&D 713.278.5206 Harrison Williams Executive Vice President, Co-Head of A&D 713.951.9586

# **RAYMOND JAMES ENERGY GROUP**

#### SINCE ITS FORMATION IN 1994, THE RJ ENERGY TEAM HAS BUILT A STRONG FRANCHISE ACROSS MULTIPLE ENERGY SUB-SECTORS



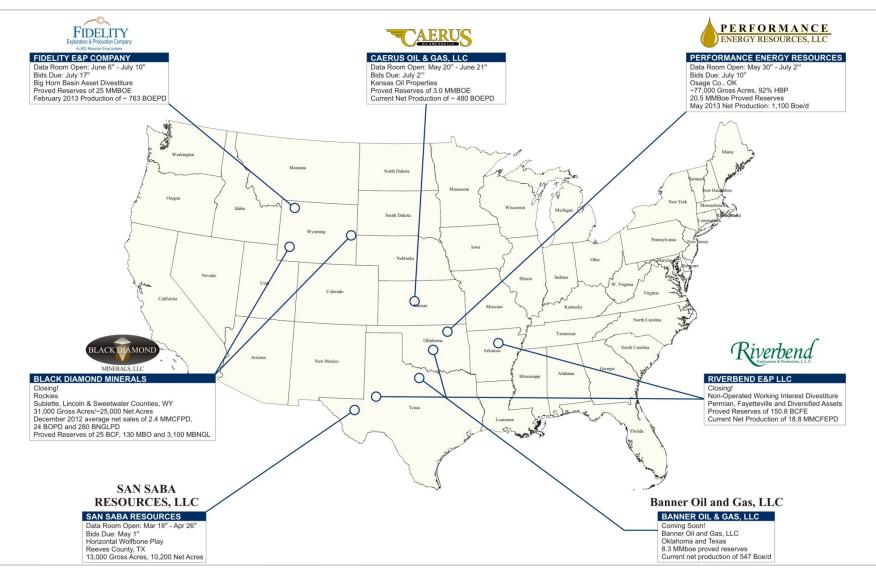
# **A&D ADVISORY PRACTICE OVERVIEW**

#### FULL SUITE OF TECHNICAL ABILITIES & TOOLS

- 22 technical and marketing professionals
- More than 500 years of cumulative experience
- Full suite of technical abilities:
  - Reservoir engineering
  - Geologic mapping
  - Graphics capabilities
  - Seismic workstations
- · What sets us apart?
  - One of largest A&D firms: 11 engineers, 5 geoscientists
  - Ability to leverage E&P bankers C-level relationships
  - Extensive (reservoir engineering) experience
  - Repeat clients and buyers
  - Continued involvement from managing directors on all transactions



# **CURRENTLY MARKETED DEALS**



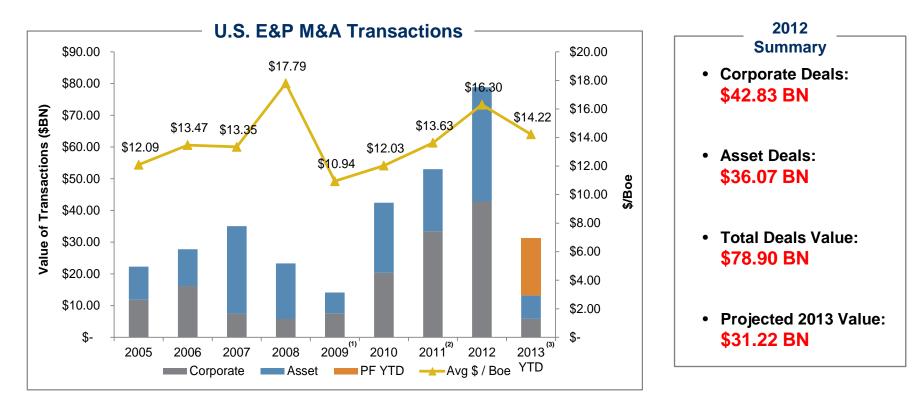
# **SECTION 2**

# A&D Market Update

RAYMOND JAMES® albrecht

# 2005 – 2013 YTD U.S. E&P M&A TRANSACTIONS

#### 2012 TOTAL OF \$78.90 BN IN TRANSACTIONS EXCEEDED 2011 TOTAL OF \$53.05 BN



Source: IHS Herold & Raymond James. Deals represent domestic corporate and onshore asset transactions above \$20 million.

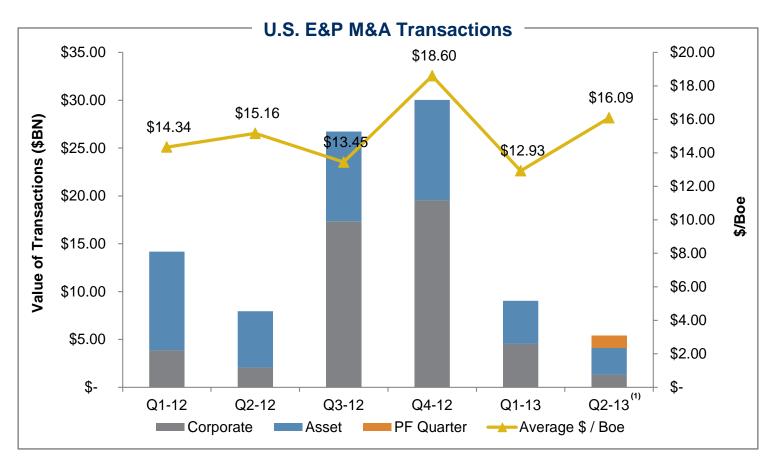
(1) Excludes \$41BN XOM/XTO transaction.

(2) Excludes \$38BN KMI/EP transaction.

(3) 2013 YTD as of 6/3/13.

