SK Energy Daily

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SK 증권

1. News Summary (3 page)

2017년 12월 19일

News		Conclusion
WTI comment	보합권 등락…WTI 0.2%↓	
Headline	덴마크 의회, 러시아의 유럽행 '新 가스관' 사업 제동 걸어	미국産 LNG와 경쟁 문제도 있어 러시아 PNG는 중국으로 선회할 것
News 1.	롯데케미칼타이탄, 말레이 에틸렌 증설 완료…상업생산 돌입	북미 지역 ECC 확대와 더불어 아시아 증설이 더해져 시황 악화 전망
News 2.	-	-
News 3.	-	-
News 4.	-	-

2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	$/bbl	57.2	(0.2)	(1.4)	1.1	14.5	9.7
Dubai	$/bbl	61.3	0.2	0.5	2.7	13.1	15.9
Gasoline	$/bbl	74.9	(0.5)	(0.3)	1.1	5.3	11.4
Diesel	$/bbl	74.7	0.0	0.1	2.9	9.4	16.2
Complex margin	$/bbl	7.8	(0.2)	(0.2)	(0.4)	(1.6)	(0.0)
1M lagging	$/bbl	9.0	1.1	1.9	(2.4)	(5.1)	(8.2)
Petrochemical			%	%	%	%	%
Naphtha	$/t	590	0.6	(0.1)	1.5	16.9	23.9
Butadiene	$/t	1,100	0.5	0.9	16.4	(29.0)	(37.1)
HDPE	$/t	1,290	0.0	0.0	2.4	8.4	10.7
MEG	$/t	914	1.0	0.1	2.7	1.2	4.7
PX	$/t	881	0.1	(0.3)	0.2	7.6	5.9
SM	$/t	1,293	(1.0)	(1.1)	5.0	(0.3)	4.9
Commodity			%	%	%	%	%
Natural Gas	$/mmbtu	2.74	4.7	(3.3)	(12.9)	(20.4)	(25.1)
Natural rubber	$/t	1,430	0.7	2.9	2.9	(5.9)	(28.9)
Cotton	C/lbs	75.2	(0.9)	3.0	5.4	6.8	8.1

*참고: 정제마진의 변동률은 %가 아닌 $/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	12/18	$/t	1,245	2.7	6.9	(0.4)	23.9
Propylene	12/18	$/t	890	4.7	9.9	3.5	15.6
Benzene	12/18	$/t	920	1.7	7.0	15.7	4.5
Toluene	12/18	$/t	735	2.1	2.8	5.0	4.3
Xylene	12/18	$/t	710	2.2	6.0	8.0	6.0
PP	12/18	$/t	1,158	0.0	0.9	(0.9)	13.8
PVC	12/18	$/t	860	0.6	1.2	(9.5)	(6.5)
ABS	12/18	$/t	2,070	2.0	7.3	0.0	26.6
SBR	12/18	$/t	1,650	0.0	3.8	(9.8)	(17.5)
SM	12/18	$/t	1,333	(1.5)	4.1	(1.8)	7.0
BPA	12/18	$/t	1,873	6.1	5.0	13.1	18.7
Caustic	12/18	$/t	621	(11.2)	(11.3)	29.4	47.0
2-EH	12/18	$/t	1,035	1.5	4.5	4.5	19.7
Caprolactam	12/18	$/t	2,060	0.5	1.0	15.7	11.4
Solar				%	%	%	%
Polysilicon	12/13	$/kg	17.3	2.0	3.9	3.6	15.9
Module	12/13	$/W	0.31	(0.3)	(0.6)	(2.8)	(17.4)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	82.9	(0.1)	(0.1)	3.4	3.6	(9.0)
Shell	EUR	2,423	(0.2)	1.6	3.6	14.7	11.4
Petrochina	CNY	7.88	0.1	(2.6)	(3.0)	(1.5)	3.5
Gazprom	RUB	134.3	(0.9)	(0.3)	3.5	9.4	(14.1)
Petrobras	BRL	15.2	1.8	(1.0)	(5.0)	1.2	3.1
Refinery							
Phillips66	USD	100.0	0.1	0.3	7.9	13.2	14.3
Valero	USD	88.9	0.8	2.0	7.3	23.2	30.8
JX	JPY	686.1	0.1	1.4	12.7	25.1	35.4
Neste Oil	EUR	52.5	1.5	1.1	5.2	45.0	46.3

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	95.2	1.6	1.3	3.7	9.2	9.2
DowDuPont	USD	71.4	2.0	0.8	0.9	2.3	22.2
SABIC	SAR	101.7	0.4	0.6	2.0	0.2	6.8
Formosa Pla.	TWD	94.7	1.5	1.9	2.8	(1.4)	5.9
Shin-Etsu	JPY	11,800	3.6	(2.2)	(4.5)	18.2	30.0
Renewable							
Wacker	EUR	161.9	1.7	7.2	15.6	43.7	74.2
First Solar	USD	70.63	2.4	0.8	17.4	45.5	101.2
GCL-Poly	HKD	1.24	(0.8)	(0.8)	(12.1)	21.6	27.8
Tesla Motors	USD	338.9	(1.3)	3.0	7.6	(12.0)	67.4

4. Coverage Summary

	12/18	1D	1W	1M	3M	6M	12M	투자의견	TP	%	P/E	P/B
KOSPI	2,482	(0.0)	0.4	(2.1)	2.7	5.1	21.5				* 추정치는 12M fwd 기준임	
KOSPI화학	6,093	0.7	0.5	1.4	5.9	12.2	19.9				* 모든 coverage 업체의 실적은 연결기준임	
LG화학	397,500	0.9	(0.6)	(2.7)	0.1	43.0	58.4	매수	400,000	0.6	12.59	2.08
롯데케미칼	365,500	0.4	0.3	2.8	(6.2)	9.6	4.4	매수	410,000	12.2	5.75	1.26
한화케미칼	29,700	(0.8)	(5.1)	(2.0)	(21.8)	2.8	18.6	매수	39,000	31.3	5.01	0.83
금호석유화학	93,500	0.1	3.7	28.8	19.7	24.2	15.7	매수	100,000	7.0	15.85	1.74
KCC	385,500	0.9	0.9	(2.3)	(0.8)	(2.9)	3.2	매수	450,000	16.7	21.40	0.56
OCI	130,500	4.0	4.4	5.2	17.6	44.2	75.4	매수	120,000	(8.0)	16.57	1.00
SKC	44,450	(0.9)	4.3	5.8	2.7	31.7	36.8	매수	45,000	1.2	12.28	1.21
SK이노베이션	202,500	(0.5)	0.2	(0.5)	6.9	27.4	33.2	매수	210,000	3.7	8.17	1.08
S-Oil	124,000	0.4	4.2	2.5	2.9	29.3	50.7	매수	140,000	12.9	13.41	2.34
GS	61,400	(0.5)	3.2	2.0	(6.1)	(8.1)	12.5	매수	80,000	30.3	5.83	0.91
SK가스	94,000	0.0	1.3	(2.3)	(10.5)	(26.0)	(20.7)	매수	130,000	38.3	7.10	0.70
포스코대우	17,900	(1.9)	1.1	(3.2)	(16.2)	(21.1)	(38.4)	매수	25,000	39.7	10.03	0.78
LG상사	27,450	(1.3)	0.2	0.9	(8.0)	(12.4)	(11.7)	매수	38,000	38.4	9.99	0.89
한국전력	39,200	0.5	3.4	3.6	(2.4)	(9.7)	(15.0)	매수	55,000	40.3	7.52	0.32
한국가스공사	43,000	(0.6)	2.9	(3.8)	(1.9)	(15.4)	(11.8)	매수	60,000	39.5	8.78	0.56

