
• Equity market reported total deal value of $53B, on par with total amount issued in 2013 and 2014. A 36% increase over equity issued in 2015

• Bond market reported $133B total deal value, the 2nd lowest level in the past 5yrs and 15% decrease from 2015

• JP Morgan was the most active bank in offerings, participating in 45% of all equity and bond issuances

• Wells Fargo most active bank in lending in 2016

• Callon Petroleum has been a prolific issuer of equity in 2016 (4 offerings-$1.3B)
Additional Market Observations

2016 Review

• $186 billion raised across 346 bond and equity deals in 2016, compared with $196 billion from 322 deals in 2015.

• Equity financing activity in the Upstream sector surged 69% over 2015 offerings, while traditional equity issuers in the Midstream/MLP sector reduced equity offerings.

• IPO slowdown in 2016 with only 6 energy IPOs last year, three in Upstream and three in Services.

• Banks earned $1.3 billion in fees for equity secondary offerings and IPOs for a total deal amount of $53 billion.

• More frequent equity offerings. Several Upstream companies had multiple common stock offerings last year, raising money each time they acted upon an opportunity to grab inexpensive assets. Some companies go years without doing even one.

• Return of the SPAC. After an extended absence from the US energy landscape, in 2016 two blank-check companies go public and wait before pouncing on reasonably-priced assets. One of them, Silver Run Acquisition, became Centennial Resource Development in September and the other, KLR Energy Acquisition, is combining with Tema Oil & Gas to form Rosehill Resources (1H17 expected transaction close).

• Good execution on Chapter 11 Restructuring Support Agreements. Most bankruptcy filers last year came to court with at least a preliminary RSA in hand, enabling a faster, smoother process. Those with little or no initial stakeholder support, like Energy XXI, waited over eight months to get through the process. Swift Energy, like its name suggests, got through in just three months.

• “We’re spending within our means”—More and more CEOs and CFOs uttered these or similar words in more press releases and on more conference calls this year, beating out “rightsizing” and “headwinds” for overused energy capital phrase of the year. Many companies used 2016 as an experiment to ratchet capex below expected cash flow rather than borrow more to fund capex.
Coverage

UPSTREAM
AXAS AMZGQ ASENQ APAC AR APA AREX AOIL ATHL ATLS BRN BROE BXE BRY BBG ANFC BSM BCEI BPZR BBEP COG CRC CPE CNQ CRZO
CDEV CHK XEC COIL COP CWEI CIE CRK CJO CNX MCF CLR CBNR DRBM DNR DVN FANG DUNR EROC ECR EC EOX ECA ENDRQ EGN
EXXIQ ENRJ EOG EPE EPL EQT ERN ESCR ENEV EPO XCO XOG FEFCO FPP FOR FCX FXEN GST GPXK GDP GTE GPO HK HWKR HES HUSA
HECC HDYN IOC ISRL JYHW JONE KOG KOS LPI LGCY LBYE LLEX LINE LNO LRE LEI LVL MPET MHR MRO MTDG MMRR MEMP MRD MXC MCEP
MPO MILL MUR NSLP NWTR NFX NBL NOG OAS OXY ROYT PHX PE PDCE PED PVA PBR PQ PRHR PXD PSE PXP PSTR PRNG QEP QRE KWKA
ROGI RRC RGFR RDMR REN REXX RICE REI BBLBS ROSE RSPT OSOQ SSN SN SPP SD SDR PER SARAC SSL SM SWN SGR SWTF SYRG
GMXRQ TTN TRCH TENG UNT USEG EGY VNR VEI VQ VYEY VNOM VOC WTL WLL WHZ WRD WPX YUMA ZAZA ZN

MIDSTREAM
CAFD ACMP AMID AM ARCX APLP APL ATO AZUR BKEP BWL BPL CPX CPPL CNNX CEQP CMLP XTXI XTEX CCLP DAKP DPM DKL DM LPG EPB
ENBL EQQ EEP ENB ETE ETP ENLC ENLK EPD EQGP EQM GEL HESM HEP NRGM JPEP KMP KMI KMR MMP MWE MMLP MEP MPLX NAP NGL
NKA OILT OKE OKS PBA PTX PAA PAGP PVR QEP STR RGP RPM RRM RSM RSMG SHLX SJE SOCQP SO SWX SE SEP SMLP SXL TEGP TEP
TRGP NGLS TCP TLLP TRP USP WUS WGR WPS WC2

DOWNSTREAM
ALJ ALDW APU BDCO CLMT CPLP LNG CQP CQH CPLV CVI UVN CVRR CELP DK DLNG FGP GLOP GLP GMLP HMLP HFC KNOP MPC NVGS NMM
NTI NS NSH OCIP PARR PBF PBFX PDH PESC PSX RNF SRLP SGU SPH SUN SYM TGP TOO TSO TLP USDV VLO VLP VTTI WNR WNRL WLKP