# 2012 – 2013 YTD U.S. E&P M&A TRANSACTIONS BY QUARTER

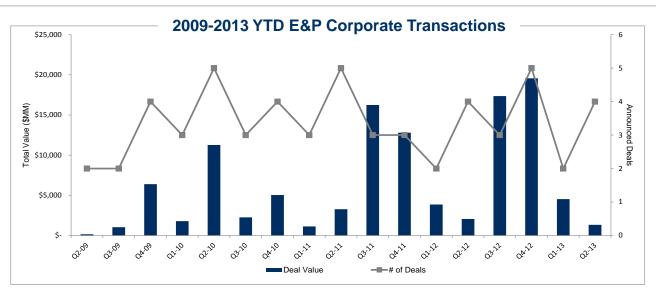
#### 2013 Q1 TOTAL OF \$9.04 BN IN TRANSACTIONS FALLS SHORT OF Q1 2012 TOTAL OF \$14.17 BN



Source: IHS Herold & Raymond James. Deals represent domestic corporate and onshore asset transactions above \$20 million. (1) Q2-13 as of 6/3/13.

# **E&P CORPORATE M&A TRENDS**

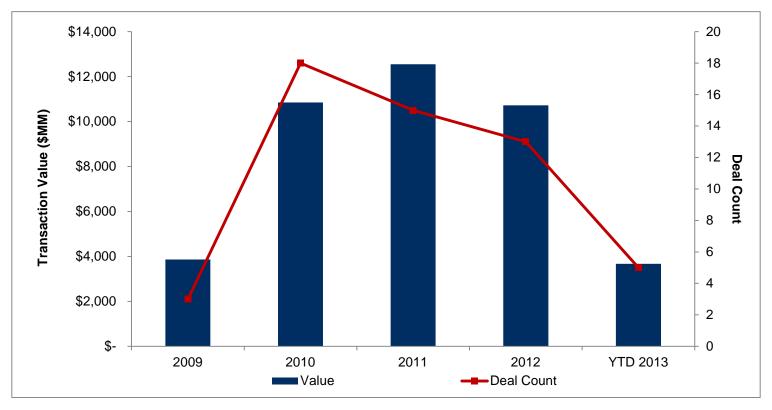
YTD: 6 Transactions Total Value: \$5.9 billion



Announced T					Va	luation	
Date	Acquiror	Target	Value (\$MM)	\$	/Boe	\$/Boe/d	% Oil
5/8/2013	Pioneer Natural Resources Company	Pioneer Southwest Energy Partners LP	\$ 606.9	\$	25.80	\$ 161,535	86%
4/30/2013	Contango Oil & Gas Company	Crimson Exploration Inc.	428	\$	16.88	\$ 54,995	47%
4/29/2013	Petro River Oil Corp.	Petro River Oil, LLC	22.0		NA	NA	NA
4/23/2013	Riverstone & Trilantic	Trail Ridge Energy Partners II	275.0		NA	NA	100%
3/27/2013			100.0		NA	NA	NA
2/21/2013	Linn Energy	Berry Petroleum	4,427.4		14.22	99,057	74%
12/27/2012	Korea Investment Corporation	Parallel Petroleum LLC	301.6		11.21	92,078	NA
12/17/2012	First Reserve Corporation	TLP Energy LLC	655.0		16.38	100,769	55%
12/5/2012	Freeport-McMoRan Copper & Gold Inc.	Plains Exploration & Production Co.	17,712.4		28.16	87,826	64%
11/15/2012	Armada Oil, Inc.	Mesa Energy Holdings Inc.	35.4		5.70	35,513	62%
11/1/2012	Crescent Point Energy	Ute Energy	861.0		28.34	136,626	88%
9/27/2012	Riverstone Holdings	Kerogen Energy Holdings LLC	200.0		NA	NA	NA
9/17/2012	Natural Gas Partners	Atlantic Operating	150.0		NA	NA	NA
7/23/2012	CNOOC Limited	Nexen	16,998.2		13.02	56,639	91%
6/4/2012	Forestar Group	CREDO Petroleum	146.0	146.0 11		46,534	48%
5/17/2012	Atlas Resource Partners	Titan Operating	184.1		3.88	40,412	16%
		Mean Median		\$	15.89 14.22	\$ 82,908 87,826	66% 64%

# SHALE JOINT VENTURES

- Slowdown in JV activity Potential buyers are currently participating in existing shale play development
- Average 2013 \$/acre value: \$8,735



2013 average value is lower than 2012 (\$0.73 BN vs. \$0.83 BN)

Source: JS Herold & Raymond James Research. Note: Deals represent domestic onshore asset transactions only. As of 6/3/13.

# **RECENT JOINT VENTURE ACTIVITY**

Announced Date	Buyer	uyer Seller		Transaction Value (\$MM)	\$ / Net Acre	
4/12/2013	Schlumberger		Gulf Coast Onshore	\$ 90.0	\$ 3,273	
3/19/2013	energyxxi	CORPORATION	Gulf of Mexico	N/A	N/A	
3/5/2013	Undisclosed	Anadarko Retroleum Corporation	Deepwater Gulf of Mexico	860.0	N/A	
2/25/2013	tajce	Chesapeake	Mississippian Play	1,020.0	2,400	
1/30/2013	Recently	PIONEER NATURAL RESOURCES	Permian Basin	1,700.0	20,531	

Source: JS Herold & Raymond James Research. As of 6/3/13.