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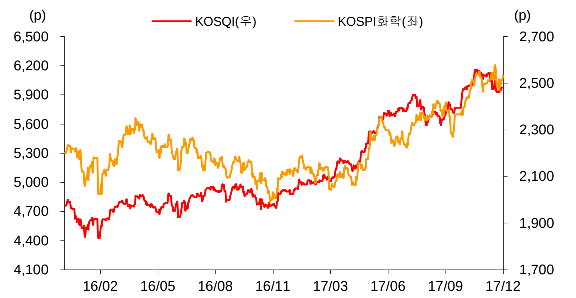
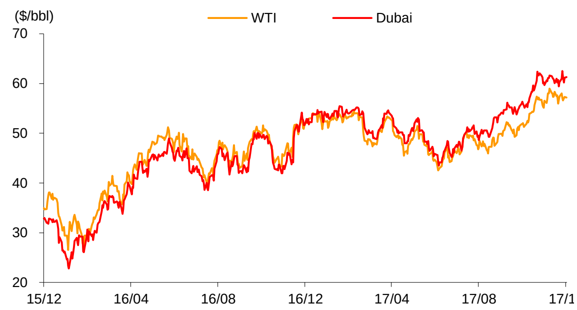
Key Chart

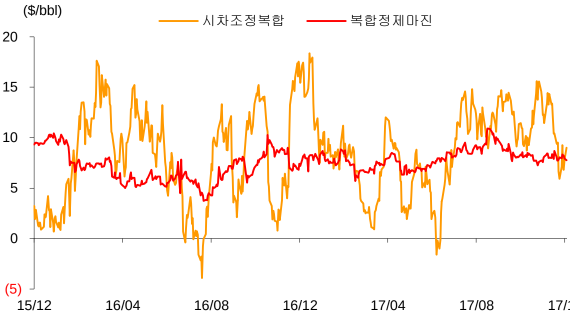
KOSPI/KOSPI화학



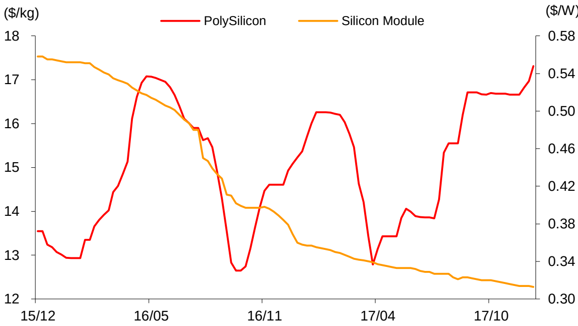
WTI/Dubai



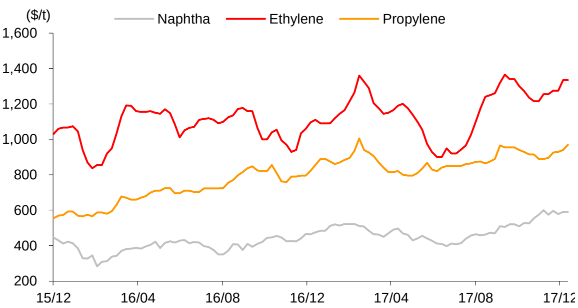
Complex & 1M lagging margin



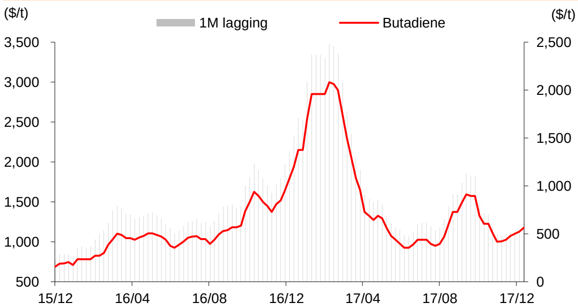
Polysilicon & Module prices



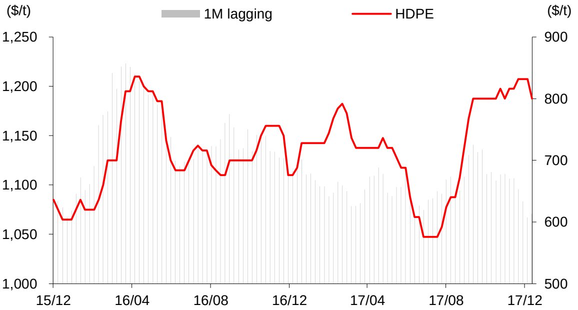
Naphtha/Ethylene/Propylene prices



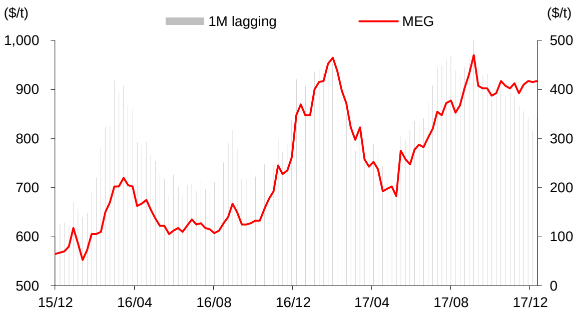
Butadiene price & 1M lagging naphtha spread



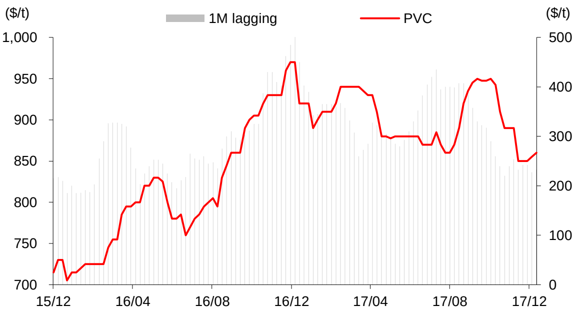
HDPE price & 1M lagging naphtha spread



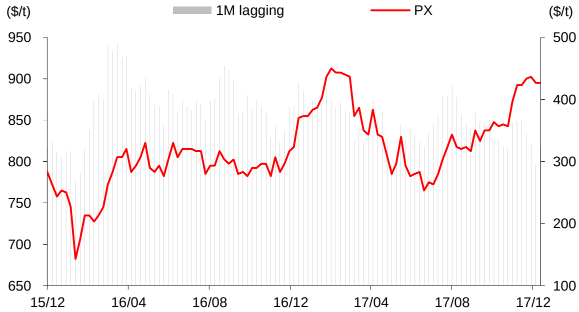
MEG price & 1M lagging naphtha spread



PVC price & 1M lagging naphtha spread



PX price & 1M lagging naphtha spread



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

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News Comment

Headline	(출처: 중앙일보)
제목	덴마크 의회, 러시아의 유럽행 '新 가스관' 사업 제동 걸어
결론	미국産 LNG와 경쟁 문제도 있어 러시아 PNG는 중국으로 선회할 것
세부	
	1) 노르드 스트림2 노선 상의 일부 국가들이 가스관 설치를 반대함
	2) 러시아는 2019년 말 완공을 목표로 올해부터 가스관 건설에 들어감
	3) 덴마크가 자국 보른홀름 섬 경유 관련 외교안보 정책상 반대에 나섬
	4) 우크라이나 사태 이후 EU가 對 러시아 경제 제재 지속하는 것과 유관
	5) 미국産 LNG와 경쟁 문제도 있어 러시아 PNG는 중국으로 선회할 것

WTI Comment	(출처: 연합뉴스)
제목	보합권 등락…WTI 0.2%↓
상승 요인	
하락 요인	美 세일오일 생산이 증가할 것이라는 전망으로 공급과잉 우려