INTEGRATED
BP CVE CVX CEO XOM HSE NFG REPYY RDSA STO SU TOT YPF

SERVICES
BHI BAS BRS CIES CDVIQ CAM CRR HELI CLH CLB DWSN DPDW DO DRC DRQ ESX EDG ENG ESY EMES ENSV EXTN FMSS FTK FMC FTI FET
FI GEOKQ GEOS GEGSQ GPP GIFI GLF HAL HNR HLP HP HERO HIIT HOS ICD IO FRAC KEGQX MIC TUSK MZ MDR MIND MRC NBR NGS
NR NE NBLX NAO NDL DNOS NES ORG OII OIS PACD PGNF PKD PTEN PHII PES PDS RCON RQCO RNET RDC RES SAEH SLB SDLP SSE
SND SND SDPI SPN TEO TTI TDW TIG RIGP SLCA VTG VNR WFT INT
Energy Equity Review

• Equity market reported total deal value of $53B, on par with total amount issued in 2013 and 2014. A 36% increase over equity issued in 2015

• Average equity offering was $340MM during 2016, the highest in the past 5 years

• JP Morgan was the most active bank, participating in 36% of all equity offerings

• Credit Suisse led the IPO market, leading 3 of the 6 deals launched in 2016

• IPO markets expected to surge in 2017 as portfolio companies run parallel paths to optimize value
2016 Energy Sector Equity Summary

Energy Equity Issuances $52.7 billion
Upstream most active sector in 2016, with 80 deals and total deal amount of $31.7 billion

- **Equity Upstream**
  - $31.7 billion (60%)
  - YOY +69%
  - 80 Deals

- **Equity Midstream**
  - $13.1 billion (25%)
  - YOY -8%
  - 29 Deals

- **Equity Downstream**
  - $1.5 billion (3%)
  - YOY -48%
  - 15 Deals

- **Equity Integrated**
  - $2.0 billion (4%)
  - YOY +30%
  - 1 Deal

- **Equity Services**
  - $4.4 billion (8%)
  - YOY +342%
  - 27 Deals

Top banks for each sector by allocated deal amount:

- **J.P. Morgan**
  - $6.1 billion (19%)
- **Barclays**
  - $3.2 billion (24%)
- **Wells Fargo**
  - $0.4 billion (27%)
- **TD**
  - $0.4 billion (20%)
- **Morgan Stanley**
  - $1.2 billion (27%)

Note: Follow-on and IPO offerings. Does not include at-the-market equity offerings and "Other" deals classified as equity.
## 2016 Energy Follow-on Top 25 Equity Issues

The Top 25 deals resulted in $30B, ~60% of the total transaction value during 2016

