

---

IMAP OCTOBER 2017

The background of the entire page is a photograph of an oil and gas field at sunset. The sky is a deep orange and yellow, with silhouettes of two offshore oil rigs and a large tanker ship on the water. The rigs and ship are reflected in the calm water.

# Oil and Gas

IMAP M&A SECTOR REPORT

# Oil and Gas industry in numbers



63.2%

INCREASE IN  
TRANSACTION  
VALUE

1H 2017 VS. 1H 2016

Global transaction value up by EUR 217B in 1H 2017 versus EUR 133B in 1H 2016. The number of transaction decreased slightly over the same period.



72.8%

CROSS-BORDER  
DEALS EU TARGET  
COMPANY

INTERNATIONAL CLIMATE

72.8% European cross-border deals from January 2016 to July 2017, versus 27.2% domestic deals. In the U.S., 45.0% of deals were cross-border, versus 55.0% domestic.

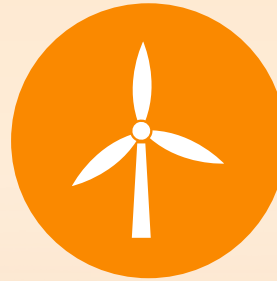


6.6x

MEDIAN  
TRANSACTION  
MULTIPLE  
EV / EBITDA

OIL AND GAS

Relatively low transaction multiples in the oil and gas sector due to the uncertain market outlook and threat posed by alternative energy sector.



10.6x

MEDIAN  
TRANSACTION  
MULTIPLE  
EV / EBITDA

ALTERNATIVE ENERGY

Significantly higher transaction multiples in the alternative energy sector compared to the oil and gas sector, in line with a positive market outlook.



# Oil & Gas

IMAP M&A SECTOR REPORT

---

- 04 MARKET OUTLOOK AND SUMMARY
  - 05 VALUE CHAIN
  - 06 INDUSTRY TRENDS AND DEVELOPMENTS
  - 08 GLOBAL M&A ACTIVITY
  - 11 VALUATION SUMMARY
  - 13 OIL AND GAS PRICES
  - 15 MAJOR TRANSACTIONS
  - 16 IMAP CREDENTIALS
  - 17 APPENDIX
  - 21 ABOUT IMAP
- 

IMAP



# Market outlook and summary



Source: Deloitte 2017 outlook on oil and gas, McKinsey & Company, Bloomberg, Offshore Energy Today

- The continued drop in oil and gas prices since the summer of 2014 led to a survival mindset in the industry, highlighting the importance of cost reduction and efficiency.
- The oil and gas sector proved it can be innovative and dynamic in order to survive an environment with low prices.
- Oil prices have recovered to a level of USD 50 per barrel; in part due to the production cuts by OPEC announced on 30th November 2016.
- Companies are engaging in M&A activity to increase capacity and realize synergies through cost reductions.
- The European market is internationally oriented, with 72.8% cross-border deals from January 2016 to July 2017.
- Global transaction value is up by 63.2% in 1H 2017 compared to 1H 2016, at EUR 217B versus EUR 133B. At the same time, deal volume decreased slightly.
- Alternative energy will grasp the bulk of new energy capacity, thus threatening the oil and gas sector.
- Transaction multiples reflect the differences in market outlooks for the oil and gas sector compared to the alternative energy sector.
- Gas will become more important for the transition phase towards alternative energy since it is suitable to serve as flexible power generation during peak demands.
- Positivity is slowly returning in the sector following the downturn from 2014 – 2016.

# Value chain



## Upstream

---

- Exploration
  - Seismic scanning
  - Drilling
- Rig development
- Production



## Midstream

---

- Transportation to shore
  - Tankers
  - Pipeline
- Storage
  - Regasification
  - Liquefaction
  - Storage terminals
- Land transport
  - Pipeline
  - Rail transport



## Downstream

---

- Manufacturing
- Refining
- Storage
- Distribution
- Services

# Industry trends and developments



## Oil and Gas prices

Following the peak in June 2014, oil prices declined sharply due to oversupply, falling to USD 26 per barrel in January 2016.

The industry showed flexibility during the downturn, however, it remains price-dependent.

OPEC's production cuts, announced at the end of 2016, helped oil prices recover, with prices reaching the USD 50 per barrel level.

Overall, the industry is more dependent on oil prices than natural gas prices.



## Cost Reduction

The industry was forced to adapt in order to survive the major drop in oil prices.

Global 29% cost reduction between 2014 and 2016 in the oil and gas sector.

It remains uncertain how many of these cost reductions are sustainable.

McKinsey & Company estimate that approximately half the realized cost reductions are sustainable with rising oil and gas prices.



## Alternative Energy

The development and adoption of alternative energy sources threatens the oil and gas sector, especially in the long term.

Natural gas will play an important role in the transition period towards alternative energy sources, acting as a source of flexible generation during peak demands.

The pace of the transition towards alternative energy remains uncertain, however, McKinsey & Company predicts that until 2050, 77% of the new energy capacity will come from solar and wind.



## Project Selection

Companies are increasingly engaging in smaller projects with a short time-to-market.

This type of corporate investing strategy provides some certainty in an uncertain marketplace.

## Risks and uncertainties in the Oil and Gas sector



Source: Deloitte 2017 outlook on oil and gas, McKinsey & Company, Offshore Energy Today, PWC 2017 oil and gas trends, Bloomberg



# Industry trends and developments



## Shale Production

U.S. shale oil production disrupted the global market, contributing to oversupply which pushed back oil prices.

Many oil majors are moving towards shale oil production, which continues to grow.



## Employees

Since 2014, approximately 400,000 employees were let go during the downturn of the oil and gas industry.

Automation is replacing workers and the minimum level of required technical knowledge is on the rise.

Employees with both operational and digital skills are highly desirable.



## Laws and Regulations

Laws and regulations will play an important role in the long term transition towards alternative energy.

France already announced that all diesel and gasoline vehicles sales will be banned by 2040. The UK made a similar announcement.

OPEC's production target policies will continue to affect oil prices.



## Technology

The industry is embracing new technology, such as hydraulic fracturing and horizontal drilling.

The adaption of new digital technologies has been rather slow.

Analytic programs can analyze big data to point out cost savings in design, engineering, and supply chain, as well as production optimization.

