SK Energy Daily

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SK 증권

2018년 2월 1일

1. News Summary (3 page)

News		Conclusion
WTI comment	미 수요증가 전망에 강보합…WTI 0.4%↑	
Headline	빈살만, 석방합의금으로 114조원 벌었다	아람코 상장과 더불어 NEOM 신도시 구축 위한 자금 조달으로 판단됨
News 1.	호주, 세계1위 LNG 수출국으로	호주 LNG는 심해지역 가스이기에 미국 LNG 대비 가격 경쟁력이 낮음
News 2.	4Q17 미국 에틸렌 생산량 증가	ECC의 가동과 제품 수출 증가하며 글로벌 화학제품 peakout 시작
News 3.	-	-
News 4.	-	-

2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	$/bbl	64.7	0.4	(1.3)	7.2	19.2	20.1
Dubai	$/bbl	65.8	(0.9)	(1.6)	2.2	10.3	23.6
Gasoline	$/bbl	80.0	(1.0)	0.1	4.6	6.7	13.4
Diesel	$/bbl	81.3	(0.8)	(0.9)	3.2	12.8	25.5
Complex margin	$/bbl	8.0	0.1	0.6	0.5	(0.2)	0.1
1M lagging	$/bbl	10.0	(0.4)	(2.7)	(0.7)	(2.7)	2.6
Petrochemical			%	%	%	%	%
Naphtha	$/t	587	(0.2)	(2.4)	(4.3)	4.0	14.5
Butadiene	$/t	1,350	0.0	6.3	22.7	42.1	(55.0)
HDPE	$/t	1,350	1.5	2.3	5.5	8.9	14.9
MEG	$/t	1,010	1.2	0.3	6.2	12.5	6.3
PX	$/t	961	(0.0)	(0.8)	5.5	14.4	8.7
SM	$/t	1,401	0.3	1.8	8.9	20.8	(0.4)
Commodity			%	%	%	%	%
Natural Gas	$/mmbtu	3.00	(6.3)	(2.8)	2.2	0.1	(13.8)
Natural rubber	$/t	1,470	0.0	(2.0)	3.5	6.5	(35.2)
Cotton	C/lbs	77.3	0.3	(6.1)	(1.1)	13.4	1.1

*참고: 정제마진의 변동률은 %가 아닌 $/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	01/29	$/t	1,255	(3.1)	(1.4)	11.1	15.1
Propylene	01/29	$/t	1,020	2.5	13.6	26.3	6.8
Benzene	01/29	$/t	965	1.8	8.4	19.1	(4.9)
Toluene	01/29	$/t	765	1.3	4.1	10.9	(0.6)
Xylene	01/29	$/t	755	2.0	6.0	15.3	5.6
PP	01/29	$/t	1,228	1.7	6.0	7.0	16.1
PVC	01/29	$/t	925	0.0	6.3	3.9	1.6
ABS	01/29	$/t	2,020	0.0	(1.5)	5.2	10.4
SBR	01/29	$/t	1,755	6.4	6.4	3.2	(42.5)
SM	01/29	$/t	1,433	3.6	11.0	18.4	2.9
BPA	01/29	$/t	1,888	(3.8)	(5.4)	12.0	13.5
Caustic	01/29	$/t	549	(8.7)	(11.3)	(8.2)	31.5
2-EH	01/29	$/t	1,030	(5.9)	1.0	3.0	15.7
Caprolactam	01/29	$/t	2,030	0.5	(1.5)	(6.5)	(3.3)
Solar				%	%	%	%
Polysilicon	01/31	$/kg	17.4	(1.4)	(2.2)	4.6	7.3
Module	01/31	$/W	0.31	0.0	(1.0)	(2.2)	(12.4)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	87.3	0.6	(1.4)	4.4	4.7	4.1
Shell	EUR	2,463	(0.8)	(1.6)	(0.7)	4.1	14.7
Petrochina	CNY	9.01	(1.1)	(3.4)	11.4	8.9	4.2
Gazprom	RUB	143.4	(0.1)	(4.2)	9.9	13.9	(4.3)
Petrobras	BRL	19.7	1.1	1.9	22.4	17.5	31.2
Refinery							
Phillips66	USD	102.4	0.1	(2.1)	1.2	12.4	25.5
Valero	USD	96.0	1.7	(1.7)	4.4	21.7	45.9
JX	JPY	723.8	(1.4)	(5.5)	(0.4)	24.1	35.9
Neste Oil	EUR	55.7	2.1	(1.6)	4.4	16.4	72.6

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	94.1	(0.5)	(2.1)	2.6	0.0	5.5
DowDuPont	USD	75.6	0.6	(0.6)	6.1	4.5	26.7
SABIC	SAR	107.5	0.8	0.8	5.5	8.3	12.5
Formosa Pla.	TWD	103.5	0.5	4.3	4.9	12.6	14.7
Shin-Etsu	JPY	12,410	(0.5)	(1.5)	8.4	4.2	26.4
Renewable							
Wacker	EUR	161.7	(3.8)	(5.9)	(0.3)	20.7	44.8
First Solar	USD	67.17	0.1	(2.6)	(0.5)	22.5	115.4
GCL-Poly	HKD	1.35	0.0	1.5	(3.6)	0.7	33.7
Tesla Motors	USD	354.3	2.5	2.4	13.8	6.9	40.6

4. Coverage Summary

	01/31	1D	1W	1M	3M	6M	12M	투자의견	TP	%	P/E	P/B
KOSPI	2,566	(0.0)	1.1	4.0	0.8	5.9	23.2				* 추정치는 12M fwd 기준임	
KOSPI화학	6,386	(0.6)	1.2	5.2	5.1	12.1	23.9				* 모든 coverage 업체의 실적은 연결기준임	
LG화학	432,000	(0.9)	(1.4)	6.7	2.9	29.7	60.0	매수	450,000	4.2	14.42	2.04
롯데케미칼	420,000	0.2	4.2	14.1	11.6	10.4	7.0	매수	410,000	(2.4)	11.47	1.26
한화케미칼	35,200	(0.8)	1.6	11.4	7.2	5.5	29.2	매수	39,000	10.8	13.44	0.91
금호석유화학	103,000	2.0	(1.4)	3.5	36.4	35.0	23.2	매수	150,000	45.6	12.57	1.65
KCC	420,500	(0.6)	4.1	10.4	8.8	(5.0)	21.7	매수	450,000	7.0	15.57	0.62
OCI	169,000	0.9	7.6	24.3	39.7	83.3	90.5	매수	180,000	6.5	15.88	1.18
SKC	45,300	1.0	0.1	(3.6)	15.1	20.0	44.7	매수	55,000	21.4	11.39	1.12
SK이노베이션	204,500	(2.6)	2.5	0.0	0.0	13.9	26.2	매수	230,000	12.5	10.83	1.03
S-Oil	123,000	(2.0)	4.2	5.1	(2.8)	4.2	48.2	매수	140,000	13.8	14.07	2.23
GS	69,400	0.0	4.4	11.6	5.6	(9.5)	35.0	매수	80,000	15.3	6.78	0.90
SK가스	106,000	1.4	2.9	12.5	15.8	(8.6)	(0.5)	매수	130,000	22.6	9.18	0.71
포스코대우	24,100	(1.8)	12.9	32.8	25.5	(2.8)	(9.9)	매수	25,000	3.7	10.99	0.97
LG상사	29,950	(3.2)	(0.5)	10.3	2.4	2.0	(5.8)	매수	38,000	26.9	10.09	0.86
한국전력	35,750	(0.4)	1.0	(6.3)	(6.8)	(20.4)	(17.3)	매수	50,000	39.9	7.68	0.28
한국가스공사	49,350	(1.9)	(3.4)	16.0	20.1	(4.0)	7.5	매수	60,000	21.6	9.32	0.73