Issue 1	(출처: 이데일리)
제목	롯데케미칼타이탄, 말레이 에틸렌 증설 완료…상업생산 돌입
결론	북미 지역 ECC 확대와 더불어 아시아 증설이 더해져 시황 악화 전망
세부	
	1) 롯데케미칼타이탄 에틸렌 capa는 기존 72만톤에서 81만톤으로 증가
	2) 롯데케미칼은 내년 북미 ECC 합작사업과 여수공장 증설 완료 예정
	3) 북미 ECC는 100만톤 규모이며 여수공장은 120만톤으로 증설 예정
	4) 내년 말 롯데케미칼은 총 450만톤 규모의 에틸렌 capa 보유케 됨
	5) 북미 지역 ECC 확대와 더불어 아시아 증설이 더해져 시황 악화 전망

Issue 2	
제목	
결론	
세부	
	1)
	2)
	3)
	4)
	5)

Issue 3	
제목	
결론	
세부	
	1)
	2)
	3)
	4)
	5)

Issue 4	
제목	
결론	
세부	
	1)
	2)
	3)
	4)
	5)

Issue 5	
제목	
결론	
세부	
	1)
	2)
	3)
	4)
	5)

Issue 6	
제목	
결론	
세부	
	1)
	2)
	3)
	4)
	5)

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Commodity Price Data

Daily Price		Today	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
F/X	**USD/EUR**	0.849	0.851	0.850	0.848	0.837	0.893	0.957	0.951	0.901	0.904	0.888
	Change, %		(0.3)	(0.1)	0.1	1.5	(5.0)	(11.3)	(10.7)	(5.8)	(6.1)	(4.4)
	USD/JPY	112.6	112.6	113.6	112.1	111.6	110.9	117.9	117.0	121.1	108.8	112.1
	Change, %		(0.0)	(0.9)	0.4	0.9	1.5	(4.6)	(3.8)	(7.0)	3.5	0.4
	USD/KRW	1,088.6	1,089.3	1,092.1	1,097.6	1,126.7	1,134.2	1,183.8	1,205.8	1,131.2	1,160.5	1,132.8
	Change, %		(0.1)	(0.3)	(0.8)	(3.4)	(4.0)	(8.0)	(9.7)	(3.8)	(6.2)	(3.9)
Agriculture	**Corn**	347.0	347.5	336.5	343.0	351.5	384.0	356.3	352.0	376.8	358.5	359.6
	Change, %		(0.1)	3.1	1.2	(1.3)	(9.6)	(2.6)	(1.4)	(7.9)	(3.2)	(3.5)
	Soybean	961.5	967.3	982.5	990.5	967.8	939.0	1,036.8	996.5	945.4	987.5	976.7
	Change, %		(0.6)	(2.1)	(2.9)	(0.6)	2.4	(7.3)	(3.5)	1.7	(2.6)	(1.6)
	Wheat	420.5	418.3	387.8	427.3	443.5	465.3	409.3	408.0	508.1	436.4	436.4
	Change, %		0.5	8.4	(1.6)	(5.2)	(9.6)	2.7	3.1	(17.2)	(3.6)	(3.6)
	Rice	11.7	11.7	12.2	12.3	12.9	11.4	9.5	9.4	11.1	10.3	11.0
	Change, %		0.0	(4.2)	(4.7)	(9.1)	2.7	23.5	25.2	5.9	13.2	6.1
	Oats	251.5	254.3	227.5	257.0	239.8	269.3	224.0	228.5	250.2	196.3	252.6
	Change, %		(1.1)	10.5	(2.1)	4.9	(6.6)	12.3	10.1	0.5	28.1	(0.4)
MYR/mt	**Palm Oil**	2,468.0	2,346.0	2,350.0	2,680.0	2,834.0	2,656.0	3,188.0	3,218.0	2,190.3	2,653.8	2,799.4
	Change, %		5.2	5.0	(7.9)	(12.9)	(7.1)	(22.6)	(23.3)	12.7	(7.0)	(11.8)
	Cocoa	1,922.0	1,877.0	1,917.0	2,126.0	1,975.0	1,975.0	2,238.0	2,126.0	3,091.6	2,854.0	2,010.0
	Change, %		2.4	0.3	(9.6)	(2.7)	(2.7)	(14.1)	(9.6)	(37.8)	(32.7)	(4.4)
	Cotton	75.2	75.9	73.0	69.8	70.4	71.9	71.0	70.7	63.3	65.6	73.4
	Change, %		(0.9)	3.0	7.8	6.8	4.6	5.9	6.4	18.9	14.7	2.5
	Sugar	13.8	13.7	14.0	15.4	14.3	13.4	18.2	19.5	13.1	18.2	15.8
	Change, %		0.7	(1.4)	(10.5)	(3.8)	2.4	(24.5)	(29.5)	4.7	(24.2)	(13.2)
	Coffee	118.6	117.0	119.0	123.8	139.0	123.6	138.2	137.1	132.6	136.1	133.3
	Change, %		1.4	(0.4)	(4.2)	(14.7)	(4.0)	(14.2)	(13.5)	(10.6)	(12.9)	(11.1)
Energy	**WTI**	57.3	57.3	58.0	56.6	49.9	44.7	51.9	53.7	48.8	43.4	50.7
	Change, %		(0.0)	(1.2)	1.3	14.8	28.1	10.4	6.6	17.3	32.1	13.0
	Brent	63.4	63.2	64.7	62.7	55.5	47.4	55.2	56.8	53.7	45.1	54.5
	Change, %		0.3	(2.0)	1.1	14.3	33.9	14.9	11.6	18.1	40.7	16.4
	Natural Gas	2.7	2.6	2.8	3.1	3.1	3.0	3.4	3.7	2.6	2.6	3.0
	Change, %		4.7	(3.3)	(11.7)	(13.1)	(9.9)	(19.9)	(26.6)	4.0	7.2	(9.8)
	Ethanol	1.3	1.3	1.3	1.4	1.6	1.6	1.6	1.6	1.5	1.5	1.5
	Change, %		0.6	(3.6)	(10.3)	(19.0)	(19.2)	(19.4)	(21.0)	(15.9)	(16.2)	(15.6)
	RBOB Gasoline	167.2	165.5	172.7	174.5	166.9	145.5	155.7	166.5	163.6	140.0	162.4
	Change, %		1.0	(3.2)	(4.2)	0.2	14.9	7.4	0.4	2.2	19.4	3.0
	Coal	100.2	100.0	98.1	96.6	98.3	80.9	86.5	88.4	59.0	65.5	87.8
	Change, %		0.2	2.1	3.7	1.9	23.9	15.8	13.3	69.9	53.0	14.1
Metal	**Gold**	1,262.4	1,255.5	1,241.9	1,294.2	1,307.5	1,253.7	1,134.8	1,152.3	1,160.6	1,248.5	1,257.8
	Change, %		0.6	1.6	(2.5)	(3.5)	0.7	11.2	9.6	8.8	1.1	0.4
	Silver	16.1	16.1	15.7	17.3	17.2	16.7	16.1	15.9	15.7	17.1	17.1
	Change, %		0.5	2.8	(6.7)	(6.2)	(3.3)	0.3	1.4	2.7	(5.6)	(5.5)
	Copper	6,905.0	6,886.0	6,670.0	6,777.0	6,527.0	5,663.0	5,635.5	5,535.5	5,503.1	4,872.0	6,166.4
	Change, %		0.3	3.5	1.9	5.8	21.9	22.5	24.7	25.5	41.7	12.0
	Nickel	755.4	739.1	721.3	751.2	714.6	574.7	758.3	682.0	759.5	646.4	677.1
	Change, %		2.2	4.7	0.6	5.7	31.4	(0.4)	10.8	(0.5)	16.9	11.6
	Zinc	3,196.0	3,205.0	3,125.0	3,180.0	3,098.0	2,527.0	2,730.0	2,576.0	1,941.9	2,097.5	2,875.3
	Change, %		(0.3)	2.3	0.5	3.2	26.5	17.1	24.1	64.6	52.4	11.2
	Lead	2,584.5	2,545.5	2,495.5	2,433.0	2,364.3	2,091.5	2,230.3	2,003.5	1,791.2	1,868.3	2,309.7
	Change, %		1.5	3.6	6.2	9.3	23.6	15.9	29.0	44.3	38.3	11.9
	Aluminum	14,400.0	14,165.0	14,085.0	15,355.0	16,190.0	13,520.0	12,945.0	12,765.0	12,184.0	12,373.5	14,552.0
	Change, %		1.7	2.2	(6.2)	(11.1)	6.5	11.2	12.8	18.2	16.4	(1.0)
	Cobalt	72,205.0	72,205.0	74,750.0	61,500.0	59,850.0	57,750.0	32,163.5	32,734.0	28,444.4	25,480.1	55,246.7
	Change, %		0.0	(3.4)	17.4	20.6	25.0	124.5	120.6	153.8	183.4	30.7
	HR Coil	635.0	640.0	641.0	611.0	620.0	589.0	585.0	633.0	461.5	519.3	619.2
	Change, %		(0.8)	(0.9)	3.9	2.4	7.8	8.5	0.3	37.6	22.3	2.6
	Scrap	360.0	360.0	347.6	343.0	347.0	355.0	295.0	302.0	252.9	275.7	344.0
	Change, %		0.0	3.6	5.0	3.7	1.4	22.0	19.2	42.3	30.6	4.6

