

## 1. News Summary (3 page)

News	
<b>WTI comment</b>	수급부담·무역전쟁 관망...WTI 강보합
<b>Headline</b>	산업용 심야 전기료, 올해는 안올린다
<b>News 1.</b>	Gazprom, Yamal 가스전 개발 예정
<b>News 2.</b>	-
<b>News 3.</b>	-
<b>News 4.</b>	-

Conclusion	
	한전 적자 지속으로 배당 수익이 감소하는 국면에서 가격 인상 불가피 러시아의 對 유럽, 對 중국 PNG 수출량이 더욱 늘어날 것으로 전망됨
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## 2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
<b>Refinery</b>			%	%	%	%	%
WTI	\$/bbl	68.1	0.0	(8.1)	3.4	2.3	46.7
Dubai	\$/bbl	70.4	(3.6)	(7.4)	(0.9)	3.1	49.1
Gasoline	\$/bbl	79.6	(4.0)	(6.9)	(1.9)	(1.4)	30.0
Diesel	\$/bbl	82.4	(3.0)	(6.7)	(2.3)	(1.3)	37.1
Complex margin	\$/bbl	6.1	(0.2)	0.0	(0.3)	(1.2)	(2.0)
1M lagging	\$/bbl	2.2	(3.6)	(6.3)	(0.1)	(12.0)	(7.8)
<b>Petrochemical</b>			%	%	%	%	%
Naphtha	\$/t	632	(3.1)	(7.2)	(3.4)	4.8	48.9
Butadiene	\$/t	1,650	0.0	2.5	(1.8)	24.1	71.0
HDPE	\$/t	1,340	0.0	0.0	(1.5)	(0.4)	24.1
MEG	\$/t	895	(1.1)	0.4	(2.9)	(13.4)	4.7
PX	\$/t	974	(1.1)	(2.1)	0.3	3.8	25.0
SM	\$/t	1,332	(1.1)	(1.6)	(6.2)	0.2	13.8
<b>Commodity</b>			%	%	%	%	%
Natural Gas	\$/mmbtu	2.74	(0.7)	(1.7)	(5.6)	(3.3)	(6.2)
Natural rubber	\$/t	1,320	0.8	2.3	0.0	(2.2)	(12.0)
Cotton	C/lbs	89.2	0.4	1.9	7.1	7.3	29.5

\*참고: 정제마진의 변동률은 %가 아닌 \$/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
<b>Petrochemical</b>				%	%	%	%
Ethylene	07/16	\$/t	1,290	0.0	2.4	1.2	44.5
Propylene	07/16	\$/t	970	0.5	(4.4)	(0.8)	28.5
Benzene	07/16	\$/t	830	1.2	(0.3)	(0.3)	13.3
Toluene	07/16	\$/t	795	0.0	(2.5)	7.4	26.2
Xylene	07/16	\$/t	823	0.9	(0.6)	8.2	33.7
PP	07/16	\$/t	1,253	(0.8)	(3.1)	0.4	19.6
PVC	07/16	\$/t	935	0.0	0.3	(2.6)	5.6
ABS	07/16	\$/t	1,930	(1.5)	(6.3)	(3.0)	7.2
SBR	07/16	\$/t	1,750	(1.1)	(7.9)	7.4	20.7
SM	07/16	\$/t	1,403	2.6	(6.0)	2.7	16.6
BPA	07/16	\$/t	1,798	3.6	0.6	(6.1)	17.5
Caustic	07/16	\$/t	410	(13.7)	(23.9)	(34.5)	(10.4)
2-EH	07/16	\$/t	1,090	(0.9)	(2.7)	(5.6)	16.9
Caprolactam	07/16	\$/t	2,145	0.2	(0.2)	(3.4)	33.2
<b>Solar</b>				%	%	%	%
Polysilicon	07/11	\$/kg	11.1	(0.3)	(11.8)	(27.8)	(19.7)
Module	07/11	\$/W	0.26	(1.5)	(7.7)	(13.0)	(20.4)

## 3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
<b>E&amp;P</b>			%	%	%	%	%
ExxonMobil	USD	82.3	(0.2)	(1.6)	2.0	5.1	1.8
Shell	EUR	2,611	0.7	(3.1)	3.5	9.5	26.9
Petrochina	CNY	7.30	(2.5)	(5.9)	(5.8)	(2.9)	(10.2)
Gazprom	RUB	145.3	(1.1)	(1.4)	5.5	2.0	16.1
Petrobras	BRL	18.3	2.3	3.0	22.2	(13.0)	41.9
<b>Refinery</b>							
Phillips66	USD	111.1	(0.2)	(1.9)	(2.8)	3.0	35.8
Valero	USD	106.1	(0.2)	(2.3)	(7.9)	(0.6)	57.3
JX	JPY	760.7	(0.8)	(4.7)	(0.4)	11.5	55.7
Neste Oil	EUR	66.2	0.4	(1.9)	(0.4)	20.8	80.5

	Unit	Price	1D	1W	1M	3M	12M
<b>Petrochemical</b>			%	%	%	%	%
BASF	EUR	83.3	2.0	0.3	(5.7)	(2.3)	(0.3)
DowDuPont	USD	67.1	2.0	(1.1)	(1.0)	(0.7)	1.4
SABIC	SAR	128.4	(0.5)	1.1	1.4	4.5	27.6
Formosa Pla.	TWD	107.0	(1.4)	(4.5)	0.9	0.9	17.6
Shin-Etsu	JPY	10,405	(0.1)	0.2	(0.2)	(4.6)	2.3
<b>Renewable</b>							
Wacker	EUR	117.4	0.4	(1.2)	1.1	(21.9)	18.4
First Solar	USD	53.75	(0.5)	(2.7)	5.3	(26.0)	25.8
GCL-Poly	HKD	0.67	(1.5)	(2.9)	(11.8)	(30.9)	(23.0)
Tesla Motors	USD	322.7	4.1	0.1	(9.9)	12.2	1.0

## 4. Coverage Summary

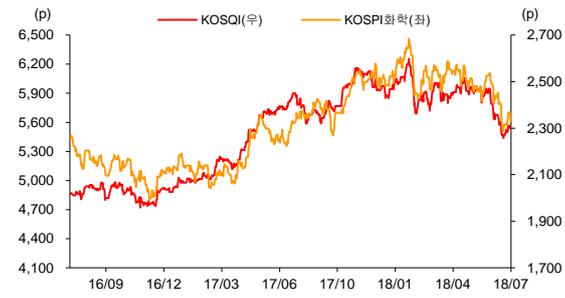
	07/17	1D	1W	1M	3M	6M	12M
KOSPI	2,298	(0.2)	0.2	(4.4)	(7.3)	(8.2)	(4.8)
KOSPI확화	5,610	(1.5)	0.4	(6.5)	(9.5)	(10.6)	2.0
LG화학	321,500	(2.0)	(1.2)	(13.9)	(14.5)	(26.4)	0.9
롯데케미칼	332,500	(3.5)	(2.6)	(9.0)	(19.5)	(17.0)	(7.1)
한화케미칼	20,400	(1.0)	(3.3)	(16.4)	(31.4)	(40.7)	(36.1)
금호석유화학	110,500	2.8	(3.1)	5.7	15.5	9.4	51.0
KCC	318,500	(1.8)	(0.6)	(6.9)	(14.3)	(23.0)	(23.6)
OCI	96,800	(1.9)	1.0	(11.6)	(40.2)	(44.5)	15.1
SKC	42,650	1.1	0.1	3.6	11.6	(6.8)	13.9
SK이노베이션	193,000	(2.8)	0.5	(10.0)	(3.0)	(2.8)	14.9
S-Oil	115,500	(0.4)	7.4	3.6	(0.9)	2.2	12.1
GS	51,200	(2.5)	(0.4)	(11.7)	(16.6)	(23.4)	(29.9)
SK가스	87,500	0.1	(3.3)	(8.9)	(7.4)	(8.5)	(26.2)
포스코대우	20,300	(0.5)	(4.0)	(12.3)	(10.8)	(3.8)	(11.0)
LG상사	22,550	0.0	(0.9)	(14.7)	(15.2)	(26.7)	(23.9)
한국전력	31,800	1.9	2.6	(9.1)	(8.4)	(12.2)	(24.2)
한국가스공사	59,300	(0.3)	0.3	(7.3)	21.0	21.0	20.0