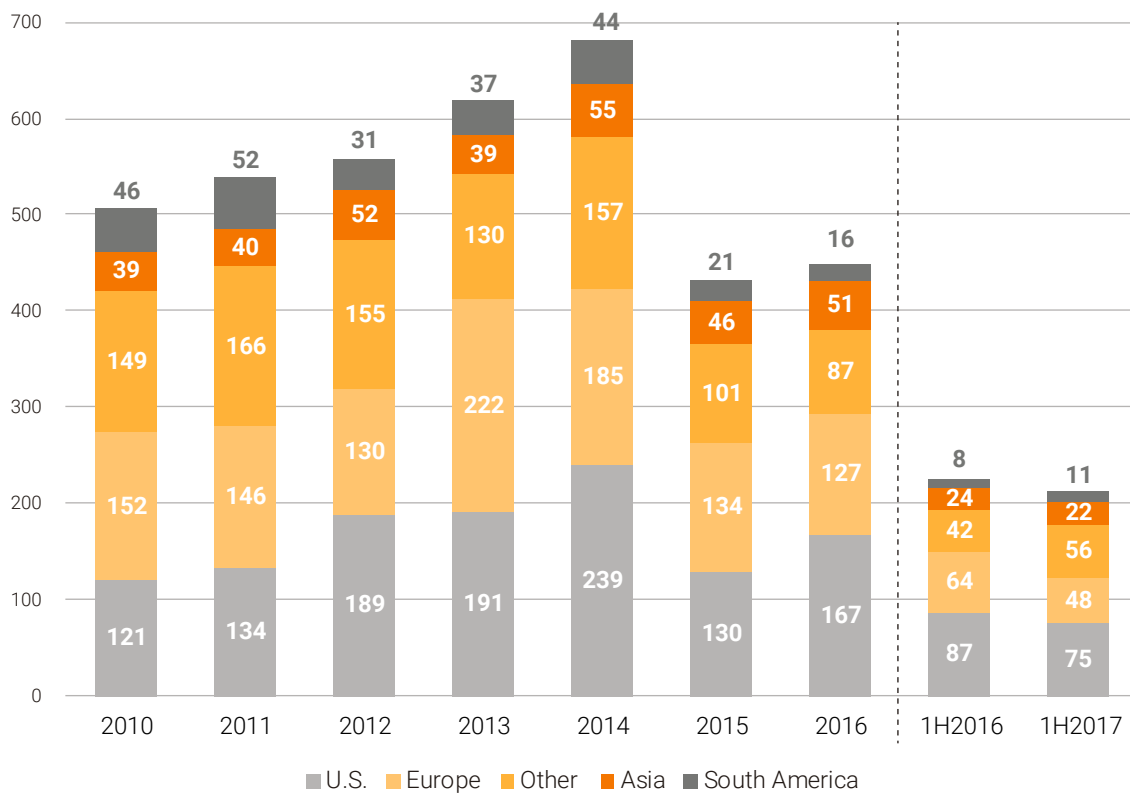
Source: Deloitte 2017 outlook on oil and gas, McKinsey & Company, Offshore Energy Today, PWC 2017 oil and gas trends, Bloomberg



# Global M&A activity - deal volume

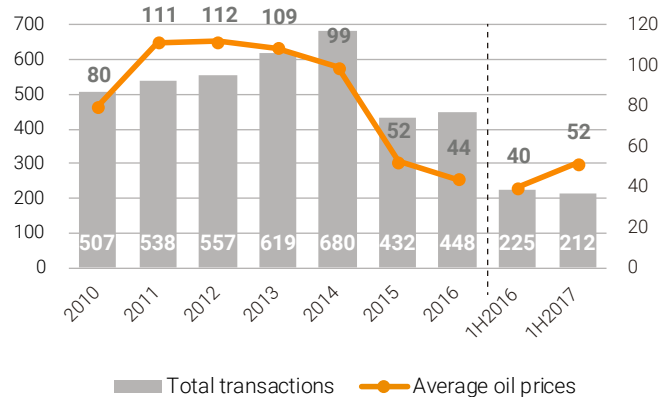
## Number of global transactions

By continent of target company from January 2010 to June 2017. Includes transactions with a transaction value higher than EUR 25M.



Source: Zephyr, U.S. Energy Informant Administration (EIA)

- Global deal volume in the oil and gas sector increased from 2010 – 2014, peaking at 680 deals in 2014.
- M&A activity slowed down drastically in 2015 with only 432 global transactions.
- In terms of number of transactions, 2016 was slightly better than 2015, whereas 1H 2017 was slightly worse than 1H 2016.
- Europe, Asia and the U.S. account for approximately 60% to 80% of the transactions.
- Below is a representation of the number of transactions in relation to the average oil price (also see page 13).

