SK Energy Daily

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SK 증권

1. News Summary (3 page)

2018년 12월 13일

News		Conclusion
WTI comment	재고 실망'에 하락반전…WTI 1.0%↓	
Headline	중국의 러시아 대사, "중국과 러시아가 에너지 동맹 맺을 것"	2019년 말부터 중국이 수입되는 러시아 PNG는 중국 가스 수급 바꿀 것
News 1.	-	-
News 2.	-	-
News 3.	-	-
News 4.	-	-

2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	$/bbl	51.2	(1.0)	(3.3)	(14.7)	(27.3)	(9.6)
Dubai	$/bbl	59.2	1.5	(1.0)	(16.1)	(23.5)	(3.4)
Gasoline	$/bbl	61.4	1.5	0.2	(15.2)	(31.5)	(19.1)
Diesel	$/bbl	71.0	1.0	(1.3)	(19.2)	(23.3)	(5.9)
Complex margin	$/bbl	4.4	(0.2)	(0.4)	(2.2)	(2.6)	(3.9)
1M lagging	$/bbl	(5.8)	2.9	1.4	0.1	(19.6)	(13.3)
Petrochemical			%	%	%	%	%
Naphtha	$/t	498	2.3	1.2	(9.3)	(27.5)	(17.8)
Butadiene	$/t	1,090	0.0	0.0	3.8	(31.4)	0.0
HDPE	$/t	1,070	0.0	0.0	(9.3)	(15.7)	(17.1)
MEG	$/t	675	0.0	(8.5)	(4.5)	(25.8)	(25.8)
PX	$/t	1,039	0.1	0.8	(7.1)	(21.0)	16.8
SM	$/t	965	1.0	(3.7)	(9.1)	(29.9)	(26.7)
Commodity			%	%	%	%	%
Natural Gas	$/mmbtu	4.14	(6.1)	(7.5)	(15.6)	37.8	37.1
Natural rubber	$/t	1,220	0.0	(0.8)	0.0	(8.3)	(12.2)
Cotton	C/lbs	80.0	(0.1)	(0.2)	4.7	(3.4)	7.9

*참고: 정제마진의 변동률은 %가 아닌 $/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	12/10	$/t	780	(8.8)	(8.2)	(31.4)	(35.7)
Propylene	12/10	$/t	840	8.4	(13.4)	(18.4)	(1.2)
Benzene	12/10	$/t	620	(2.7)	(10.1)	(28.7)	(31.5)
Toluene	12/10	$/t	640	(2.3)	(20.0)	(22.9)	(11.1)
Xylene	12/10	$/t	720	(2.0)	(17.7)	(17.2)	3.6
PP	12/10	$/t	1,058	(6.2)	(14.2)	(14.5)	(8.6)
PVC	12/10	$/t	860	0.0	1.2	(9.5)	0.6
ABS	12/10	$/t	1,465	0.3	(8.4)	(22.1)	(27.8)
SBR	12/10	$/t	1,395	(0.4)	(8.2)	(25.6)	(15.5)
SM	12/10	$/t	1,023	3.0	(7.0)	(29.4)	(24.4)
BPA	12/10	$/t	1,463	(2.5)	(14.8)	(25.4)	(17.1)
Caustic	12/10	$/t	300	(7.4)	(7.4)	(31.8)	(57.1)
2-EH	12/10	$/t	1,050	(2.8)	(9.1)	(7.1)	2.9
Caprolactam	12/10	$/t	1,650	(11.8)	(20.7)	(22.5)	(19.5)
Solar				%	%	%	%
Polysilicon	12/12	$/kg	9.53	0.0	(1.0)	(11.6)	(44.9)
Module	12/12	$/W	0.22	0.5	(1.8)	(11.0)	(30.0)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	76.0	(0.9)	(4.3)	(4.8)	(8.6)	(8.1)
Shell	EUR	2,349	0.4	(1.4)	(3.4)	(5.4)	(3.2)
Petrochina	CNY	7.64	0.8	(0.4)	(5.9)	(7.6)	(4.7)
Gazprom	RUB	155.8	(1.8)	(5.3)	3.2	0.5	15.0
Petrobras	BRL	23.3	0.0	(8.8)	(8.0)	23.0	50.4
Refinery							
Phillips66	USD	89.3	0.9	(2.4)	(8.6)	(20.4)	(9.9)
Valero	USD	73.6	0.5	(7.4)	(14.3)	(36.7)	(15.3)
JX	JPY	614.9	2.0	(7.7)	(15.2)	(16.6)	(10.9)
Neste Oil	EUR	72.5	6.1	4.2	1.2	(0.8)	40.3

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	59.7	1.0	(5.8)	(11.9)	(22.7)	(36.5)
DowDuPont	USD	54.4	2.0	(3.8)	(5.8)	(21.5)	(23.2)
SABIC	SAR	119.2	0.7	(1.7)	(3.7)	0.2	17.7
Formosa Pla.	TWD	99.0	0.5	(2.0)	(2.0)	(10.8)	6.1
Shin-Etsu	JPY	9,363	1.6	(4.3)	(7.9)	0.2	(21.5)
Renewable							
Wacker	EUR	79.4	5.7	(1.5)	(6.1)	(28.4)	(47.1)
First Solar	USD	43.60	2.7	(2.0)	2.1	(10.8)	(36.7)
GCL-Poly	HKD	0.49	(1.0)	(10.9)	(15.5)	(7.5)	(60.8)
Tesla Motors	USD	366.6	(0.0)	1.9	10.7	26.2	7.5

4. Coverage Summary

	12/12	1D	1W	1M	3M	6M	12M	투자의견	TP	%	P/E	P/B
KOSPI	2,083	1.4	(0.9)	0.1	(8.9)	(15.6)	(15.7)				* 추정치는 12M fwd 기준임	
KOSPI화학	4,906	2.0	(0.7)	4.4	(10.8)	(19.7)	(19.1)				* 모든 coverage 업체의 실적은 연결기준임	
LG화학	350,000	0.1	(1.3)	4.9	0.0	(8.0)	(12.5)	매수	400,000	14.3	15.36	1.60
롯데케미칼	267,000	0.6	(4.5)	(6.6)	(6.6)	(29.8)	(26.7)	매수	360,000	34.8	8.69	11.66
한화케미칼	20,000	0.8	7.0	13.0	4.7	(21.7)	(36.1)	매수	27,000	35.0	9.73	0.49
금호석유화학	83,400	(0.5)	(7.4)	(8.4)	(18.6)	(17.8)	(7.5)	매수	140,000	67.9	9.55	1.09
KCC	290,000	2.5	1.2	8.2	(16.2)	(18.0)	(24.1)	매수	400,000	37.9	16.31	0.48
OCI	111,500	5.7	6.7	12.5	(5.1)	(2.6)	(10.8)	매수	140,000	25.6	13.14	0.77
SKC	34,400	(0.3)	(5.2)	(3.6)	(26.3)	(18.7)	(19.2)	매수	50,000	45.3	9.52	0.81
SK이노베이션	184,500	1.7	(7.3)	(6.8)	(8.4)	(14.2)	(8.7)	매수	240,000	30.1	13.18	0.97
S-Oil	109,000	3.3	(2.7)	(2.2)	(15.2)	(2.2)	(8.4)	매수	150,000	37.6	13.67	1.80
GS	51,600	(0.2)	(1.1)	1.4	(1.1)	(13.4)	(13.3)	매수	80,000	55.0	4.90	0.59
SK가스	72,800	(0.8)	(2.7)	(7.7)	(18.6)	(23.6)	(21.6)	매수	120,000	64.8	5.97	0.48
포스코대우	18,650	2.5	(2.1)	(6.3)	(6.5)	(22.8)	5.4	매수	25,000	34.0	10.69	0.69
LG상사	16,300	0.9	(2.1)	(1.8)	(25.4)	(40.7)	(40.5)	매수	30,000	84.0	5.88	0.47
한국전력	32,000	(1.8)	4.2	16.2	6.8	(8.7)	(15.6)	매수	40,000	25.0	8.35	0.26
한국가스공사	52,900	1.7	3.5	0.4	(9.6)	(17.3)	26.6	매수	75,000	41.8	9.53	0.69