투자의견	TP	%	P/E	P/B
			* 추정치는 12M fwd 기준임	
			* 모든 coverage 업체의 실적은 연결기준임	
매수	400,000	24.4	12.70	1.43
매수	400,000	20.3	10.32	0.94
매수	30,000	47.1	9.16	0.50
매수	150,000	35.7	10.30	1.43
매수	400,000	25.6	27.61	0.49
매수	140,000	44.6	7.36	0.70
매수	50,000	17.2	11.63	1.01
매수	230,000	19.2	11.35	0.97
매수	140,000	21.2	13.18	1.93
매수	80,000	56.3	4.74	0.58
매수	130,000	48.6	8.27	0.59
매수	25,000	23.2	10.64	0.79
매수	38,000	68.5	8.35	0.64
매수	45,000	41.5	7.70	0.25
매수	75,000	26.5	9.20	0.77

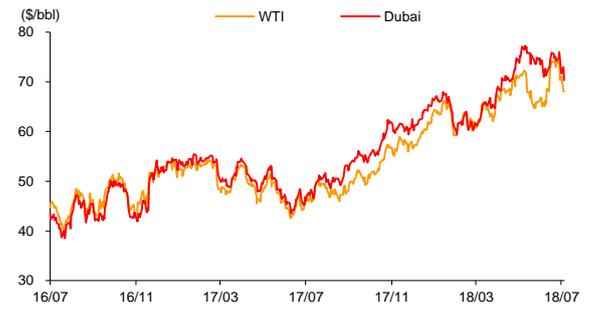
• 작성자(손지우)는 본 조사분석자료에 게재된 내용들이 본인의 의견을 정확하게 반영하고 있으며, 외부의 부당한 압력이나 간섭없이 신의성실하게 작성되었음을 확인합니다.  
• 본 보고서에 언급된 종목의 경우 당사 조사분석담당자는 본인의 담당종목을 보유하고 있지 않습니다.  
• 본 보고서는 기관투자자 또는 제 3자에게 사전 제공된 사실이 없습니다.  
• 당사는 본 보고서의 발간시점에 해당종목을 1% 이상 보유하고 있지 않습니다.

## Key Chart

**KOSPI/KOSPI화학**



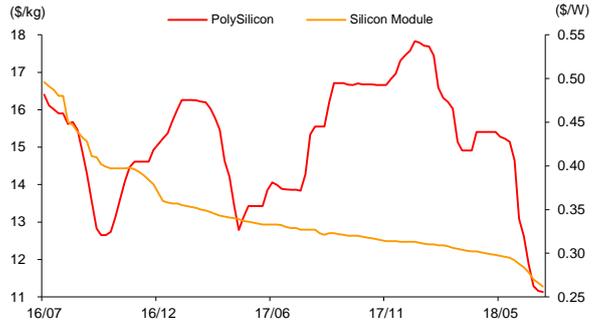
**WTI/Dubai**



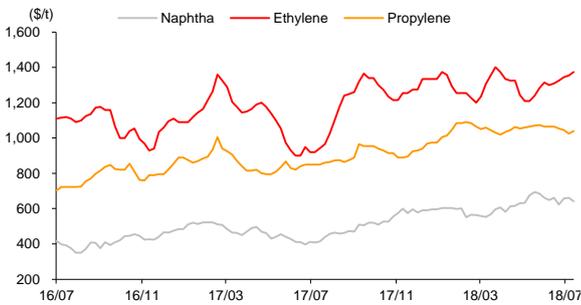
**Complex & 1M lagging margin**



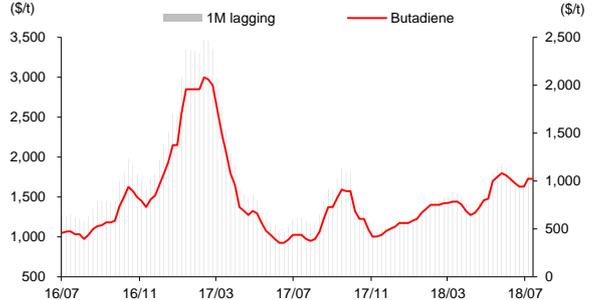
**Polysilicon & Module prices**



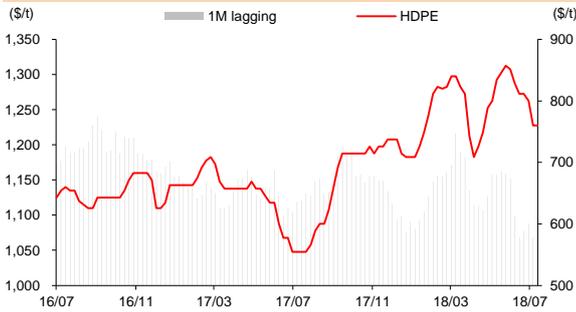
**Naphtha/Ethylene/Propylene prices**



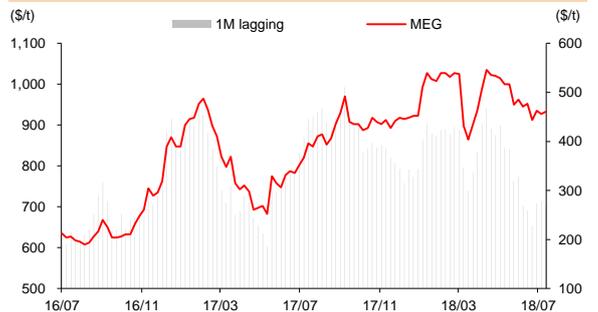
**Butadiene price & 1M lagging naphtha spread**



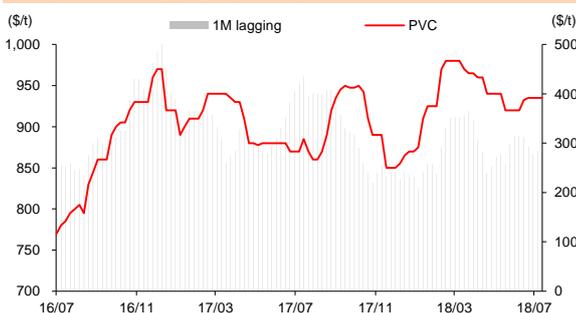
**HDPE price & 1M lagging naphtha spread**



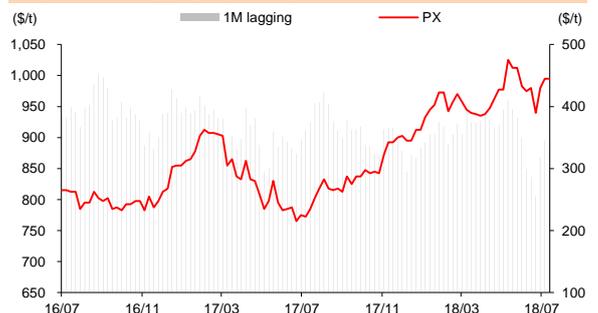
**MEG price & 1M lagging naphtha spread**



**PVC price & 1M lagging naphtha spread**



**PX price & 1M lagging naphtha spread**



자료: Bloomberg, Cischem, Petronet, Platts, Pvinfosights, SK증권  
참고: 상기 데이터는 일괄적으로 과거 2년치 적용

## News Comment

Headline	(출처: 조선일보)
<b>제목</b>	산업용 심야 전기료, 올해는 안올린다
<b>결론</b>	한전 적자 지속으로 배당 수익이 감소하는 국면에서 가격 인상 불가피
<b>세부</b>	<ol style="list-style-type: none"> <li>1) 정부가 연내에는 심야시간대 산업용 전기요금을 인상하지 않기로 결정</li> <li>2) 백운규 산자부 장관, "산업용 경부하 요금 인상 문제는 속도 조절할 것"</li> <li>3) 백운규 산자부 장관, "연내 인상하겠다는 말을 하지 않겠다"</li> <li>4) 단, 인상 시기를 늦추겠다는 것이지 인상 않겠다는 것이 아님을 밝힘</li> <li>5) 한전 적자 지속으로 배당 수익이 감소하는 국면에서 가격 인상 불가피</li> </ol>