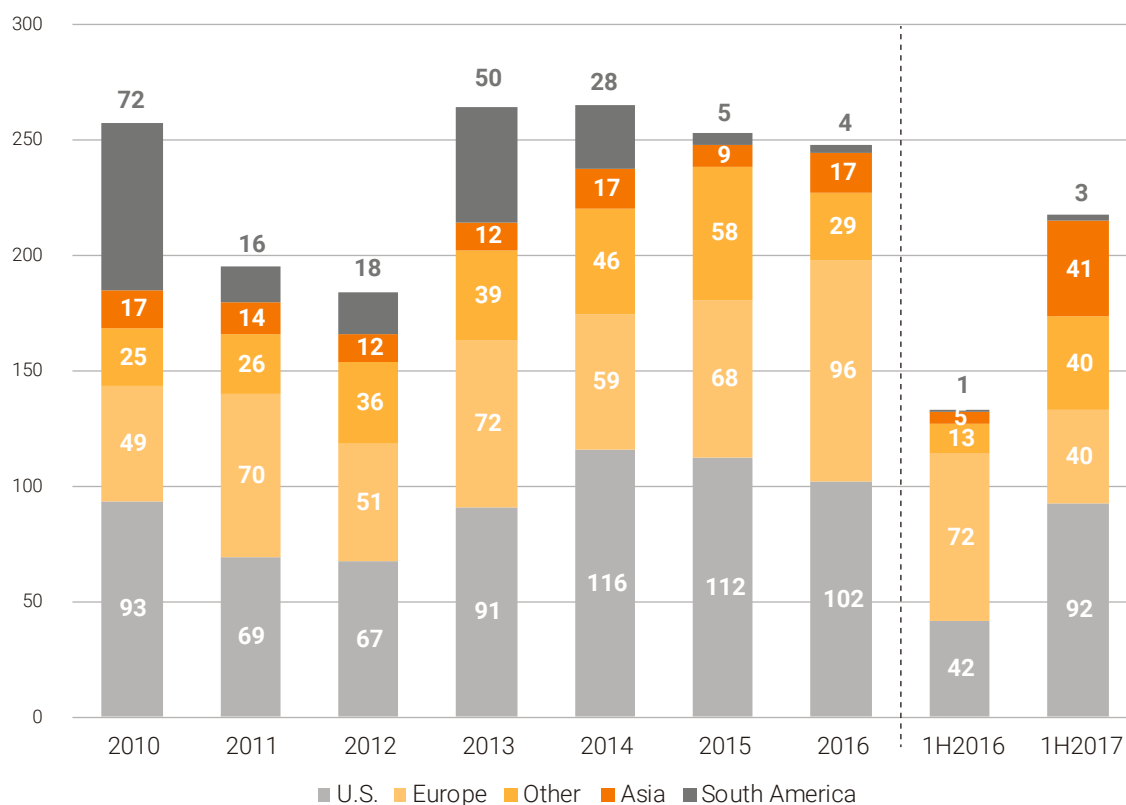




# Global M&A activity - deal value

## Deal value

Global deal value by continent of the target company from January 2010 to June 2017. Includes transactions with a transaction value higher than EUR 25M. Reported in billions of EUR. Following Zephyr's definition of (estimated) 'deal value' as: "the consideration paid for the actual stake acquired."



Source: Zephyr

- Total transaction value is the highest in the U.S. for almost every given year.
- Europe, Asia and the U.S. account for approximately 60% to 90% of the total transaction value.
- While the number of transactions suffered in 2015 and 2016, deal value remained strong.
- M&A activity in South America has slowed down in terms of transaction value from 2015 – 1H 2017.
- Transaction value in 1H 2017 is significantly higher than 1H 2016 with almost the same deal volume. Transaction value was EUR 217B in 1H 2017 versus EUR 133B in 1H 2016.
- Note that yearly transaction value is sensitive for large deals, hence the results should be interpreted carefully.

# Europe and U.S. M&A activity

## Domestic and cross-border - geographical overview

Number of domestic and cross-border transactions for Europe and the U.S., with a minimum deal value of EUR 25M from January 2016 to June 2017.

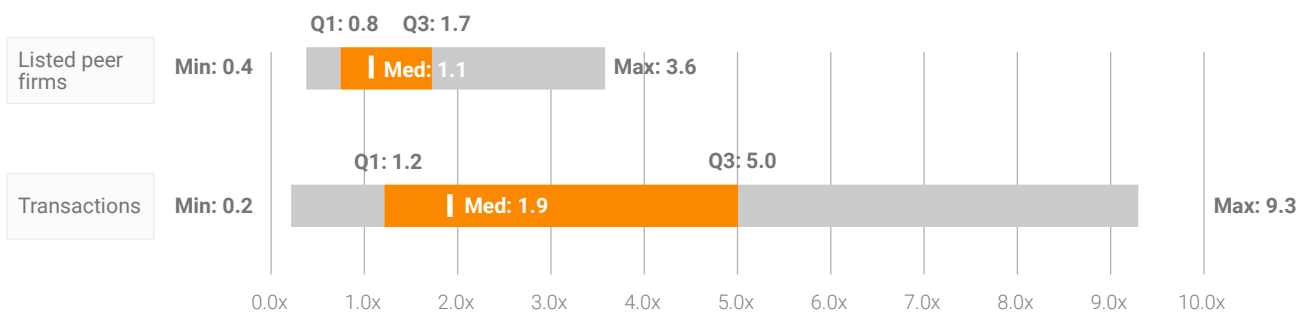


- The map shows the distribution of all transactions from January 2016 to June 2017, amounting to 147 deals in the EU and 242 deals in the U.S.
- Cross-border transactions are relatively important in Europe and account for 72.8%, while domestic transactions amount to 27.2%.
- Cross-border transactions are of less importance in the U.S. and account for 45.0% (55.0% domestic).
- In 17.7% and 24.8% of the European- and U.S. transactions, respectively, the buyers are Financial Investors.

# Valuation summary

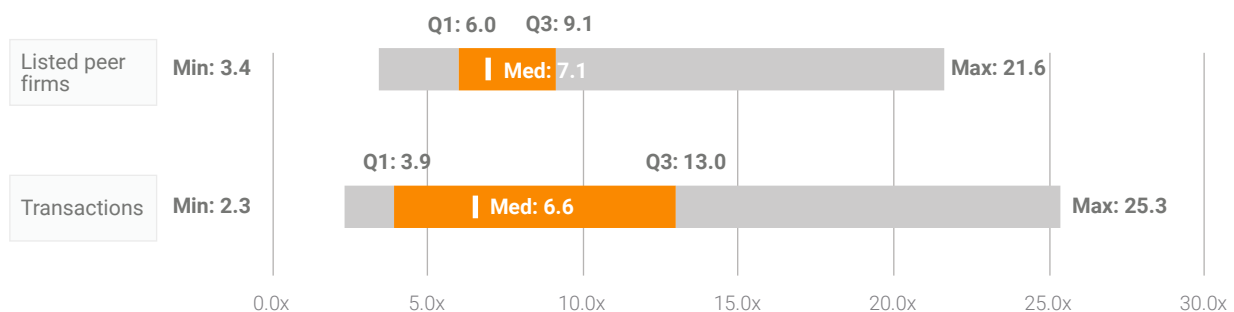
## EV/Sales multiples (x)

EV/Sales multiples for listed peer firms and worldwide transactions with known multiples from January 2016 to 24th July 2017. MergerMarket sector classification 'oil and gas exploration and production'.



## EV/EBITDA multiples (x)

EV/EBITDA multiples for listed peer firms and worldwide transactions with known multiples from January 2016 to 24th July 2017. MergerMarket sector classification 'oil and gas exploration and production'.