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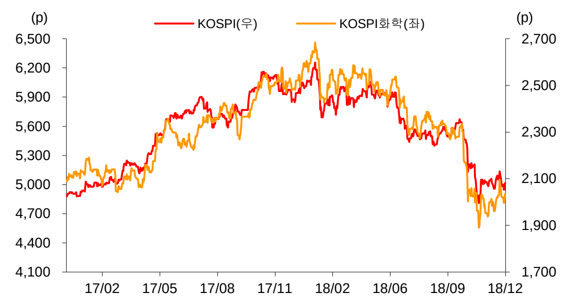
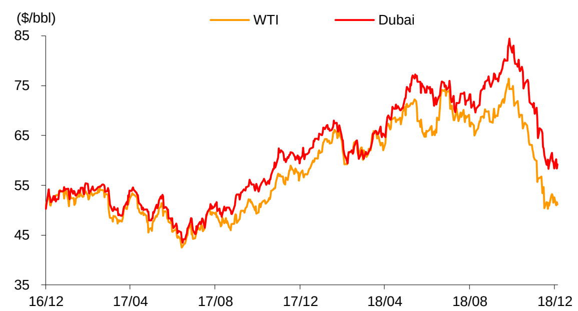
Key Chart

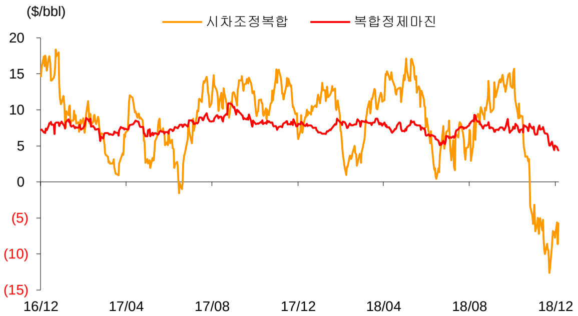
KOSPI/KOSPI화학



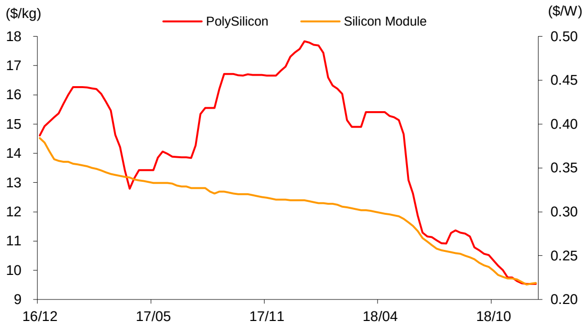
WTI/Dubai



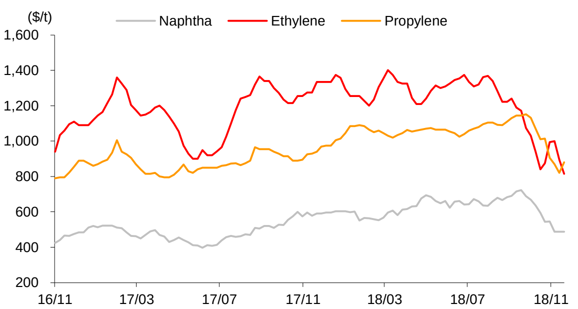
Complex & 1M lagging margin



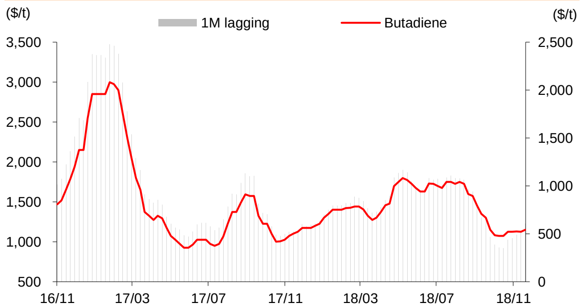
Polysilicon & Module prices



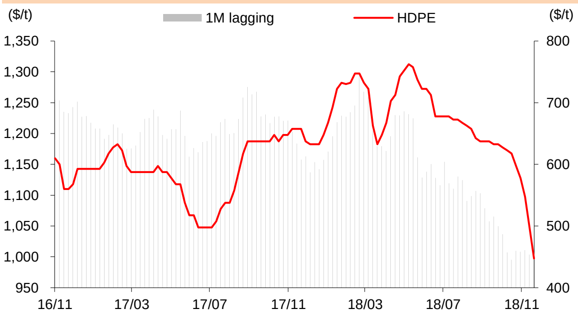
Naphtha/Ethylene/Propylene prices



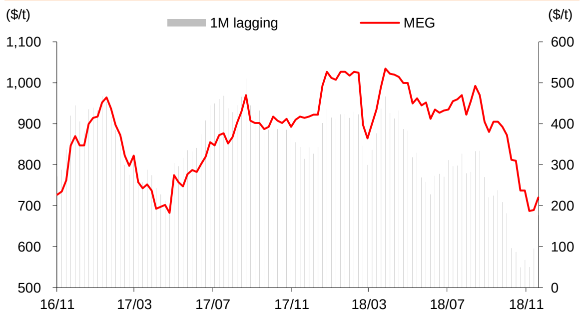
Butadiene price & 1M lagging naphtha spread



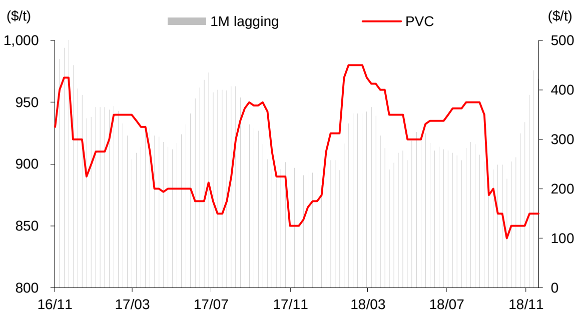
HDPE price & 1M lagging naphtha spread



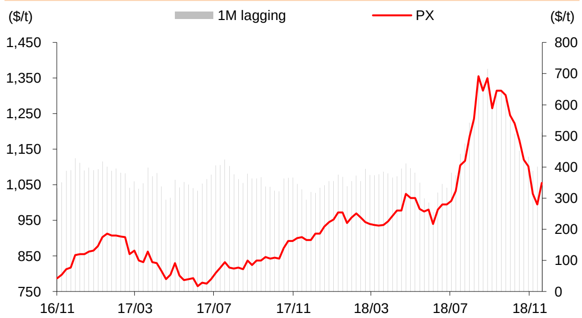
MEG price & 1M lagging naphtha spread



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: South China Morning Post)
제목	중국의 러시아 대사, "중국과 러시아가 에너지 동맹 맺을 것"
결론	2019년 말부터 중국이 수입되는 러시아 PNG는 중국 가스 수급 바꿀 것
세부	
1)	Denisov 대사, "러시아가 중국과 에너지 산업에서의 장기적 협력 원함"
2)	SASS의 Li Lifan, "러시아는 서방의 압력으로 에너지 시장 다변화 원함"
3)	러시아는 중국과 서쪽 국경으로 30bcm/년의 가스관 건설도 논의중
4)	Li, "러시아 PNG 수입은 상대적으로 비싼 미국 LNG 가격에 영향 줄 것"
5)	2019년 말부터 중국이 수입되는 러시아 PNG는 중국 가스 수급 바꿀 것