WTI Comment	(출처: 연합뉴스)
<b>제목</b>	수급부담·무역전쟁 관망...WTI 강보합
<b>상승</b>	미국의 대이란 원유제재 복원에 따른 수급 우려
<b>요인</b>	
<b>하락</b>	미중간 무역전쟁 확대
<b>요인</b>	

Issue 1	(출처: Oil & Gas Journal)
<b>제목</b>	Gazprom, Yamal 가스전 개발 예정
<b>결론</b>	러시아의 對 유럽, 對 중국 PNG 수출량이 더욱 늘어날 것으로 전망됨
<b>세부</b>	<ol style="list-style-type: none"> <li>1) Gazprom 관계자, "본격적인 가스전 개발은 내년에 시작할 예정임"</li> <li>2) Yamal 반도의 Kharasaveyskoye 가스 및 컨덴세이트전을 개발하는 것</li> <li>3) Kharasaveyskoye 가스전은 2tcm의 가스가 매장되어 있는것으로 탐사됨</li> <li>4) 2023년 32bcm/년 규모 Cenomanian-Aptian deposit에서 첫 생산 시작</li> <li>5) 러시아의 對 유럽, 對 중국 PNG 수출량이 더욱 늘어날 것으로 전망됨</li> </ol>

Issue 2
<b>제목</b>
<b>결론</b>
<b>세부</b>
1)
2)
3)
4)
5)

Issue 3
<b>제목</b>
<b>결론</b>
<b>세부</b>
1)
2)
3)
4)
5)

Issue 4
<b>제목</b>
<b>결론</b>
<b>세부</b>
1)
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5)

Issue 5
<b>제목</b>
<b>결론</b>
<b>세부</b>
1)
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4)
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Issue 6
<b>제목</b>
<b>결론</b>
<b>세부</b>
1)
2)
3)
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5)

## Commodity Price Data

Daily Price		Today	1D	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.	
F/X	USD/EUR	0.858	0.854	0.852	0.862	0.809	0.821	0.871	0.833	0.904	0.887	0.829	
	Change, %		0.4	0.7	(0.5)	6.1	4.5	(1.6)	2.9	(5.1)	(3.3)	3.4	
	USD/JPY	112.9	112.3	111.0	110.7	107.0	111.3	112.6	112.6	108.8	112.1	109.0	
	Change, %		0.5	1.7	2.0	5.5	1.4	0.2	0.2	3.8	0.7	3.6	
F/X	USD/KRW	1,124.1	1,129.1	1,116.4	1,097.8	1,067.1	1,069.1	1,128.3	1,066.7	1,160.5	1,130.9	1,079.9	
	Change, %		(0.4)	0.7	2.4	5.3	5.1	(0.4)	5.4	(3.1)	(0.6)	4.1	
	<hr/>												
	Agriculture	Corn	346.3	341.8	339.8	361.3	380.3	353.0	375.0	350.8	358.5	359.4	371.9
Change, %			1.3	1.9	(4.2)	(8.9)	(1.9)	(7.7)	(1.3)	(3.4)	(3.6)	(6.9)	
Soybean		839.5	829.5	852.3	905.5	1,046.0	968.8	985.0	951.8	987.5	975.9	986.6	
Change, %			1.2	(1.5)	(7.3)	(19.7)	(13.3)	(14.8)	(11.8)	(15.0)	(14.0)	(14.9)	
Wheat		497.8	488.5	489.5	499.5	466.3	421.5	506.0	427.0	436.4	436.0	477.6	
Change, %			1.9	1.7	(0.4)	6.8	18.1	(1.6)	16.6	14.1	14.2	4.2	
Rice		12.0	12.0	11.8	12.4	13.2	12.2	11.8	11.7	10.3	11.1	12.2	
Change, %			(0.3)	1.7	(2.8)	(8.7)	(1.2)	1.4	2.8	16.1	8.6	(1.6)	
Oats		231.5	231.5	256.0	233.5	228.8	254.3	285.5	241.0	196.3	252.3	246.1	
Change, %			0.0	(9.6)	(0.9)	1.2	(8.9)	(18.9)	(3.9)	17.9	(8.2)	(5.9)	
MYR/mt		Palm Oil	2,162.0	2,143.0	2,210.0	2,319.0	2,392.0	2,478.0	2,617.0	2,444.0	2,653.8	2,787.3	2,409.4
		Change, %		0.9	(2.2)	(6.8)	(9.6)	(12.8)	(17.4)	(11.5)	(18.5)	(22.4)	(10.3)
		Cocoa	2,395.0	2,410.0	2,501.0	2,552.0	2,728.0	1,985.0	1,910.0	1,892.0	2,854.0	2,005.2	2,398.5
		Change, %		(0.6)	(4.2)	(6.2)	(12.2)	20.7	25.4	26.6	(16.1)	19.4	(0.1)
	Cotton	89.2	88.9	87.5	90.7	83.1	82.1	68.6	78.6	65.6	73.5	83.9	
	Change, %		0.4	1.9	(1.7)	7.3	8.6	30.1	13.4	36.0	21.3	6.4	
	Sugar	11.1	11.1	11.4	12.0	11.7	13.4	14.1	15.2	18.2	15.8	12.6	
	Change, %		(0.1)	(2.5)	(7.4)	(4.5)	(17.1)	(21.0)	(26.6)	(38.7)	(29.6)	(11.4)	
Coffee	105.7	107.5	112.0	115.2	113.6	123.1	131.6	126.2	136.1	133.0	118.2		
Change, %		(1.6)	(5.6)	(8.2)	(6.9)	(14.1)	(19.7)	(16.2)	(22.3)	(20.5)	(10.6)		
<hr/>													
Energy	WTI	68.1	68.1	74.1	65.1	66.5	64.0	46.0	60.4	43.4	51.0	66.0	
	Change, %		0.0	(8.1)	4.6	2.3	6.4	47.9	12.7	56.9	33.6	3.1	
	Brent	72.2	71.8	78.9	73.4	71.6	69.4	48.4	66.9	45.1	54.9	71.6	
	Change, %		0.4	(8.5)	(1.7)	0.8	4.0	49.0	7.9	60.1	31.6	0.8	
	Natural Gas	2.7	2.8	2.8	3.0	2.7	3.2	3.0	3.0	2.6	3.0	2.8	
	Change, %		(0.7)	(1.7)	(9.3)	0.1	(15.2)	(9.3)	(7.2)	7.4	(9.3)	(3.4)	
	Ethanol	1.4	1.4	1.4	1.4	1.5	1.4	1.5	1.3	1.5	1.5	1.4	
	Change, %		0.6	(0.8)	(0.3)	(4.2)	4.0	(7.7)	7.0	(6.7)	(5.6)	(1.7)	
	RBOB Gasoline	202.6	200.2	216.0	202.3	204.1	185.8	155.7	179.9	140.0	162.9	199.7	
	Change, %		1.2	(6.2)	0.1	(0.7)	9.0	30.2	12.6	44.7	24.4	1.4	
Coal	118.7	118.3	117.5	115.0	92.1	106.6	84.3	100.8	65.5	88.2	104.5		
Change, %		0.4	1.1	3.2	29.0	11.4	40.8	17.8	81.3	34.6	13.6		
<hr/>													
Metal	Gold	1,227.6	1,241.0	1,255.5	1,279.6	1,347.5	1,327.2	1,234.0	1,302.6	1,248.5	1,258.6	1,311.7	
	Change, %		(1.1)	(2.2)	(4.1)	(8.9)	(7.5)	(0.5)	(5.8)	(1.7)	(2.5)	(6.4)	
	Silver	15.6	15.8	16.1	16.6	16.8	17.0	16.1	16.9	17.1	17.1	16.6	
	Change, %		(1.4)	(3.0)	(6.0)	(7.2)	(8.4)	(3.4)	(8.1)	(9.0)	(8.8)	(6.1)	
	Copper	6,152.0	6,192.0	6,332.5	7,020.0	6,877.0	7,034.0	5,996.0	7,247.0	4,872.0	6,199.4	6,886.6	
	Change, %		(0.6)	(2.9)	(12.4)	(10.5)	(12.5)	2.6	(15.1)	26.3	(0.8)	(10.7)	
	Nickel	923.6	930.5	971.0	1,030.2	937.0	790.2	618.1	809.1	646.4	680.2	917.9	
	Change, %		(0.7)	(4.9)	(10.3)	(1.4)	16.9	49.4	14.2	42.9	35.8	0.6	
	Zinc	2,512.0	2,474.0	2,630.0	3,080.0	3,154.0	3,367.5	2,815.0	3,319.0	2,097.5	2,888.5	3,191.8	
	Change, %		1.5	(4.5)	(18.4)	(20.4)	(25.4)	(10.8)	(24.3)	19.8	(13.0)	(21.3)	
	Lead	2,160.5	2,156.3	2,306.3	2,391.0	2,350.5	2,552.0	2,269.8	2,482.8	1,868.3	2,315.7	2,435.4	
	Change, %		0.2	(6.3)	(9.6)	(8.1)	(15.3)	(4.8)	(13.0)	15.6	(6.7)	(11.3)	
	Aluminum	13,975.0	13,865.0	14,030.0	14,350.0	14,770.0	14,545.0	14,300.0	15,020.0	12,373.5	14,556.6	14,344.0	
	Change, %		0.8	(0.4)	(2.6)	(5.4)	(3.9)	(2.3)	(7.0)	12.9	(4.0)	(2.6)	
	Cobalt	69,750.0	67,750.0	69,750.0	79,750.0	92,000.0	76,860.0	58,700.0	75,205.0	25,480.1	55,906.9	83,582.6	
	Change, %		3.0	0.0	(12.5)	(24.2)	(9.3)	18.8	(7.3)	173.7	24.8	(16.5)	
	HR Coil	919.0	913.0	912.0	904.0	857.0	675.0	617.0	662.0	519.3	620.1	824.3	
	Change, %		0.7	0.8	1.7	7.2	36.1	48.9	38.8	77.0	48.2	11.5	
Scrap	397.0	395.0	402.4	403.0	385.0	385.0	340.0	367.0	275.7	344.7	389.4		
Change, %		0.5	(1.3)	(1.5)	3.1	3.1	16.8	8.2	44.0	15.2	2.0		