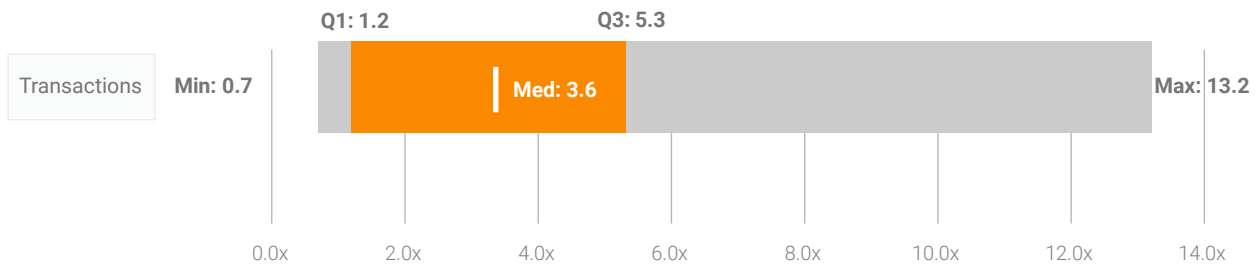
Source: MergerMarket, see Appendix for full details  
Q: Quartile

- In the case of both EV/Sales and EV/EBITDA multiples, valuation multiples are relatively low in the oil and gas sector.
- Relatively low multiples reflect the uncertain market prospects, threatened by alternative energy sources.
- Average EV/Sales multiple is 1.3x and 3.0x for listed peer firms and transactions, respectively.
- Average EV/EBITDA multiple for listed peer firms is 8.4x, whereas for transactions it is 9.3x.
- Sector classification 'oil and gas exploration and production' is defined by MergerMarket as: "Companies that engage in the exploration and production of oil and gas."
- Please see the Appendix for a detailed overview of the transactions included and listed firms.

# Valuation summary - alternative energy

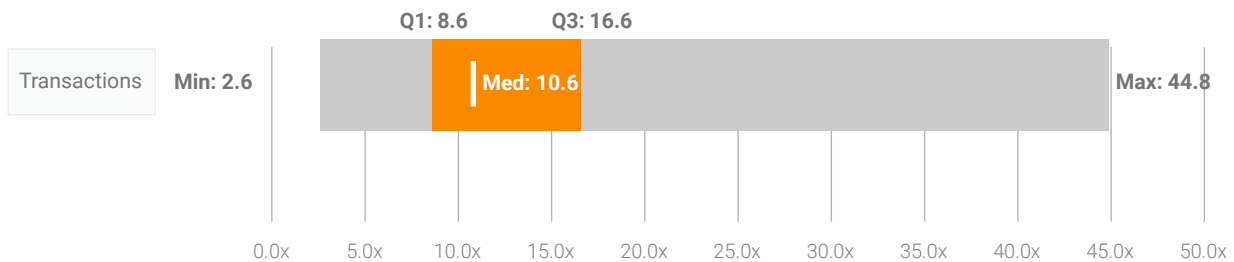
## EV/Sales multiples (x)

EV/Sales multiples for listed peer firms and worldwide transactions with known multiples from January 2016 to 24th July 2017. MergerMarket sector classification 'alternative energy'.



## EV/EBITDA multiples (x)

EV/EBITDA multiples for listed peer firms and worldwide transactions with known multiples from January 2016 to 24th July 2017. MergerMarket sector classification 'alternative energy'.



Source: MergerMarket, see Appendix for full details  
Q: Quartile

- Transaction multiples in the alternative energy sector are relatively high.
- A positive market outlook with high long-term growth prospects result in high transaction multiples.
- Alternative energy multiples are significantly higher than oil and gas multiples, reflecting the difference in long-term prospects.
- Average EV/Sales and EV/EBITDA transaction multiples are 4.2x and 15.1x, respectively.
- Included transactions for the most part relate to target companies engaged in providing wind, solar, geothermal, other alternative energy sources, or a mix of alternative energy sources.
- Sector classification 'alternative energy' is defined by MergerMarket as: "Companies that produce energy from sources other than traditional fossil fuels. Examples include solar, wind, hydro and nuclear energy."
- Please see the Appendix for a detailed overview of the transactions included.

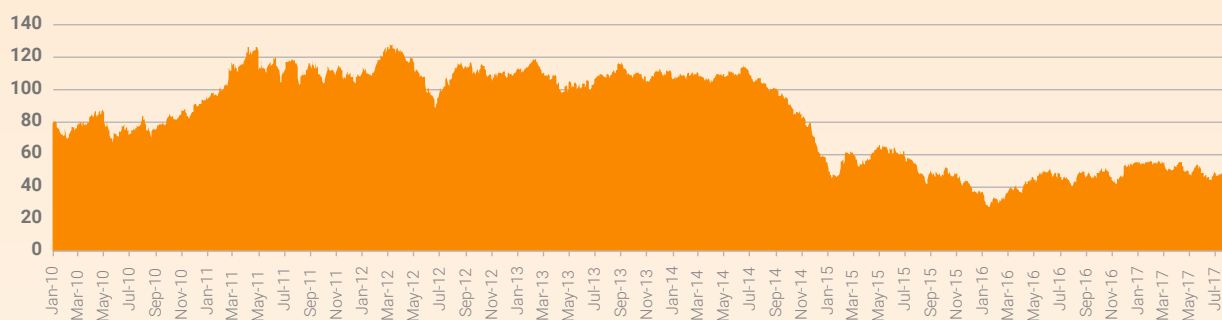


# Oil price

## Brent crude oil – historical spot price

- Oversupply led to a major drop in oil prices, starting in June 2014 and leading to a bottom price of USD 26 per barrel in January 2016.
- On 30th of November 2016, OPEC announced it would initiate production cuts for the first time in 8 years. This provided some certainty and stability for price recovery.
- Long term demand is threatened by the innovation of electrical vehicles and environmental trends. For example, France announced that all diesel and gasoline vehicles sales will be banned by 2040. The UK made a similar announcement.

Historical spot price per barrel of Brent crude oil from January 2010 to 14th August 2017, based on daily historical prices. Reported in USD.