WTI Comment	(출처: 연합뉴스)
제목	재고 실망'에 하락반전…WTI 1.0%↓
상승 요인	EIA, "지난 주 美 원유 재고가 120만b 감소"
하락 요인	시장의 기대치는 300만b 감소였음

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

Issue 2	
제목	
결론	
세부	
1)	
2)	
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Issue 3	
제목	
결론	
세부	
1)	
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Issue 4	
제목	
결론	
세부	
1)	
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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	0.880	0.884	0.882	0.892	0.860	0.851	0.852	0.833	0.904	0.887	0.846
	Change, %		(0.5)	(0.2)	(1.3)	2.3	3.3	3.3	5.6	(2.7)	(0.8)	4.0
	USD/JPY	113.3	113.4	113.2	113.8	111.3	110.4	113.6	112.6	108.8	112.1	110.4
	Change, %		(0.1)	0.1	(0.5)	1.8	2.6	(0.2)	0.6	4.2	1.0	2.6
	USD/KRW	1,128.8	1,129.9	1,114.0	1,133.8	1,128.5	1,077.1	1,092.2	1,066.7	1,160.5	1,130.9	1,099.1
	Change, %		(0.1)	1.3	(0.4)	0.0	4.8	3.4	5.8	(2.7)	(0.2)	2.7
Agriculture	Corn	376.3	375.0	374.3	371.3	341.5	377.5	335.8	350.8	358.5	359.4	367.7
	Change, %		0.3	0.5	1.3	10.2	(0.3)	12.1	7.3	4.9	4.7	2.3
	Soybean	920.0	915.0	913.5	871.8	829.0	954.0	975.8	951.8	987.5	975.9	934.2
	Change, %		0.5	0.7	5.5	11.0	(3.6)	(5.7)	(3.3)	(6.8)	(5.7)	(1.5)
	Wheat	515.3	509.8	514.5	519.8	481.8	534.5	387.3	427.0	436.4	436.0	494.1
	Change, %		1.1	0.1	(0.9)	7.0	(3.6)	33.1	20.7	18.1	18.2	4.3
	Rice	10.6	10.6	10.8	10.6	10.6	11.9	12.3	11.7	10.3	11.1	11.6
	Change, %		(0.9)	(2.5)	(0.9)	(0.9)	(11.5)	(13.9)	(9.7)	2.0	(4.6)	(9.0)
	Oats	283.0	285.5	281.0	285.0	234.0	242.3	227.3	241.0	196.3	252.3	255.1
	Change, %		(0.9)	0.7	(0.7)	20.9	16.8	24.5	17.4	44.2	12.2	11.0
MYR/mt	Palm Oil	1,813.0	1,805.0	1,780.0	1,865.0	2,195.0	2,330.0	2,365.0	2,444.0	2,653.8	2,787.3	2,263.0
	Change, %		0.4	1.9	(2.8)	(17.4)	(22.2)	(23.3)	(25.8)	(31.7)	(35.0)	(19.9)
	Cocoa	2,112.0	2,066.0	2,060.0	2,209.0	2,355.0	2,413.0	1,872.0	1,892.0	2,854.0	2,005.2	2,307.8
	Change, %		2.2	2.5	(4.4)	(10.3)	(12.5)	12.8	11.6	(26.0)	5.3	(8.5)
	Cotton	80.0	80.0	80.1	76.4	82.8	95.2	72.9	78.6	65.6	73.5	82.5
	Change, %		(0.1)	(0.2)	4.7	(3.4)	(16.0)	9.7	1.7	21.9	8.8	(3.1)
	Sugar	12.7	12.8	12.7	12.9	11.7	12.4	13.8	15.2	18.2	15.8	12.2
	Change, %		(0.7)	0.2	(1.5)	9.2	3.2	(7.5)	(16.0)	(29.8)	(19.5)	4.0
	Coffee	97.8	97.7	101.0	110.2	97.9	117.4	117.1	126.2	136.1	133.0	113.4
	Change, %		0.1	(3.2)	(11.3)	(0.1)	(16.7)	(16.5)	(22.5)	(28.2)	(26.5)	(13.8)
Energy	WTI	51.2	51.7	52.9	59.9	70.4	66.4	57.1	60.4	43.4	51.0	65.8
	Change, %		(1.0)	(3.3)	(14.7)	(27.3)	(22.9)	(10.5)	(15.3)	17.9	0.4	(22.2)
	Brent	60.2	60.2	61.6	70.1	79.7	75.9	63.3	66.9	45.1	54.9	72.4
	Change, %		(0.0)	(2.2)	(14.2)	(24.5)	(20.7)	(5.0)	(10.0)	33.5	9.7	(16.9)
	Natural Gas	4.1	4.4	4.5	3.8	2.8	2.9	2.7	3.0	2.6	3.0	3.0
	Change, %		(6.1)	(7.5)	9.2	46.2	40.7	54.4	40.1	62.1	36.9	35.9
	Ethanol	1.3	1.2	1.2	1.3	1.3	1.4	1.3	1.3	1.5	1.5	1.4
	Change, %		1.7	1.6	(0.3)	(0.8)	(13.1)	(3.1)	(4.9)	(17.1)	(16.2)	(9.1)
	RBOB Gasoline	142.0	144.0	144.6	163.7	203.5	209.0	169.8	179.9	140.0	162.9	194.6
	Change, %		(1.3)	(1.7)	(13.2)	(30.2)	(32.0)	(16.3)	(21.1)	1.5	(12.8)	(27.0)
	Coal	101.7	102.2	102.7	105.9	115.1	115.6	98.7	100.8	65.5	88.2	107.4
	Change, %		(0.5)	(1.0)	(4.0)	(11.6)	(12.0)	3.0	0.8	55.3	15.2	(5.4)
Metal	Gold	1,245.7	1,243.2	1,237.3	1,200.4	1,206.3	1,296.0	1,244.6	1,302.6	1,248.5	1,258.6	1,269.8
	Change, %		0.2	0.7	3.8	3.3	(3.9)	0.1	(4.4)	(0.2)	(1.0)	(1.9)
	Silver	14.7	14.6	14.5	14.0	14.3	16.9	15.7	16.9	17.1	17.1	15.8
	Change, %		1.2	1.7	5.3	3.4	(12.6)	(6.3)	(13.0)	(13.8)	(13.7)	(6.4)
	Copper	6,140.0	6,168.0	6,175.0	6,049.0	5,997.0	7,222.0	6,663.0	7,247.0	4,872.0	6,199.4	6,571.2
	Change, %		(0.5)	(0.6)	1.5	2.4	(15.0)	(7.8)	(15.3)	26.0	(1.0)	(6.6)
	Nickel	772.6	777.1	793.1	826.4	905.6	1,029.0	716.6	809.1	646.4	680.2	904.7
	Change, %		(0.6)	(2.6)	(6.5)	(14.7)	(24.9)	7.8	(4.5)	19.5	13.6	(14.6)
	Zinc	2,570.0	2,590.0	2,618.0	2,496.5	2,390.0	3,199.0	3,157.0	3,319.0	2,097.5	2,888.5	2,913.5
	Change, %		(0.8)	(1.8)	2.9	7.5	(19.7)	(18.6)	(22.6)	22.5	(11.0)	(11.8)
	Lead	1,970.8	1,969.5	1,977.5	1,912.8	2,004.3	2,462.0	2,521.3	2,482.8	1,868.3	2,315.7	2,258.0
	Change, %		0.1	(0.3)	3.0	(1.7)	(20.0)	(21.8)	(20.6)	5.5	(14.9)	(12.7)
	Aluminum	13,540.0	13,585.0	13,690.0	13,835.0	14,495.0	14,745.0	14,050.0	15,020.0	12,373.5	14,556.6	14,285.9
	Change, %		(0.3)	(1.1)	(2.1)	(6.6)	(8.2)	(3.6)	(9.9)	9.4	(7.0)	(5.2)
	Cobalt	55,000.0	55,000.0	55,000.0	55,000.0	62,806.0	80,750.0	72,750.0	75,205.0	25,480.1	55,906.9	73,796.3
	Change, %		0.0	0.0	0.0	(12.4)	(31.9)	(24.4)	(26.9)	115.9	(1.6)	(25.5)
	HR Coil	755.0	760.0	765.0	812.0	865.0	911.0	642.0	662.0	519.3	620.1	833.3
	Change, %		(0.7)	(1.3)	(7.0)	(12.7)	(17.1)	17.6	14.0	45.4	21.8	(9.4)
	Scrap	390.0	390.0	397.0	402.0	377.0	408.0	360.0	367.0	275.7	344.7	390.7
	Change, %		0.0	(1.8)	(3.0)	3.4	(4.4)	8.3	6.3	41.5	13.1	(0.2)