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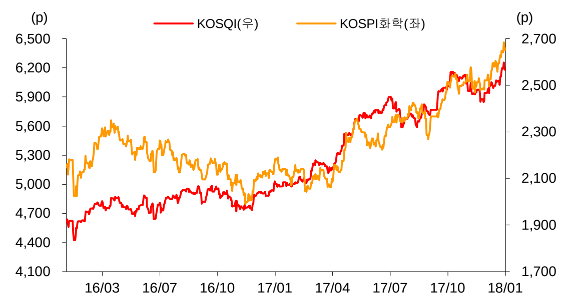
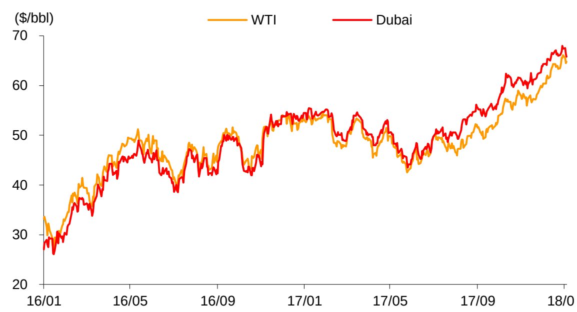
Key Chart

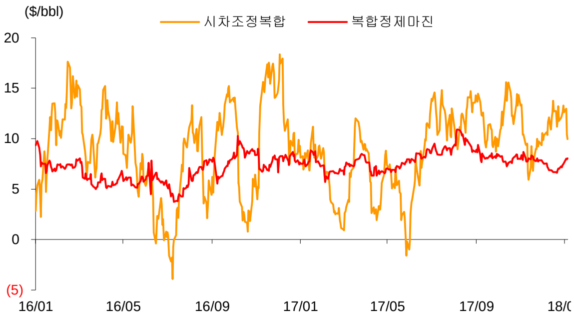
KOSPI/KOSPI화학



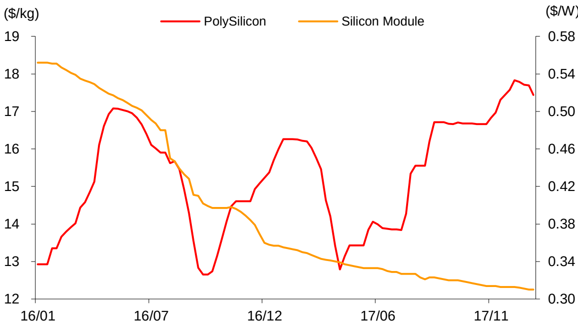
WTI/Dubai



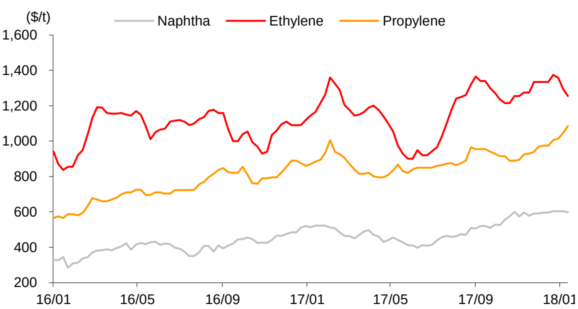
Complex & 1M lagging margin



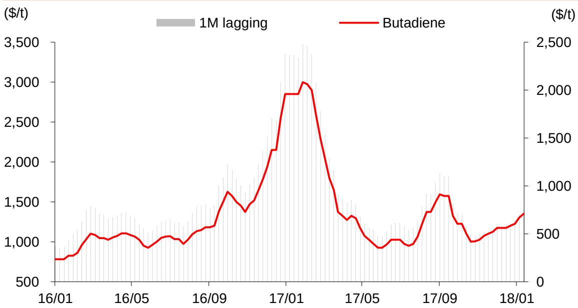
Polysilicon & Module prices



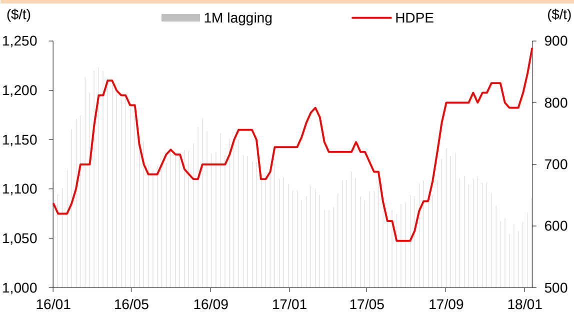
Naphtha/Ethylene/Propylene prices



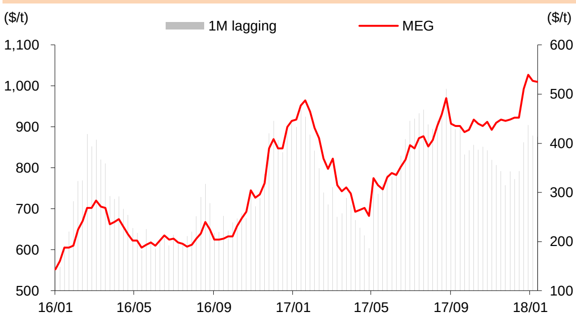
Butadiene price & 1M lagging naphtha spread



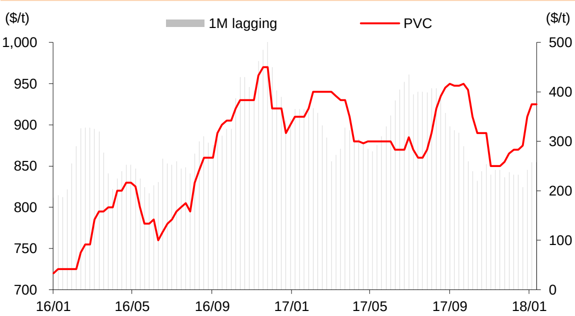
HDPE price & 1M lagging naphtha spread



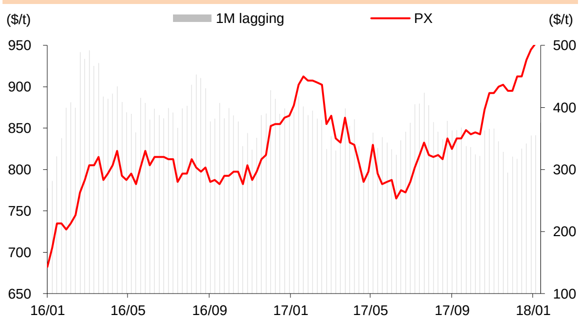
MEG price & 1M lagging naphtha spread



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: 서울경제)
제목	빈살만, 석방합의금으로 114조원 벌었다
결론	아람코 상장과 더불어 NEOM 신도시 구축 위한 자금 조달으로 판단됨
세부	
	1) 사우디 법무장관, "부동산, 증권, 현금 등 4천억 리얄 환수에 합의함"
	2) 환수된 자금은 올해 사우디 정부 예산의 57%에 해당하는 금액임
	3) 외신들은 MBS가 환수금을 각종 개혁의 재원으로 활용할 것으로 전망
	4) MBS는 '비전2030' 계획에서 석유의존에서 벗어나려는 개혁 의지 표명
	5) 아람코 상장과 더불어 NEOM 신도시 구축 위한 자금 조달으로 판단됨

WTI Comment	(출처: 연합뉴스)
제목	미 수요증가 전망에 강보합…WTI 0.4%↑
상승 요인	EIA, "지난주 미국 휘발유 재고는 200만b, 정제유 재고는 190만b 감소"
하락 요인	