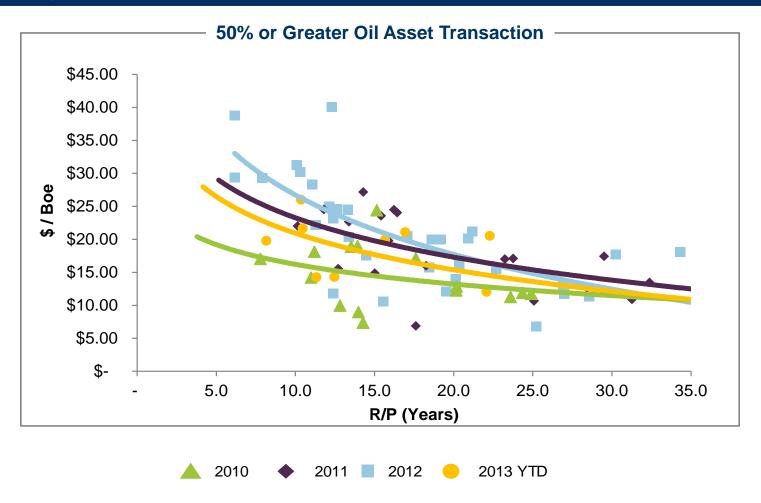
# **2012 JOINT VENTURE ACTIVITY**

Announced Date	Buyer	Seller	US Location	Transaction Value (\$MM)	\$ / Net Acre
11/7/2012	NUCOR O	encana.	Piceance Basin	\$ 3,640.0	N/A
10/25/2012	▶ ● 海默 <sup>®</sup>		Niobrara Shale	27.5	\$ 4,583.3
10/4/2012	oil India Limited		Niobrara Shale	82.5	4,271
8/1/2012	Sumitomo Corporation	devon	Permian Basin	1,365.0	7,000
7/31/2012	KKR	COMSTOCK	Eagle Ford Shale	216.7	25,000
7/2/2012	INPEX INPEX CORPORATION	Anadarko	Deepwater Gulf of Mexico	556.0	N/A
6/22/2012	<b>COSAKA GAS</b>	Cabot Oil & Gas Corporation	Eagle Ford Shale	250.0	14,286
4/9/2012	Exaro	encana.	Green River Basin	380.0	N/A
4/4/2012	Atlas Resource Partners, L.P	😝 equalenergy	Mississippian Play	18.0	2,483
4/3/2012	LINN Energy		Powder River Basin	400.0	N/A
3/6/2012	KKR	Chesapeake	Diversified	250.0	N/A
1/6/2012	Mapubeni	Hent	Eagle Ford Shale	1,300.0	N/A
1/3/2012	ta, i.e.	devon	Diversified	2,200.0	5,388

Source: JS Herold & Raymond James Research.

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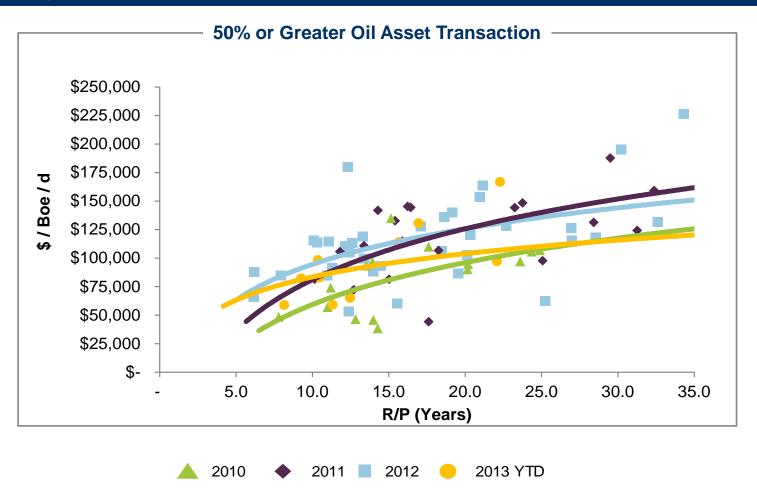
#### 2013 oil-weighted transaction metrics have fallen below prior two years



Source: JS Herold & Raymond James. Deals below \$20 million, those without reserves and production numbers excluded. As of 6/3/13. Outliers excluded from implied value curve. 15

Note: Deals represent domestic onshore asset transactions only.

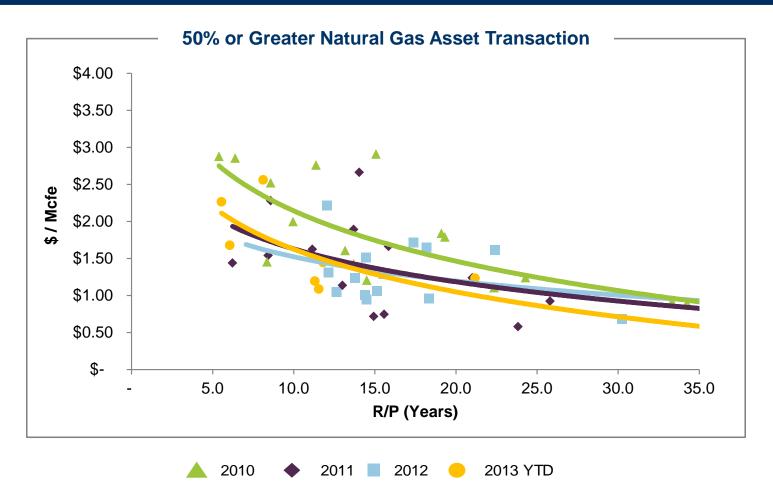
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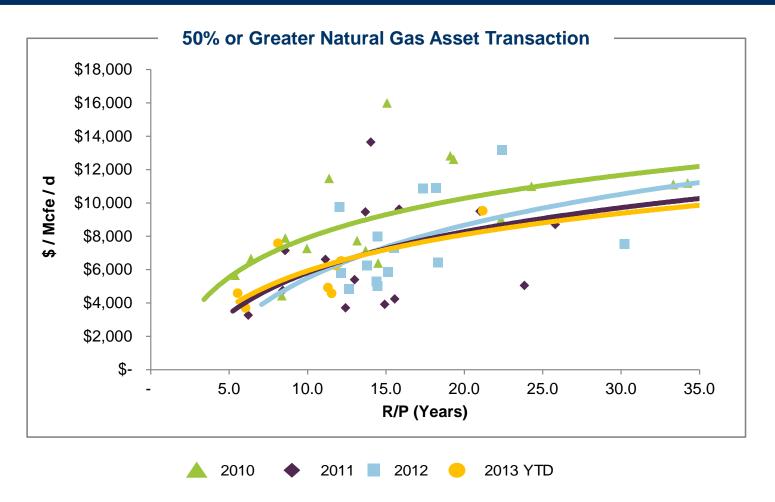
Natural gas transaction metrics are among the lowest in recent years



Source: JS Herold & Raymond James. Deals below \$20 million, those without reserves and production numbers excluded. As of 6/3/13. Outliers excluded from implied value curve. 17

Note: Deals represent domestic onshore asset transactions only.