<table>
<thead>
<tr>
<th>Announced</th>
<th>Company</th>
<th>Sector</th>
<th>Ticker</th>
<th>Deal Amount ($MM)</th>
<th>Bank Fees ($MM)</th>
<th>Underwriting Discount</th>
<th>Reoffer Discount</th>
<th>All In Rate</th>
<th>Lead Bookrunner</th>
<th>No. of Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/24/2016</td>
<td>Enbridge Inc</td>
<td>Midstream</td>
<td>ENB</td>
<td>$5,153</td>
<td>$95.96</td>
<td>4.80%</td>
<td></td>
<td>6.58%</td>
<td>RBC</td>
<td>17</td>
</tr>
<tr>
<td>11/2/2016</td>
<td>TransCanada Pipelines</td>
<td>Midstream</td>
<td>TRP</td>
<td>$3,203</td>
<td>$112.24</td>
<td>3.50%</td>
<td></td>
<td></td>
<td>TD Securities</td>
<td>3</td>
</tr>
<tr>
<td>9/14/2016</td>
<td>Anadarko Petroleum Corp</td>
<td>Upstream</td>
<td>APC</td>
<td>$1,915</td>
<td>$38.78</td>
<td>2.02%</td>
<td>5.99%</td>
<td>7.89%</td>
<td>JP Morgan</td>
<td>1</td>
</tr>
<tr>
<td>1/12/2016</td>
<td>Plains All American Pipeline LP</td>
<td>Midstream</td>
<td>PAA</td>
<td>$1,460</td>
<td>$2.95</td>
<td>N/A</td>
<td></td>
<td></td>
<td>N/A</td>
<td>1</td>
</tr>
<tr>
<td>1/7/2016</td>
<td>Pioneer Natural Resources Co</td>
<td>Upstream</td>
<td>PXD</td>
<td>$1,404</td>
<td>$14.64</td>
<td>1.04%</td>
<td>6.53%</td>
<td>7.50%</td>
<td>BAML</td>
<td>4</td>
</tr>
<tr>
<td>2/19/2016</td>
<td>Devon Energy Corp</td>
<td>Upstream</td>
<td>DVN</td>
<td>$1,294</td>
<td>$15.87</td>
<td>1.23%</td>
<td>7.77%</td>
<td>8.90%</td>
<td>Goldman Sachs</td>
<td>15</td>
</tr>
<tr>
<td>8/17/2016</td>
<td>Concho Resources Inc</td>
<td>Upstream</td>
<td>CXO</td>
<td>$1,179</td>
<td>$24.30</td>
<td>2.06%</td>
<td>4.00%</td>
<td>5.98%</td>
<td>Credit Suisse</td>
<td>14</td>
</tr>
<tr>
<td>6/7/2016</td>
<td>Sunoco Energy Inc</td>
<td>Integrated</td>
<td>SU</td>
<td>$1,148</td>
<td>$84.96</td>
<td>3.25%</td>
<td></td>
<td></td>
<td>TD Securities</td>
<td>3</td>
</tr>
<tr>
<td>3/2/2016</td>
<td>Marathon Oil Corp</td>
<td>Upstream</td>
<td>MRO</td>
<td>$1,109</td>
<td>$34.37</td>
<td>3.10%</td>
<td>6.82%</td>
<td>9.71%</td>
<td>Morgan Stanley</td>
<td>7</td>
</tr>
<tr>
<td>7/1/2016</td>
<td>Southwestern Energy Co</td>
<td>Upstream</td>
<td>SWN</td>
<td>$1,109</td>
<td>$23.22</td>
<td>2.09%</td>
<td>7.20%</td>
<td>9.14%</td>
<td>Credit Suisse</td>
<td>24</td>
</tr>
<tr>
<td>12/16/2016</td>
<td>Diamondback Energy Inc</td>
<td>Upstream</td>
<td>FANG</td>
<td>$1,021</td>
<td>$20.48</td>
<td>2.01%</td>
<td>7.62%</td>
<td>9.48%</td>
<td>Credit Suisse</td>
<td>23</td>
</tr>
<tr>
<td>9/28/2016</td>
<td>Rice Energy Inc</td>
<td>Upstream</td>
<td>RICE</td>
<td>$1,020</td>
<td>$15.60</td>
<td>1.53%</td>
<td>5.27%</td>
<td>6.72%</td>