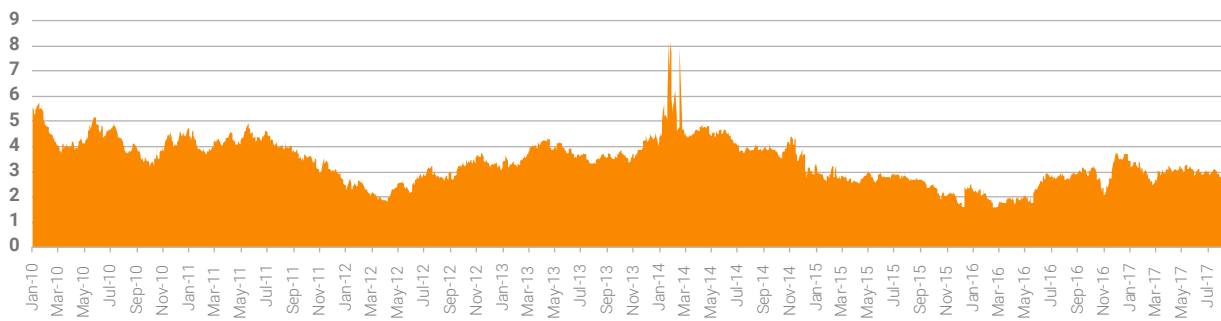
Source: Bloomberg, US Energy Informant Administration (EIA)

# Gas price

## Henry Hub natural gas spot price – historical spot price

- The oil and gas industry is less reliant on the level of natural gas prices compared to oil prices.
- Natural gas demand is expected to rise in the upcoming decades, continuing to replace coal, as it releases about half as much carbon dioxide.
- Oil and gas majors are opportunistic about the role that gas will play in the upcoming transition period towards zero emission fuels: "In 20 years, we will not be known as oil and gas companies, but as gas and oil companies." Patrick Pouyanne, CEO of Total SA.
- Long-term natural gas demand is threatened by zero-emission energy sources such as wind and solar.

Historical spot price per million of Henry Hub natural gas spot price from January 2010 to 14th August 2017, based on daily historical prices. Reported in USD.



Source: US Energy Informant Administration (EIA), McKinsey & Company, Bloomberg



# M&A activity

## Transaction highlights

---

### Total SA acquires the oil and gas unit of A.P. Moller-Maersk A/S

- Transaction value of USD 7.45B, where Total will pay with USD 4.95B of its own shares and take on USD 2.5B of Maersk's debt.
- The assets of Maersk's oil and gas unit will complement Total's existing presence in several key areas, however, Total's main focus is to enlarge its presence in the North Sea.
- Transaction is subject to regulatory approval and is expected to close in Q1 2018.
- Expected synergies of more than USD 400M per year, starting from 2020.
- Announcement date: 21 August 2017.



### Ensco Plc acquires Atwood Oceanics Inc.

- All-stock transaction; Atwood shareholders will receive 1.60 Ensco shares for every Atwood common share.
- Following the transaction, Ensco and Atwood shareholders will own 69% and 31% of Ensco Plc's outstanding shares, respectively.
- Transaction rationale is to strengthen Ensco's position as a leading player in offshore drilling.
- Transaction awaiting shareholder approval and is expected to close in October 2017.
- Expected synergies of USD 65M per year, starting from 2019.
- Announcement Date: 30 May 2017.



Source: Bloomberg, Offshore Energy Today

Oil and gas majors are increasingly engaging in acquisitions due to improving market conditions. Increasing capacity and realizing synergies by cost reductions are important motives. All-stock transactions are attractive in terms of liquidity in an uncertain market.