Natural gas transaction metrics are among the lowest in recent years



Source: JS Herold & Raymond James. Deals below \$20 million, those without reserves and production numbers excluded. As of 6/3/13. Outliers excluded from implied value curve. 18

Note: Deals represent domestic onshore asset transactions only.

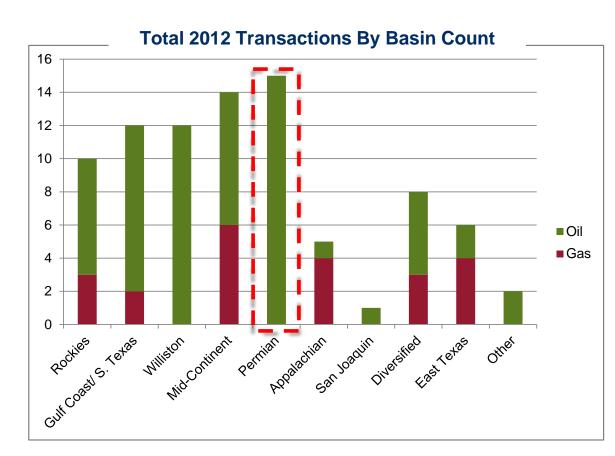
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# SECTION 3 • A&D Transactions – 2012 Review

### A&D TRANSACTIONS - 2012 REVIEW

By Basin

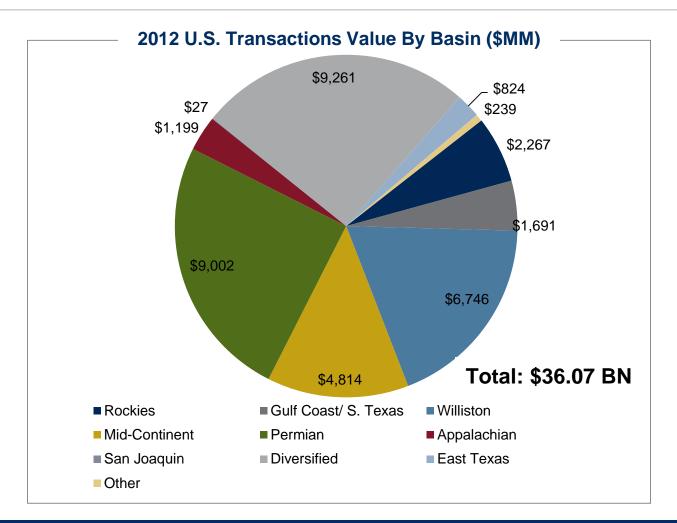
# 2012 U.S. ASSET TRANSACTIONS BY BASIN (COUNT)



- In 2012 there were 81 asset transactions;
  62 oil weighted, 19 gas weighted
- The Permian has the highest deal count, with 15 transactions
- The Mid-Continent also was an active basin, with a combination of transactions for conventional and unconventional assets
- Permian and Williston Basins had only oil weighted transactions

Source: IHS Herold & Raymond James. Deals below \$20 million, those without reserves and production numbers excluded. As of 12/31/12.

# 2012 U.S. ASSET TRANSACTIONS BY BASIN (VALUE)



### Large percent of 2012 Asset Transactions Focused on Liquid Plays

Source: IHS Herold & Raymond James. Deals below \$20 million, those without reserves and production numbers excluded. As of 12/31/12.

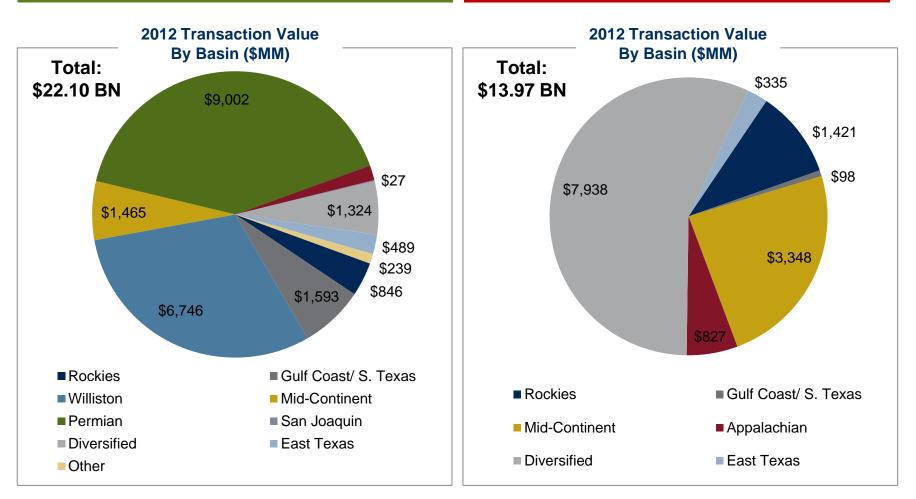
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# 2012 U.S. ASSET TRANSACTIONS BY BASIN (VALUE)

#### Oil Weighted

Gas Weighted

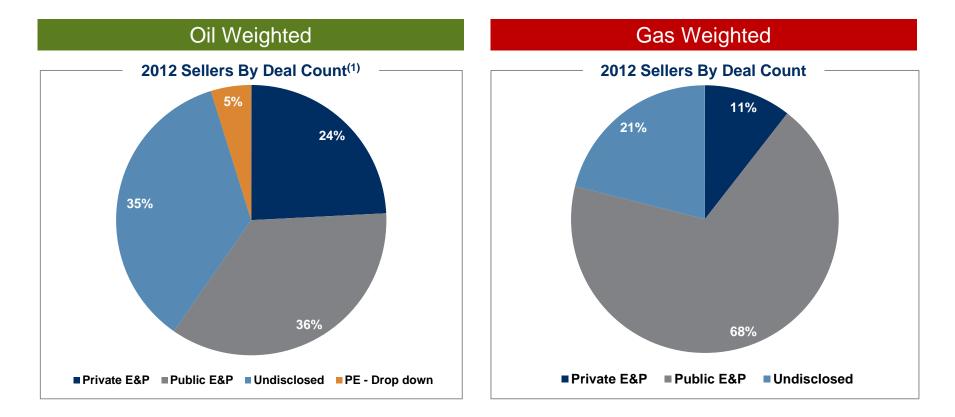


Source: IHS Herold & Raymond James. Deals below \$20 million, those without reserves and production numbers excluded. As of 12/31/12.