Issue 1	(출처: 가스신문)
제목	호주, 세계1위 LNG 수출국으로
결론	호주 LNG는 심해지역 가스이기에 미국 LNG 대비 가격 경쟁력이 낮음
세부	
	1) 호주의 LNG 프로젝트는 2016년 고곤, 2017년 위트스톤이 생산 개시
	2) 2018년 이후 Ichthys, Prelude의 양대 프로젝트가 LNG의 생산개시
	3) 모든 플랜트가 안정조업에 들어가면 호주는 세계 1위의 LNG 수출국
	4) 향후는 호주 북서부 해안에 있는 중소규모의 가스전을 개발 예정
	5) 호주 LNG는 심해지역 가스이기에 미국 LNG 대비 가격 경쟁력이 낮음

Issue 2	(출처: Platts)
제목	4Q17 미국 에틸렌 생산량 증가
결론	ECC의 가동과 제품 수출 증가하며 글로벌 화학제품 peakout 시작
세부	
	1) 미국 4Q17 에틸렌 재고는 QoQ 감소, 에틸렌 생산량은 QoQ 증가
	2) 미국 4Q17 에틸렌 생산량은 QoQ 1.474bil lb 증가한 15.739bil lb 기록
	3) 미국 2017년 에틸렌 생산량은 YoY 2.423bil lb 증가한 60.543bil lb 기록
	4) 미국 4Q17 에틸렌 재고는 QoQ 74.1mil lb 감소한 2.342bil lb 기록
	5) ECC의 가동과 제품 수출 증가하며 글로벌 화학제품 peakout 시작

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	2016avg.	2017avg.	2018acc.
F/X	**USD/EUR**	0.806	0.806	0.806	0.833	0.859	0.845	0.926	0.833	0.904	0.887	0.820
	Change, %		(0.1)	(0.0)	(3.3)	(6.2)	(4.6)	(13.0)	(3.3)	(10.9)	(9.1)	(1.7)
	USD/JPY	109.2	108.8	109.2	112.7	113.6	110.3	112.8	112.6	108.8	112.1	110.9
	Change, %		0.4	(0.0)	(3.1)	(3.9)	(1.0)	(3.2)	(3.1)	0.4	(2.6)	(1.6)
	USD/KRW	1,067.8	1,073.7	1,070.2	1,067.4	1,120.3	1,119.3	1,161.3	1,066.7	1,160.5	1,130.9	1,066.0
	Change, %		(0.6)	(0.2)	0.0	(4.7)	(4.6)	(8.1)	0.1	(8.0)	(5.6)	0.2
Agriculture	**Corn**	361.5	361.5	356.5	350.8	345.8	370.8	359.8	350.8	358.5	359.4	352.2
	Change, %		0.0	1.4	3.1	4.6	(2.5)	0.5	3.1	0.8	0.6	2.6
	Soybean	995.8	1,000.3	992.3	951.8	973.8	994.5	1,024.5	951.8	987.5	975.9	968.7
	Change, %		(0.4)	0.4	4.6	2.3	0.1	(2.8)	4.6	0.8	2.0	2.8
	Wheat	451.8	457.3	433.0	427.0	418.5	474.5	420.8	427.0	436.4	436.0	431.0
	Change, %		(1.2)	4.3	5.8	7.9	(4.8)	7.4	5.8	3.5	3.6	4.8
	Rice	12.4	12.4	12.2	11.7	11.3	12.3	9.5	11.7	10.3	11.1	11.9
	Change, %		0.2	2.3	6.5	10.2	1.5	30.5	6.5	20.3	12.5	4.3
	Oats	265.5	270.0	275.5	241.0	264.8	284.3	244.3	241.0	196.3	252.3	255.8
	Change, %		(1.7)	(3.6)	10.2	0.3	(6.6)	8.7	10.2	35.3	5.2	3.8
MYR/mt	**Palm Oil**	2,490.0	2,490.0	2,512.0	2,444.0	2,791.0	2,672.0	3,230.0	2,444.0	2,653.8	2,787.3	2,500.0
	Change, %		0.0	(0.9)	1.9	(10.8)	(6.8)	(22.9)	1.9	(6.2)	(10.7)	(0.4)
	Cocoa	1,996.0	1,970.0	1,955.0	1,892.0	2,094.0	2,060.0	2,103.0	1,892.0	2,854.0	2,005.2	1,935.8
	Change, %		1.3	2.1	5.5	(4.7)	(3.1)	(5.1)	5.5	(30.1)	(0.5)	3.1
	Cotton	77.3	77.0	82.3	78.6	68.4	70.5	74.9	78.6	65.6	73.5	80.4
	Change, %		0.3	(6.1)	(1.7)	13.0	9.6	3.1	(1.7)	17.8	5.1	(3.9)
	Sugar	13.2	13.7	13.2	15.2	14.7	14.9	20.5	15.2	18.2	15.8	14.0
	Change, %		(3.6)	0.5	(12.7)	(10.2)	(11.3)	(35.3)	(12.7)	(27.1)	(16.4)	(5.6)
	Coffee	121.9	122.3	122.5	126.2	125.1	139.3	149.6	126.2	136.1	133.0	124.1
	Change, %		(0.4)	(0.5)	(3.4)	(2.6)	(12.5)	(18.5)	(3.4)	(10.4)	(8.4)	(1.9)
Energy	**WTI**	64.7	64.5	65.6	60.4	54.4	50.2	52.8	60.4	43.4	51.0	63.6
	Change, %		0.4	(1.3)	7.1	19.0	29.0	22.6	7.1	49.2	27.0	1.8
	Brent	69.1	69.0	70.5	66.9	61.4	52.7	55.7	66.9	45.1	54.9	69.0
	Change, %		0.0	(2.1)	3.3	12.5	31.1	24.0	3.3	53.2	25.9	0.0
	Natural Gas	3.0	3.2	3.5	3.0	2.9	2.8	3.1	3.0	2.6	3.0	3.2
	Change, %		(6.3)	(14.6)	1.4	3.4	7.2	(3.9)	1.4	17.3	(0.9)	(5.2)
	Ethanol	1.4	1.4	1.3	1.3	1.4	1.6	1.5	1.3	1.5	1.5	1.3
	Change, %		0.7	3.0	5.3	(2.8)	(10.6)	(6.9)	5.3	(8.2)	(7.1)	3.5
	RBOB Gasoline	190.8	189.5	191.6	179.9	178.0	170.6	152.6	179.9	140.0	162.9	185.7
	Change, %		0.6	(0.5)	6.0	7.2	11.8	25.0	6.0	36.3	17.1	2.7
	Coal	104.4	107.2	107.0	100.8	99.9	93.2	83.0	100.8	65.5	88.2	106.0
	Change, %		(2.6)	(2.4)	3.5	4.5	12.0	25.7	3.5	59.4	18.3	(1.5)
Metal	**Gold**	1,345.2	1,338.5	1,358.5	1,303.1	1,271.1	1,269.4	1,210.7	1,302.6	1,248.5	1,258.6	1,331.7
	Change, %		0.5	(1.0)	3.2	5.8	6.0	11.1	3.3	7.7	6.9	1.0
	Silver	17.3	17.1	17.6	16.9	16.7	16.8	17.6	16.9	17.1	17.1	17.2
	Change, %		1.2	(1.2)	2.4	3.7	3.1	(1.2)	2.3	1.4	1.6	1.0
	Copper	7,118.0	7,050.0	7,150.0	7,247.0	6,839.0	6,369.0	5,991.0	7,247.0	4,872.0	6,199.4	7,106.7
	Change, %		1.0	(0.4)	(1.8)	4.1	11.8	18.8	(1.8)	46.1	14.8	0.2
	Nickel	861.6	851.5	857.5	782.9	766.0	655.5	667.8	809.1	646.4	680.2	819.5
	Change, %		1.2	0.5	10.1	12.5	31.4	29.0	6.5	33.3	26.7	5.1
	Zinc	3,540.0	3,496.0	3,440.0	3,319.0	3,265.0	2,795.0	2,860.0	3,319.0	2,097.5	2,888.5	3,405.9
	Change, %		1.3	2.9	6.7	8.4	26.7	23.8	6.7	68.8	22.6	3.9
	Lead	2,631.0	2,600.5	2,648.5	2,482.8	2,409.5	2,315.5	2,369.0	2,482.8	1,868.3	2,315.7	2,578.7
	Change, %		1.2	(0.7)	6.0	9.2	13.6	11.1	6.0	40.8	13.6	2.0
	Aluminum	14,390.0	14,450.0	14,555.0	15,020.0	16,175.0	14,285.0	13,745.0	15,020.0	12,373.5	14,556.6	14,765.2
	Change, %		(0.4)	(1.1)	(4.2)	(11.0)	0.7	4.7	(4.2)	16.3	(1.1)	(2.5)
	Cobalt	79,872.0	79,867.5	79,363.0	75,205.0	60,500.0	56,940.0	37,000.0	75,205.0	25,480.1	55,906.9	77,222.0
	Change, %		0.0	0.6	6.2	32.0	40.3	115.9	6.2	213.5	42.9	3.4
	HR Coil	731.0	679.0	679.0	662.0	605.0	628.0	618.0	662.0	519.3	620.1	672.7
	Change, %		7.7	7.7	10.4	20.8	16.4	18.3	10.4	40.8	17.9	8.7
	Scrap	375.0	375.0	375.0	367.0	330.0	354.0	290.0	367.0	275.7	344.7	376.7
	Change, %		0.0	0.0	2.2	13.6	5.9	29.3	2.2	36.0	8.8	(0.4)