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

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Refining Price Data

Daily Price		12/18	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	**WTI**	57.2	57.3	58.0	56.6	49.9	44.2	52.1	53.7	48.8	43.4	50.6
	Change, %		*(0.2)*	*(1.4)*	*1.1*	*14.5*	*29.3*	*9.7*	*6.4*	*17.2*	*31.8*	*12.9*
	Dubai	61.3	61.2	61.0	59.7	54.2	45.7	52.9	53.8	50.8	41.3	52.8
	Change, %		*0.2*	*0.5*	*2.7*	*13.1*	*34.2*	*15.9*	*13.8*	*20.7*	*48.4*	*16.2*
Crude Oil	**Gasoline(휘발유)**	74.9	75.3	75.1	74.1	71.2	58.2	67.3	69.8	69.5	56.3	67.7
Product	*Change, %*		*(0.5)*	*(0.3)*	*1.1*	*5.3*	*28.8*	*11.4*	*7.3*	*7.8*	*33.2*	*10.6*
	Kerosene(등유)	74.7	74.5	74.9	73.2	68.1	56.6	65.3	66.4	64.7	52.9	64.8
	Change, %		*0.3*	*(0.3)*	*2.1*	*9.7*	*32.0*	*14.5*	*12.4*	*15.4*	*41.2*	*15.2*
	Diesel(경유)	74.7	74.7	74.6	72.6	68.3	57.4	64.3	65.5	64.8	52.1	65.2
	Change, %		*0.0*	*0.1*	*2.9*	*9.4*	*30.3*	*16.2*	*14.0*	*15.3*	*43.3*	*14.6*
	Bunker-C	56.3	56.0	55.2	55.8	51.5	45.0	51.6	52.1	45.3	35.5	49.3
	Change, %		*0.6*	*2.0*	*0.9*	*9.3*	*25.2*	*9.2*	*8.2*	*24.5*	*58.6*	*14.2*
	Naphtha	64.1	64.7	65.3	63.2	55.2	44.3	51.9	53.5	52.6	42.6	53.3
	Change, %		*(1.0)*	*(1.9)*	*1.3*	*16.1*	*44.6*	*23.4*	*19.8*	*21.8*	*50.4*	*20.2*
Dubai	**Gasoline(휘발유)**	13.7	14.1	14.2	14.4	17.0	12.5	14.4	16.0	18.7	14.9	15.0
Spread	*Change*		*(0.5)*	*(0.5)*	*(0.8)*	*(3.3)*	*1.2*	*(0.8)*	*(2.4)*	*(5.1)*	*(1.3)*	*(1.3)*
	Kerosene(등유)	13.4	13.3	13.9	13.5	13.9	10.9	12.4	12.6	14.0	11.6	12.1
	Change		*0.1*	*(0.5)*	*(0.1)*	*(0.5)*	*2.5*	*1.0*	*0.8*	*(0.5)*	*1.8*	*1.4*
	Diesel(경유)	13.4	13.5	13.7	12.9	14.1	11.7	11.4	11.7	14.0	10.8	12.5
	Change		*(0.1)*	*(0.2)*	*0.5*	*(0.7)*	*1.8*	*2.0*	*1.7*	*(0.6)*	*2.6*	*1.0*
	Bunker-C	(5.0)	(5.2)	(5.8)	(3.8)	(2.7)	(0.7)	(1.3)	(1.8)	(5.5)	(5.8)	(3.4)
	Change		*0.3*	*0.8*	*(1.1)*	*(2.3)*	*(4.3)*	*(3.7)*	*(3.2)*	*0.6*	*0.8*	*(1.5)*
	Naphtha	2.8	3.5	4.3	3.6	1.0	(1.4)	(1.0)	(0.4)	1.8	1.3	0.5
	Change		*(0.8)*	*(1.5)*	*(0.8)*	*1.8*	*4.2*	*3.7*	*3.1*	*1.0*	*1.5*	*2.2*
Refining	**Simple(단순)**	2.5	2.5	2.4	3.1	4.3	3.9	3.8	3.8	3.3	1.9	3.1
Margin	*Change*		*0.0*	*0.1*	*(0.6)*	*(1.8)*	*(1.3)*	*(1.2)*	*(1.3)*	*(0.7)*	*0.6*	*(0.6)*
	Complex(복합)	7.8	7.9	8.0	8.1	9.4	7.5	7.8	8.3	9.3	7.0	8.0
	Change		*(0.2)*	*(0.2)*	*(0.4)*	*(1.6)*	*0.3*	*(0.0)*	*(0.5)*	*(1.5)*	*0.8*	*(0.2)*
	Complex(lagging)	9.0	7.9	7.1	11.5	14.1	2.8	17.2	18.0	7.3	8.5	8.8
	Change		*1.1*	*1.9*	*(2.4)*	*(5.1)*	*6.3*	*(8.2)*	*(9.0)*	*1.8*	*0.5*	*0.2*