### A&D TRANSACTIONS - 2012 REVIEW

By Seller

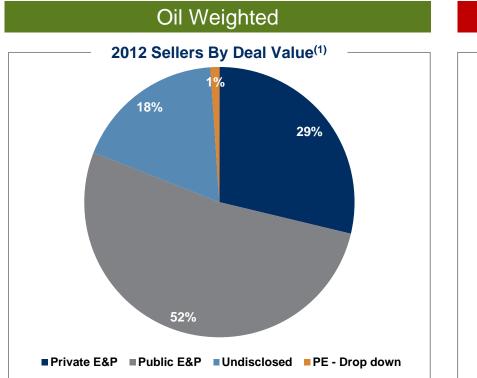
## 2012 U.S. ASSET TRANSACTIONS BY SELLER (DEAL COUNT)

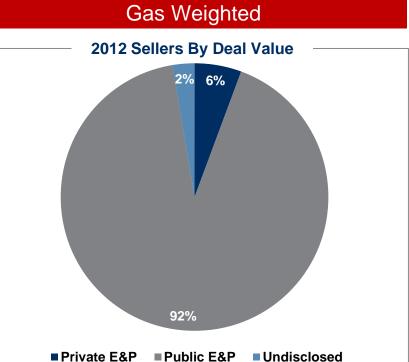


On a deal count basis, private E&Ps (including undisclosed sellers) are most active sellers of oil weighted assets, and public E&Ps are most active sellers of gas weighted assets

Source: IHS Herold & Raymond James. Deals include U.S. onshore asset transactions above \$20 million. As of 12/31/12. (1) PE – Drop Down transaction includes the \$67MM acquisition of Lime Rock Resources' Permian Basin and Texas Gulf Coast assets by LRR Energy.

## 2012 U.S. ASSET TRANSACTIONS BY SELLER (DEAL VALUE)





# Due to 4 CHK sales in September 2012 (\$4 BN), largest sellers of oil weighted assets have shifted from private E&Ps to <u>public E&Ps</u>

Source: IHS Herold & Raymond James. Deals include U.S. onshore asset transactions above \$20 million. As of 12/31/12. (1) PE – Drop Down transaction includes the \$67MM acquisition of Lime Rock Resources' Permian Basin and Texas Gulf Coast assets by LRR Energy.

# 2012 TOP 10 U.S. ASSET TRANSACTIONS BY SELLER

Seller	Gas Deal Count	Transaction Value (\$MM)
El Paso	1	\$ 7,150
BP	2	2,225
Noble Energy	1	617
EXCO Resources	1	598
Chesapeake	1	590
Antero Resources	1	445
Bill Barrett	1	335
WPX Energy	1	306
Carrizo Oil & Gas	1	190
Range Resources	1	190
	Oil Deal	Transaction
Seller	Count	Value (\$MM)
Chesapeake	4	\$ 4,025
SandRidge Energy	1	2,600
Denbury Resources	3	2,195
Petro-Hunt	1	1,450
Helis Oil & Gas	1	1,380
Three Rivers Operating	1	1,000
Eagle Energy Company	1	650
Concho Resources	1	520
Noble Energy	2	460

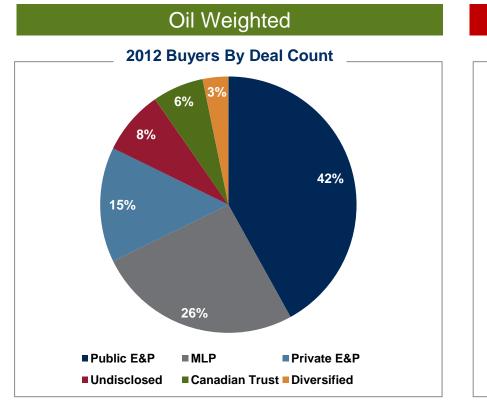
Source: IHS Herold & Raymond James. Deals include U.S. onshore asset transactions above \$20 million. As of 12/31/12.

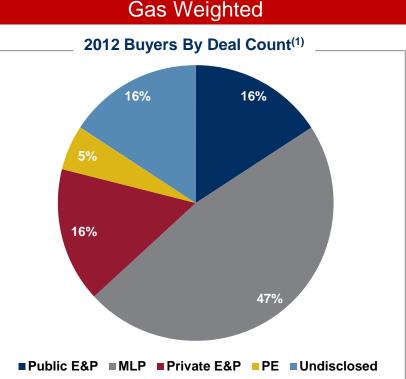
(1) PE transaction includes the \$7BN acquisition of El Paso Corporation's E&P assets by a consortium including Apollo Global Management and Riverstone Holdings.