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

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Refining Price Data

Daily Price		12/12	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	**WTI**	51.2	51.7	52.9	59.9	70.4	66.6	56.6	53.7	43.4	50.9	65.8
	Change, %		*(1.0)*	*(3.3)*	*(14.7)*	*(27.3)*	*(23.2)*	*(9.6)*	*(4.8)*	*18.0*	*0.5*	*(22.3)*
	Dubai	59.2	58.4	59.8	70.6	77.5	73.5	61.3	53.8	41.3	53.1	70.3
	Change, %		*1.5*	*(1.0)*	*(16.1)*	*(23.5)*	*(19.4)*	*(3.4)*	*10.0*	*43.4*	*11.6*	*(15.7)*
Crude Oil Product	**Gasoline(휘발유)**	61.4	60.5	61.3	72.4	89.7	83.4	76.0	69.8	56.3	68.0	81.2
	Change, %		*1.5*	*0.2*	*(15.2)*	*(31.5)*	*(26.3)*	*(19.1)*	*(12.0)*	*9.2*	*(9.7)*	*(24.3)*
	Kerosene(등유)	72.9	72.6	73.3	88.8	91.4	87.1	75.6	66.4	52.9	65.2	85.7
	Change, %		*0.4*	*(0.6)*	*(17.9)*	*(20.3)*	*(16.3)*	*(3.6)*	*9.8*	*37.9*	*11.8*	*(14.9)*
	Diesel(경유)	71.0	70.3	71.9	87.9	92.6	87.3	75.4	65.5	52.1	65.6	85.1
	Change, %		*1.0*	*(1.3)*	*(19.2)*	*(23.3)*	*(18.7)*	*(5.9)*	*8.4*	*36.2*	*8.2*	*(16.6)*
	Bunker-C	58.4	58.0	61.2	72.4	70.1	68.3	55.7	52.1	35.5	49.7	66.0
	Change, %		*0.8*	*(4.4)*	*(19.2)*	*(16.7)*	*(14.4)*	*4.9*	*12.3*	*64.5*	*17.7*	*(11.4)*
	Naphtha	52.7	51.7	53.0	58.5	74.5	70.9	65.2	53.5	42.6	53.7	68.0
	Change, %		*2.0*	*(0.5)*	*(9.8)*	*(29.2)*	*(25.6)*	*(19.1)*	*(1.3)*	*23.8*	*(1.9)*	*(22.5)*
Dubai Spread	**Gasoline(휘발유)**	2.2	2.2	1.5	1.8	12.2	9.9	14.7	16.0	14.9	14.9	10.9
	Change		*0.0*	*0.7*	*0.4*	*(10.0)*	*(7.7)*	*(12.5)*	*(13.8)*	*(12.7)*	*(12.7)*	*(8.7)*
	Kerosene(등유)	13.7	14.2	13.5	18.2	14.0	13.6	14.3	12.6	11.6	12.1	15.4
	Change		*(0.5)*	*0.1*	*(4.5)*	*(0.3)*	*0.1*	*(0.6)*	*1.1*	*2.1*	*1.5*	*(1.7)*
	Diesel(경유)	11.8	12.0	12.1	17.3	15.1	13.8	14.1	11.7	10.8	12.5	14.8
	Change		*(0.2)*	*(0.3)*	*(5.5)*	*(3.3)*	*(2.1)*	*(2.3)*	*0.1*	*1.0*	*(0.7)*	*(3.1)*
	Bunker-C	(0.8)	(0.4)	1.3	1.8	(7.3)	(5.2)	(5.6)	(1.8)	(5.8)	(3.4)	(4.3)
	Change		*(0.4)*	*(2.1)*	*(2.5)*	*6.5*	*4.4*	*4.8*	*1.0*	*5.0*	*2.6*	*3.5*
	Naphtha	(6.5)	(6.7)	(6.8)	(12.1)	(3.0)	(2.6)	3.9	(0.4)	1.3	0.6	(2.2)
	Change		*0.2*	*0.3*	*5.6*	*(3.5)*	*(3.9)*	*(10.4)*	*(6.1)*	*(7.8)*	*(7.1)*	*(4.2)*
Refining Margin	**Simple(단순)**	2.3	2.6	3.2	4.7	1.1	1.5	2.7	3.8	1.9	3.2	2.6
	Change		*(0.3)*	*(0.9)*	*(2.4)*	*1.3*	*0.8*	*(0.4)*	*(1.5)*	*0.4*	*(0.8)*	*(0.3)*
	Complex(복합)	4.4	4.5	4.7	6.6	6.9	6.3	8.3	8.3	7.0	8.0	7.4
	Change		*(0.2)*	*(0.4)*	*(2.2)*	*(2.6)*	*(2.0)*	*(3.9)*	*(3.9)*	*(2.6)*	*(3.6)*	*(3.0)*
	Complex(lagging)	(5.8)	(8.6)	(7.1)	(5.9)	13.8	5.4	7.5	18.0	8.5	8.9	7.4
	Change		*2.9*	*1.4*	*0.1*	*(19.6)*	*(11.1)*	*(13.3)*	*(23.7)*	*(14.2)*	*(14.7)*	*(13.2)*

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			12/12	12/11	12/10	12/07	12/06	12/05	12/04	12/03	11/30	11/29
Spot Price	**Naphtha**	CFR Japan	497.5	486.3	505.0	492.0	490.5	491.5	512.8	511.3	489.8	472.3
	Ethylene	CFR SE Asia	750.0	760.0	760.0	760.0	770.0	790.0	830.0	850.0	860.0	910.0
	Propylene	FOB Korea	875.0	875.0	875.0	875.0	855.0	855.0	855.0	845.0	835.0	835.0
	Butadiene	FOB Korea	1,090.0	1,090.0	1,090.0	1,090.0	1,090.0	1,090.0	1,075.0	1,075.0	1,075.0	1,070.0
	HDPE	CFR FE Asia	1,070.0	1,070.0	1,070.0	1,070.0	1,070.0	1,070.0	1,020.0	1,030.0	1,030.0	1,035.0
	LDPE	CFR FE Asia	1,030.0	1,030.0	1,020.0	1,020.0	1,020.0	1,020.0	980.0	990.0	990.0	990.0
	LLDPE	CFR FE Asia	1,020.0	1,020.0	1,010.0	1,010.0	1,000.0	990.0	980.0	980.0	980.0	980.0
	MEG	CFR China	675.0	675.0	697.0	710.0	730.0	738.0	730.0	705.0	680.0	684.0
	PP	CFR FE Asia	1,050.0	1,050.0	1,050.0	1,045.0	1,045.0	1,045.0	1,010.0	1,020.0	1,030.0	1,030.0
	PX	CFR China	1,039.0	1,037.7	1,056.0	1,048.0	1,033.0	1,030.3	1,008.0	984.3	983.0	979.3
	PTA	CFR China	850.0	848.0	848.0	850.0	845.0	840.0	840.0	839.0	839.0	840.0
	Benzene	FOB Korea	596.7	595.7	616.0	616.0	636.3	642.7	644.0	641.0	634.0	641.3
	Toluene	FOB Korea	585.0	588.0	593.0	594.0	596.0	597.0	595.0	580.0	596.0	596.0
	Xylene	FOB Korea	649.0	669.0	685.0	684.0	688.0	699.0	698.0	696.0	680.0	686.0
	SM	FOB Korea	965.0	955.0	982.0	980.0	988.0	1,002.0	1,003.0	962.0	938.5	956.5