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

SK Energy Daily

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SK증권

Refining Price Data

Daily Price		01/31	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	**WTI**	64.7	64.5	65.6	60.4	54.3	49.6	53.9	53.7	43.4	50.9	63.7
	Change, %		*0.4*	*(1.3)*	*7.2*	*19.2*	*30.5*	*20.1*	*20.5*	*49.3*	*27.2*	*1.6*
	Dubai	65.8	66.4	66.9	64.4	59.6	50.3	53.2	53.8	41.3	53.1	66.2
	Change, %		*(0.9)*	*(1.6)*	*2.2*	*10.3*	*30.8*	*23.6*	*22.2*	*59.2*	*23.9*	*(0.7)*
Crude Oil Product	**Gasoline(휘발유)**	80.0	80.9	79.9	76.5	75.0	65.9	70.6	69.8	56.3	68.0	78.7
	Change, %		*(1.0)*	*0.1*	*4.6*	*6.7*	*21.4*	*13.4*	*14.6*	*42.2*	*17.6*	*1.7*
	Kerosene(등유)	81.4	81.9	81.8	79.2	72.3	63.3	64.7	66.4	52.9	65.2	81.0
	Change, %		*(0.5)*	*(0.4)*	*2.9*	*12.6*	*28.6*	*25.9*	*22.6*	*54.0*	*24.8*	*0.6*
	Diesel(경유)	81.3	81.9	82.0	78.7	72.1	64.4	64.8	65.5	52.1	65.6	80.8
	Change, %		*(0.8)*	*(0.9)*	*3.2*	*12.8*	*26.3*	*25.5*	*24.1*	*56.0*	*23.9*	*0.6*
	Bunker-C	59.1	59.2	59.3	58.3	56.3	47.0	47.9	52.1	35.5	49.7	58.9
	Change, %		*(0.1)*	*(0.3)*	*1.5*	*5.0*	*25.8*	*23.5*	*13.6*	*66.4*	*19.1*	*0.4*
	Naphtha	63.7	63.8	65.8	67.7	62.8	50.0	55.8	53.5	42.6	53.7	66.1
	Change, %		*(0.2)*	*(3.2)*	*(5.9)*	*1.4*	*27.4*	*14.1*	*19.2*	*49.5*	*18.5*	*(3.7)*
Dubai Spread	**Gasoline(휘발유)**	14.2	14.5	13.1	12.1	15.4	15.6	17.3	16.0	14.9	14.9	12.5
	Change		*(0.2)*	*1.2*	*2.1*	*(1.1)*	*(1.3)*	*(3.1)*	*(1.8)*	*(0.7)*	*(0.7)*	*1.7*
	Kerosene(등유)	15.7	15.5	14.9	14.8	12.7	13.1	11.5	12.6	11.6	12.1	14.8
	Change		*0.2*	*0.7*	*0.9*	*2.9*	*2.6*	*4.2*	*3.1*	*4.1*	*3.5*	*0.9*
	Diesel(경유)	15.5	15.5	15.1	14.4	12.5	14.1	11.5	11.7	10.8	12.5	14.6
	Change		*(0.0)*	*0.4*	*1.1*	*3.0*	*1.4*	*4.0*	*3.8*	*4.7*	*3.0*	*1.0*
	Bunker-C	(6.6)	(7.2)	(7.6)	(6.1)	(3.3)	(3.3)	(5.4)	(1.8)	(5.8)	(3.4)	(7.3)
	Change		*0.5*	*0.9*	*(0.5)*	*(3.4)*	*(3.3)*	*(1.3)*	*(4.9)*	*(0.9)*	*(3.2)*	*0.7*
	Naphtha	(2.1)	(2.6)	(1.1)	3.3	3.2	(0.3)	2.6	(0.4)	1.3	0.6	(0.1)
	Change		*0.5*	*(1.0)*	*(5.4)*	*(5.3)*	*(1.8)*	*(4.7)*	*(1.7)*	*(3.4)*	*(2.7)*	*(2.0)*
Refining Margin	**Simple(단순)**	2.2	1.9	1.5	2.1	3.3	3.8	2.3	3.8	1.9	3.2	1.5
	Change		*0.3*	*0.7*	*0.1*	*(1.1)*	*(1.6)*	*(0.1)*	*(1.6)*	*0.3*	*(0.9)*	*0.8*
	Complex(복합)	8.0	7.9	7.4	7.5	8.3	8.8	7.9	8.3	7.0	8.0	7.2
	Change		*0.1*	*0.6*	*0.5*	*(0.2)*	*(0.7)*	*0.1*	*(0.2)*	*1.1*	*0.1*	*0.9*
	Complex(lagging)	10.0	10.4	12.7	10.7	12.7	12.6	7.3	18.0	8.5	8.9	12.0
	Change		*(0.4)*	*(2.7)*	*(0.7)*	*(2.7)*	*(2.6)*	*2.6*	*(8.0)*	*1.5*	*1.0*	*(2.0)*