# Credentials from across IMAP

Oil & Gas



**Shenhua Group Corporation Limited**  
Coal-based integrated energy company  
SHENYANG, CHINA

Acquired Selected Assets  
of Business Operations of



**Repsol S.A.**  
Exploration and production of oil and gas  
MADRID, SPAIN

*Advised on Sale of Company*

Oil & Gas



**OTK Group**  
Midcap integrated oil and gas company  
MOSCOW, RUSSIA

Acquired 100%  
of Business Operations of




**Izhvesky oil refinery**  
Oil refinery  
IZHEVSK, UDMURT REPUBLIC, RUSSIA

*Advised on Purchase of Company*

Oil & Gas

**Undisclosed Buyer**  
Undisclosed  
MOSCOW, RUSSIA

Acquired 100%  
of Business Operations of



**Purneft**  
Oil producing company  
TARKO-SALE, TUMEN, RUSSIA

*Advised on Purchase of Company*

Oil & Gas



**Toyo Engineering Corporation**  
Global engineering company, part of Mitsui  
AKANEHAMA, JAPAN

Agreed on Joint Venture with



**SOG Oleo e Gás S/A**  
Brazilian oil and gas engineering company  
SÃO PAULO, BRAZIL

*Advised the Brazilian side*

Oil & Gas

**Consortium of Private Investors**  
Consortium of private investors  
UNDISCLOSED, RUSSIA

Acquired 62% Stake in

**CJSC Uralneftegazprom**  
Oil and gas exploration and development pro  
N/A, ORENBURG REGION, RUSSIA

*Advised the Buyer*

Oil & Gas



**Lukoil Belgium NV**  
Major oil company  
BRUSSELS, BELGIUM

Acquired 100% of Shares of Verolma

**Verolma Maastricht Beheer BV/Vero**  
Retail petrol stations  
MAASTRICHT, NETHERLANDS

*Advised the Buyer*

Oil & Gas


**Prima Energy Trading LLC**  
Engaged in natural gas wholesaling companies  
MOSCOW, RUSSIA

Acquired 60%  
of Business Operations




**Avrasya Gaz Anonim Sirketi**  
Turkey-based natural gas wholesaling company  
ISTANBUL, TURKEY

Oil & Gas



**Cepsa S.A.**  
Integrated energy company  
MADRID, SPAIN

Capital Restructuring and  
Business Expansion




**Cepsa S.A.**  
Cumene production  
CHINA

*Advised on Recapitalization of Company*

Oil & Gas

**Undisclosed Acquiror**  
Undisclosed description  
MOSCOW, RUSSIA


Acquired 100%  
of Business Operations of



**Trans Nafta Gasdobycha**  
Gas producing company  
YUGORSK, RUSSIA


*Advised on Purchase of Company*

Oil & Gas



**JERA Co. Inc.**  
Leading power utility in Japan  
TOKYO, JAPAN

Acquired 44%  
of Equity Interest



**Cricket Valley Energy Center**  
Planned natural gas power plant  
DOVER, NY, UNITED STATES

*Advised on Investment*



## Appendix 1

### Oil and Gas - Transactions

Date	Target name	Target business description(s)	Acquirer name	Acquired stake (%)	EV (EUR m)	EV / Sales	EV / EBITDA
Jul-17	Trilogy Energy Corp.	Exploration and production of oil and gas	Paramount Resources Ltd.	84.8%	726.2	5.6x	16.4x
Jun-17	Rice Energy Inc.	Exploration and production of natural gas	EQT Corporation	100.0%	6,885.3	9.3x	23.8x
May-17	CONE Midstream Partners LP	Owns, operates, acquires and develops natural gas gathering and midstream energy assets	Quantum Energy Partners	33.5%	1,336.5	5.9x	9.2x
May-17	WesternZagros Resources Ltd.	Body medical orthopaedic braces	Crest Energy International LLC	80.1%	73.4	5.4x	3.8x
Mar-17	Sterling Resources (UK) Ltd.	Exploration and production of oil and gas	Oranje-Nassau Energie B.V.	100.0%	108.0	2.4x	5.2x
Feb-17	International Petroleum Corp.	Exploration and production of oil and gas	Lundin Petroleum AB	100.0%	486.2	2.5x	4.2x
Feb-17	ONEOK Partners L.P.	Production of oil and gas as well as processing, gathering, storage and transmission of natural gas	ONEOK Inc.	60.0%	21,634.8	2.6x	13.4x
Dec-16	Rosneft Oil Company OAO	Exploration and production of oil and gas	Consortium led by Qatar Investment Authority	19.5%	77,240.7	1.2x	4.9x
Nov-16	Energy Transfer Partners L.P.	Operator of a diversified portfolio of energy assets	Sunoco Logistics Partners L.P.	100.0%	48,461.7	1.5x	12.6x
Nov-16	Columbia Pipeline Partners LP	Operates and develops a portfolio of pipelines, storage and related midstream assets	Columbia Pipeline Group Inc.	53.5%	3,140.5	2.6x	5.0x
Oct-16	Gas Natural Inc.	Producer and distributor of gas and propane utilities	First Reserve Energy Infrastructure Fund II	100.0%	169.4	1.6x	15.1x
Oct-16	Bashneft ANK OAO	Vertically integrated oil company	Rosneft Oil Company OAO	69.3%	9,623.9	1.3x	6.1x
Oct-16	Petrobras Argentina S.A.	Exploration, production, refining and distribution of oil and gas, production of petrochemicals and electric energy generation and transmission	Pampa Energia SA	32.8%	1,121.9	0.7x	3.5x
Oct-16	Antero Resources Corp.	Exploration and production company, engaged in exploitation, development and acquisition of natural gas, NGLs and oil properties	Temasek Holdings Pte Ltd.	2.1%	11,063.3	3.1x	4.8x
Sep-16	Spectra Energy Corp.	Transportation, storage, distribution, gathering and processing of natural gas	Enbridge Inc.	100.0%	37,068.6	7.7x	18.3x
Aug-16	Maurel et Prom SCA	Exploration and production of oil and gas	Pertamina (Persero), PT	100.0%	1,297.9	4.7x	12.1x

## Appendix 2

### Oil and Gas - Transactions

Date	Target name	Target business description(s)	Acquirer name	Acquired stake (%)	EV (EUR m)	EV / Sales	EV / EBITDA
Jul-16	Clayton Williams Energy Inc.	Exploration and production of oil and natural gas	Ares Management LLC	29.3%	1,132.0	5.3x	25.3x
Jul-16	Gazprom PJSC	Exploration, production and distribution of natural gas	Gazprom PJSC	3.6%	73,747.3	1.0x	11.4x
Jul-16	Plains All American Pipeline, L.P.	Transportation, terminalling and storage of crude oil and gathering and marketing of liquefied petroleum gas.	Plains AAP L.P.	38.2%	25,642.5	1.2x	16.5x
Jul-16	Gasco S.A.	Distribution of liquefied petroleum gas (LPG) and natural gas	Perez Cruz Family	71.9%	392.4	0.8x	3.7x
Jun-16	KazMunaiGas Exploration Production JSC	Production of crude oil and natural gas	NC KazMunaiGaz	35.0%	2,539.7	1.8x	2.3x
Jun-16	Aker BP ASA	Oil exploration and development	Aker ASA	10.0%	5,195.0	4.6x	10.9x
Jun-16	BP Norge AS	Production and transportation of oil and gas	Aker BP ASA	100.0%	1,013.5	1.2x	2.5x
May-16	Rock Energy Inc.	Exploration and production of oil and gas	Raging River Exploration Inc.	100.0%	67.8	1.7x	3.6x
May-16	Rose Rock Midstream L.P.	Owns and operates midstream energy assets and provides oil storage and transportation services	SemGroup Corporation	43.8%	1,463.4	1.9x	11.9x
May-16	Memorial Resource Development Corp.	Exploration, development and acquisition of oil and natural gas	Range Resources Corporation	100.0%	3,854.7	5.8x	12.4x
May-16	Petrobras Argentina S.A.	Exploration, production, refining and distribution of oil and gas, production of petrochemicals and electric energy generation and transmission	Pampa Energia SA	67.2%	1,047.2	0.7x	3.2x
Mar-16	Rockies Express Pipeline LLC	Owns and operates Rockies Express Pipeline, a natural gas transmission pipeline	Tallgrass Energy Partners LP	25.0%	3,820.6	5.3x	6.6x
Mar-16	Bankers Petroleum Ltd.	Exploration and production of oil and gas	Geo-Jade Petroleum Corporation	100.0%	434.3	1.7x	4.0x
Feb-16	Shell Refining Company Berhad	Petrochemical engineering and oil refining	Shandong Hengyuan Petrochemical Company Limited	100.0%	435.6	0.2x	3.5x
Jan-16	Plains All American Pipeline, L.P.	Transportation, terminalling and storage of crude oil and gathering and marketing of liquefied petroleum gas	Several investment firms	13.3%	20,794.9	1.0x	13.4x