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	**Naphtha**	CFR Japan	488.5	487.0	543.0	667.0	635.5	590.5	484.5	399.5	493.5	621.7
	Change, %			*0.3*	*(10.0)*	*(26.8)*	*(23.1)*	*(17.3)*	*0.8*	*22.3*	*(1.0)*	*(21.4)*
	Ethylene	CFR SE Asia	780.0	855.0	850.0	1,137.5	1,275.0	1,212.5	990.0	1,040.9	1,090.9	1,163.5
	Change, %			*(8.8)*	*(8.2)*	*(31.4)*	*(38.8)*	*(35.7)*	*(21.2)*	*(25.1)*	*(28.5)*	*(33.0)*
	Propylene	CFR SE Asia	840.0	775.0	970.0	1,030.0	1,037.5	850.0	815.0	705.7	823.6	1,052.9
	Change, %			*8.4*	*(13.4)*	*(18.4)*	*(19.0)*	*(1.2)*	*3.1*	*19.0*	*2.0*	*(20.2)*
	Butadiene	CFR SE Asia	1,100.0	1,075.0	1,075.0	1,550.0	1,700.0	1,075.0	2,100.0	1,116.8	1,481.1	1,401.9
	Change, %			*2.3*	*2.3*	*(29.0)*	*(35.3)*	*2.3*	*(47.6)*	*(1.5)*	*(25.7)*	*(21.5)*
	Benzene	CFR SE Asia	620.0	637.5	690.0	870.0	877.5	905.0	822.5	646.7	838.8	839.0
	Change, %			*(2.7)*	*(10.1)*	*(28.7)*	*(29.3)*	*(31.5)*	*(24.6)*	*(4.1)*	*(26.1)*	*(26.1)*
	Toluene	CFR SE Asia	640.0	655.0	800.0	830.0	830.0	720.0	690.0	630.5	689.5	782.0
	Change, %			*(2.3)*	*(20.0)*	*(22.9)*	*(22.9)*	*(11.1)*	*(7.2)*	*1.5*	*(7.2)*	*(18.2)*
	Xylene	CFR SE Asia	720.0	735.0	875.0	870.0	840.0	695.0	675.0	627.7	668.8	810.2
	Change, %			*(2.0)*	*(17.7)*	*(17.2)*	*(14.3)*	*3.6*	*6.7*	*14.7*	*7.7*	*(11.1)*
Spread	**Ethylene**	-Naphtha	291.5	368.0	307.0	470.5	639.5	622.0	505.5	641.4	597.4	541.8
	Change, %			*(20.8)*	*(5.0)*	*(38.0)*	*(54.4)*	*(53.1)*	*(42.3)*	*(54.6)*	*(51.2)*	*(46.2)*
	Propylene	-Naphtha	351.5	288.0	427.0	363.0	402.0	259.5	330.5	306.2	330.1	431.2
	Change, %			*22.0*	*(17.7)*	*(3.2)*	*(12.6)*	*35.5*	*6.4*	*14.8*	*6.5*	*(18.5)*
	Butadiene	-Naphtha	611.5	588.0	532.0	883.0	1,064.5	484.5	1,615.5	717.3	987.6	780.2
	Change, %			*4.0*	*14.9*	*(30.7)*	*(42.6)*	*26.2*	*(62.1)*	*(14.8)*	*(38.1)*	*(21.6)*
	Benzene	-Naphtha	131.5	150.5	147.0	203.0	242.0	314.5	338.0	247.2	345.3	217.3
	Change, %			*(12.6)*	*(10.5)*	*(35.2)*	*(45.7)*	*(58.2)*	*(61.1)*	*(46.8)*	*(61.9)*	*(39.5)*
	Toluene	-Naphtha	151.5	168.0	257.0	163.0	194.5	129.5	205.5	231.0	196.0	160.3
	Change, %			*(9.8)*	*(41.1)*	*(7.1)*	*(22.1)*	*17.0*	*(26.3)*	*(34.4)*	*(22.7)*	*(5.5)*
	Xylene	-Naphtha	231.5	248.0	332.0	203.0	204.5	104.5	190.5	228.2	175.3	188.4
	Change, %			*(6.7)*	*(30.3)*	*14.0*	*13.2*	*121.5*	*21.5*	*1.4*	*32.0*	*22.8*