<td>Barclays</td>
<td>2</td>
</tr>
<tr>
<td>9/20/2016</td>
<td>Encana Corp</td>
<td>Upstream</td>
<td>ECA</td>
<td>$1,000</td>
<td>$18.23</td>
<td>1.82%</td>
<td></td>
<td>1.82%</td>
<td>Credit Suisse</td>
<td>4</td>
</tr>
<tr>
<td>2/5/2016</td>
<td>Hess Corp</td>
<td>Upstream</td>
<td>HES</td>
<td>$975</td>
<td>$29.25</td>
<td>3.00%</td>
<td>10.28%</td>
<td>12.97%</td>
<td>Goldman Sachs</td>
<td>17</td>
</tr>
<tr>
<td>2/24/2016</td>
<td>Cabot Oil &amp; Gas Corp</td>
<td>Upstream</td>
<td>COG</td>
<td>$880</td>
<td>$14.30</td>
<td>1.63%</td>
<td>7.15%</td>
<td>8.66%</td>
<td>JP Morgan</td>
<td>7</td>
</tr>
<tr>
<td>10/17/2016</td>
<td>RSP Permian Inc</td>
<td>Upstream</td>
<td>RSPP</td>
<td>$875</td>
<td>$25.14</td>
<td>2.88%</td>
<td>4.79%</td>
<td>7.53%</td>
<td>Barclays</td>
<td>19</td>
</tr>
<tr>
<td>6/17/2016</td>
<td>Pioneer Natural Resources Co</td>
<td>Upstream</td>
<td>PXD</td>
<td>$832</td>
<td>$17.06</td>
<td>2.05%</td>
<td>2.45%</td>
<td>4.45%</td>
<td>Credit Suisse</td>
<td>13</td>
</tr>
<tr>
<td>6/13/2016</td>
<td>Antero Resources Corp</td>
<td>Upstream</td>
<td>AR</td>
<td>$769</td>
<td>$15.52</td>
<td>2.02%</td>
<td>2.08%</td>
<td>4.06%</td>
<td>Credit Suisse</td>
<td>13</td>
</tr>
<tr>
<td>5/4/2016</td>
<td>EQT Corp</td>
<td>Upstream</td>
<td>EQT</td>
<td>$704</td>
<td>$11.34</td>
<td>1.61%</td>
<td>4.42%</td>
<td>5.96%</td>
<td>Credit Suisse</td>
<td>13</td>
</tr>
<tr>
<td>2/29/2016</td>
<td>Newfield Exploration Co</td>
<td>Upstream</td>
<td>NFX</td>
<td>$689</td>
<td>$13.80</td>
<td>2.00%</td>
<td>1.96%</td>
<td>3.93%</td>
<td>Credit Suisse</td>
<td>15</td>
</tr>
<tr>
<td>12/15/2016</td>
<td>Callon Petroleum Co</td>
<td>Upstream</td>
<td>CPE</td>
<td>$656</td>
<td>$20.50</td>
<td>3.13%</td>
<td>1.97%</td>
<td>5.04%</td>
<td>Barclays</td>
<td>18</td>
</tr>
<tr>
<td>12/19/2016</td>
<td>Gulfport Energy Corp</td>
<td>Upstream</td>
<td>GPOR</td>
<td>$624</td>
<td>$15.59</td>
<td>2.50%</td>
<td>6.56%</td>
<td>8.90%</td>
<td>Credit Suisse</td>
<td>28</td>
</tr>
<tr>
<td>5/6/2016</td>
<td>Phillips 66 Partners LP</td>
<td>Refining</td>
<td>PSXP</td>
<td>$577</td>
<td>$6.27</td>
<td>1.09%</td>
<td>6.90%</td>
<td>7.91%</td>
<td>Barclays</td>
<td>4</td>
</tr>
<tr>
<td>9/28/2016</td>
<td>Sunoco Logistics Partners LP</td>
<td>Midstream</td>
<td>SXL</td>
<td>$567</td>
<td>$6.30</td>
<td>1.11%</td>
<td>7.41%</td>
<td>8.44%</td>
<td>Barclays</td>
<td>1</td>
</tr>
<tr>
<td>3/3/2016</td>
<td>Weatherford International</td>
<td>Services</td>
<td>WFT</td>
<td>$565</td>
<td>$16.95</td>
<td>3.00%</td>
<td>8.72%</td>
<td>11.46%</td>
<td>JP Morgan</td>
<td>14</td>
</tr>
</tbody>
</table>