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

SK Energy Daily

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Petrochemical Price Data

Daily Price			12/15	12/14	12/13	12/12	12/11	12/08	12/07	12/06	12/05	12/04
Spot Price	**Naphtha**	CFR Japan	590.0	586.5	594.5	605.0	596.3	590.8	581.8	585.6	579.5	591.0
	Ethylene	CFR SE Asia	1,200.0	1,200.0	1,200.0	1,180.0	1,180.0	1,180.0	1,180.0	1,180.0	1,180.0	1,180.0
	Propylene	FOB Korea	915.0	916.0	916.0	916.0	913.0	903.0	903.0	903.0	899.0	899.0
	Butadiene	FOB Korea	1,100.0	1,095.0	1,090.0	1,090.0	1,090.0	1,090.0	1,020.0	1,010.0	1,010.0	1,010.0
	HDPE	CFR FE Asia	1,290.0	1,290.0	1,290.0	1,290.0	1,290.0	1,290.0	1,290.0	1,290.0	1,305.0	1,305.0
	LDPE	CFR FE Asia	1,200.0	1,200.0	1,200.0	1,210.0	1,230.0	1,240.0	1,240.0	1,240.0	1,245.0	1,250.0
	LLDPE	CFR FE Asia	1,160.0	1,170.0	1,170.0	1,170.0	1,170.0	1,170.0	1,170.0	1,170.0	1,175.0	1,180.0
	MEG	CFR China	914.0	905.0	906.0	910.0	914.0	913.0	913.0	920.0	926.0	923.0
	PP	CFR FE Asia	1,130.0	1,130.0	1,130.0	1,125.0	1,125.0	1,130.0	1,130.0	1,140.0	1,140.0	1,120.0
	PX	CFR China	881.0	880.0	887.3	889.5	882.7	884.0	883.0	888.2	885.7	889.8
	PTA	CFR China	720.0	720.0	720.0	720.0	715.0	715.0	715.0	715.0	715.0	710.0
	Benzene	FOB Korea	904.0	902.0	909.0	909.0	899.0	902.0	910.0	908.0	885.0	875.0
	Toluene	FOB Korea	703.0	703.0	703.0	702.0	699.0	698.0	695.0	695.0	699.0	701.0
	Xylene	FOB Korea	706.0	704.0	706.0	704.0	702.0	703.0	703.0	707.0	707.0	713.0
	SM	FOB Korea	1,293.0	1,306.0	1,300.0	1,316.0	1,303.0	1,308.0	1,322.0	1,318.0	1,299.0	1,287.0

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Spot Price	**Naphtha**	CFR Japan	590.5	590.5	574.5	506.5	462.0	475.0	484.5	493.0	399.5	490.5
	Change, %			*0.0*	*2.8*	*16.6*	*27.8*	*24.3*	*21.9*	*19.8*	*47.8*	*20.4*
	Ethylene	CFR SE Asia	1,245.0	1,212.5	1,165.0	1,250.0	1,165.0	1,005.0	990.0	1,103.7	1,040.9	1,084.8
	Change, %			*2.7*	*6.9*	*(0.4)*	*6.9*	*23.9*	*25.8*	*12.8*	*19.6*	*14.8*
	Propylene	CFR SE Asia	890.0	850.0	810.0	860.0	775.0	770.0	815.0	770.0	705.7	882.5
	Change, %			*4.7*	*9.9*	*3.5*	*14.8*	*15.6*	*9.2*	*15.6*	*26.1*	*0.8*
	Butadiene	CFR SE Asia	1,125.0	1,075.0	965.0	1,545.0	1,175.0	1,890.0	2,100.0	877.5	1,116.8	1,491.9
	Change, %			*4.7*	*16.6*	*(27.2)*	*(4.3)*	*(40.5)*	*(46.4)*	*28.2*	*0.7*	*(24.6)*
	Benzene	CFR SE Asia	920.0	905.0	860.0	795.0	775.0	880.0	822.5	690.0	646.7	837.3
	Change, %			*1.7*	*7.0*	*15.7*	*18.7*	*4.5*	*11.9*	*33.3*	*42.3*	*9.9*
	Toluene	CFR SE Asia	735.0	720.0	715.0	700.0	655.0	705.0	690.0	700.8	630.5	688.6
	Change, %			*2.1*	*2.8*	*5.0*	*12.2*	*4.3*	*6.5*	*4.9*	*16.6*	*6.7*
	Xylene	CFR SE Asia	710.0	695.0	670.0	657.5	635.0	670.0	675.0	699.3	627.7	667.0
	Change, %			*2.2*	*6.0*	*8.0*	*11.8*	*6.0*	*5.2*	*1.5*	*13.1*	*6.5*
Spread	**Ethylene**	-Naphtha	654.5	622.0	590.5	743.5	703.0	530.0	505.5	610.6	641.4	594.4
	Change, %			*5.2*	*10.8*	*(12.0)*	*(6.9)*	*23.5*	*29.5*	*7.2*	*2.0*	*10.1*
	Propylene	-Naphtha	299.5	259.5	235.5	353.5	313.0	295.0	330.5	277.0	306.2	392.1
	Change, %			*15.4*	*27.2*	*(15.3)*	*(4.3)*	*1.5*	*(9.4)*	*8.1*	*(2.2)*	*(23.6)*
	Butadiene	-Naphtha	534.5	484.5	390.5	1,038.5	713.0	1,415.0	1,615.5	384.5	717.3	1,001.4
	Change, %			*10.3*	*36.9*	*(48.5)*	*(25.0)*	*(62.2)*	*(66.9)*	*39.0*	*(25.5)*	*(46.6)*
	Benzene	-Naphtha	329.5	314.5	285.5	288.5	313.0	405.0	338.0	197.0	247.2	346.8
	Change, %			*4.8*	*15.4*	*14.2*	*5.3*	*(18.6)*	*(2.5)*	*67.3*	*33.3*	*(5.0)*
	Toluene	-Naphtha	144.5	129.5	140.5	193.5	193.0	230.0	205.5	207.8	231.0	198.1
	Change, %			*11.6*	*2.8*	*(25.3)*	*(25.1)*	*(37.2)*	*(29.7)*	*(30.4)*	*(37.4)*	*(27.1)*
	Xylene	-Naphtha	119.5	104.5	95.5	151.0	173.0	195.0	190.5	206.3	228.2	176.5
	Change, %			*14.4*	*25.1*	*(20.9)*	*(30.9)*	*(38.7)*	*(37.3)*	*(42.1)*	*(47.6)*	*(32.3)*