### A&D TRANSACTIONS - 2012 REVIEW

By Buyer

## 2012 U.S. ASSET TRANSACTIONS BY BUYER (DEAL COUNT)

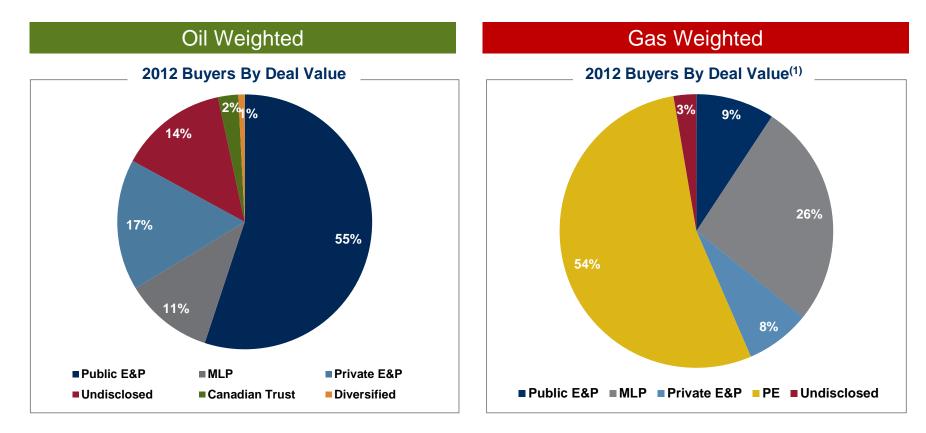




#### On a deal count basis, public E&Ps are largest buyer of oil weighted assets; MLPs are largest buyer of gas weighted assets

Source: IHS Herold & Raymond James. Deals include U.S. onshore asset transactions above \$20 million. As of 12/31/12. (1) PE transaction includes the \$7BN acquisition of El Paso Corporation's E&P assets by a consortium including Apollo Global Management and Riverstone Holdings.

## 2012 U.S. ASSET TRANSACTIONS BY BUYER (DEAL VALUE)



On a deal value basis, public E&Ps are still largest buyer of oil weighted assets; but PEs are largest buyer of gas weighted assets

Source: IHS Herold & Raymond James. Deals include U.S. onshore asset transactions above \$20 million. As of 12/31/12. (1) PE transaction includes the \$7BN acquisition of El Paso Corporation's E&P assets by a consortium including Apollo Global Management and Riverstone Holdings.

# 2012 U.S. ASSET TRANSACTIONS BY BUYERS

Buyer	Gas Deal Count	Transaction Value (\$MM)
Apollo; Riverstone	1	\$ 7,150
Linn Energy	3	2,400
Vanguard Natural Resources	2	780
Unit Corporation	1	617
Harbinger Group	1	598
XTO Energy	1	590
Undisclosed	3	359
Premier Natural Resources	1	306
Atlas Resource Partners	1	190
Memorial Production Partners	3	160
	Oil Deal	Transaction
Buyer	Count	Value (\$MM)
Sheridan Production Partners	1	\$ 2,600
Halcon Resources	3	2,013
Exxon Mobil; XTO Energy	1	1,965
Royal Dutch Shell	1	1,935
QEP Energy	1	1,380
Chevron Corporation; EnerVest	1	1,365
Continental Resources	3	1,266
Undisclosed	4	
Concho Resources	1	1,000
Midstates Petroleum	1	650

Source: IHS Herold & Raymond James. Deals include U.S. onshore asset transactions above \$20 million. As of 12/31/12.

(1) PE transaction includes the \$7BN acquisition of El Paso Corporation's E&P assets by a consortium including Apollo Global Management and Riverstone Holdings.

# SECTION 4 • A&D Transactions – 2013 YTD

# **SELECT 2013 YTD ASSET TRANSACTIONS**

#### • YTD, asset transactions have totaled \$7,303 million

Announced	l i de la companya d		Trai	nsaction				
Date	Buyer(s)	Seller(s)	Valu	ue (\$MM)	\$ / Boe	\$ / Boe / d	Basin	Oil/Gas
6/3/2013	Kodiak Oil & Gas	Liberty Resources	\$	660	NA	\$ 115,789	Williston	Oil
5/21/2013	Undisclosed company(ies)	Prospect Capital Corp.		66	NA	NA	Permian	Oil
5/10/2013	Mid-Con Energy Partners, LP	Undisclosed company(ies)		28	21.09	130,488	Mid-Continent	Oil
5/8/2013	Undisclosed company(ies)	Surge Energy Inc.		43	NA	82,212	Williston	Oil
5/1/2013	Undisclosed company(ies)	QEP Energy Company		145	NA	NA	Rockies	Oil
4/4/2013	Midstates Petroleum	Panther Energy		620	14.29	65,000	Mid-Continent	Oil
4/3/2013	Penn Virginia	Magnum Hunter		401	25.99	98,298	Gulf Coast/ S. Texas	Oil
3/25/2013	Undisclosed	ZaZa Energy		53	NA	NA	East Texas	Oil
3/18/2013	LRR Energy	Lime Rock Resources		38	19.94	114,030	Mid-Continent	Oil
3/18/2013	Sanchez Energy Corporation	Hess Corporation		265	19.78	58,889	Gulf Coast/ S. Texas	Oil
3/18/2013	Exxon Mobil Corporation	BNK Petroleum Inc.		148	5.34	88,285	Mid-Continent	Oil
3/15/2013	Rosetta Resources, Inc.	Comstock Resources Incorporated		768	20.52	166,818	Permian	Oil
3/11/2013	Undisclosed	Range Resources		25	3.44	NA	Gulf Coast/ S. Texas	Oil
3/11/2013	Capstone Natural Resources	Undisclosed		50	NA	NA	Permian	Oil
3/1/2013	Aurora Oil and Gas	Undisclosed		118	14.27	59,012	Gulf Coast/ S. Texas	Oil
2/26/2013	Vanguard Natural Resources	Range Resources		275	12.04	97,059	Permian	Oil
2/19/2013	Shoreline Energy	Undisclosed		23	NA	NA	Rockies	Oil
2/15/2013	EXCO Resources, Inc.	BG Group plc		133	NA	NA	Gulf Coast/ S. Texas	Oil
2/11/2013	Gulfport Energy Corporation	Wexford Capital LP		220	NA	NA	Appalachian	Oil
1/15/2013	Denbury Resources Incorporated	ConocoPhillips		1,050	21.67	82,727	Williston	Oil
		Mean	\$	256.3	\$ 16.21	\$ 96,551		
		Median	\$	138.8	\$ 19.78	\$ 92,672		