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

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Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	HDPE	CFR SE Asia	997.5	1,047.5	1,147.5	1,192.5	1,222.5	1,207.5	1,142.5	1,134.6	1,142.5	1,220.2
	Change, %			(4.8)	(13.1)	(16.4)	(18.4)	(17.4)	(12.7)	(12.1)	(12.7)	(18.3)
	MEG	CFR SE Asia	720.0	690.0	737.5	970.0	970.0	915.0	847.5	660.8	850.6	930.2
	Change, %			4.3	(2.4)	(25.8)	(25.8)	(21.3)	(15.0)	9.0	(15.4)	(22.6)
	PVC	CFR SE Asia	860.0	860.0	850.0	950.0	945.0	855.0	920.0	823.4	899.9	922.3
	Change, %			0.0	1.2	(9.5)	(9.0)	0.6	(6.5)	4.4	(4.4)	(6.8)
	PP	CFR SE Asia	1,057.5	1,127.5	1,232.5	1,237.5	1,232.5	1,157.5	1,032.5	978.4	1,099.6	1,244.6
	Change, %			(6.2)	(14.2)	(14.5)	(14.2)	(8.6)	2.4	8.1	(3.8)	(15.0)
	2-EH	CFR Korea	1,050.0	1,080.0	1,155.0	1,130.0	1,120.0	1,020.0	865.0	772.4	970.0	1,121.8
	Change, %			(2.8)	(9.1)	(7.1)	(6.3)	2.9	21.4	35.9	8.2	(6.4)
	ABS	CFR SE Asia	1,465.0	1,460.0	1,600.0	1,880.0	1,960.0	2,030.0	1,635.0	1,347.1	1,844.7	1,920.1
	Change, %			0.3	(8.4)	(22.1)	(25.3)	(27.8)	(10.4)	8.8	(20.6)	(23.7)
	SBR	CFR SE Asia	1,395.0	1,400.0	1,520.0	1,875.0	1,830.0	1,650.0	2,000.0	1,483.0	1,980.5	1,712.9
	Change, %			(0.4)	(8.2)	(25.6)	(23.8)	(15.5)	(30.3)	(5.9)	(29.6)	(18.6)
	SM	CFR SE Asia	1,022.5	992.5	1,100.0	1,447.5	1,475.0	1,352.5	1,205.0	1,064.6	1,253.8	1,360.6
	Change, %			3.0	(7.0)	(29.4)	(30.7)	(24.4)	(15.1)	(4.0)	(18.4)	(24.8)
	Caustic	FOB NEA	300.0	324.0	324.0	440.0	369.0	699.5	422.5	316.6	491.2	490.5
	Change, %			(7.4)	(7.4)	(31.8)	(18.7)	(57.1)	(29.0)	(5.2)	(38.9)	(38.8)
	PX	CFR SE Asia	1,055.0	995.0	1,120.0	1,315.0	1,117.5	895.0	855.0	790.4	844.4	1,059.1
	Change, %			6.0	(5.8)	(19.8)	(5.6)	17.9	23.4	33.5	24.9	(0.4)
	PO	CFR China	1,462.5	1,500.0	1,717.5	1,960.0	1,815.0	1,765.0	1,562.5	1,396.8	1,601.2	1,842.1
	Change, %			(2.5)	(14.8)	(25.4)	(19.4)	(17.1)	(6.4)	4.7	(8.7)	(20.6)
	Caprolactam	CFR SE Asia	1,650.0	1,870.0	2,080.0	2,130.0	2,155.0	2,050.0	1,850.0	1,344.9	1,936.4	2,113.6
	Change, %			(11.8)	(20.7)	(22.5)	(23.4)	(19.5)	(10.8)	22.7	(14.8)	(21.9)
	PTA	CFR SE Asia	860.0	845.0	930.0	1,080.0	920.0	725.0	642.5	613.7	667.8	871.7
	Change, %			1.8	(7.5)	(20.4)	(6.5)	18.6	33.9	40.1	28.8	(1.3)
Spread	HDPE		509.0	560.5	604.5	525.5	587.0	617.0	658.0	735.1	649.0	598.5
	Change, %			(9.2)	(15.8)	(3.1)	(13.3)	(17.5)	(22.6)	(30.8)	(21.6)	(15.0)
	MEG		231.5	203.0	194.5	303.0	334.5	324.5	363.0	261.3	357.1	308.4
	Change, %			14.0	19.0	(23.6)	(30.8)	(28.7)	(36.2)	(11.4)	(35.2)	(24.9)
	PVC		371.5	373.0	307.0	283.0	309.5	264.5	435.5	423.9	406.4	300.6
	Change, %			(0.4)	21.0	31.3	20.0	40.5	(14.7)	(12.4)	(8.6)	23.6
	PP		569.0	640.5	689.5	570.5	597.0	567.0	548.0	578.9	606.1	622.9
	Change, %			(11.2)	(17.5)	(0.3)	(4.7)	0.4	3.8	(1.7)	(6.1)	(8.7)
	2-EH		561.5	593.0	612.0	463.0	484.5	429.5	380.5	372.9	476.5	500.1
	Change, %			(5.3)	(8.3)	21.3	15.9	30.7	47.6	50.6	17.8	12.3
	ABS		976.5	973.0	1,057.0	1,213.0	1,324.5	1,439.5	1,150.5	947.6	1,351.2	1,298.4
	Change, %			0.4	(7.6)	(19.5)	(26.3)	(32.2)	(15.1)	3.0	(27.7)	(24.8)
	SBR	BD spread	295.0	325.0	445.0	325.0	130.0	575.0	(100.0)	366.2	499.4	310.9
	Change, %			(9.2)	(33.7)	(9.2)	126.9	(48.7)	(395.0)	(19.4)	(40.9)	(5.1)
	SM		534.0	505.5	557.0	780.5	839.5	762.0	720.5	665.1	760.3	738.9
	Change, %			5.6	(4.1)	(31.6)	(36.4)	(29.9)	(25.9)	(19.7)	(29.8)	(27.7)
	Caustic											
	Change, %											
	PX		566.5	508.0	577.0	648.0	482.0	304.5	370.5	390.9	351.0	437.4
	Change, %			11.5	(1.8)	(12.6)	17.5	86.0	52.9	44.9	61.4	29.5
	PO	propylene sprea	622.5	725.0	747.5	930.0	777.5	915.0	747.5	691.1	777.6	789.3
	Change, %			(14.1)	(16.7)	(33.1)	(19.9)	(32.0)	(16.7)	(9.9)	(19.9)	(21.1)
	Caprolactam	benzene spreac	1,030.0	1,232.5	1,390.0	1,260.0	1,277.5	1,145.0	1,027.5	698.2	1,097.6	1,274.6
	Change, %			(16.4)	(25.9)	(18.3)	(19.4)	(10.0)	0.2	47.5	(6.2)	(19.2)
	PTA	px spread	121.5	148.5	146.0	159.5	137.8	98.5	44.0	60.4	76.7	130.3
	Change, %			(18.2)	(16.8)	(23.8)	(11.8)	23.4	176.1	101.1	58.4	(6.8)