**Top 25 Total Transaction:** $30,160 $676

**Avg # of Banks** 11

**2016 Total Follow-on Equity Issuance:** $50,916 $1,191

Note: includes issuances registered with the SEC by foreign companies.
Top 25 Equity Market Advisors & Facilitators

JP Morgan participated in 36% of all equity deals in 2016; Was lead bookrunner on 10% of offerings

Note: Follow-on and IPO offerings. Does not include at-the-market equity offerings.
U.S. Equity Deals by Quarter Q1 2014 to Q4 2016

2016 Upstream issuances nearly matched that of 2014 and 2015 combined

**Takeaways:**
- 2016 reported $32B in Upstream issuances, close to the combined amount raised in both 2014 and 2015 (~ $37B)
- Although Midstream issuances had a strong 4Q16, the 2016 total was the lowest in 5 years.
- OFS rebounded relatively strong in 2016 after having a dismal year in 2015

Note: Follow-on and IPO offerings. Does not include at-the-market equity offerings.
## 2016 Energy IPOs

Only 6 deals reported in 2016, raised $1.6 billion

<table>
<thead>
<tr>
<th>IPO Date</th>
<th>Company</th>
<th>Sector</th>
<th>Ticker</th>
<th>Deal Amount ($MM)</th>
<th>Bank Fees ($MM)</th>
<th>Net Proceeds ($MM)</th>
<th>Total Shares Issued (MM)</th>
<th>Public Reoffer Price Per Issue</th>
<th>Underwriting Discount</th>
<th>Lead Bookrunner*</th>
<th>Number of Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/13/16</td>
<td>Extraction Oil &amp; Gas</td>
<td>Upstream</td>
<td>XOG</td>
<td>$633.33</td>
<td>$34.83</td>
<td>$598.50</td>
<td>33.33</td>
<td>$19.00</td>
<td>5.50%</td>
<td>Credit Suisse (28%)</td>
<td>14</td>
</tr>
<tr>
<td>12/15/16</td>
<td>Wildhorse Resource Development Corp</td>
<td>Upstream</td>
<td>WRD</td>
<td>$412.50</td>
<td>$22.17</td>
<td>$390.33</td>
<td>27.50</td>
<td>$15.00</td>
<td>5.38%</td>
<td>Barclays (28%)</td>
<td>14</td>
</tr>
<tr>
<td>11/7/16</td>
<td>Smart Sand Inc</td>
<td>Services</td>
<td>SND</td>
<td>$128.70</td>
<td>$7.72</td>
<td>$120.98</td>
<td>11.70</td>
<td>$11.00</td>
<td>6.00%</td>
<td>Credit Suisse (30%)</td>
<td>6</td>
</tr>
<tr>
<td>10/17/16</td>
<td>Mammoth Energy Services Inc</td>
<td>Services</td>
<td>TUSK</td>
<td>$116.25</td>
<td>$7.27</td>
<td>$108.98</td>
<td>7.75</td>
<td>$15.00</td>
<td>6.25%</td>
<td>Credit Suisse (45%)</td>
<td>10</td>
</tr>
<tr>
<td>9/15/2016</td>
<td>Noble Midstream Partners LP</td>
<td>Services</td>
<td>NBLX</td>
<td>$281.25</td>
<td>$16.17</td>
<td>$265.08</td>
<td>12.5</td>
<td>$22.50</td>
<td>5.75%</td>
<td>Barclays (20%)</td>
<td>19</td>
</tr>
<tr>
<td>2/5/2016</td>
<td>Centennial Resource Development</td>
<td>Upstream</td>
<td>CDEV</td>
<td>$450.00</td>
<td>$24.75</td>
<td>$425.25</td>
<td>45.0</td>
<td>$10.00</td>
<td>5.50%</td>
<td>Deutsche Bank (45%)</td>
<td>3</td>
</tr>
<tr>
<td>Totals:</td>
<td></td>
<td></td>
<td></td>
<td>$2,022</td>
<td>$113</td>
<td>$1,909</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Key Takeaways:**
- Credit Suisse top bank for energy IPOs in 2016
- Lead banks are taking a large allocation percent in syndicating IPO deals
- 5.7% average underwriter discount
- 6 IPOs saw an average of 11 bookrunners
- 33% - average allocation to lead bookrunner
Energy Fixed Income Review

- 2016 Bond market reported total deal value over $133B, the lowest level in the past 5 years
- Average Bond issuance was $695MM during 2016, down from the 2015 average of $763MM
- JP Morgan was the most active bank, participating in 52% of all issuances
- 2016 YE total amount issued at $133B compared to 2015 YE value of $156B and 2014 YE $158B
- PLS expects $40B of Bonds to mature in 2017
2016 Energy Sector Bond Summary

Energy Bond Issuances $133 billion
Upstream most active sector in 2016, with 70 deals and total deal amount of $46 billion

- **Bond Upstream**
  - $46 billion (35%)
  - YOY +1%
  - 70 Deals

- **Bond Midstream**
  - $23 billion (17%)
  - YOY -49%
  - 44 Deals

- **Bond Downstream**
  - $16 billion (12%)
  - YOY +67%
  - 20 Deals

- **Bond Integrated**
  - $38 billion (28%)
  - YOY -25%
  - 32 Deals

- **Bond Services**
  - $11 billion (8%)
  - YOY -22%
  - 20 Deals

Top banks for each sector by deal amount

- J.P. Morgan: $6.5 billion (14%)
- J.P. Morgan: $2.2 billion (10%)
- Bank of America Merrill Lynch: $1.3 billion (8%)
- J.P. Morgan: $5.2 billion (14%)
- Morgan Stanley: $1.3 billion (12%)

Note: Does not include "Other" deals classified as bond.
# 2016 Energy Top Bond Issues

The Top 25 deals resulted in $44B, 34% of the total transaction value during 2016