자료 : Cischem, Platts, Bloomberg, SK증권

참고 : Spread는 Polymer와 Naphtha의 가격차이임

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Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Spot Price	**HDPE**	CFR SE Asia	1,187.5	1,207.5	1,197.5	1,187.5	1,087.5	1,117.5	1,142.5	1,230.1	1,134.6	1,140.6
	Change, %			(1.7)	(0.8)	0.0	9.2	6.3	3.9	(3.5)	4.7	4.1
	MEG	CFR SE Asia	917.5	915.0	892.5	907.5	867.5	870.0	847.5	780.8	660.8	849.5
	Change, %			0.3	2.8	1.1	5.8	5.5	8.3	17.5	38.9	8.0
	PVC	CFR SE Asia	860.0	855.0	850.0	950.0	890.0	920.0	920.0	820.8	823.4	900.2
	Change, %			0.6	1.2	(9.5)	(3.4)	(6.5)	(6.5)	4.8	4.4	(4.5)
	PP	CFR SE Asia	1,157.5	1,157.5	1,147.5	1,167.5	1,107.5	1,017.5	1,032.5	1,109.8	978.4	1,096.8
	Change, %			0.0	0.9	(0.9)	4.5	13.8	12.1	4.3	18.3	5.5
	2-EH	CFR Korea	1,035.0	1,020.0	990.0	990.0	960.0	865.0	865.0	930.1	772.4	966.4
	Change, %			1.5	4.5	4.5	7.8	19.7	19.7	11.3	34.0	7.1
	ABS	CFR SE Asia	2,070.0	2,030.0	1,930.0	2,070.0	1,870.0	1,635.0	1,635.0	1,431.1	1,347.1	1,837.9
	Change, %			2.0	7.3	0.0	10.7	26.6	26.6	44.6	53.7	12.6
	SBR	CFR SE Asia	1,650.0	1,650.0	1,590.0	1,830.0	1,540.0	2,000.0	2,000.0	1,332.1	1,483.0	1,989.3
	Change, %			0.0	3.8	(9.8)	7.1	(17.5)	(17.5)	23.9	11.3	(17.1)
	SM	CFR SE Asia	1,332.5	1,352.5	1,280.0	1,357.5	1,192.5	1,245.0	1,205.0	1,100.7	1,064.6	1,250.7
	Change, %			(1.5)	4.1	(1.8)	11.7	7.0	10.6	21.1	25.2	6.5
	Caustic	FOB NEA	621.0	699.5	700.0	480.0	476.0	422.5	422.5	296.8	316.6	486.3
	Change, %			(11.2)	(11.3)	29.4	30.5	47.0	47.0	109.3	96.2	27.7
	PX	CFR SE Asia	895.0	895.0	892.5	825.0	815.0	852.5	855.0	842.9	790.4	842.4
	Change, %			0.0	0.3	8.5	9.8	5.0	4.7	6.2	13.2	6.3
	PO	CFR China	1,872.5	1,765.0	1,782.5	1,655.0	2,022.5	1,577.5	1,562.5	1,683.4	1,396.8	1,589.4
	Change, %			6.1	5.0	13.1	(7.4)	18.7	19.8	11.2	34.1	17.8
	Caprolactam	CFR SE Asia	2,060.0	2,050.0	2,040.0	1,780.0	1,800.0	1,850.0	1,850.0	1,581.5	1,344.9	1,928.5
	Change, %			0.5	1.0	15.7	14.4	11.4	11.4	30.3	53.2	6.8
	PTA	CFR SE Asia	727.5	725.0	707.5	672.5	652.5	642.5	642.5	648.0	613.7	666.2
	Change, %			0.3	2.8	8.2	11.5	13.2	13.2	12.3	18.5	9.2
Spread	**HDPE**		597.0	617.0	623.0	681.0	625.5	642.5	658.0	737.1	735.1	650.2
	Change, %			(3.2)	(4.2)	(12.3)	(4.6)	(7.1)	(9.3)	(19.0)	(18.8)	(8.2)
	MEG		327.0	324.5	318.0	401.0	405.5	395.0	363.0	287.8	261.3	359.0
	Change, %			0.8	2.8	(18.5)	(19.4)	(17.2)	(9.9)	13.6	25.2	(8.9)
	PVC		269.5	264.5	275.5	443.5	428.0	445.0	435.5	327.8	423.9	409.7
	Change, %			1.9	(2.2)	(39.2)	(37.0)	(39.4)	(38.1)	(17.8)	(36.4)	(34.2)
	PP		567.0	567.0	573.0	661.0	645.5	542.5	548.0	616.8	578.9	606.4
	Change, %			0.0	(1.0)	(14.2)	(12.2)	4.5	3.5	(8.1)	(2.1)	(6.5)
	2-EH		444.5	429.5	415.5	483.5	498.0	390.0	380.5	437.0	372.9	476.0
	Change, %			3.5	7.0	(8.1)	(10.7)	14.0	16.8	1.7	19.2	(6.6)
	ABS		1,479.5	1,439.5	1,355.5	1,563.5	1,408.0	1,160.0	1,150.5	938.1	947.6	1,347.5
	Change, %			2.8	9.1	(5.4)	5.1	27.5	28.6	57.7	56.1	9.8
	SBR	BD spread	525.0	575.0	625.0	285.0	365.0	110.0	(100.0)	454.7	366.2	497.5
	Change, %			(8.7)	(16.0)	84.2	43.8	377.3	(625.0)	15.5	43.4	5.5
	SM		742.0	762.0	705.5	851.0	730.5	770.0	720.5	607.7	665.1	760.2
	Change, %			(2.6)	5.2	(12.8)	1.6	(3.6)	3.0	22.1	11.6	(2.4)
	Caustic											
	Change, %											
	PX		304.5	304.5	318.0	318.5	353.0	377.5	370.5	349.9	390.9	351.9
	Change, %			0.0	(4.2)	(4.4)	(13.7)	(19.3)	(17.8)	(13.0)	(22.1)	(13.5)
	PO	propylene sprea	982.5	915.0	972.5	795.0	1,247.5	807.5	747.5	913.4	691.1	706.8
	Change, %			7.4	1.0	23.6	(21.2)	21.7	31.4	7.6	42.2	39.0
	Caprolactam	benzene spreac	1,140.0	1,145.0	1,180.0	985.0	1,025.0	970.0	1,027.5	891.6	698.2	1,091.3
	Change, %			(0.4)	(3.4)	15.7	11.2	17.5	10.9	27.9	63.3	4.5
	PTA	px spread	101.0	98.5	82.8	95.0	82.0	45.8	44.0	58.0	60.4	76.5
	Change, %			2.5	22.1	6.3	23.2	120.8	129.5	74.1	67.1	32.0