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

## Refining Price Data

Daily Price		07/17	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.	
Crude Oil	<b>WTI</b>	68.1	68.1	74.1	65.9	66.5	63.7	46.4	53.7	43.4	50.9	66.0	
	<i>Change, %</i>		0.0	(8.1)	3.4	2.3	6.8	46.7	26.7	57.0	33.8	3.1	
	<b>Dubai</b>	70.4	73.0	76.0	71.0	68.2	67.1	47.2	53.8	41.3	53.1	68.6	
	<i>Change, %</i>		(3.6)	(7.4)	(0.9)	3.1	4.9	49.1	30.7	70.3	32.5	2.6	
Crude Oil Product	<b>Gasoline(휘발유)</b>	79.6	83.0	85.5	81.2	80.8	78.9	61.2	69.8	56.3	68.0	81.2	
	<i>Change, %</i>		(4.0)	(6.9)	(1.9)	(1.4)	0.9	30.0	14.0	41.6	17.1	(1.9)	
	<b>Kerosene(등유)</b>	84.1	86.6	90.7	84.3	85.3	81.8	58.9	66.4	52.9	65.2	84.1	
	<i>Change, %</i>		(2.9)	(7.3)	(0.2)	(1.4)	2.8	42.7	26.6	59.1	29.0	0.1	
	<b>Diesel(경유)</b>	82.4	85.0	88.3	84.3	83.4	81.3	60.1	65.5	52.1	65.6	83.1	
	<i>Change, %</i>		(3.0)	(6.7)	(2.3)	(1.3)	1.3	37.1	25.7	58.1	25.6	(0.8)	
	<b>Bunker-C</b>	67.4	70.2	72.4	66.4	61.0	58.8	45.5	52.1	35.5	49.7	62.7	
	<i>Change, %</i>		(4.0)	(6.9)	1.6	10.5	14.5	48.0	29.4	89.7	35.7	7.5	
	<b>Naphtha</b>	69.1	71.5	74.1	68.4	66.2	66.9	45.1	53.5	42.6	53.7	67.6	
	<i>Change, %</i>		(3.4)	(6.8)	1.0	4.4	3.4	53.3	29.3	62.2	28.6	2.2	
	Dubai Spread	<b>Gasoline(휘발유)</b>	9.3	10.0	9.5	10.2	12.5	11.9	14.0	16.0	14.9	14.9	12.6
		<i>Change</i>		(0.7)	(0.2)	(0.9)	(3.3)	(2.6)	(4.8)	(6.7)	(5.7)	(5.6)	(3.3)
<b>Kerosene(등유)</b>		13.8	13.7	14.7	13.3	17.1	14.7	11.7	12.6	11.6	12.1	15.5	
<i>Change</i>			0.1	(1.0)	0.4	(3.3)	(1.0)	2.0	1.2	2.2	1.6	(1.7)	
<b>Diesel(경유)</b>		12.0	12.0	12.3	13.3	15.2	14.2	12.9	11.7	10.8	12.5	14.5	
<i>Change</i>			0.0	(0.3)	(1.3)	(3.2)	(2.2)	(0.8)	0.3	1.2	(0.5)	(2.5)	
<b>Bunker-C</b>		(3.0)	(2.8)	(3.6)	(4.6)	(7.2)	(8.3)	(1.7)	(1.8)	(5.8)	(3.4)	(5.9)	
<i>Change</i>			(0.2)	0.6	1.6	4.3	5.3	(1.3)	(1.2)	2.8	0.5	3.0	
<b>Naphtha</b>		(1.3)	(1.5)	(1.9)	(2.6)	(2.0)	(0.2)	(2.1)	(0.4)	1.3	0.6	(1.0)	
<i>Change</i>			0.2	0.6	1.3	0.8	(1.0)	0.9	(0.9)	(2.5)	(1.9)	(0.3)	
Refining Margin	<b>Simple(단순)</b>	2.2	2.3	1.9	1.8	1.7	0.8	3.9	3.8	1.9	3.2	2.1	
	<i>Change</i>		(0.1)	0.3	0.5	0.5	1.4	(1.7)	(1.6)	0.3	(0.9)	0.1	
	<b>Complex(복합)</b>	6.1	6.3	6.1	6.4	7.4	6.6	8.1	8.3	7.0	8.0	7.4	
	<i>Change</i>		(0.2)	0.0	(0.3)	(1.2)	(0.5)	(2.0)	(2.1)	(0.8)	(1.9)	(1.3)	
	<b>Complex(lagging)</b>	2.2	5.8	8.5	2.3	14.1	11.2	9.9	18.0	8.5	8.9	9.4	
	<i>Change</i>		(3.6)	(6.3)	(0.1)	(12.0)	(9.0)	(7.8)	(15.8)	(6.3)	(6.8)	(7.2)	