<table>
<thead>
<tr>
<th>Anncc.</th>
<th>Bonds</th>
<th>Sub Sector</th>
<th>Ticker</th>
<th>Deal Amount ($MM)</th>
<th>Bank Fees ($MM)</th>
<th>Coupon (%)</th>
<th>Maturity</th>
<th>Underwriting Discount (%)</th>
<th>Lead Bookrunner</th>
<th>No. of Banks</th>
</tr>
</thead>
<tbody>
<tr>
<td>5/19/2016</td>
<td>Petroleo Brasileiro Petrobras SA</td>
<td>Upstream</td>
<td>PBR</td>
<td>$5,000</td>
<td>$15.00</td>
<td>8.38%</td>
<td>5/23/2021</td>
<td>0.30%</td>
<td>BB Securities</td>
<td>4</td>
</tr>
<tr>
<td>3/2/2016</td>
<td>Exxon Mobil Corp</td>
<td>Integrated</td>
<td>XOM</td>
<td>$2,500</td>
<td>$3.00</td>
<td>2.22%</td>
<td>3/1/2021</td>
<td>0.12%</td>
<td>BAML</td>
<td>17</td>
</tr>
<tr>
<td>3/2/2016</td>
<td>Exxon Mobil Corp</td>
<td>Integrated</td>
<td>XOM</td>
<td>$2,500</td>
<td>$5.00</td>
<td>3.04%</td>
<td>3/1/2026</td>
<td>0.20%</td>
<td>BAML</td>
<td>17</td>
</tr>
<tr>
<td>5/10/2016</td>
<td>Chevron Corp</td>
<td>Integrated</td>
<td>CVX</td>
<td>$2,250</td>
<td>$4.50</td>
<td>2.95%</td>
<td>5/16/2026</td>
<td>0.20%</td>
<td>JP Morgan</td>
<td>23</td>
</tr>
<tr>
<td>5/5/2016</td>
<td>Royal Dutch Shell plc</td>
<td>Integrated</td>
<td>RDSA</td>
<td>$2,250</td>
<td>$9.56</td>
<td>4.00%</td>
<td>5/10/2046</td>
<td>0.43%</td>
<td>Barclays</td>
<td>4</td>
</tr>
<tr>
<td>7/8/2016</td>
<td>Petroleo Brasileiro Petrobras SA</td>
<td>Upstream</td>
<td>PBR</td>
<td>$1,750</td>
<td>$5.25</td>
<td>8.38%</td>
<td>5/23/2021</td>
<td>0.30%</td>
<td>BB Securities</td>
<td>4</td>
</tr>
<tr>
<td>5/19/2016</td>
<td>Petroleo Brasileiro Petrobras SA</td>
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<td>$1,750</td>
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<td>8.75%</td>
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<td>RDSA</td>
<td>$1,750</td>
<td>$1.75</td>
<td>1.38%</td>
<td>5/10/2019</td>
<td>0.10%</td>
<td>Barclays</td>
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<tr>
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<td>$1,750</td>
<td>$3.50</td>
<td>2.88%</td>
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<td>12/5/2016</td>
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<td>Refining</td>
<td>LNG</td>
<td>$1,500</td>
<td>$30.00</td>
<td>5.88%</td>
<td>3/15/2025</td>
<td>2.00%</td>
<td>Goldman Sachs</td>
<td>22</td>
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<td>9/19/2016</td>
<td>Cheniere Energy Partners LP</td>
<td>Downstream</td>
<td>CQP</td>
<td>$1,500</td>
<td>$30.00</td>
<td>5.00%</td>
<td>3/15/2027</td>
<td>2.00%</td>
<td>BAML</td>
<td>18</td>
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<td>6/14/2016</td>
<td>Cheniere Energy Partners LP</td>
<td>Downstream</td>
<td>CQP</td>
<td>$1,500</td>
<td>$30.00</td>
<td>5.88%</td>
<td>6/30/2026</td>
<td>2.00%</td>
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<td>5/5/2016</td>
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<td>$1.80</td>
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<td>Chevron Corp</td>
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<td>CVX</td>
<td>$1,350</td>
<td>$1.49</td>
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<td>5/16/2019</td>
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<td>23</td>
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<tr>
<td>5/10/2016</td>
<td>Chevron Corp</td>
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<td>CVX</td>
<td>$1,350</td>
<td>$1.62</td>
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<td>5/16/2021</td>
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<td>JP Morgan</td>
<td>23</td>
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<td>9/9/2016</td>
<td>Valero Energy Corp</td>
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<td>VLO</td>
<td>$1,250</td>
<td>$8.13</td>
<td>3.40%</td>
<td>9/15/2026</td>
<td>0.65%</td>
<td>Citi</td>
<td>18</td>
</tr>
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<td>9/8/2016</td>
<td>Royal Dutch Shell plc</td>
<td>Integrated</td>
<td>RDSA</td>
<td>$1,250</td>
<td>$5.31</td>
<td>3.75%</td>
<td>9/12/2046</td>
<td>0.43%</td>
<td>Citi</td>
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</tr>
<tr>
<td>7/22/2016</td>
<td>Transocean Ltd</td>
<td>Services</td>
<td>RIG</td>
<td>$1,250</td>
<td>$25.00</td>
<td>9.00%</td>
<td>8/1/2023</td>
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<tr>
<td>7/8/2016</td>
<td>Petroleo Brasileiro Petrobras SA</td>
<td>Upstream</td>
<td>PBR</td>
<td>$1,250</td>
<td>$3.75</td>
<td>8.75%</td>
<td>5/23/2026</td>
<td>0.30%</td>
<td>BB Securities</td>
<td>4</td>
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<tr>
<td>5/12/2016</td>
<td>Cheniere Energy Inc</td>
<td>Refining</td>
<td>LNG</td>
<td>$1,250</td>
<td>$25.00</td>
<td>7.00%</td>
<td>6/30/2024</td>
<td>2.00%</td>
<td>Morgan Stanley</td>
<td>23</td>
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<td>4/29/2016</td>
<td>BP plc</td>
<td>Integrated</td>
<td>BP</td>
<td>$1,250</td>
<td>$3.75</td>
<td>3.12%</td>
<td>5/4/2026</td>
<td>0.30%</td>
<td>Citi</td>
<td>6</td>
</tr>
<tr>
<td>3/4/2016</td>
<td>ConocoPhillips</td>
<td>Upstream</td>
<td>COP</td>
<td>$1,250</td>
<td>$7.50</td>
<td>4.20%</td>
<td>3/15/2021</td>
<td>0.60%</td>
<td>Mizuho</td>
<td>20</td>
</tr>
<tr>
<td>3/4/2016</td>
<td>ConocoPhillips</td>
<td>Upstream</td>
<td>COP</td>
<td>$1,250</td>
<td>$8.13</td>
<td>4.95%</td>
<td>3/15/2026</td>
<td>0.65%</td>
<td>Mizuho</td>
<td>20</td>
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<tr>
<td>3/2/2016</td>
<td>Exxon Mobil Corp</td>
<td>Integrated</td>
<td>XOM</td>
<td>$1,250</td>
<td>$1.25</td>
<td>1.71%</td>
<td>3/1/2019</td>
<td>0.10%</td>
<td>BAML</td>
<td>17</td>
</tr>
</tbody>
</table>