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

SK Energy Daily

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SK 증권

Global peers

	Currency	12/12	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	54.4	2.0	(3.8)	(5.8)	(21.5)	(22.1)	(23.2)	(23.7)	168,245	17.7	14.9	1.8	1.7	10.2	9.2
Eastman	USD	72.5	(0.0)	(6.6)	(11.1)	(24.4)	(33.7)	(22.0)	(21.7)	13,550	11.6	10.7	2.5	2.2	8.7	8.1
BASF	EUR	59.7	1.0	(5.8)	(11.9)	(22.7)	(31.7)	(36.5)	(34.9)	101,214	14.6	13.6	2.4	2.2	7.8	7.4
Akzo Nobel	EUR	71.4	1.0	(2.2)	(3.3)	(10.2)	(7.3)	(4.8)	(2.2)	22,073	17.0	15.8	3.0	2.8	9.3	8.8
Arkema	EUR	79.6	2.7	(3.6)	(15.3)	(24.8)	(22.3)	(22.5)	(21.7)	9,270	13.2	12.2	1.7	1.6	6.3	6.0
Lanxess	EUR	43.4	3.1	(9.5)	(20.3)	(34.1)	(38.7)	(33.3)	(34.6)	7,282	15.5	13.1	2.1	1.9	9.3	8.2
Sumitomo Chemical	JPY	565	0.9	(8.0)	(7.4)	(6.0)	(13.7)	(28.8)	(30.2)	11,911	10.1	10.5	1.3	1.2	7.4	8.0
Mitsubishi Chemical	JPY	849	1.8	(5.3)	(9.7)	(10.2)	(15.3)	(31.4)	(31.3)	16,544	9.2	8.7	1.3	1.2	6.3	6.1
Shin-Etsu Chemical	JPY	9,363	1.6	(4.3)	(7.9)	0.2	(13.9)	(21.5)	(18.2)	43,948	18.5	16.6	1.9	1.8	8.1	7.4
Asahi Kasei	JPY	1,145	2.0	(6.5)	(7.9)	(26.6)	(23.8)	(21.3)	(21.2)	18,109	14.4	13.6	1.5	1.4	7.4	7.0
JSR	JPY	1,731	2.7	(2.8)	(3.3)	(12.9)	(15.8)	(24.5)	(22.0)	4,455	14.5	13.4	1.2	1.1	7.7	7.2
Nitto Denko	JPY	5,708	1.6	(5.4)	(7.9)	(28.8)	(34.7)	(44.3)	(43.0)	15,450	15.7	14.6	2.1	1.9	7.3	7.0
SABIC	SAR	119.2	0.7	(1.7)	(3.7)	0.2	(5.8)	17.7	17.5	80,773	14.2	13.7	1.7	1.7	7.3	7.1
Yansab	SAR	67.5	0.7	(2.7)	(0.1)	(4.9)	(7.5)	15.0	14.4	8,861	13.7	13.9	2.2	1.9	9.0	8.9
Formosa Plastics	TWD	99.0	0.5	(2.0)	(2.0)	(10.8)	(7.9)	6.1	0.3	21,114	14.4	13.9	1.8	1.8	18.9	19.2
Formosa Fiber	TWD	105.5	1.0	(0.5)	(1.9)	(10.6)	(9.1)	11.9	2.4	20,511	13.7	13.4	1.7	1.7	11.6	11.5
Nan Ya Plastics	TWD	72.4	(0.1)	(1.8)	(6.3)	(13.4)	(15.1)	(2.4)	(7.1)	20,648	14.8	15.3	1.7	1.7	16.2	16.4
Sinopec Shanghai	CNY	5.09	1.0	0.8	(2.7)	(10.2)	(11.3)	(19.7)	(19.6)	9,462	12.0	12.6	2.2	2.0	6.8	7.3
Sinopec Yizheng(Fibe	CNY	1.91	0.0	(1.0)	(3.5)	(3.0)	(6.8)	(31.3)	(28.5)	5,394	50.4	66.3	5.3	5.0	13.9	10.3
Reliance	INR	1,111	1.2	(3.9)	2.8	(11.3)	11.4	21.3	22.1	93,404	14.4	12.9	1.7	1.5	9.4	8.7
Industries Qatar	QAR	135.5	(0.4)	(2.9)	(3.1)	6.1	22.6	45.9	39.7	16,144	14.5	13.9	1.6	1.5	46.4	27.2
PTT Chemical	THB	78.3	(0.3)	(3.4)	(0.6)	1.0	(10.6)	(5.4)	(7.9)	11,766	10.7	10.4	1.4	1.3	5.5	5.4
Petronas	MYR	9.2	(0.1)	(0.4)	(4.2)	(2.8)	10.1	23.6	19.1	15,624	16.1	15.5	2.0	1.9	9.2	8.9
LG화학	KRW	350,000	0.1	(1.3)	4.9	1.9	(8.0)	(10.3)	(13.6)	27,313	13.8	12.8	1.8	1.6	6.5	6.1
롯데케미칼	KRW	267,000	0.6	(4.5)	(6.6)	(7.3)	(29.8)	(25.2)	(27.4)	11,632	5.5	5.2	0.9	0.8	3.6	3.3
한화케미칼	KRW	20,000	0.8	7.0	13.0	6.4	(21.7)	(35.3)	(36.7)	5,050	5.7	5.5	0.8	0.7	6.7	6.5
금호석유	KRW	83,400	(0.5)	(7.4)	(8.4)	(18.6)	(17.8)	(5.5)	(16.2)	2,969	14.1	11.9	1.6	1.5	9.3	8.4
SKC	KRW	34,400	(0.3)	(5.2)	(3.6)	(26.3)	(18.7)	(18.3)	(26.8)	1,643	9.9	8.7	1.1	1.0	8.8	7.9
국도화학	KRW	46,400	0.5	(1.1)	(2.6)	(15.0)	(31.8)	(32.5)	(26.5)	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	4,500	2.2	(7.7)	(5.8)	(31.2)	(40.6)	(42.2)	(40.6)	4,595	8.2	7.3	1.1	1.0	7.2	6.8
Average			**0.9**	**(3.4)**	**(4.9)**	**(12.4)**	**(15.7)**	**(13.4)**	**(14.7)**							
Refinery																
Valero	USD	73.6	0.5	(7.4)	(14.3)	(36.7)	(37.6)	(15.3)	(19.9)	40,608	14.1	13.4	2.0	2.0	6.9	6.9
Conoco Phillips	USD	65.3	(0.3)	(2.5)	0.2	(9.3)	(6.0)	25.6	18.9	66,136	34.0	25.9	2.2	2.2	7.2	6.7
Formosa Petrochemic	TWD	112.5	0.4	(0.4)	(3.8)	(11.8)	(8.5)	2.7	(2.6)	37,040	18.2	18.7	3.2	3.2	11.7	12.1
Andeavor	USD	153.5	0.0	0.0	0.0	(1.5)	10.2	39.0	34.2	17,904	12.9	11.4	1.8	1.7	7.3	7.1
Marathon Petroleum	USD	62.0	1.1	(2.1)	(5.9)	(26.3)	(17.8)	(3.8)	(6.0)	32,812	15.0	12.8	2.6	2.7	7.7	7.5
Devon Energy	USD	27.3	2.0	(3.2)	(13.5)	(35.0)	(34.9)	(29.0)	(34.1)	22,192	17.5	14.0	2.7	2.3	8.4	7.4
Hollyfrontier	USD	57.1	3.5	(1.9)	(10.1)	(19.2)	(21.7)	20.8	11.4	9,094	16.8	15.2	1.8	1.8	8.0	8.0
Phillips 66	USD	89.3	0.9	(2.4)	(8.6)	(20.4)	(22.8)	(9.9)	(11.8)	51,561	15.6	14.5	2.3	2.2	9.0	8.8
Murphy Oil	USD	28.2	0.6	(8.9)	(7.4)	(9.8)	(15.1)	(1.4)	(9.1)	5,548	162.4	113.2	1.2	1.1	4.9	4.5
JX Holdings	JPY	614.9	2.0	(7.7)	(15.2)	(16.6)	(17.1)	(10.9)	(15.4)	22,130	8.8	8.0	0.9	0.9	7.0	6.6
Idemitsu	JPY	3,685.0	2.9	(7.6)	(23.0)	(33.8)	(2.6)	(13.2)	(18.6)	8,360	7.9	7.5	1.0	0.9	6.8	6.8
Nesteoil	EUR	72.5	6.1	4.2	1.2	(0.8)	4.9	40.3	36.0	16,473	16.7	16.7	2.9	2.7	10.2	10.3
Ashland	USD	76.1	1.1	(6.1)	(7.4)	(9.2)	(4.2)	7.2	6.9	4,550	21.6	18.7	1.3	1.3	10.2	9.6
Fuchs Petrolub	EUR	35.9	0.5	(0.3)	(11.1)	(26.4)	(21.8)	(18.3)	(18.9)	7,127	22.1	20.9	4.1	3.7	13.0	12.3
SK이노베이션	KRW	184,500	1.7	(7.3)	(6.8)	(8.4)	(14.2)	(6.3)	(9.8)	17,975	7.9	7.7	0.9	0.9	4.9	4.8
S-Oil	KRW	109,000	3.3	(2.7)	(2.2)	(13.1)	(2.2)	(8.4)	(6.8)	12,400	9.3	8.1	1.8	1.6	7.6	6.6
GS	KRW	51,600	(0.2)	(1.1)	1.4	(2.8)	(13.4)	(13.7)	(17.0)	5,467	6.0	5.5	0.7	0.6	6.9	6.3
Average			**1.5**	**(3.4)**	**(7.5)**	**(16.5)**	**(13.2)**	**0.3**	**(3.7)**							