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

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Global peers

	Currency	12/18	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER 17E	PER 18E	PBR 17E	PBR 18E	EV/EBITDA 17E	EV/EBITDA 18E
Petrochemical																
DowDuPont	USD	71.4	2.0	0.8	0.9	2.3	10.9	22.2	24.8	167,052	22.0	17.6	1.6	1.8	12.0	10.1
Eastman	USD	91.7	1.7	(1.1)	2.2	7.4	10.5	20.7	22.0	13,186	13.0	11.2	2.6	2.4	9.3	8.6
BASF	EUR	95.2	1.6	1.3	3.7	9.2	11.8	9.2	7.8	103,109	15.4	15.3	2.6	2.5	8.3	8.1
Akzo Nobel	EUR	74.5	0.1	(0.1)	(4.0)	(5.3)	(4.2)	25.2	25.4	22,177	18.2	17.3	3.2	3.1	9.9	9.5
Arkema	EUR	103.8	(0.2)	1.8	(0.5)	4.8	8.9	10.6	11.6	9,279	14.6	13.5	1.9	1.8	6.7	6.4
Lanxess	EUR	65.2	0.8	2.7	0.7	(0.5)	(2.6)	4.6	4.5	7,033	16.9	15.1	2.2	2.1	7.3	9.1
Sumitomo Chemical	JPY	796	2.6	0.8	(1.0)	15.4	33.8	35.8	43.2	11,716	9.9	9.9	1.4	1.3	7.4	7.3
Mitsubishi Chemical	JPY	1,235	2.4	(1.5)	5.2	16.2	42.5	57.4	62.9	16,540	9.3	9.1	1.4	1.3	6.5	6.3
Shin-Etsu Chemical	JPY	11,800	3.6	(2.2)	(4.5)	18.2	18.8	30.0	30.1	45,335	22.2	19.2	2.2	2.0	9.9	8.5
Asahi Kasei	JPY	1,473	2.0	2.9	2.5	7.1	28.5	41.1	44.5	18,370	14.8	14.6	1.6	1.5	7.7	7.4
JSR	JPY	2,262	2.6	(2.2)	2.9	6.5	23.7	23.7	22.7	4,548	15.5	15.0	1.3	1.2	8.5	7.8
Nitto Denko	JPY	10,405	2.8	0.8	(5.4)	10.7	16.7	14.7	16.0	16,075	18.3	16.7	2.4	2.1	8.4	7.7
SABIC	SAR	101.7	0.4	0.6	2.0	0.2	0.3	6.8	11.2	81,361	15.1	14.3	1.8	1.8	7.6	7.4
Yansab	SAR	58.0	(0.6)	0.7	5.1	(3.3)	4.5	11.0	6.5	8,699	14.5	13.5	2.2	2.2	9.1	8.8
Formosa Plastics	TWD	94.7	1.5	1.9	2.8	(1.4)	5.7	5.9	6.2	20,108	13.2	14.2	1.8	1.8	18.5	18.6
Formosa Fiber	TWD	98.3	3.0	4.8	5.8	3.3	9.3	1.0	2.1	19,218	12.4	13.3	1.7	1.7	10.8	11.2
Nan Ya Plastics	TWD	75.2	0.7	1.3	0.7	(2.0)	4.4	4.6	5.6	19,893	14.4	14.7	1.7	1.7	15.1	15.5
Sinopec Shanghai	CNY	6.26	0.0	(2.3)	(3.4)	(1.6)	(3.5)	(3.1)	(2.8)	8,909	12.0	11.4	2.4	2.1	6.5	6.4
Sinopec Yizheng(Fibe	CNY	2.67	(2.2)	(5.3)	(12.5)	(16.6)	(24.4)	(34.4)	(34.9)	5,196	#N/A N/A	49.4	5.1	5.2	26.3	13.7
Reliance	INR	921	0.1	0.5	1.0	8.9	32.6	74.2	70.2	93,375	17.0	14.6	1.9	1.7	11.7	9.5
Industries Qatar	QAR	95.0	0.0	6.1	(1.0)	8.8	(4.0)	(15.6)	(19.1)	15,618	16.6	14.0	1.7	1.6	61.5	50.0
PTT Chemical	THB	84.0	0.6	2.1	6.7	7.7	20.4	32.8	33.3	11,600	10.4	10.7	1.5	1.4	5.6	5.4
Petronas	MYR	7.5	0.0	0.5	2.2	1.4	3.3	8.8	6.7	14,601	15.2	15.3	2.1	1.9	8.7	8.7
LG화학	KRW	397,500	0.9	(0.6)	(2.7)	0.6	43.0	58.4	52.3	25,825	14.8	13.9	1.9	1.7	6.6	6.1
롯데케미칼	KRW	365,500	0.4	0.3	2.8	(5.9)	9.6	4.4	(0.9)	11,529	5.4	5.4	1.1	0.9	3.7	3.3
한화케미칼	KRW	29,700	(0.8)	(5.1)	(2.0)	(21.8)	2.8	18.6	20.2	4,505	4.8	5.3	0.8	0.7	6.5	6.3
금호석유	KRW	93,500	0.1	3.7	28.8	21.0	24.2	15.7	14.0	2,622	16.0	14.6	1.7	1.5	10.8	9.5
SKC	KRW	44,450	(0.9)	4.3	5.8	2.4	31.7	36.8	34.7	1,535	11.8	10.6	1.1	1.0	10.1	8.6
국도화학	KRW	68,100	2.4	(0.4)	14.1	28.7	27.3	20.5	24.0	364	0.0	0.0	0.0	0.0	0.0	0.0
효성	KRW	7,900	(1.3)	1.0	8.8	11.3	32.8	28.7	16.2	4,379	8.1	8.1	1.2	1.1	7.3	6.4
Average			**0.9**	**0.6**	**2.3**	**4.5**	**14.0**	**19.0**	**18.7**							
Refinery																
Valero	USD	88.9	0.8	2.0	7.3	23.2	35.2	30.8	30.2	38,914	17.8	13.8	1.9	1.9	7.7	6.6
Conoco Phillips	USD	52.3	0.3	1.3	4.4	11.1	12.5	0.8	4.4	62,573	94.3	32.2	2.1	2.1	9.2	6.9
Formosa Petrochemic	TWD	115.0	2.7	5.5	8.5	8.0	8.5	5.0	2.7	36,541	15.8	18.7	3.4	3.3	10.0	11.9
Andeavor	USD	112.0	0.4	0.9	6.3	8.5	21.1	23.6	28.0	17,464	15.8	13.1	1.8	1.8	8.9	7.2
Marathon Petroleum	USD	66.0	0.4	2.4	6.0	23.2	22.8	31.7	31.1	32,240	16.9	15.6	2.6	2.6	8.5	7.7
Devon Energy	USD	38.1	1.0	(1.1)	(1.6)	12.0	19.8	(19.7)	(16.7)	20,001	21.2	16.6	2.8	2.4	9.0	7.9
Hollyfrontier	USD	48.4	1.2	3.9	9.1	47.3	84.5	52.4	47.9	8,587	20.2	16.7	1.7	1.7	9.0	7.7
Phillips 66	USD	100.0	0.1	0.3	7.9	13.2	23.5	14.3	15.7	50,664	21.8	15.9	2.3	2.2	10.8	8.9
Murphy Oil	USD	28.9	3.4	0.1	3.1	11.8	13.8	(13.0)	(7.3)	4,982	#N/A N/A	195.1	1.1	1.1	5.2	4.6
JX Holdings	JPY	686.1	0.1	1.4	12.7	25.1	40.4	35.4	38.7	20,905	8.1	8.3	0.9	0.9	7.0	6.8
Idemitsu	JPY	4,295.0	(0.9)	5.4	22.0	50.8	33.8	35.7	38.3	7,943	8.1	7.5	1.1	1.0	6.9	6.6
Nesteoil	EUR	52.5	1.5	1.1	5.2	45.0	47.7	46.3	43.7	15,856	16.7	16.4	3.1	2.9	9.7	10.1
Ashland	USD	71.0	0.7	0.5	0.4	9.7	6.9	31.9	32.9	4,420	17.7	21.0	1.4	1.3	8.0	10.0
Fuchs Petrolub	EUR	44.4	2.2	1.0	(2.6)	(9.4)	(12.6)	12.3	11.3	6,989	23.4	22.0	4.6	4.1	13.7	13.0
SK이노베이션	KRW	202,500	(0.5)	0.2	(0.5)	6.0	27.4	33.2	38.2	17,232	8.0	7.7	1.0	0.9	4.9	4.4
S-Oil	KRW	124,000	0.4	4.2	2.5	4.2	29.3	50.7	46.4	12,848	12.3	9.4	2.1	1.9	9.4	6.8
GS	KRW	61,400	(0.5)	3.2	2.0	(7.0)	(8.1)	12.5	13.5	5,250	5.9	5.6	0.8	0.7	7.0	6.7
Average			**0.8**	**1.9**	**5.5**	**16.6**	**23.9**	**22.6**	**23.5**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임
* 국내업체의 multiple은 Dataguidepro 기준임