**Top 25 Issuances:** $43,950 | $246  
**Avg # of Banks** 13

**2016 Total Bond Issuances:** $132,832 | $1,304

Note: includes issuances registered with the SEC by foreign companies.
U.S. Energy Bond Deals by Quarter Q1 2014 to Q4 2016

Upstream Bond issuances stabilize in 2H16 yet total 2016 deal amounts remains lower than 3 of last 5 years

**Takeaways:**
- 2016 reported $46B of bond issues in the Upstream Sector, virtually equal to 2015 but lower than levels seen in '12 – '14.
- The Midstream sector lost favor with lenders in 2016, as debt offered was the least in 5 years and 50% lower than the previous year.
- OFS issuances declined in 2016 (~ $10B) but within the lower bound of $10 - $20B seen in the past 5 years.
Top 25 Bond Market Advisors & Facilitators

JP Morgan participated in 50% of all bond deals in 2016, leading 15% of all deals
Debt Expiration Schedule

Capitalizemaintainsacoverageuniverseofover400companies.

• PLS expects ~ $40B in bonds to mature in 2017, with 45% coming due in the 4th quarter.
• Another $49B of bond expirations expected to be due in 2018.
• Upstream and Integrated companies represent ~ 78% of the 2017 total.
• The $40B of bonds due in 2017 represent 50 unique companies that will need to refinance through new equity or debt issuances.
• Large amount of credit facilities due on 2019.
Energy Credit Facility Lending Review

- Large amount of expirations due in 2Q2017 and 3Q2017, mostly in the Upstream and Midstream sectors.
- PLS Capitalize liquidity analysis shows a 2016 YOY decrease of ~11% in borrowing base lending to the Energy industry
- Largest 2016 YOY borrowing base decrease was in the Upstream sector at ~22%
Takeaways:

- Trends indicate a large number of credit facility restructuring towards the middle of 2017 and the middle of 2018.
- Large amount of credit facility expirations in 2019, a large share of that is in the Upstream and Midstream sectors.
- Graphic presentation of credit facility deal expirations by quarter.
- Larger relative credit facility expirations in 2Q2017 and 3Q2017.
Private Equity Markets

• In 2016, Capitalize identified 97 new portfolio back companies a Y/Y increase of 11%

• Natural Gas Partners (NGP) was the most active General Partner, backing a total of 9 new management teams through a combination of NGP Natural Gas Partners (4) and NGP Energy Capital Management (5)

• In the Upstream Sector, Kayne Anderson continues to be the most prolific General Partner backing 6 new teams

• In the Midstream Sector, First Reserve backed 4 new management teams
## Top Private Equity Commitments