## Appendix 3

### Alternative Energy - Transactions

Date	Target name	Target business description(s)	Acquirer name	Acquired stake (%)	EV (EUR m)	EV / Sales	EV / EBITDA
Jun-17	Pattern Energy Group Inc.	Energy company that develops, constructs, owns and operates renewable and transmission energy	Public Sector Pension Investment Board	9.9%	3,152.5	9.4x	18.0x
Jul-17	BIOX Corp.	Listed corporation which designs, builds, owns and operates biodiesel production facilities	FP Resources Ltd. / CFFI Ventures Inc.	65.4%	55.0	0.7x	39.6x
May-17	ErgyCapital S.p.A.	Investment firm focused on the renewable energy sector	Intek Group S.p.A.	51.0%	60.7	4.3x	8.6x
May-17	FUTUREN SA	Provider of energy from renewable sources	EDF Energies Nouvelles SA	100.0%	393.8	6.9x	14.1x
May-17	Ormat Technologies Inc.	Geothermal and recovered energy power business	ORIX Corporation	22.1%	3,209.5	5.1x	11.0x
Apr-17	Jiangsu Dingyang Green Tech Electric Co. Ltd.	Solar power station investment, installation and operation	Roshow Technology Co. Ltd.	100.0%	102.0	3.7x	10.3x
Mar-17	EDP Renovaveis S.A.	Renewable energy company	Energias de Portugal S.A.	22.5%	8,730.0	6.0x	7.5x
Mar-17	AREVA SA (Fuel Cycle Business)	Listed company, provider of technological solutions for nuclear power generation, electricity transmission and distribution.	Government of France	50.0%	9,439.0	2.1x	7.1x
Jan-17	WGL Holdings Inc.	Provides clean, efficient and diverse energy solutions	AltaGas Ltd.	100.0%	6,227.5	3.0x	16.1x
Dec-16	Ningbo Ulica Solar Science & Technology Co. Ltd.	Manufacturer of solar cells and modules	Ningbo Shanshan Co. Ltd	90.0%	78.9	0.9x	8.5x
Nov-16	Petrobras Argentina S.A.	Changzhou Xingang Thermal Power Co. Ltd.	Zhejiang Fuchunjiang Environmental Thermoelectric	30.0%	40.0	0.9x	2.6x
Oct-16	Rockies Express Pipeline LLC	Hanwha Q CELLS Korea Corp.	Hanwha General Chemical Co., Ltd	50.2%	549.8	1.3x	26.9x
Sep-16	Suzhou Akcome Photovoltaic Technology Co., Ltd.	Manufacturer of solar cells and modules	Jiangsu Akcome Science and Technology Co., Ltd.	100.0%	189.2	0.8x	9.2x
Aug-16	Trina Solar Ltd.	Producer of photovoltaic cells	Consortium for Trina Solar Ltd.	94.5%	2,085.5	0.8x	7.3x
Jul-16	Sarpsborg Avfallsennergi AS	Converter of household waste into fuel	Sarpsborg Infrastructure AS	100.0%	29.9	3.5x	9.5x
Jun-16	Kvaenangen Kraftverk AS	Company engaged in generating hydropower	Ymber AS	40.2%	96.0	13.2x	26.0x
Jun-16	FUTUREN SA	Provider of energy from renewable sources	Boussard & Gavaudan Partners Limited	46.2%	297.4	5.0x	8.6x
May-16	CHORUS Clean Energy AG	Listed company engaged in operating solar and wind energy plants	Capital Stage AG	100.0%	562.9	9.6x	13.1x
Apr-16	Tongwei Solar Hefei Co. Ltd.	Crystal silicon battery producer	Tongwei Co., Ltd.	100.0%	869.1	1.9x	12.9x
Mar-16	Ningbo Kangnaite International Trade Co., Ltd.	Manufacturer of solar sell components through its subsidiaries	Ningbo Powerway Alloy Material Co., Ltd.	100.0%	228.9	4.6x	44.8x