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

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Global peers

	Currency	12/12	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	76	(0.9)	(4.3)	(4.8)	(8.6)	(7.8)	(8.1)	(9.1)	321,854	16.2	14.0	1.7	1.6	7.2	6.3
BP	GBP	517	(0.1)	(2.0)	(2.2)	(6.6)	(10.7)	1.1	(1.2)	131,041	11.0	10.5	1.3	1.2	4.5	4.2
Shell	EUR	2,349	0.4	(1.4)	(3.4)	(5.4)	(9.5)	(3.2)	(5.3)	245,567	11.0	9.3	1.2	1.2	5.2	4.9
Chevron	USD	116	0.1	(1.4)	(1.5)	(0.1)	(9.0)	(3.4)	(7.6)	220,924	13.8	12.5	1.4	1.4	5.7	5.2
Total	EUR	48	1.5	(0.7)	(3.5)	(10.0)	(7.4)	1.5	5.3	148,073	10.1	9.1	1.2	1.1	5.1	4.7
Sinopec	CNY	6	0.2	(1.8)	(5.2)	(11.9)	(8.9)	(3.0)	(4.4)	102,354	9.2	9.0	1.0	0.9	3.5	3.4
Petrochina	CNY	8	0.8	(0.4)	(5.9)	(7.6)	(2.4)	(4.7)	(5.6)	194,337	21.8	19.2	1.1	1.1	5.0	4.8
CNOOC	CNY	9	0.3	(0.8)	(6.7)	(14.8)	(9.9)	(9.7)	(10.8)	72,799	8.7	7.8	1.2	1.1	3.5	3.3
Gazprom	RUB	156	(1.8)	(5.3)	3.2	0.5	9.5	15.0	19.4	55,623	2.7	2.8	0.3	0.3	2.4	2.4
Rosneft	RUB	422	(0.8)	(3.9)	(9.0)	(5.1)	9.7	39.2	44.8	67,453	6.4	5.4	1.0	1.0	4.0	3.8
Anadarko	USD	53	1.8	(0.8)	(6.6)	(14.9)	(26.3)	8.3	(2.0)	26,505	19.4	14.1	2.3	2.0	5.6	5.0
Petrobras	BRL	23	0.0	(8.8)	(8.0)	23.0	50.7	50.4	44.7	84,973	7.7	6.3	1.1	0.9	4.8	4.2
Lukoil	USD	5,102	(3.1)	(3.0)	(0.5)	10.4	22.7	46.9	53.0	57,525	5.6	5.6	0.9	0.8	N/A	N/A
Kinder	USD	16	0.7	(2.7)	(7.1)	(10.6)	(4.1)	(8.6)	(10.2)	47,497	20.0	15.9	1.0	1.1	9.8	9.6
Equinor ASA	NOK	198	0.7	(2.0)	(6.8)	(8.6)	(8.7)	13.9	13.1	77,267	11.1	9.9	1.8	1.6	3.0	2.7
BHP	AUD	32	1.5	1.1	(3.7)	3.5	(4.5)	16.4	8.9	117,709	12.7	13.8	2.3	2.3	5.9	6.3
PTT E&P	THB	134	1.5	(4.3)	(2.9)	(5.0)	(1.8)	42.2	34.0	16,242	12.8	11.1	1.3	1.3	3.9	3.5
Petronas gas	MYR	19	0.6	(0.4)	2.3	2.1	9.1	19.6	9.8	9,063	19.7	19.8	2.9	2.8	10.8	10.8
Chesapeake	USD	3	0.0	(11.1)	(25.7)	(36.7)	(46.6)	(32.5)	(35.1)	2,348	3.1	3.3	#N/A N/A	2.0	5.9	5.1
Noble Energy	USD	23	1.5	(6.2)	(9.0)	(22.0)	(33.4)	(15.0)	(21.7)	10,949	22.1	19.0	1.1	1.0	5.9	5.3
Average		**0**	**0.2**	**(3.0)**	**(5.3)**	**(6.4)**	**(4.5)**	**8.3**	**6.0**							
PV																
WACKER	EUR	79.4	5.7	(1.5)	(6.1)	(28.4)	(31.9)	(47.1)	(51.0)	4,713	12.2	13.2	1.2	1.2	4.5	4.8
GCL-Poly	HKD	0.5	(1.0)	(10.9)	(15.5)	(7.5)	(38.8)	(60.8)	(65.0)	1,150	11.1	7.0	0.3	0.3	7.3	6.5
SunPower	USD	6.4	1.7	(3.8)	1.1	(6.6)	(18.4)	(26.2)	(24.0)	904	#N/A N/A	#N/A N/A	29.1	17.7	20.2	11.5
Canadian Solar	USD	16.8	4.5	1.9	21.3	12.5	35.6	(5.6)	(0.3)	985	6.6	9.1	0.9	0.9	6.7	7.7
JA Solar	USD	7.5	0.0	0.0	0.0	0.0	4.8	2.3	0.4	356	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
Yingli	USD	0.2	(9.1)	(0.7)	9.1	(28.0)	(88.8)	(90.4)	(89.3)	3	#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	43.6	2.7	(2.0)	2.1	(10.8)	(19.0)	(36.7)	(35.4)	4,570	28.6	16.9	0.9	0.8	7.5	3.7
한화큐셀	USD	9.7	0.4	0.4	0.1	14.5	48.8	36.9	38.5	809	17.4	36.0	#N/A N/A	#N/A N/A	9.5	9.7
OCI	KRW	111,500	5.7	6.7	12.5	(5.5)	(2.6)	(12.2)	(18.0)	2,366	0.0	17.1	0.0	0.8	0.0	6.1
웅진에너지	KRW	1,575	0.0	(5.1)	(6.5)	(43.1)	(69.8)	(83.1)	(80.8)	42	N/A	0.0	0.8	0.0	6.1	0.0
신성솔라에너지	KRW	1,035	3.7	(1.0)	(6.3)	(25.3)	(39.7)	(49.5)	(46.0)	159	N/A	0.8	0.0	6.1	0.0	0.4
Average			**1.3**	**(1.4)**	**1.1**	**(11.7)**	**(20.0)**	**(33.9)**	**(33.7)**							
Gas Company																
Towngas China	HKD	5.9	0.7	(4.3)	5.7	(14.7)	(19.7)	(3.3)	(5.4)	2,136	11.6	10.3	1.0	0.9	11.2	10.1
Kulun	HKD	8.9	(3.1)	(6.9)	(8.8)	6.0	25.4	25.2	9.2	9,185	10.9	9.7	1.4	1.3	5.8	5.3
Beijing Enterprise	HKD	45.1	1.8	(1.6)	0.4	16.0	5.5	3.1	(2.9)	7,277	7.6	6.9	0.8	0.7	15.1	12.8
ENN Energy	HKD	73.3	3.6	(0.7)	7.2	1.6	(8.4)	32.9	31.5	10,545	16.7	14.2	3.5	3.0	10.4	8.9
China Resources Gas	HKD	33.1	7.0	1.7	9.4	(12.0)	8.5	15.0	16.6	9,407	16.3	14.5	2.9	2.5	9.0	8.1
China Gas Holdings	HKD	28.6	4.6	0.7	11.1	20.5	(18.0)	26.3	32.2	18,531	18.5	15.8	4.2	3.5	14.2	12.3
Shenzen Gas	HKD	15.5	3.2	(0.8)	1.7	13.3	(10.0)	13.3	4.3	4,198	9.1	8.4	1.2	1.1	5.6	5.8
Shann Xi	CNY	7.8	(1.5)	0.1	(0.1)	7.3	6.9	(4.8)	(8.1)	1,254	18.6	16.4	1.5	1.4	#N/A N/A	#N/A N/A
Suntien	HKD	2.1	1.9	(3.6)	(2.8)	7.1	(18.8)	12.8	2.4	1,008	5.5	4.9	0.7	0.6	8.2	7.2
China Oil & Gas	HKD	0.5	2.0	(3.8)	(7.3)	(12.1)	(22.7)	(12.1)	(40.0)	381	#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			**2.0**	**(1.9)**	**1.7**	**3.3**	**(5.1)**	**10.8**	**4.0**							
EV																
LG화학	KRW	350,000	0.1	(1.3)	4.9	1.9	(8.0)	(10.3)	(13.6)	21,981	15.5	14.0	1.5	1.4	6.8	6.1
삼성SDI	KRW	208,500	2.5	(3.7)	(4.8)	(15.8)	(9.3)	(2.3)	2.0	12,755	19.0	12.6	1.2	1.1	10.9	8.1
Panasonic	JPY	1084.0	3.2	(5.9)	(6.6)	(13.7)	(32.1)	(33.0)	(34.3)	23,492	10.1	9.3	1.4	1.2	4.1	3.9
GS Yuasa	JPY	2487.0	0.8	(4.0)	(3.4)	(5.1)	(4.0)	(11.8)	(11.3)	1,817	14.8	13.4	1.1	1.0	6.9	6.3
NEC	JPY	3620.0	2.0	4.6	9.5	20.5	18.5	18.3	19.1	8,330	26.2	14.7	1.0	1.0	9.4	6.8
BYD Auto	CNY	58.3	3.7	0.6	12.9	38.6	16.4	(6.2)	(10.5)	21,909	48.6	34.5	2.8	2.6	14.8	12.1
Tesla Motors	USD	366.6	(0.0)	1.9	10.7	26.2	7.0	7.5	17.7	62,957	#N/A N/A	53.3	10.8	10.3	34.2	17.9
Kandi Technologies	USD	4.3	2.6	(4.7)	(6.7)	12.9	(7.2)	(38.3)	(36.9)	221	#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			**1.9**	**(1.6)**	**2.1**	**8.2**	**(2.4)**	**(9.5)**	**(8.5)**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임