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

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Petrochemical Price Data

Daily Price			01/31	01/30	01/29	01/26	01/25	01/24	01/23	01/22	01/19	01/18
Spot Price	**Naphtha**	CFR Japan	587.3	588.5	602.0	598.8	607.8	601.5	597.0	601.3	607.3	610.3
	Ethylene	CFR SE Asia	1,240.0	1,240.0	1,240.0	1,240.0	1,270.0	1,270.0	1,270.0	1,290.0	1,290.0	1,290.0
	Propylene	FOB Korea	1,080.0	1,080.0	1,080.0	1,080.0	1,020.0	1,011.0	1,005.0	1,001.0	995.0	991.0
	Butadiene	FOB Korea	1,350.0	1,350.0	1,350.0	1,350.0	1,270.0	1,270.0	1,270.0	1,270.0	1,270.0	1,190.0
	HDPE	CFR FE Asia	1,350.0	1,330.0	1,330.0	1,320.0	1,320.0	1,320.0	1,315.0	1,315.0	1,310.0	1,310.0
	LDPE	CFR FE Asia	1,250.0	1,230.0	1,230.0	1,230.0	1,230.0	1,230.0	1,230.0	1,230.0	1,230.0	1,230.0
	LLDPE	CFR FE Asia	1,220.0	1,210.0	1,210.0	1,200.0	1,200.0	1,200.0	1,185.0	1,185.0	1,190.0	1,190.0
	MEG	CFR China	1,010.0	998.0	1,007.0	1,005.0	1,007.0	1,007.0	1,015.0	1,019.0	1,008.0	1,010.0
	PP	CFR FE Asia	1,230.0	1,240.0	1,240.0	1,225.0	1,225.0	1,225.0	1,210.0	1,210.0	1,200.0	1,200.0
	PX	CFR China	961.3	961.7	970.7	961.7	965.7	968.7	965.7	955.2	946.2	940.7
	PTA	CFR China	745.0	743.0	745.0	745.0	740.0	735.0	725.0	730.0	730.0	730.0
	Benzene	FOB Korea	923.7	930.7	946.7	953.7	951.7	942.7	943.7	948.7	951.3	943.7
	Toluene	FOB Korea	743.5	756.5	756.5	756.5	756.5	751.5	746.5	743.5	743.5	743.5
	Xylene	FOB Korea	776.5	776.0	788.5	788.5	790.5	788.5	786.5	784.5	768.5	754.5
	SM	FOB Korea	1,400.5	1,396.5	1,418.5	1,408.0	1,390.5	1,376.0	1,385.0	1,363.5	1,356.5	1,337.5

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	**Naphtha**	CFR Japan	598.0	603.0	597.0	554.5	520.5	523.0	484.5	399.5	493.5	602.1
	Change, %			*(0.8)*	*0.2*	*7.8*	*14.9*	*14.3*	*23.4*	*49.7*	*21.2*	*(0.7)*
	Ethylene	CFR SE Asia	1,255.0	1,295.0	1,272.5	1,130.0	1,255.0	1,090.0	990.0	1,040.9	1,090.9	1,300.6
	Change, %			*(3.1)*	*(1.4)*	*11.1*	*0.0*	*15.1*	*26.8*	*20.6*	*15.0*	*(3.5)*
	Propylene	CFR SE Asia	1,020.0	995.0	897.5	807.5	835.0	955.0	815.0	705.7	823.6	1,037.5
	Change, %			*2.5*	*13.6*	*26.3*	*22.2*	*6.8*	*25.2*	*44.5*	*23.9*	*(1.7)*
	Butadiene	CFR SE Asia	1,300.0	1,250.0	1,125.0	1,050.0	1,525.0	2,800.0	2,100.0	1,116.8	1,481.1	1,218.8
	Change, %			*4.0*	*15.6*	*23.8*	*(14.8)*	*(53.6)*	*(38.1)*	*16.4*	*(12.2)*	*6.7*
	Benzene	CFR SE Asia	965.0	947.5	890.0	810.0	805.0	1,015.0	822.5	646.7	838.8	929.4
	Change, %			*1.8*	*8.4*	*19.1*	*19.9*	*(4.9)*	*17.3*	*49.2*	*15.0*	*3.8*
	Toluene	CFR SE Asia	765.0	755.0	735.0	690.0	700.0	770.0	690.0	630.5	689.5	750.0
	Change, %			*1.3*	*4.1*	*10.9*	*9.3*	*(0.6)*	*10.9*	*21.3*	*11.0*	*2.0*
	Xylene	CFR SE Asia	755.0	740.0	712.5	655.0	657.5	715.0	675.0	627.7	668.8	741.3
	Change, %			*2.0*	*6.0*	*15.3*	*14.8*	*5.6*	*11.9*	*20.3*	*12.9*	*1.9*
Spread	**Ethylene**	-Naphtha	657.0	692.0	675.5	575.5	734.5	567.0	505.5	641.4	597.4	698.5
	Change, %			*(5.1)*	*(2.7)*	*14.2*	*(10.6)*	*15.9*	*30.0*	*2.4*	*10.0*	*(5.9)*
	Propylene	-Naphtha	422.0	392.0	300.5	253.0	314.5	432.0	330.5	306.2	330.1	435.4
	Change, %			*7.7*	*40.4*	*66.8*	*34.2*	*(2.3)*	*27.7*	*37.8*	*27.9*	*(3.1)*
	Butadiene	-Naphtha	702.0	647.0	528.0	495.5	1,004.5	2,277.0	1,615.5	717.3	987.6	616.6
	Change, %			*8.5*	*33.0*	*41.7*	*(30.1)*	*(69.2)*	*(56.5)*	*(2.1)*	*(28.9)*	*13.8*
	Benzene	-Naphtha	367.0	344.5	293.0	255.5	284.5	492.0	338.0	247.2	345.3	327.3
	Change, %			*6.5*	*25.3*	*43.6*	*29.0*	*(25.4)*	*8.6*	*48.5*	*6.3*	*12.1*
	Toluene	-Naphtha	167.0	152.0	138.0	135.5	179.5	247.0	205.5	231.0	196.0	147.9
	Change, %			*9.9*	*21.0*	*23.2*	*(7.0)*	*(32.4)*	*(18.7)*	*(27.7)*	*(14.8)*	*12.9*
	Xylene	-Naphtha	157.0	137.0	115.5	100.5	137.0	192.0	190.5	228.2	175.3	139.1
	Change, %			*14.6*	*35.9*	*56.2*	*14.6*	*(18.2)*	*(17.6)*	*(31.2)*	*(10.4)*	*12.8*