자료 : Petronet, SK증권

참고 1) Crude Oil 가격은 현물(spot) 기준으로 선물(future) 가격과 다를 수 있음

참고 2) Gasoline은 95RON, 경유는 L/P 0.5%, Bunker-C는 380cst/4.0% 기준임

## Petrochemical Price Data

Daily Price			07/17	07/16	07/13	07/12	07/11	07/10	07/09	07/06	07/05	07/04	
Spot Price	<b>Naphtha</b>	CFR Japan	631.5	651.4	647.3	655.3	669.9	680.4	671.3	665.0	665.5	669.0	
	<b>Ethylene</b>	CFR SE Asia	1,280.0	1,280.0	1,280.0	1,280.0	1,270.0	1,270.0	1,270.0	1,270.0	1,270.0	1,270.0	
	<b>Propylene</b>	FOB Korea	1,050.0	1,050.0	1,035.0	1,035.0	1,035.0	1,040.0	1,040.0	1,060.0	1,060.0	1,060.0	
	<b>Butadiene</b>	FOB Korea	1,650.0	1,650.0	1,650.0	1,650.0	1,650.0	1,610.0	1,610.0	1,610.0	1,610.0	1,600.0	
	<b>HDPE</b>	CFR FE Asia	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	
	<b>LDPE</b>	CFR FE Asia	1,170.0	1,170.0	1,170.0	1,170.0	1,170.0	1,170.0	1,170.0	1,170.0	1,170.0	1,170.0	
	<b>LLDPE</b>	CFR FE Asia	1,115.0	1,110.0	1,110.0	1,110.0	1,115.0	1,115.0	1,120.0	1,120.0	1,135.0	1,140.0	
	<b>MEG</b>	CFR China	895.0	905.0	898.0	898.0	900.0	891.0	894.0	894.0	893.0	895.0	902.0
	<b>PP</b>	CFR FE Asia	1,230.0	1,230.0	1,230.0	1,230.0	1,230.0	1,230.0	1,230.0	1,235.0	1,240.0	1,240.0	1,240.0
	<b>PX</b>	CFR China	974.3	985.3	986.0	989.0	991.0	995.3	989.0	988.5	988.5	984.8	987.8
	<b>PTA</b>	CFR China	844.0	844.0	842.0	848.0	852.0	852.0	852.0	852.0	850.0	850.0	850.0
	<b>Benzene</b>	FOB Korea	825.3	833.7	831.3	831.0	834.7	834.7	831.7	831.7	832.0	832.3	828.7
	<b>Toluene</b>	FOB Korea	740.0	752.0	752.0	747.0	747.0	752.0	751.0	747.0	747.0	740.0	744.0
	<b>Xylene</b>	FOB Korea	808.0	823.0	816.0	814.0	823.0	831.0	831.0	831.0	833.0	834.0	840.0
	<b>SM</b>	FOB Korea	1,331.5	1,346.5	1,379.0	1,374.0	1,364.0	1,353.0	1,337.0	1,337.0	1,349.0	1,346.0	1,323.0

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	<b>Naphtha</b>	CFR Japan	642.5	662.0	661.5	613.0	568.0	414.0	484.5	399.5	493.5	616.5
	<i>Change, %</i>			(2.9)	(2.9)	4.8	13.1	55.2	32.6	60.8	30.2	4.2
	<b>Ethylene</b>	CFR SE Asia	1,290.0	1,290.0	1,260.0	1,275.0	1,250.0	892.5	990.0	1,040.9	1,090.9	1,237.5
	<i>Change, %</i>			0.0	2.4	1.2	3.2	44.5	30.3	23.9	18.2	4.2
	<b>Propylene</b>	CFR SE Asia	970.0	965.0	1,015.0	977.5	980.0	755.0	815.0	705.7	823.6	1,053.8
	<i>Change, %</i>			0.5	(4.4)	(0.8)	(1.0)	28.5	19.0	37.5	17.8	(8.0)
	<b>Butadiene</b>	CFR SE Asia	1,675.0	1,680.0	1,625.0	1,250.0	1,390.0	975.0	2,100.0	1,116.8	1,481.1	1,441.4
	<i>Change, %</i>			(0.3)	3.1	34.0	20.5	71.8	(20.2)	50.0	13.1	16.2
	<b>Benzene</b>	CFR SE Asia	830.0	820.0	832.5	832.5	867.5	732.5	822.5	646.7	838.8	868.0
	<i>Change, %</i>			1.2	(0.3)	(0.3)	(4.3)	13.3	0.9	28.3	(1.1)	(4.4)
	<b>Toluene</b>	CFR SE Asia	795.0	795.0	815.0	740.0	720.0	630.0	690.0	630.5	689.5	768.0
	<i>Change, %</i>			0.0	(2.5)	7.4	10.4	26.2	15.2	26.1	15.3	3.5
	<b>Xylene</b>	CFR SE Asia	822.5	815.0	827.5	760.0	762.5	615.0	675.0	627.7	668.8	782.1
	<i>Change, %</i>			0.9	(0.6)	8.2	7.9	33.7	21.9	31.0	23.0	5.2

Spread			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
<b>Ethylene</b>	-Naphtha		647.5	628.0	598.5	662.0	682.0	478.5	505.5	641.4	597.4	621.0
	<i>Change, %</i>			3.1	8.2	(2.2)	(5.1)	35.3	28.1	1.0	8.4	4.3
<b>Propylene</b>	-Naphtha		327.5	303.0	353.5	364.5	412.0	341.0	330.5	306.2	330.1	437.4
	<i>Change, %</i>			8.1	(7.4)	(10.2)	(20.5)	(4.0)	(0.9)	7.0	(0.8)	(25.1)
<b>Butadiene</b>	-Naphtha		1,032.5	1,018.0	963.5	637.0	822.0	561.0	1,615.5	717.3	987.6	824.9
	<i>Change, %</i>			1.4	7.2	62.1	25.6	84.0	(36.1)	43.9	4.5	25.2
<b>Benzene</b>	-Naphtha		187.5	158.0	171.0	219.5	299.5	318.5	338.0	247.2	345.3	251.6
	<i>Change, %</i>			18.7	9.6	(14.6)	(37.4)	(41.1)	(44.5)	(24.1)	(45.7)	(25.5)
<b>Toluene</b>	-Naphtha		152.5	133.0	153.5	127.0	152.0	216.0	205.5	231.0	196.0	151.6
	<i>Change, %</i>			14.7	(0.7)	20.1	0.3	(29.4)	(25.8)	(34.0)	(22.2)	0.6
<b>Xylene</b>	-Naphtha		180.0	153.0	166.0	147.0	194.5	201.0	190.5	228.2	175.3	165.6
	<i>Change, %</i>			17.6	8.4	22.4	(7.5)	(10.4)	(5.5)	(21.1)	2.7	8.7