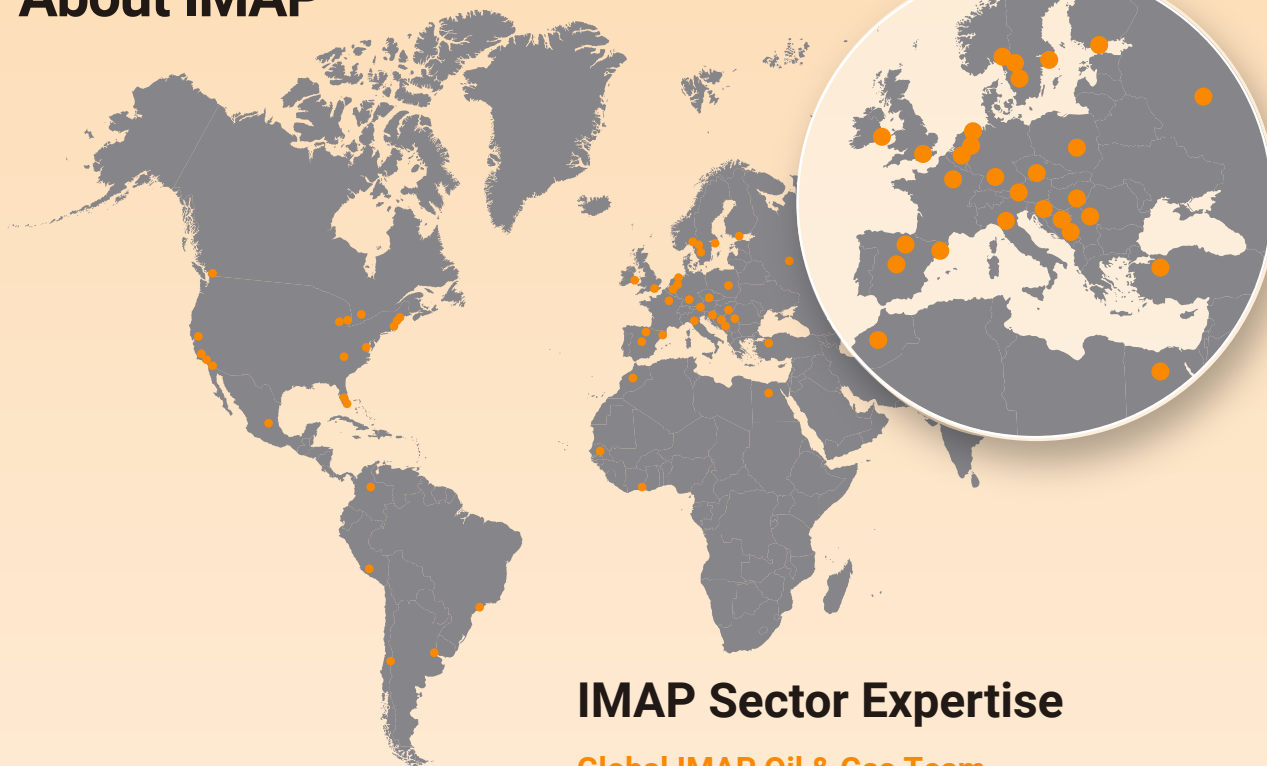
## Appendix 4

### Oil and Gas - Listed Peer Valuations

Company name	Market capital	Net debt (EUR m)	EV (EUR m)	Sales (EUR m)	EBITDA margin (%)	EV / Sales	EV / EBITDA
Royal Dutch Shell	200,520	62,547	263,068	199,199	14.5%	1.3x	9.1x
BP Plc	95,826	29,690	125,516	156,064	7.7%	0.8x	10.5x
Chevron Corporation	169,834	33,296	203,131	93,988	15.9%	2.2x	13.6x
ExxonMobil Corporation	290,410	33,348	323,758	186,422	14.1%	1.7x	12.4x
Total SA	100,516	16,030	116,546	127,696	12.9%	0.9x	7.1x
Eni SpA	44,566	21,565	66,131	55,762	17.4%	1.2x	6.8x
ConocoPhillips Company	44,950	20,181	65,130	20,205	14.9%	3.2x	21.6x
Sinopec	80,795	9,327	90,122	238,182	9.9%	0.4x	3.8x
Petrochina	180,587	45,120	225,707	204,829	17.3%	1.1x	6.4x
LUKoil	29,612	6,279	35,890	662,162	14.0%	0.5x	3.4x
Valero Energy	25,930	2,716	28,646	9,584	7.2%	0.4x	6.1x
Petrobras (Petróleo Brasileiro)	47,071	85,850	132,921	35,798	23.2%	1.7x	7.4x
Gazprom	38,742	27,756	66,498	774,148	21.2%	0.8x	3.6x
Marathon Petroleum Corporation	24,622	8,259	32,881	8,024	6.9%	0.6x	8.8x
PTT Public Company Limited	33,322	10,034	43,356	217,743	18.0%	0.8x	4.7x
Rosneft	47,388	40,136	87,524	631,880	22.9%	1.2x	5.3x
Statoil	47,150	22,669	69,819	38,961	25.5%	1.8x	7.0x
Indian Oil Corporation	24,073	6,495	30,568	47,338	7.1%	0.6x	9.0x
Enterprise Products Partners L.P.	50,407	20,155	70,562	19,633	22.3%	3.6x	16.1x
Repsol S.A.	21,300	11,704	33,004	34,556	12.8%	1.0x	7.4x
OMV	16,070	4,506	20,576	19,260	17.9%	1.1x	6.0x
					<b>Average</b>	<b>1.3x</b>	<b>8.4x</b>
					<b>Median</b>	<b>1.1x</b>	<b>7.1x</b>



# About IMAP



## IMAP Sector Expertise

### Global IMAP Oil & Gas Team

**35**

COUNTRIES

**350**

ADVISORS

IMAP is a global merger and acquisition advisory organization with a presence in 35 countries.

IMAP closed over 2,100 transactions valued at \$90bn in the last 10 years and is consistently ranked among the world's top M&A advisors (Thomson Reuters) for mid-market transactions.

[www.imap.com](http://www.imap.com)

#### NORTH AMERICA

**PELINO COLAIACOVO**  
IMAP CANADA – Toronto  
[pelino.colaiacovo@imap.com](mailto:pelino.colaiacovo@imap.com)

**ROB VAN GENDEREN**  
IMAP USA – Naples  
[rob.vangenderen@imap.com](mailto:rob.vangenderen@imap.com)

#### LATIN AMERICA

**SERGIO MILIC**  
IMAP Chile  
[sergio.milic@imap.com](mailto:sergio.milic@imap.com)

**GUSTAVO JUNQUEIRA**  
IMAP Brazil  
[gustavo.junqueira@imap.com](mailto:gustavo.junqueira@imap.com)

#### AFRICA

**ABDELLATIF IMANI**  
IMAP Morocco  
[abdellatif.imani@imap.com](mailto:abdellatif.imani@imap.com)

#### EUROPE

**JAN-PIETER BORST**  
IMAP Netherlands  
[jan-pieter.jborst@imap.com](mailto:jan-pieter.jborst@imap.com)

**FRANK RUIJGROK**  
IMAP Netherlands  
[frank.ruijgrok@imap.com](mailto:frank.ruijgrok@imap.com)

**GIOVANNI MAUTONE**  
IMAP Italy  
[giovanni.mautone@imap.com](mailto:giovanni.mautone@imap.com)

**OYVIND SOLVANG**  
IMAP Norway  
[oyvind.solvang@imap.com](mailto:oyvind.solvang@imap.com)

**ALEKSANDER KARLSEN**  
IMAP Norway  
[aleksander.karlsen@imap.com](mailto:aleksander.karlsen@imap.com)

**MAXIM URYASH**  
IMAP Russia  
[maxim.uryash@imap.com](mailto:maxim.uryash@imap.com)

**BRETT STACEY**  
IMAP affiliate office, London  
[brett.stacey@imap.com](mailto:brett.stacey@imap.com)

**GABOR SZENDROI**  
IMAP Hungary  
[gabor.szendroi@imap.com](mailto:gabor.szendroi@imap.com)

# IMAP

OCTOBER 2017

---

## OIL & GAS SECTOR REPORT AUTHORS:

IMAP Netherlands

ROTTERDAM  
Javastraat 8  
3016 CE Rotterdam  
+31 (0)10 235 88 50

AMSTERDAM  
Gustav Mahlerplein 2  
Viñoly Building, 1st floor  
1082 MA Amsterdam  
+31 (0)20 799 73 39



**JAN-PIETER BORST**  
IMAP Netherlands  
jborst@imap.nl



**FRANK RUIJGROK**  
IMAP Netherlands  
fruijgrok@imap.nl



**WOUTER MOSTERT**  
IMAP Netherlands  
wmostert@imap.nl

[www.imap.nl](http://www.imap.nl)