자료 : Cischem, Platts, Bloomberg, SK증권
참고 : Spread는 Polymer와 Naphtha의 가격차이임

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SK 증권

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	**HDPE**	CFR SE Asia	1,242.5	1,217.5	1,182.5	1,197.5	1,187.5	1,142.5	1,142.5	1,134.6	1,142.5	1,210.0
	Change, %			2.1	5.1	3.8	4.6	8.8	8.8	9.5	8.8	2.7
	MEG	CFR SE Asia	1,010.0	1,012.5	922.5	907.5	902.5	952.5	847.5	660.8	850.6	1,010.6
	Change, %			(0.2)	9.5	11.3	11.9	6.0	19.2	52.8	18.7	(0.1)
	PVC	CFR SE Asia	925.0	925.0	870.0	890.0	947.5	910.0	920.0	823.4	899.9	908.8
	Change, %			0.0	6.3	3.9	(2.4)	1.6	0.5	12.3	2.8	1.8
	PP	CFR SE Asia	1,227.5	1,207.5	1,157.5	1,147.5	1,167.5	1,057.5	1,032.5	978.4	1,099.6	1,205.0
	Change, %			1.7	6.0	7.0	5.1	16.1	18.9	25.5	11.6	1.9
	2-EH	CFR Korea	1,030.0	1,095.0	1,020.0	1,000.0	990.0	890.0	865.0	772.4	970.0	1,052.5
	Change, %			(5.9)	1.0	3.0	4.0	15.7	19.1	33.4	6.2	(2.1)
	ABS	CFR SE Asia	2,020.0	2,020.0	2,050.0	1,920.0	2,060.0	1,830.0	1,635.0	1,347.1	1,844.7	2,022.5
	Change, %			0.0	(1.5)	5.2	(1.9)	10.4	23.5	49.9	9.5	(0.1)
	SBR	CFR SE Asia	1,755.0	1,650.0	1,650.0	1,700.0	1,820.0	3,050.0	2,000.0	1,483.0	1,980.5	1,676.3
	Change, %			6.4	6.4	3.2	(3.6)	(42.5)	(12.3)	18.3	(11.4)	4.7
	SM	CFR SE Asia	1,432.5	1,382.5	1,290.0	1,210.0	1,350.0	1,392.5	1,205.0	1,064.6	1,253.8	1,380.0
	Change, %			3.6	11.0	18.4	6.1	2.9	18.9	34.6	14.3	3.8
	Caustic	FOB NEA	549.0	601.0	619.0	598.0	484.0	417.5	422.5	316.6	491.2	593.5
	Change, %			(8.7)	(11.3)	(8.2)	13.4	31.5	29.9	73.4	11.8	(7.5)
	PX	CFR SE Asia	972.5	952.5	912.5	842.5	837.5	902.5	855.0	790.4	844.4	950.6
	Change, %			2.1	6.6	15.4	16.1	7.8	13.7	23.0	15.2	2.3
	PO	CFR China	1,887.5	1,962.5	1,995.0	1,685.0	1,560.0	1,662.5	1,562.5	1,396.8	1,601.2	1,977.5
	Change, %			(3.8)	(5.4)	12.0	21.0	13.5	20.8	35.1	17.9	(4.6)
	Caprolactam	CFR SE Asia	2,030.0	2,020.0	2,060.0	2,170.0	1,830.0	2,100.0	1,850.0	1,344.9	1,936.4	2,022.5
	Change, %			0.5	(1.5)	(6.5)	10.9	(3.3)	9.7	50.9	4.8	0.4
	PTA	CFR SE Asia	762.5	745.0	717.5	667.5	667.5	677.5	642.5	613.7	667.8	748.8
	Change, %			2.3	6.3	14.2	14.2	12.5	18.7	24.2	14.2	1.8
Spread	**HDPE**		644.5	614.5	585.5	643.0	667.0	619.5	658.0	735.1	649.0	607.9
	Change, %			4.9	10.1	0.2	(3.4)	4.0	(2.1)	(12.3)	(0.7)	6.0
	MEG		412.0	409.5	325.5	353.0	382.0	429.5	363.0	261.3	357.1	408.5
	Change, %			0.6	26.6	16.7	7.9	(4.1)	13.5	57.7	15.4	0.9
	PVC		327.0	322.0	273.0	335.5	427.0	387.0	435.5	423.9	406.4	306.6
	Change, %			1.6	19.8	(2.5)	(23.4)	(15.5)	(24.9)	(22.9)	(19.5)	6.6
	PP		629.5	604.5	560.5	593.0	647.0	534.5	548.0	578.9	606.1	602.9
	Change, %			4.1	12.3	6.2	(2.7)	17.8	14.9	8.7	3.9	4.4
	2-EH		432.0	492.0	423.0	445.5	469.5	367.0	380.5	372.9	476.5	450.4
	Change, %			(12.2)	2.1	(3.0)	(8.0)	17.7	13.5	15.9	(9.3)	(4.1)
	ABS		1,422.0	1,417.0	1,453.0	1,365.5	1,539.5	1,307.0	1,150.5	947.6	1,351.2	1,420.4
	Change, %			0.4	(2.1)	4.1	(7.6)	8.8	23.6	50.1	5.2	0.1
	SBR	BD spread	455.0	400.0	525.0	650.0	295.0	250.0	(100.0)	366.2	499.4	457.5
	Change, %			13.8	(13.3)	(30.0)	54.2	82.0	(555.0)	24.3	(8.9)	(0.5)
	SM		834.5	779.5	693.0	655.5	829.5	869.5	720.5	665.1	760.3	777.9
	Change, %			7.1	20.4	27.3	0.6	(4.0)	15.8	25.5	9.8	7.3
	Caustic											
	Change, %											
	PX		374.5	349.5	315.5	288.0	317.0	379.5	370.5	390.9	351.0	348.5
	Change, %			7.2	18.7	30.0	18.1	(1.3)	1.1	(4.2)	6.7	7.5
	PO	propylene sprea	867.5	967.5	1,097.5	877.5	725.0	707.5	747.5	691.1	777.6	940.0
	Change, %			(10.3)	(21.0)	(1.1)	19.7	22.6	16.1	25.5	11.6	(7.7)
	Caprolactam	benzene spreac	1,065.0	1,072.5	1,170.0	1,360.0	1,025.0	1,085.0	1,027.5	698.2	1,097.6	1,093.1
	Change, %			(0.7)	(9.0)	(21.7)	3.9	(1.8)	3.6	52.5	(3.0)	(2.6)
	PTA	px spread	81.8	78.3	78.8	77.8	81.3	45.8	44.0	60.4	76.7	83.3
	Change, %			4.5	3.8	5.1	0.6	78.7	85.8	35.3	6.6	(1.9)