자료 : Cischem, Platts, Bloomberg, SK증권

참고 : Spread는 Polymer와 Naphtha의 가격차이임

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	HDPE	CFR SE Asia	1,227.5	1,227.5	1,272.5	1,197.5	1,282.5	1,047.5	1,142.5	1,134.6	1,142.5	1,257.1
	Change, %			0.0	(3.5)	2.5	(4.3)	17.2	7.4	8.2	7.4	(2.4)
	MEG	CFR SE Asia	932.5	927.5	952.5	1,035.0	865.0	855.0	847.5	660.8	850.6	977.2
	Change, %			0.5	(2.1)	(9.9)	7.8	9.1	10.0	41.1	9.6	(4.6)
	PVC	CFR SE Asia	935.0	935.0	932.5	960.0	970.0	885.0	920.0	823.4	899.9	942.2
	Change, %			0.0	0.3	(2.6)	(3.6)	5.6	1.6	13.6	3.9	(0.8)
	PP	CFR SE Asia	1,252.5	1,262.5	1,292.5	1,247.5	1,297.5	1,047.5	1,032.5	978.4	1,099.6	1,261.4
	Change, %			(0.8)	(3.1)	0.4	(3.5)	19.6	21.3	28.0	13.9	(0.7)
	2-EH	CFR Korea	1,090.0	1,100.0	1,120.0	1,155.0	1,130.0	932.5	865.0	772.4	970.0	1,117.1
	Change, %			(0.9)	(2.7)	(5.6)	(3.5)	16.9	26.0	41.1	12.4	(2.4)
	ABS	CFR SE Asia	1,930.0	1,960.0	2,060.0	1,990.0	2,020.0	1,800.0	1,635.0	1,347.1	1,844.7	2,027.1
	Change, %			(1.5)	(6.3)	(3.0)	(4.5)	7.2	18.0	43.3	4.6	(4.8)
	SBR	CFR SE Asia	1,750.0	1,770.0	1,900.0	1,630.0	1,750.0	1,450.0	2,000.0	1,483.0	1,980.5	1,753.6
	Change, %			(1.1)	(7.9)	7.4	0.0	20.7	(12.5)	18.0	(11.6)	(0.2)
	SM	CFR SE Asia	1,402.5	1,367.5	1,492.5	1,365.0	1,337.5	1,202.5	1,205.0	1,064.6	1,253.8	1,400.5
	Change, %			2.6	(6.0)	2.7	4.9	16.6	16.4	31.7	11.9	0.1
	Caustic	FOB NEA	410.0	475.0	539.0	626.0	601.0	457.5	422.5	316.6	491.2	568.4
	Change, %			(13.7)	(23.9)	(34.5)	(31.8)	(10.4)	(3.0)	29.5	(16.5)	(27.9)
	PX	CFR SE Asia	995.0	995.0	980.0	947.5	940.0	785.0	855.0	790.4	844.4	966.4
	Change, %			0.0	1.5	5.0	5.9	26.8	16.4	25.9	17.8	3.0
PO	CFR China	1,797.5	1,735.0	1,787.5	1,915.0	1,875.0	1,530.0	1,562.5	1,396.8	1,601.2	1,874.7	
Change, %			3.6	0.6	(6.1)	(4.1)	17.5	15.0	28.7	12.3	(4.1)	
Caprolactam	CFR SE Asia	2,145.0	2,140.0	2,150.0	2,220.0	2,180.0	1,610.0	1,850.0	1,344.9	1,936.4	2,121.1	
Change, %			0.2	(0.2)	(3.4)	(1.6)	33.2	15.9	59.5	10.8	1.1	
PTA	CFR SE Asia	855.0	865.0	857.5	792.5	790.0	665.0	642.5	613.7	667.8	806.1	
Change, %			(1.2)	(0.3)	7.9	8.2	28.6	33.1	39.3	28.0	6.1	
Spread	HDPE		585.0	565.5	611.0	584.5	714.5	633.5	658.0	735.1	649.0	640.6
	Change, %			3.4	(4.3)	0.1	(18.1)	(7.7)	(11.1)	(20.4)	(9.9)	(8.7)
	MEG		290.0	265.5	291.0	422.0	297.0	441.0	363.0	261.3	357.1	360.8
	Change, %			9.2	(0.3)	(31.3)	(2.4)	(34.2)	(20.1)	11.0	(18.8)	(19.6)
	PVC		292.5	273.0	271.0	347.0	402.0	471.0	435.5	423.9	406.4	325.8
	Change, %			7.1	7.9	(15.7)	(27.2)	(37.9)	(32.8)	(31.0)	(28.0)	(10.2)
	PP		610.0	600.5	631.0	634.5	729.5	633.5	548.0	578.9	606.1	644.9
	Change, %			1.6	(3.3)	(3.9)	(16.4)	(3.7)	11.3	5.4	0.6	(5.4)
	2-EH		447.5	438.0	458.5	542.0	562.0	518.5	380.5	372.9	476.5	500.7
	Change, %			2.2	(2.4)	(17.4)	(20.4)	(13.7)	17.6	20.0	(6.1)	(10.6)
	ABS		1,287.5	1,298.0	1,398.5	1,377.0	1,452.0	1,386.0	1,150.5	947.6	1,351.2	1,410.7
	Change, %			(0.8)	(7.9)	(6.5)	(11.3)	(7.1)	11.9	35.9	(4.7)	(8.7)
	SBR	BD spread	75.0	90.0	275.0	380.0	360.0	475.0	(100.0)	366.2	499.4	312.1
	Change, %			(16.7)	(72.7)	(80.3)	(79.2)	(84.2)	(175.0)	(79.5)	(85.0)	(76.0)
	SM		760.0	705.5	831.0	752.0	769.5	788.5	720.5	665.1	760.3	784.1
	Change, %			7.7	(8.5)	1.1	(1.2)	(3.6)	5.5	14.3	(0.0)	(3.1)
	Caustic											
	Change, %											
	PX		352.5	333.0	318.5	334.5	372.0	371.0	370.5	390.9	351.0	349.9
	Change, %			5.9	10.7	5.4	(5.2)	(5.0)	(4.9)	(9.8)	0.4	0.7
PO	propylene spread	827.5	770.0	772.5	937.5	895.0	775.0	747.5	691.1	777.6	820.9	
Change, %			7.5	7.1	(11.7)	(7.5)	6.8	10.7	19.7	6.4	0.8	
Caprolactam	benzene spread	1,315.0	1,320.0	1,317.5	1,387.5	1,312.5	877.5	1,027.5	698.2	1,097.6	1,253.0	
Change, %			(0.4)	(0.2)	(5.2)	0.2	49.9	28.0	88.3	19.8	4.9	
PTA	px spread	158.5	168.5	171.5	129.3	132.0	115.5	44.0	60.4	76.7	129.6	
Change, %			(5.9)	(7.6)	22.6	20.1	37.2	260.2	162.3	106.7	22.3	