### 2016 Snapshot

<table>
<thead>
<tr>
<th>Company</th>
<th>Sponsor</th>
<th>Status</th>
<th>Sector</th>
<th>Key Areas</th>
<th>Vintage</th>
<th>Commitment ($MM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silver Run Acquisition Corp</td>
<td>Riverstone Holdings LLC</td>
<td>Realized</td>
<td>Upstream</td>
<td>Delaware Basin</td>
<td>2016</td>
<td>$2,000</td>
</tr>
<tr>
<td>Jetta Operating Co Inc</td>
<td>The Blackstone Group (Private Equity)</td>
<td>Current</td>
<td>Upstream</td>
<td>Delaware Basin</td>
<td>2016</td>
<td>$1,000</td>
</tr>
<tr>
<td>Siccar Point Energy Ltd</td>
<td>The Blackstone Group (Private Equity)</td>
<td>Current</td>
<td>Upstream</td>
<td>North Sea</td>
<td>2016</td>
<td>$1,000</td>
</tr>
<tr>
<td>Charger Shale Oil</td>
<td>Oaktree Capital Management LP</td>
<td>Current</td>
<td>Upstream</td>
<td>Delaware Basin</td>
<td>2016</td>
<td>$900</td>
</tr>
<tr>
<td>Saddle Operating LLC</td>
<td>First Reserve Corp</td>
<td>Current</td>
<td>Upstream</td>
<td>Barnett Shale</td>
<td>2016</td>
<td>$600</td>
</tr>
<tr>
<td>Luxe Energy LLC</td>
<td>NGP Natural Gas Partners LP</td>
<td>Current</td>
<td>Upstream</td>
<td>Texas and New Mexico</td>
<td>2016</td>
<td>$524</td>
</tr>
<tr>
<td>Apex International Energy</td>
<td>Warburg Pincus LLC</td>
<td>Current</td>
<td>Upstream</td>
<td>Egypt, North Africa, Middle East</td>
<td>2016</td>
<td>$500</td>
</tr>
<tr>
<td>Guidon Energy LLC</td>
<td>The Blackstone Group (Private Equity)</td>
<td>Current</td>
<td>Upstream</td>
<td>Midland Basin</td>
<td>2016</td>
<td>$500</td>
</tr>
<tr>
<td>Mazarine Energy</td>
<td>The Carlyle Group</td>
<td>Current</td>
<td>Upstream</td>
<td>Western Europe</td>
<td>2016</td>
<td>$500</td>
</tr>
<tr>
<td>RimRock Oil &amp; Gas</td>
<td>Warburg Pincus LLC</td>
<td>Current</td>
<td>Upstream</td>
<td>North America</td>
<td>2016</td>
<td>$500</td>
</tr>
</tbody>
</table>

### General Partner

<table>
<thead>
<tr>
<th>General Partner</th>
<th>Select Commitments</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>NGP</td>
<td>9</td>
<td>89% Upstream</td>
</tr>
<tr>
<td>First Reserve Corp</td>
<td>7</td>
<td>60% Midstream</td>
</tr>
<tr>
<td>Kayne Anderson Capital Advisors</td>
<td>7</td>
<td>100% Upstream</td>
</tr>
<tr>
<td>The Blackstone Group</td>
<td>5</td>
<td>80% Upstream</td>
</tr>
<tr>
<td>EnCap Investments</td>
<td>5</td>
<td>80% Upstream</td>
</tr>
<tr>
<td>Old Ironsides Energy</td>
<td>4</td>
<td>75% Upstream</td>
</tr>
<tr>
<td>Denham Capital Management</td>
<td>3</td>
<td>100% Upstream</td>
</tr>
<tr>
<td>Lime Rock Partners</td>
<td>3</td>
<td>100% Upstream</td>
</tr>
<tr>
<td>Post Oak Energy Capital</td>
<td>4</td>
<td>75% Upstream</td>
</tr>
<tr>
<td>Warburg Pincus</td>
<td>3</td>
<td>100% Upstream</td>
</tr>
</tbody>
</table>

### Capitalize Private Equity Statistics

- Capitalize has over 1,900 portfolio companies in our universe
- Upstream accounts for nearly 50% of the portfolio companies
- Over 1,000 companies are classified as current across the energy value chain

For more details, call +1 713-600-0129, email Chris George at cgeorge@plsx.com

Select printout for some of the select larger private equity commitments. Capitalize database significantly more granular data.
Capitalize is a powerful new product from PLS that brings transparency to a capital-intensive energy industry.

- Tracks All Industry Financings
- Equity Issuance
- Loans & Credit Facilities
- Bond Issuances
- Private Equity
- League Tables For Market Analysis
- Company & Bank Indexes
- Capital Markets News Index

The product allows borrowers and bankers to turn information into new business opportunities.

- Analyzes Market Activity
- Compare & Contrast Financings and Fees

For more details, call +1 713-600-0129, email Chris George at cgeorge@plx.com

www.plsx.com/capitalize
PLS’ Global M&A Database is a powerful tool for tracking energy industry mergers and acquisitions.

- A user-friendly & highly accessible database
- Critical insight into deal metrics & analysis
- Stronger analysis & internal protocols
- Generate specific reports to suit individual needs
- Transparent & reliable data
- Continuously updated deal coverage
- Market insight & access to business intelligence

The product gives everyone in the oil & gas industry access to critical market information.

For more information or to schedule a demo, call Ali Rizvi at +1 713-600-0115 or email at ali@plsx.com.

Database includes Deals for Sale, MapIndex, Maps on Demand.

Upstream, Midstream, Power, LNG, Oilfield Services Modules