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

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Global peers

	Currency	01/31	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER 18E	PER 19E	PBR 18E	PBR 19E	EV/EBITDA 18E	EV/EBITDA 19E
Petrochemical																
DowDuPont	USD	75.6	0.6	(0.6)	6.1	4.5	17.7	26.7	6.1	168,245	17.7	14.9	1.8	1.7	10.2	9.2
Eastman	USD	99.2	(0.8)	0.5	7.1	9.2	19.3	28.0	7.1	13,550	11.6	10.7	2.5	2.2	8.7	8.1
BASF	EUR	94.1	(0.5)	(2.1)	2.6	0.0	16.7	5.5	2.6	101,214	14.6	13.6	2.4	2.2	7.8	7.4
Akzo Nobel	EUR	75.4	0.2	0.7	3.3	(3.0)	(1.3)	20.1	3.3	22,073	17.0	15.8	3.0	2.8	9.3	8.8
Arkema	EUR	102.9	(2.5)	(3.3)	1.3	(5.1)	7.0	12.6	1.3	9,270	13.2	12.2	1.7	1.6	6.3	6.0
Lanxess	EUR	70.2	(0.8)	(2.6)	5.9	4.7	7.7	4.6	5.9	7,282	15.5	13.1	2.1	1.9	9.3	8.2
Sumitomo Chemical	JPY	800	(1.8)	(5.2)	(1.2)	0.8	23.5	32.7	(1.2)	11,911	10.1	10.5	1.3	1.2	7.4	8.0
Mitsubishi Chemical	JPY	1,185	(0.9)	(2.1)	(4.2)	0.6	27.5	50.0	(4.2)	16,544	9.2	8.7	1.3	1.2	6.3	6.1
Shin-Etsu Chemical	JPY	12,410	(0.5)	(1.5)	8.4	4.2	22.7	26.4	8.4	43,948	18.5	16.6	1.9	1.8	8.1	7.4
Asahi Kasei	JPY	1,425	(1.2)	(3.4)	(2.0)	4.1	12.7	35.0	(2.0)	18,109	14.4	13.6	1.5	1.4	7.4	7.0
JSR	JPY	2,584	(2.3)	12.9	16.5	18.1	32.6	33.2	16.5	4,455	14.5	13.4	1.2	1.1	7.7	7.2
Nitto Denko	JPY	9,974	0.8	(0.8)	(0.4)	(5.1)	1.2	11.5	(0.4)	15,450	15.7	14.6	2.1	1.9	7.3	7.0
SABIC	SAR	107.5	0.8	0.8	5.5	8.3	10.4	12.5	6.0	80,773	14.2	13.7	1.7	1.7	7.3	7.1
Yansab	SAR	66.0	0.7	2.5	12.2	18.1	20.0	12.2	11.9	8,861	13.7	13.9	2.2	1.9	9.0	8.9
Formosa Plastics	TWD	103.5	0.5	4.3	4.9	12.6	14.2	14.7	4.9	21,114	14.4	13.9	1.8	1.8	18.9	19.2
Formosa Fiber	TWD	109.0	(0.5)	1.4	5.8	19.0	19.8	12.6	5.8	20,511	13.7	13.4	1.7	1.7	11.6	11.5
Nan Ya Plastics	TWD	80.1	(1.1)	(0.2)	2.8	7.7	5.4	9.0	2.8	20,648	14.8	15.3	1.7	1.7	16.2	16.4
Sinopec Shanghai	CNY	6.55	(2.8)	(5.6)	3.5	3.3	(4.1)	(3.7)	3.5	9,462	12.0	12.6	2.2	2.0	6.8	7.3
Sinopec Yizheng(Fibe	CNY	2.65	(8.9)	(9.9)	(0.7)	(11.7)	(17.7)	(31.2)	(0.7)	5,394	50.4	66.3	5.3	5.0	13.9	10.3
Reliance	INR	961	1.1	(0.5)	4.4	2.2	19.0	83.9	5.7	93,404	14.4	12.9	1.7	1.5	9.4	8.7
Industries Qatar	QAR	109.6	(2.1)	(1.9)	13.0	14.8	13.8	(4.3)	13.0	16,144	14.5	13.9	1.6	1.5	46.4	27.2
PTT Chemical	THB	96.3	(0.8)	(2.0)	13.2	20.3	34.1	42.1	13.2	11,766	10.7	10.4	1.4	1.3	5.5	5.4
Petronas	MYR	8.1	0.0	1.8	5.7	10.4	17.1	14.2	5.7	15,624	16.1	15.5	2.0	1.9	9.2	8.9
LG화학	KRW	432,000	(0.9)	(1.4)	6.7	7.1	31.7	64.9	6.7	27,313	13.8	12.8	1.8	1.6	6.5	6.1
롯데케미칼	KRW	420,000	0.2	4.2	14.1	13.7	13.8	11.6	14.1	11,632	5.5	5.2	0.9	0.8	3.6	3.3
한화케미칼	KRW	35,200	(0.8)	1.6	11.4	15.6	4.5	34.9	11.4	5,050	5.7	5.5	0.8	0.7	6.7	6.5
금호석유	KRW	103,000	2.0	(1.4)	3.5	48.4	36.2	25.2	3.5	2,969	14.1	11.9	1.6	1.5	9.3	8.4
SKC	KRW	45,300	1.0	0.1	(3.6)	14.0	25.0	45.9	(3.6)	1,643	9.9	8.7	1.1	1.0	8.8	7.9
국도화학	KRW	62,200	(3.1)	(3.3)	(1.4)	5.6	8.7	19.2	(1.4)	359	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
효성	KRW	10,000	(3.8)	0.0	31.9	21.2	65.6	21.2	31.9	4,595	8.2	7.3	1.1	1.0	7.2	6.8
Average			**(0.9)**	**(0.6)**	**5.9**	**8.8**	**16.8**	**22.4**	**5.9**							
Refinery																
Valero	USD	96.0	1.7	(1.7)	4.4	21.7	39.1	45.9	4.4	40,608	14.1	13.4	2.0	2.0	6.9	6.9
Conoco Phillips	USD	58.8	0.6	(2.8)	7.1	15.0	29.6	20.6	7.1	66,136	34.0	25.9	2.2	2.2	7.2	6.7
Formosa Petrochemic	TWD	124.0	0.0	2.1	7.4	17.5	17.0	16.4	7.4	37,040	18.2	18.7	3.2	3.2	11.7	12.1
Andeavor	USD	108.2	(0.7)	(7.2)	(5.4)	1.8	8.7	33.8	(5.4)	17,904	12.9	11.4	1.8	1.7	7.3	7.1
Marathon Petroleum	USD	69.3	0.2	(3.2)	5.0	16.0	23.7	44.2	5.0	32,812	15.0	12.8	2.6	2.7	7.7	7.5
Devon Energy	USD	41.4	(0.4)	(7.1)	(0.1)	12.1	24.2	(9.2)	(0.1)	22,192	17.5	14.0	2.7	2.3	8.4	7.4
Hollyfrontier	USD	48.0	3.0	(2.6)	(6.4)	29.8	66.3	65.6	(6.4)	9,094	16.8	15.2	1.8	1.8	8.0	8.0
Phillips 66	USD	102.4	0.1	(2.1)	1.2	12.4	22.3	25.5	1.2	51,561	15.6	14.5	2.3	2.2	9.0	8.8
Murphy Oil	USD	32.1	(1.5)	(7.7)	3.4	20.0	20.8	11.0	3.4	5,548	162.4	113.2	1.2	1.1	4.9	4.5
JX Holdings	JPY	723.8	(1.4)	(5.5)	(0.4)	24.1	47.7	35.9	(0.4)	22,130	8.8	8.0	0.9	0.9	7.0	6.6
Idemitsu	JPY	4,080.0	(1.8)	(4.9)	(9.8)	23.8	52.4	16.7	(9.8)	8,360	7.9	7.5	1.0	0.9	6.8	6.8
Nesteoil	EUR	55.7	2.1	(1.6)	4.4	16.4	52.0	72.6	4.4	16,473	16.7	16.7	2.9	2.7	10.2	10.3
Ashland	USD	72.6	(0.1)	(2.5)	2.0	6.8	11.7	24.6	2.0	4,550	21.6	18.7	1.3	1.3	10.2	9.6
Fuchs Petrolub	EUR	44.0	0.2	2.3	(0.6)	(8.7)	(12.4)	4.0	(0.6)	7,127	22.1	20.9	4.1	3.7	13.0	12.3
SK이노베이션	KRW	204,500	(2.6)	2.5	0.0	(0.2)	15.9	30.3	0.0	17,975	7.9	7.7	0.9	0.9	4.9	4.8
S-Oil	KRW	123,000	(2.0)	4.2	5.1	(4.3)	5.6	51.7	5.1	12,400	9.3	8.1	1.8	1.6	7.6	6.6
GS	KRW	69,400	0.0	4.4	11.6	4.8	(8.0)	36.1	11.6	5,467	6.0	5.5	0.7	0.6	6.9	6.3
Average			**(0.1)**	**(2.0)**	**1.7**	**12.3**	**24.5**	**30.9**	**1.7**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임