자료 : Ciscchem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

## Global peers

	Currency	07/17	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER		PBR		EV/EBITDA	
											18E	19E	18E	19E	18E	19E
<b>Petrochemical</b>																
DowDuPont	USD	67.1	2.0	(1.1)	(1.0)	(0.7)	(11.5)	1.4	(5.8)	168,245	17.7	14.9	1.8	1.7	10.2	9.2
Eastman	USD	100.7	2.1	(1.2)	(7.6)	(6.9)	3.9	18.1	8.7	13,550	11.6	10.7	2.5	2.2	8.7	8.1
BASF	EUR	83.3	2.0	0.3	(5.7)	(2.3)	(11.1)	(0.3)	(9.2)	101,214	14.6	13.6	2.4	2.2	7.8	7.4
Akzo Nobel	EUR	74.8	0.6	0.4	(2.0)	(4.7)	0.0	(4.8)	2.4	22,073	17.0	15.8	3.0	2.8	9.3	8.8
Arkema	EUR	104.6	2.7	0.4	1.0	(4.8)	3.3	4.6	3.0	9,270	13.2	12.2	1.7	1.6	6.3	6.0
Lanxess	EUR	68.8	1.7	0.5	(3.4)	9.2	(3.6)	0.0	3.8	7,282	15.5	13.1	2.1	1.9	9.3	8.2
Sumitomo Chemical	JPY	623	1.1	(1.0)	(3.3)	0.3	(27.0)	(5.0)	(23.1)	11,911	10.1	10.5	1.3	1.2	7.4	8.0
Mitsubishi Chemical	JPY	954	2.4	0.5	(1.7)	(7.9)	(25.9)	(3.4)	(22.9)	16,544	9.2	8.7	1.3	1.2	6.3	6.1
Shin-Etsu Chemical	JPY	10,405	(0.1)	0.2	(0.2)	(4.6)	(14.7)	2.3	(9.1)	43,948	18.5	16.6	1.9	1.8	8.1	7.4
Asahi Kasei	JPY	1,455	2.0	2.8	0.6	0.7	(2.9)	17.0	0.1	18,109	14.4	13.6	1.5	1.4	7.4	7.0
JSR	JPY	1,947	0.3	(0.1)	1.4	(16.1)	(13.8)	(4.1)	(12.2)	4,455	14.5	13.4	1.2	1.1	7.7	7.2
Nitto Denko	JPY	7,960	(0.5)	(1.6)	(8.6)	(5.6)	(22.4)	(19.0)	(20.5)	15,450	15.7	14.6	2.1	1.9	7.3	7.0
SABIC	SAR	128.4	(0.5)	1.1	1.4	4.5	19.7	27.6	26.6	80,773	14.2	13.7	1.7	1.7	7.3	7.1
Yansab	SAR	76.8	(0.3)	(0.3)	5.2	5.0	19.0	44.3	30.2	8,861	13.7	13.9	2.2	1.9	9.0	8.9
Formosa Plastics	TWD	107.0	(1.4)	(4.5)	0.9	0.9	4.9	17.6	8.4	21,114	14.4	13.9	1.8	1.8	18.9	19.2
Formosa Fiber	TWD	112.5	(1.7)	(1.7)	0.0	4.2	4.2	22.1	9.2	20,511	13.7	13.4	1.7	1.7	11.6	11.5
Nan Ya Plastics	TWD	84.1	(0.5)	1.7	(0.6)	2.1	3.2	8.1	8.0	20,648	14.8	15.3	1.7	1.7	16.2	16.4
Sinopec Shanghai	CNY	5.21	(7.1)	(5.6)	(10.6)	(9.5)	(23.9)	(19.3)	(17.7)	9,462	12.0	12.6	2.2	2.0	6.8	7.3
Sinopec Yizheng(Fibe	CNY	1.89	0.5	0.5	(6.9)	(6.9)	(37.2)	(38.4)	(29.2)	5,394	50.4	66.3	5.3	5.0	13.9	10.3
Reliance	INR	1,092	1.5	6.5	7.7	15.7	18.2	40.8	20.1	93,404	14.4	12.9	1.7	1.5	9.4	8.7
Industries Qatar	QAR	118.8	(0.5)	3.4	12.2	7.5	7.8	18.8	22.5	16,144	14.5	13.9	1.6	1.5	46.4	27.2
PTT Chemical	THB	74.8	(2.3)	(4.2)	(10.5)	(22.1)	(20.9)	8.3	(12.1)	11,766	10.7	10.4	1.4	1.3	5.5	5.4
Petronas	MYR	8.8	(0.8)	3.0	5.5	3.4	7.7	27.7	14.3	15,624	16.1	15.5	2.0	1.9	9.2	8.9
LG화학	KRW	321,500	(2.0)	(1.2)	(13.9)	(12.8)	(23.5)	0.6	(20.6)	27,313	13.8	12.8	1.8	1.6	6.5	6.1
롯데케미칼	KRW	332,500	(3.5)	(2.6)	(9.0)	(19.0)	(14.6)	(7.3)	(9.6)	11,632	5.5	5.2	0.9	0.8	3.6	3.3
한화케미칼	KRW	20,400	(1.0)	(3.3)	(16.4)	(29.2)	(39.7)	(36.3)	(35.4)	5,050	5.7	5.5	0.8	0.7	6.7	6.5
금호석유	KRW	110,500	2.8	(3.1)	5.7	15.1	8.9	52.2	11.1	2,969	14.1	11.9	1.6	1.5	9.3	8.4
SKC	KRW	42,650	1.1	0.1	3.6	12.4	(2.6)	12.7	(9.3)	1,643	9.9	8.7	1.1	1.0	8.8	7.9
국도화학	KRW	56,400	(0.4)	(1.9)	(11.9)	(5.7)	(13.9)	5.0	(10.6)	359	#N/A	N/A	#N/A	N/A	#N/A	N/A
효성	KRW	6,080	(1.9)	(1.6)	(21.9)	(30.5)	(29.2)	(1.9)	(19.8)	4,595	8.2	7.3	1.1	1.0	7.2	6.8
<b>Average</b>			<b>(0.1)</b>	<b>(0.4)</b>	<b>(3.0)</b>	<b>(3.6)</b>	<b>(7.9)</b>	<b>6.3</b>	<b>(3.3)</b>							
<b>Refinery</b>																
Valero	USD	106.1	(0.2)	(2.3)	(7.9)	(0.6)	8.7	57.3	15.4	40,608	14.1	13.4	2.0	2.0	6.9	6.9
Conoco Phillips	USD	70.3	(0.4)	(2.0)	7.5	5.7	17.4	62.7	28.0	66,136	34.0	25.9	2.2	2.2	7.2	6.7
Formosa Petrochemi	TWD	118.5	(0.4)	0.4	(2.1)	0.9	(1.3)	13.4	2.6	37,040	18.2	18.7	3.2	3.2	11.7	12.1
Andeavor	USD	135.6	0.4	(0.1)	(0.3)	17.4	11.9	39.7	18.6	17,904	12.9	11.4	1.8	1.7	7.3	7.1
Marathon Petroleum	USD	71.7	0.4	(0.2)	(2.5)	(8.7)	(0.4)	32.0	8.7	32,812	15.0	12.8	2.6	2.7	7.7	7.5
Devon Energy	USD	44.1	(0.3)	(3.4)	9.5	30.8	1.5	40.6	6.5	22,192	17.5	14.0	2.7	2.3	8.4	7.4
Hollyfrontier	USD	70.6	2.4	2.3	(2.4)	22.2	34.7	159.3	37.8	9,094	16.8	15.2	1.8	1.8	8.0	8.0
Phillips 66	USD	111.1	(0.2)	(1.9)	(2.8)	3.0	4.6	35.8	9.8	51,561	15.6	14.5	2.3	2.2	9.0	8.8
Murphy Oil	USD	31.8	0.3	(7.0)	(2.9)	10.3	(9.0)	26.5	2.4	5,548	162.4	113.2	1.2	1.1	4.9	4.5
JX Holdings	JPY	760.7	(0.8)	(4.7)	(0.4)	11.5	0.3	55.7	4.6	22,130	8.8	8.0	0.9	0.9	7.0	6.6
Idemitsu	JPY	4,575.0	(3.1)	6.6	21.0	19.1	7.3	67.7	1.1	8,360	7.9	7.5	1.0	0.9	6.8	6.8
Nesteoil	EUR	66.2	0.4	(1.9)	(0.4)	20.8	17.5	80.5	24.1	16,473	16.7	16.7	2.9	2.7	10.2	10.3
Ashland	USD	80.9	1.3	0.1	3.4	14.5	11.5	23.4	13.6	4,550	21.6	18.7	1.3	1.3	10.2	9.6
Fuchs Petrolub	EUR	43.4	0.5	0.0	(5.0)	(1.5)	(1.7)	(13.5)	(2.0)	7,127	22.1	20.9	4.1	3.7	13.0	12.3
SK이노베이션	KRW	193,000	(2.8)	0.5	(10.0)	(2.8)	(2.5)	14.2	(5.6)	17,975	7.9	7.7	0.9	0.9	4.9	4.8
S-Oil	KRW	115,500	(0.4)	7.4	3.6	(1.3)	1.8	11.1	(1.3)	12,400	9.3	8.1	1.8	1.6	7.6	6.6
GS	KRW	51,200	(2.5)	(0.4)	(11.7)	(14.4)	(22.1)	(30.2)	(17.7)	5,467	6.0	5.5	0.7	0.6	6.9	6.3
<b>Average</b>			<b>(0.3)</b>	<b>(0.4)</b>	<b>(0.2)</b>	<b>7.5</b>	<b>4.7</b>	<b>39.8</b>	<b>8.6</b>							

\* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임

\* 국내업체의 multiple은 Dataguidepro 기준임

## Global peers

	Currency	07/17	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER		PBR		EV/EBITDA	
											18E	19E	18E	19E	18E	19E
<b>E&amp;P/Shale</b>																
Exxon Mobil	USD	82	(0.2)	(1.6)	2.0	5.1	(6.5)	1.8	(1.6)	348,487	16.5	15.2	1.8	1.7	7.6	7.1
BP	GBP	560	0.5	(5.0)	(0.8)	12.8	8.5	25.1	7.2	147,010	13.6	12.6	1.4	1.4	5.2	5.0
Shell	EUR	2,611	0.7	(3.1)	3.5	9.5	3.4	26.9	5.3	289,631	12.2	10.9	1.4	1.4	5.7	5.4
Chevron	USD	122	(0.9)	(4.5)	(1.7)	0.4	(7.9)	17.0	(2.6)	232,965	15.0	14.3	1.5	1.5	6.2	6.0
Total	EUR	53	(0.1)	(3.4)	0.8	7.8	10.2	21.9	14.6	163,884	11.7	10.9	1.3	1.2	5.5	5.2
Sinopec	CNY	6	(2.1)	(4.8)	(4.5)	(6.3)	(11.8)	(1.9)	1.1	111,408	9.9	9.5	1.0	0.9	3.7	3.7
Petrochina	CNY	7	(2.5)	(5.9)	(5.8)	(2.9)	(17.2)	(10.2)	(9.8)	191,498	23.2	19.7	1.1	1.1	5.2	5.2
CNOOC	CNY	9	(1.5)	(4.4)	(10.1)	(19.6)	(27.2)	(14.7)	(14.2)	71,448	8.8	8.8	1.2	1.1	3.8	3.8
Gazprom	RUB	145	(1.1)	(1.4)	5.5	2.0	(2.3)	16.1	11.3	55,021	3.2	3.3	0.2	0.3	2.6	2.6
Rosneft	RUB	400	(1.9)	(3.3)	4.2	21.2	22.4	26.5	37.0	67,720	7.5	6.5	0.9	0.8	4.5	4.4
Anadarko	USD	71	(1.9)	(5.4)	4.3	11.5	21.1	58.0	33.2	36,793	24.0	19.5	3.9	3.4	6.8	6.0
Petrobras	BRL	18	2.3	3.0	22.2	(13.0)	(0.4)	41.9	13.6	67,067	6.9	6.0	0.7	0.7	4.4	4.1
Lukoil	USD	4,263	(0.9)	(2.1)	5.1	8.2	10.7	48.0	27.8	57,736	5.4	5.6	0.8	0.7	N/A	N/A
Kinder	USD	18	(0.6)	(2.9)	5.5	10.4	(9.6)	(9.5)	(2.1)	47,497	20.5	18.2	1.1	1.2	10.7	10.5
Equinor ASA	NOK	213	(0.5)	(5.5)	(1.4)	7.8	15.8	52.1	21.6	87,344	13.7	12.7	2.0	1.8	3.4	3.2
BHP	AUD	33	(1.7)	(5.1)	(3.2)	8.6	5.7	29.1	9.9	122,110	14.2	15.9	2.1	2.0	5.9	6.2
PTT E&P	THB	130	(3.7)	(6.1)	(3.0)	6.6	14.5	53.4	30.0	15,486	12.7	12.0	1.3	1.2	3.9	3.6
Petronas gas	MYR	18	0.3	4.3	5.3	(0.6)	2.7	(2.1)	5.4	9,026	19.3	19.1	2.8	2.7	10.6	10.5
Chesapeake	USD	5	(2.7)	(11.7)	2.8	56.9	16.6	(1.6)	20.5	4,349	5.7	6.2	318.0	5.4	6.3	6.0
Noble Energy	USD	34	(1.2)	(7.5)	1.8	6.6	8.0	20.0	18.2	16,689	30.1	21.9	1.5	1.5	7.7	6.4
<b>Average</b>		<b>0</b>	<b>(1.0)</b>	<b>(3.8)</b>	<b>1.6</b>	<b>6.6</b>	<b>2.8</b>	<b>19.9</b>	<b>11.3</b>							
<b>PV</b>																
WACKER	EUR	117.4	0.4	(1.2)	1.1	(21.9)	(30.3)	18.4	(27.6)	7,135	17.1	15.1	1.8	1.7	5.9	5.7
GCL-Poly	HKD	0.7	(1.5)	(2.9)	(11.8)	(30.9)	(51.4)	(23.0)	(52.1)	1,567	6.1	5.3	0.4	0.4	6.3	5.8
SunPower	USD	7.5	(3.3)	(5.8)	(1.3)	(9.9)	(13.0)	(27.5)	(10.8)	1,059	#N/A	#N/A	#N/A	#N/A	20.2	11.8
Canadian Solar	USD	12.7	(1.4)	(4.2)	6.0	(21.5)	(22.4)	(23.8)	(24.9)	742	8.5	8.5	0.7	0.7	7.7	8.4
JA Solar	USD	7.5	0.0	0.9	8.1	7.3	0.4	19.6	0.4	356	#N/A	#N/A	#N/A	#N/A	4.9	7.1
Yingli	USD	0.4	(8.9)	(8.9)	(74.4)	(77.5)	(78.5)	(83.1)	(75.7)	7	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
First Solar	USD	53.8	(0.5)	(2.7)	5.3	(26.0)	(25.3)	25.8	(20.4)	5,631	31.5	17.4	1.0	1.0	9.5	5.2
한화큐셀	USD	5.7	(0.7)	(2.9)	(8.8)	(23.3)	(19.9)	(22.8)	(18.7)	475	10.2	21.1	#N/A	#N/A	7.8	8.0
OCI	KRW	96,800	(1.9)	1.0	(11.6)	(40.2)	(43.4)	11.1	(28.8)	2,047	0.0	9.7	0.0	0.7	0.0	4.4
웅진에너지	KRW	3,490	(2.1)	(5.2)	(34.2)	(42.6)	(61.2)	(58.0)	(57.5)	92	N/A	0.0	0.7	0.0	4.4	0.0
신성솔라에너지	KRW	1,360	0.7	(2.2)	(18.3)	(16.8)	(39.6)	(34.3)	(29.0)	209	N/A	0.7	0.0	4.4	0.0	2.6
<b>Average</b>			<b>(1.7)</b>	<b>(3.1)</b>	<b>(12.7)</b>	<b>(27.6)</b>	<b>(35.0)</b>	<b>(18.0)</b>	<b>(31.4)</b>							
<b>Gas Company</b>																
Towngas China	HKD	7.8	(1.9)	3.2	8.3	13.6	29.4	41.3	24.8	2,766	15.4	13.7	1.3	1.2	12.7	11.5
Kulun	HKD	6.8	(1.0)	(1.7)	(3.7)	7.2	(12.2)	(7.7)	(16.2)	7,014	9.8	8.5	1.1	1.0	5.6	5.1
Beijing Enterprise	HKD	38.0	0.0	(1.3)	(10.3)	(4.8)	(20.8)	(8.5)	(18.1)	6,110	6.6	6.0	0.7	0.6	11.8	11.2
ENN Energy	HKD	83.2	(1.2)	3.7	9.1	21.1	55.4	56.3	49.1	11,497	18.6	15.6	3.8	3.2	10.8	9.5
China Resources Gas	HKD	35.7	(1.5)	6.3	17.2	28.4	45.7	20.6	25.9	10,116	18.6	16.7	3.2	2.8	10.1	9.2
China Gas Holdings	HKD	35.0	0.1	9.9	8.9	26.6	59.1	83.4	62.0	22,156	22.6	18.9	5.2	4.4	16.9	14.3
Shenzen Gas	HKD	14.9	(0.5)	(1.5)	(13.7)	(9.7)	(2.7)	9.1	0.0	3,998	9.1	7.8	1.2	1.1	5.7	5.0
Shann Xi	CNY	7.3	(0.4)	1.0	2.5	2.1	(10.7)	(13.0)	(14.1)	1,204	16.7	14.6	1.4	1.3	#N/A	#N/A
Suntien	HKD	2.3	(0.4)	0.4	(6.1)	(4.5)	11.1	37.5	11.6	1,093	6.1	5.4	0.8	0.7	8.4	7.2
China Oil & Gas	HKD	0.6	1.7	0.0	(7.6)	3.4	(23.8)	3.4	(28.2)	454	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
<b>Average</b>			<b>(0.5)</b>	<b>2.0</b>	<b>0.5</b>	<b>8.3</b>	<b>13.0</b>	<b>22.2</b>	<b>9.7</b>							
<b>EV</b>																
LG화학	KRW	321,500	(2.0)	(1.2)	(13.9)	(12.8)	(23.5)	0.6	(20.6)	20,126	12.1	11.0	1.4	1.3	5.7	5.1
삼성SDI	KRW	228,500	(0.2)	0.0	(3.0)	18.4	6.5	22.2	11.7	13,934	21.4	15.5	1.3	1.2	14.6	11.4
Panasonic	JPY	1443.0	1.1	2.8	(7.9)	(7.1)	(14.8)	(5.5)	(12.5)	31,361	13.1	11.6	1.8	1.6	4.8	4.4
GS Yuasa	JPY	503.0	1.0	0.0	(0.6)	(12.7)	(13.6)	(0.2)	(10.3)	1,843	14.7	13.5	1.1	1.1	6.8	6.3
NEC	JPY	3015.0	2.6	0.6	(3.5)	2.2	(3.1)	1.5	(0.8)	6,958	22.9	12.9	0.9	0.8	7.2	5.5
BYD Auto	CNY	43.6	(0.9)	(6.6)	(9.6)	(18.7)	(31.7)	(11.1)	(33.1)	16,976	25.8	19.4	2.0	1.9	11.7	10.1
Tesla Motors	USD	322.7	4.1	0.1	(9.9)	12.2	(7.0)	1.0	3.6	54,791	#N/A	#N/A	138.9	10.8	9.9	63.4
Kandi Technologies	USD	4.4	2.4	1.2	(13.0)	(14.7)	(36.5)	2.4	(36.0)	222	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
<b>Average</b>			<b>1.0</b>	<b>(0.4)</b>	<b>(7.7)</b>	<b>(4.1)</b>	<b>(15.5)</b>	<b>1.4</b>	<b>(12.3)</b>							

\* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임