Announced			Trar	nsaction																																																				
Date	Buyer(s)	Seller(s)	Value (\$MM)		Value (\$MM)		Value (\$MM		Value (\$MM)		Value (\$MM)		Value (\$MM)		Value (\$MM)		Value (\$MM)		Value (\$MM)		Value (\$MM)		Value (\$MM)		Value (\$MM)		Value (\$MM)		Value (\$MM)		Value (\$MM)		Value (\$MM)		Value (\$MM)		Value (\$MM)		Value (\$MM)		Value (\$MM)		Value (\$MM)		Value (\$MM)		Value (\$MM)		Value (\$MM)		<u>\$</u> /	Mcfe	\$/	Mcfe / d	Basin	Oil/Gas
5/29/2013	NorthWestern Corporation	Devon Energy	\$	70.2	\$	1.09	\$	4,576	Rockies	Gas																																														
5/21/2013	EnerVest	Laredo Petroleum		438.0		2.56		7,584	Mid-Continent	Gas																																														
5/7/2013	Undisclosed private company(ies)	GeoMet, Inc.		63.2		1.47		6,515	Gulf Coast Onshore	Gas																																														
5/3/2013	EQT Corporation	Chesapeake Energy Corporation		113.0		NA		NA	Appalachia	Gas																																														
4/29/2013	Southwestern Energy Company	Chesapeake Energy Corporation		93.0		NA		NA	Appalachia	Gas																																														
4/22/2013	Cubic Energy Inc.	Gastar Exploration Ltd.		46.0		1.68		3,710	Gulf Coast Onshore	Gas																																														
3/29/2013	Tokyo Gas Company	Quicksilver Resources		485.0		1.45		6,242	Mid-Continent	Gas																																														
3/19/2013	Memorial Production Partners	Memorial Resource Development		200.0		1.23		9,524	Gulf Coast Onshore	Gas																																														
2/5/2013	Caerus Oil and Gas LLC	PDC Energy		200.0		2.26		4,583	Rocky Mountains	Gas																																														
1/18/2013	Energy XXI	McMoRan Exploration Company		80.0		NA		6,723	Gulf Coast Onshore	Gas																																														
1/15/2013	Carrizo Oil & Gas Incorporated	Avista Capital Partners LLC		63.1		NA		NA	Appalachia	Gas																																														
1/3/2013	Undisclosed	Forest Oil Corporation		325.0		1.19		4,924	Gulf Coast Onshore	Gas																																														
		Mean	\$	181.4	\$	1.62	\$	6,042																																																
		Median	\$	103.0	\$	1.46	\$	6,242																																																

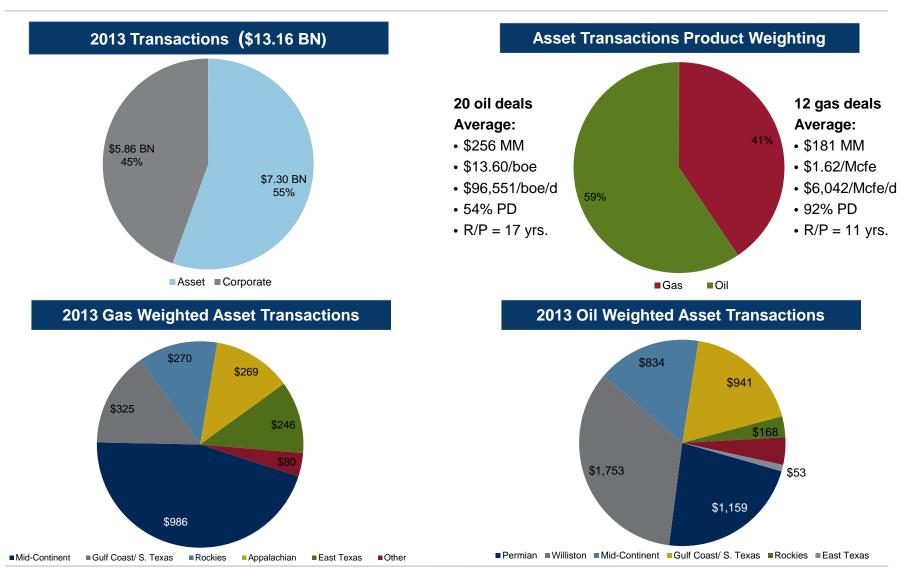
Source: IHS Herold & Raymond James. Deals include U.S. onshore asset transactions above \$20 million. As of 6/3/13.

# **SELECT 2013 YTD CORPORATE TRANSACTIONS**

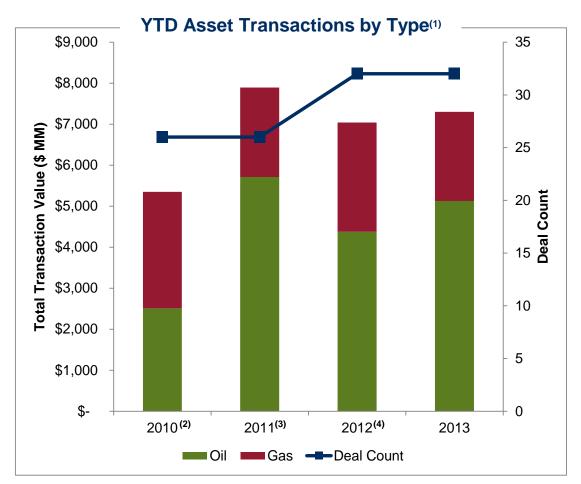
#### • YTD, corporate transactions have totaled \$5,859 million

Announced Transaction										
Date	Acquiror	TargetValue (\$MM) \$ / Boe		Boe \$/Boe/d		Basin	Oil/Gas			
5/8/2013	Pioneer Natural Resources Company	Pioneer Southwest Energy Partners LP	\$	606.9	\$	25.80	\$	161,535	Permian	Oil
4/30/2013	Contango Oil & Gas Company	Crimson Exploration Inc.		428	\$	16.88	\$	54,995	Gulf Coast/ S. Texas	Oil
4/29/2013	Petro River Oil Corp.	Petro River Oil, LLC		22.0		NA		NA	Mid-Continent	Oil
4/23/2013	Riverstone & Trilantic	Trail Ridge Energy Partners II		275.0		NA		NA	Permian	Oil
3/27/2013	Post Oak Energy	Titan River Energy		100.0		NA		NA	Gulf Coast/ S. Texas	Oil
2/21/2013	Linn Energy	Berry Petroleum		4,427.4		14.22		99,057	Diversified	Oil
		Mean	\$	976	\$	18.97	\$	105,195	1	
		Median	\$	351	\$	16.88	\$	99,057		