* 국내업체의 multiple은 Dataguidepro 기준임

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Global peers

	Currency	01/31	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER 18E	PER 19E	PBR 18E	PBR 19E	EV/EBITDA 18E	EV/EBITDA 19E
E&P/Shale																
Exxon Mobil	USD	87	0.6	(1.4)	4.4	4.7	9.1	4.1	4.4	369,899	18.7	18.7	2.0	1.9	8.5	8.6
BP	GBP	501	(1.3)	(2.8)	(4.1)	(1.8)	12.4	6.0	(4.1)	141,663	16.4	14.7	1.4	1.4	5.9	5.6
Shell	EUR	2,463	(0.8)	(1.6)	(0.7)	4.1	15.4	14.7	(0.7)	293,172	15.1	14.0	1.4	1.4	6.5	6.3
Chevron	USD	125	0.1	(4.6)	0.1	8.2	14.8	12.6	0.1	238,087	19.2	19.6	1.6	1.6	7.2	6.9
Total	EUR	47	0.3	(1.9)	1.3	(2.6)	8.6	(0.1)	1.3	146,832	12.7	12.2	1.3	1.2	5.5	5.2
Sinopec	CNY	7	(1.8)	(3.3)	15.5	18.6	15.9	17.4	15.5	129,656	13.7	13.0	1.1	1.1	4.7	4.6
Petrochina	CNY	9	(1.1)	(3.4)	11.4	8.9	10.8	4.2	11.4	248,766	31.8	28.3	1.3	1.3	6.4	6.3
CNOOC	CNY	12	(5.5)	(6.3)	17.9	9.2	9.4	(3.3)	17.9	69,524	10.6	10.1	1.0	1.0	4.0	3.9
Gazprom	RUB	143	(0.1)	(4.2)	9.9	13.9	23.5	(4.3)	9.9	60,301	4.1	4.3	0.3	0.2	3.7	3.6
Rosneft	RUB	343	0.3	(0.4)	17.7	7.7	10.2	(14.3)	17.7	64,627	8.2	7.1	0.9	0.8	4.8	4.4
Anadarko	USD	60	0.5	(2.2)	12.0	21.6	31.5	(13.6)	12.0	32,857	198.2	97.3	2.3	2.3	7.1	6.2
Petrobras	BRL	20	1.1	1.9	22.4	17.5	48.2	31.2	22.4	84,412	11.2	8.2	0.8	0.7	5.3	5.0
Lukoil	USD	3,728	0.4	(3.2)	11.8	20.4	33.3	10.6	11.8	56,154	6.7	6.4	0.7	0.7	N/A	N/A
Kinder	USD	18	(1.4)	(6.1)	(0.5)	(0.7)	(12.0)	(19.5)	(0.5)	47,497	22.4	20.1	1.2	1.2	10.5	10.1
Statoil	NOK	180	0.3	(3.9)	2.7	8.8	22.1	17.3	2.7	77,531	17.0	15.9	1.9	1.8	3.5	3.3
BHP	AUD	30	(0.5)	(1.6)	2.1	13.8	16.8	13.4	2.1	124,962	18.0	17.9	2.1	2.0	6.9	6.8
PTT E&P	THB	119	0.8	1.3	19.0	38.0	35.2	21.4	19.0	15,070	14.3	13.7	1.2	1.1	4.0	3.9
Petronas gas	MYR	18	0.0	1.1	2.4	(0.8)	(4.5)	(14.3)	2.4	9,081	18.6	18.1	2.7	2.6	10.5	10.2
Chesapeake	USD	4	(3.6)	(14.2)	(11.6)	(10.3)	(29.4)	(45.7)	(11.6)	3,180	4.3	3.9	#N/A N/A	5.4	6.2	5.9
Noble Energy	USD	31	0.4	(7.8)	4.7	9.5	5.6	(23.2)	4.7	14,851	69.5	37.0	1.5	1.4	7.3	6.2
Average		**0**	**(0.6)**	**(3.2)**	**6.9**	**9.4**	**13.8**	**0.7**	**6.9**							
PV																
WACKER	EUR	161.7	(3.8)	(5.9)	(0.3)	20.7	54.1	44.8	(0.3)	10,466	23.2	19.9	2.4	2.3	8.0	7.6
GCL-Poly	HKD	1.4	0.0	1.5	(3.6)	0.7	62.7	33.7	(3.6)	3,209	7.8	6.8	0.8	0.7	5.9	5.4
SunPower	USD	7.9	(3.1)	2.1	(5.9)	11.4	(28.8)	19.4	(5.9)	1,107	#N/A N/A	25.5	1.5	1.8	12.4	9.9
Canadian Solar	USD	15.4	(1.3)	(0.8)	(8.6)	(12.5)	(9.0)	31.6	(8.6)	894	8.3	8.8	0.9	0.8	9.1	9.2
JA Solar	USD	7.4	0.4	0.5	(0.4)	(0.3)	18.3	62.9	(0.4)	354	13.8	11.7	1.6	1.6	4.0	3.6
Yingli	USD	1.7	(3.9)	(5.5)	1.2	(24.0)	(28.5)	(35.5)	1.2	31	#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	67.2	0.1	(2.6)	(0.5)	22.5	36.2	115.4	(0.5)	7,015	44.2	20.5	1.2	1.2	12.9	7.6
한화큐셀	USD	7.2	(0.1)	(1.4)	2.6	(9.2)	(13.3)	(7.5)	2.6	599	32.7	23.2	#N/A N/A	#N/A N/A	8.0	7.3
OCI	KRW	169,000	0.9	7.6	24.3	49.6	83.3	97.0	24.3	3,769	18.5	18.2	1.2	1.1	9.5	7.9
웅진에너지	KRW	8,870	(1.1)	(3.2)	7.9	12.6	10.2	77.8	7.9	243	N/A	1.2	1.1	9.5	7.9	9.1
신성솔라에너지	KRW	1,910	(2.1)	(1.5)	(0.3)	8.2	(15.5)	(5.0)	(0.3)	309	N/A	1.1	9.5	7.9	9.1	8.5
Average			**(1.3)**	**(0.8)**	**1.5**	**7.2**	**15.4**	**39.5**	**1.5**							
Gas Company																
Towngas China	HKD	6.6	3.3	6.0	4.5	2.5	19.1	54.7	4.5	2,322	13.7	12.6	1.1	1.1	12.3	11.0
Kulun	HKD	7.8	0.0	(1.1)	(4.7)	7.3	(0.4)	24.8	(4.7)	8,009	10.4	9.2	1.2	1.1	5.6	5.3
Beijing Enterprise	HKD	48.1	0.9	(3.9)	3.6	3.7	15.8	23.8	3.6	7,753	8.5	7.6	0.9	0.8	14.7	13.9
ENN Energy	HKD	60.4	3.8	5.2	8.3	5.6	13.9	57.3	8.3	8,362	13.4	11.6	2.5	2.2	8.2	7.2
China Resources Gas	HKD	25.8	0.4	0.4	(9.2)	(9.8)	(13.0)	4.7	(9.2)	7,322	13.4	12.0	2.5	2.2	8.1	7.4
China Gas Holdings	HKD	22.9	(1.9)	4.1	6.0	(3.4)	21.2	103.4	6.0	14,546	15.7	13.3	3.8	3.2	12.5	10.8
Shenzen Gas	HKD	15.9	(0.3)	(1.4)	6.6	6.4	18.5	41.9	6.6	4,115	11.4	10.4	1.4	1.2	8.3	7.8
Shann Xi	CNY	7.9	(2.7)	(4.7)	(7.0)	(6.2)	(11.0)	(16.7)	(7.0)	1,388	14.9	17.4	1.5	1.4	#N/A N/A	#N/A N/A
Suntien	HKD	1.9	(1.5)	(4.0)	(6.3)	(12.2)	17.6	61.7	(6.3)	921	5.8	5.0	0.6	0.6	8.2	7.2
China Oil & Gas	HKD	0.8	0.0	(1.3)	(7.1)	49.1	46.3	31.7	(7.1)	588	11.0	9.6	1.2	1.0	6.5	5.9
Average			**0.2**	**(0.1)**	**(0.5)**	**4.3**	**12.8**	**38.7**	**(0.5)**							
EV																
LG화학	KRW	432,000	(0.9)	(1.4)	6.7	7.1	31.7	64.9	6.7	28,516	14.3	13.3	1.8	1.6	6.9	6.5
삼성SDI	KRW	197,000	(3.7)	(5.3)	(3.7)	(4.4)	16.9	70.6	(3.7)	12,667	12.9	10.9	1.1	1.0	13.1	10.6
Panasonic	JPY	1619.0	(0.5)	(5.7)	(1.8)	(4.8)	6.4	37.4	(1.8)	36,316	15.8	13.8	2.1	1.9	5.9	5.5
GS Yuasa	JPY	586.0	(0.8)	(1.2)	4.5	3.4	12.5	25.2	4.5	2,216	16.1	14.3	1.3	1.2	7.0	6.5
NEC	JPY	3290.0	3.8	4.6	8.2	6.1	9.7	26.1	8.2	7,836	20.8	16.4	0.9	0.9	7.1	6.5
BYD Auto	CNY	63.0	(0.6)	(5.2)	(3.1)	0.1	28.7	29.5	(3.1)	26,795	26.4	20.9	2.8	2.5	12.7	11.0
Tesla Motors	USD	354.3	2.5	2.4	13.8	6.9	9.5	40.6	13.8	59,831	#N/A N/A	88.2	12.5	10.5	39.5	18.9
Kandi Technologies	USD	6.0	(2.4)	(0.8)	(11.8)	(17.8)	50.0	41.2	(11.8)	288	#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			**(0.3)**	**(1.6)**	**1.6**	**(0.4)**	**20.7**	**41.9**	**1.6**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임