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Global peers

	Currency	12/18	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER 17E	PER 18E	PBR 17E	PBR 18E	EV/EBITDA 17E	EV/EBITDA 18E
E&P/Shale																
Exxon Mobil	USD	83	(0.1)	(0.1)	3.4	3.6	(0.7)	(9.0)	(8.1)	351,426	22.8	20.0	1.9	1.9	9.9	8.8
BP	GBP	510	0.9	2.2	3.4	13.1	9.2	4.1	0.0	134,953	22.6	17.1	1.4	1.4	6.5	5.8
Shell	EUR	2,423	(0.2)	1.6	3.6	14.7	14.5	11.4	8.0	270,467	17.2	15.3	1.4	1.4	7.0	6.3
Chevron	USD	120	(0.0)	(0.6)	4.4	3.9	10.5	1.4	1.7	227,355	29.2	22.4	1.6	1.6	8.4	7.2
Total	EUR	47	1.8	0.6	2.3	5.4	5.7	(1.8)	(2.8)	141,188	13.4	12.8	1.3	1.2	6.2	5.4
Sinopec	CNY	6	0.2	(1.5)	(1.0)	0.2	0.2	7.8	9.8	104,020	13.6	12.7	1.0	0.9	4.4	4.3
Petrochina	CNY	8	0.1	(2.6)	(3.0)	(1.5)	3.0	3.5	(0.9)	207,618	49.9	30.0	1.2	1.2	6.5	6.0
CNOOC	CNY	10	0.3	(3.3)	(10.5)	(10.1)	(10.2)	(22.3)	(20.6)	62,152	13.3	11.1	1.0	1.0	4.2	3.9
Gazprom	RUB	134	(0.9)	(0.3)	3.5	9.4	15.7	(14.1)	(13.1)	54,172	4.3	4.1	0.3	0.2	3.9	3.6
Rosneft	RUB	297	(1.1)	(0.4)	(1.4)	(6.8)	(3.3)	(27.8)	(26.4)	53,561	10.5	7.1	0.8	0.7	5.4	4.6
Anadarko	USD	49	2.1	0.5	0.8	10.9	3.2	(31.3)	(30.4)	26,554	#N/A N/A	#N/A N/A	1.9	1.8	7.6	6.6
Petrobras	BRL	15	1.8	(1.0)	(5.0)	1.2	23.9	3.1	2.4	61,696	13.4	8.7	0.6	0.6	5.3	4.7
Lukoil	USD	3,396	(0.7)	(1.1)	2.8	12.0	26.5	1.3	(1.6)	49,154	6.8	6.3	0.7	0.7	N/A	N/A
Kinder	USD	18	0.4	0.2	5.8	(7.2)	(6.2)	(15.7)	(13.1)	47,497	28.2	25.7	1.1	1.1	11.2	10.8
Statoil	NOK	170	0.4	0.8	3.7	11.4	18.5	7.7	7.4	67,767	16.0	16.5	1.7	1.7	3.5	3.4
BHP	AUD	28	1.9	3.9	4.2	7.5	22.9	13.0	12.7	110,190	14.7	17.5	1.9	1.9	6.0	6.5
PTT E&P	THB	98	3.2	4.3	6.0	8.3	11.1	6.8	1.3	11,855	15.8	13.3	1.0	0.9	3.7	3.4
Petronas gas	MYR	16	1.2	2.5	(1.2)	(10.4)	(13.0)	(22.3)	(22.8)	7,969	18.3	17.2	2.6	2.5	10.5	9.7
Chesapeake	USD	4	5.1	(3.7)	(8.2)	(8.9)	(27.6)	(48.6)	(47.4)	3,353	5.1	4.9	#N/A N/A	#N/A N/A	7.4	6.4
Noble Energy	USD	26	2.5	(2.2)	1.3	0.8	(10.9)	(36.1)	(30.9)	12,793	#N/A N/A	345.9	1.3	1.3	7.8	7.1
Average		**0**	**0.9**	**(0.0)**	**0.7**	**2.9**	**4.6**	**(8.4)**	**(8.7)**							
PV																
WACKER	EUR	161.9	1.7	7.2	15.6	43.7	77.2	74.2	63.7	9,952	36.4	26.2	2.6	2.5	9.0	8.3
GCL-Poly	HKD	1.2	(0.8)	(0.8)	(12.1)	21.6	69.9	27.8	33.3	2,949	8.4	8.1	0.9	0.8	6.5	5.9
SunPower	USD	9.4	0.5	2.1	18.3	11.5	24.4	26.3	42.5	1,315	#N/A N/A	#N/A N/A	1.8	1.8	17.0	12.9
Canadian Solar	USD	17.6	1.1	(1.3)	(1.3)	4.5	37.1	40.4	44.1	1,018	12.5	9.4	1.0	0.9	9.5	9.7
JA Solar	USD	7.5	0.7	0.4	0.5	(8.0)	18.1	50.1	57.4	356	9.3	14.1	1.8	1.7	4.1	3.9
Yingli	USD	1.9	(1.6)	0.0	(16.2)	(29.0)	(6.5)	(37.6)	(28.5)	34	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
First Solar	USD	70.6	2.4	0.8	17.4	45.5	97.1	101.2	120.1	7,376	27.9	46.6	1.2	1.3	15.2	14.6
한화큐셀	USD	7.3	(0.3)	(1.1)	(7.5)	(3.6)	16.0	(16.4)	(10.3)	609	91.5	33.3	#N/A N/A	#N/A N/A	8.7	8.1
OCI	KRW	130,500	4.0	4.4	5.2	19.7	44.2	75.4	65.8	2,864	14.8	16.3	0.9	0.9	7.9	6.7
웅진에너지	KRW	8,880	0.2	(6.5)	7.0	(3.2)	41.0	99.6	87.5	206	N/A	0.9	0.9	7.9	6.7	8.1
신성솔라에너지	KRW	2,025	(3.3)	(3.1)	8.3	(5.8)	4.4	0.7	(8.4)	322	N/A	0.9	7.9	6.7	8.1	8.1
Average			**0.4**	**0.2**	**3.2**	**8.8**	**38.4**	**40.2**	**42.5**							
Gas Company																
Towngas China	HKD	6.3	1.1	3.4	1.1	19.9	30.6	56.4	54.9	2,239	14.3	12.9	1.2	1.1	13.0	11.9
Kulun	HKD	7.8	8.1	8.1	17.2	4.2	19.9	31.1	33.8	8,015	12.2	11.2	1.4	1.3	5.9	5.8
Beijing Enterprise	HKD	43.7	2.1	(0.9)	(2.1)	1.0	16.2	23.1	19.2	7,056	8.4	7.7	0.9	0.8	15.5	13.5
ENN Energy	HKD	53.7	(0.5)	(4.5)	(6.5)	2.8	29.3	69.8	68.2	7,433	14.4	12.5	2.8	2.4	8.7	7.8
China Resources Gas	HKD	27.5	(1.4)	(6.1)	(0.9)	3.2	14.8	22.5	26.1	7,825	15.7	13.9	3.0	2.6	9.3	8.4
China Gas Holdings	HKD	22.3	2.8	(6.9)	0.5	3.0	72.5	117.7	111.5	14,144	18.3	15.2	4.4	3.6	14.4	12.1
Shenzen Gas	HKD	13.8	1.2	(0.6)	(6.3)	(6.3)	2.7	22.3	22.1	3,582	11.0	10.7	1.3	1.2	8.6	8.0
Shann Xi	CNY	8.5	1.1	3.5	7.3	(0.7)	(3.3)	(11.2)	(11.2)	1,434	18.0	16.2	1.7	1.6	#N/A N/A	#N/A N/A
Suntien	HKD	1.9	(2.0)	3.2	(3.0)	1.6	34.3	92.0	92.0	913	7.1	6.1	0.7	0.6	9.8	8.4
China Oil & Gas	HKD	0.6	3.3	8.6	16.7	18.9	16.7	5.0	3.3	470	10.3	8.8	1.0	0.9	6.6	5.9
Average			**1.6**	**0.8**	**2.4**	**4.8**	**23.4**	**42.9**	**42.0**							
EV																
LG화학	KRW	397,500	0.9	(0.6)	(2.7)	0.6	43.0	58.4	52.3	25,825	13.8	13.3	1.9	1.7	6.6	6.3
삼성SDI	KRW	208,000	(0.5)	(1.0)	(5.5)	(5.7)	41.0	100.0	90.8	13,163	20.9	13.1	1.3	1.2	23.1	14.8
Panasonic	JPY	1674.5	0.4	4.3	(1.0)	3.9	12.8	29.7	40.8	36,522	21.4	16.4	2.3	2.0	7.1	6.2
GS Yuasa	JPY	553.0	1.3	(1.4)	(4.3)	(3.7)	9.9	11.7	13.8	2,033	16.9	15.2	1.3	1.3	7.6	7.0
NEC	JPY	3135.0	0.0	3.1	7.6	5.9	10.0	(3.5)	1.1	7,260	15.9	18.5	0.9	0.9	7.6	7.0
BYD Auto	CNY	62.5	(0.4)	(0.1)	(1.7)	7.9	22.4	22.3	25.8	24,705	36.5	26.0	3.1	2.8	15.4	12.5
Tesla Motors	USD	338.9	(1.3)	3.0	7.6	(12.0)	(8.8)	67.4	58.6	56,953	#N/A N/A	#N/A N/A	12.0	11.8	140.4	33.7
Kandi Technologies	USD	6.9	(1.4)	(3.5)	(11.6)	29.2	75.6	39.8	39.8	329	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
Average			**(0.1)**	**0.5**	**(1.5)**	**3.3**	**25.8**	**40.7**	**40.4**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임