## **2013 YTD A&D TRANSACTIONS**



# **2013 YTD A&D ASSET TRANSACTIONS OVERVIEW**



 2013 YTD has the same deal count and slightly higher deal value than 2012

- Higher percentage of oil weighted transactions by deal value
- Permian basin has already seen 3 transactions totaling over \$1 billion in value
  - Comstock Resources sold assets to Rosetta Resources (\$768 MM)
  - Capstone Natural Resources sold assets to Undisclosed Party (\$50 MM)
  - Range Resources sold assets to Vanguard
     Natural Resources (\$275 MM)

Source: IHS Herold & Raymond James. Deals include U.S. onshore asset transactions above \$20 million (1) Period from January 1<sup>st</sup> to June 3<sup>rd</sup> for each year.

(2) Excludes 3/15/10 CONSOL Energy & Dominion Resources gas weighted \$3.5 billion transaction.

(3) Excludes 2/21/11 BHP Billiton & Chesapeake gas weighted \$4.8 billion transaction.

(4) Excludes 2/24/12 Apollo/Riverstone & El Paso gas weighted \$7.2 billion transaction.

# **2013 YTD SUMMARY AND OBSERVATIONS**

- Asset transactions slightly exceed corporate transactions on a transaction value basis, but Linn Energy's acquisition of Berry Petroleum accounts for ~76% of the total corporate transaction value
- Total asset transaction value is more evenly distributed with no one deal accounting for greater than 14% of total transaction value
- Permian and Williston transactions account for ~57% of transaction value for oil weighted asset deals and account for ~62% of corporate transaction value<sup>(1)</sup>
- Despite over 60% increase in natural gas prices year-over-year, gas weighted transaction deal value YTD 2013 is ~21% lower than YTD 2012<sup>(2)</sup>



Transaction market has yet to react to the recovery of natural gas prices

Source: IHS Herold & Raymond James. Deals include U.S. onshore asset transactions above \$20 million. As of 6/3/13.

(1) Excludes 2/21/13 Linn Energy & Berry Petroleum gas weighted \$4.4 billion transaction.

(2) Excludes 2/24/12 Apollo/Riverstone & El Paso gas weighted \$7.2 billion transaction.

# A LOOK AHEAD – 2013 A&D OUTLOOK

#### Market Environment

- Large amount of private capital looking to invest
- Improved gas prices increasing demand for dry gas assets
  - > Buyers can't pay for PUDs at less than 30% IRR
- Oil metrics have fallen below prior two years
- Buyers
  - Publics buying oil, Private Equity buying gas
  - Desiring higher percentage of PDP to Total Proved
  - Willing to be aggressive on high quality PDP
    - PV8-10% on strip pricing
  - MLPs willing to buy mature gas resource assets
- Sellers
  - Privates selling oil, Publics selling gas

# A LOOK AHEAD – 2013 A&D OUTLOOK

#### Deal Flow

- Picking up rapidly since beginning of year
- Numerous "acreage" deals on the market
  - > Buyers require drilling performance and production history
  - > Logical buyers have plenty of acreage to develop and won't buy more at elevated prices
- Continued non-op sale packages in resource plays

#### • E&P MLPs aggressive acquirers & multiplying

- Currently 13 E&P MLPs publically traded
- 2012 25 deals totaling approximately \$6.0 billion
- YTD 2013 4 deals totaling approximately \$4.9 billion
- 3 E&P MLP IPOs since December 2011
- More expected this year

# **SECTION 5**

# Valuation Methodologies

# **VALUATION METHODOLOGIES**

- Discounted cash flow method is the most accurate method
  - Based on a fundamental engineering analysis of the assets
  - Comparables can be helpful but can also be misleading
  - Buyers are using strip pricing
    - > Typically 5 years then flat
    - > NGL pricing tied to oil price curve
  - Assume 1-2% per year escalation of operating & capex expenses
  - Continuous discounting
  - Reserve Risking & Discount Rates
    - > PDP as low as single digit discount rates for quality & predictable production, PV8-12%
    - > PDNP discount rates range from PV12-15%
    - > PUD discount rates vary depending on risk profile of PUD but generally PV20-PV25
      - > Can equate to about 50% of the PV15 depending on decline profile

	Market Value Estimate													
Example Co. Proved Reserves Va	luation as of N	lay 14, 2013			(									
Reserve Category	PV-10 (\$M)	PV-12 (\$M)	PV-15 (\$M)	PV-20 (\$M)	Market Low	Risk	Factor <sup>(1)</sup> High	Riskec Low	l Valuation Raı Mid	nge (\$M) High				
PDP PDNP PUD	\$ 110,000 5,800 370,000	\$ 103,000 5,400 320,000	\$ 93,000 4,800 246,000	\$ 82,000 4,500 166,000	90% 70% 40%	- - -	100% 80% 60%	\$ 99,000.0 3,780.0 98,400.0	<ul> <li>\$ 104,500.0</li> <li>4,050.0</li> <li>123,000.0</li> </ul>	,				
Total Proved Reserves Valuation	\$ 485,800	\$ 428,400	\$ 343,800	\$ 252,500	l			\$ 201,180.0	\$ 231,550.0 	<mark>\$ 261,920.0</mark>				

- Example of discounted cash flow method
- Risked valuation is a function of the following variables
  - Reserve Category
  - PV applied to each Reserve Category
  - Market Risk Factor applied to each Reserve Category
    - > Based on engineering experience, marketing experience and strength of the asset
- Market Value Estimate aims to create a range that reflects the price that the asset could reasonably be sold for in the current market

1. Market Risk Factors adjusted to reflect marketability.

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