SK Energy Daily

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SK 증권

1. News Summary (3 page)

2018년 1월 4일

News		Conclusion
WTI comment	이란 지정학 변수에 강세…WTI 2.1%↑	
Headline	러시아, 2017년 석유·천연가스 생산량 '구소련 붕괴이후 최대치' 기록	對중국 수출 확대와 LNG 판매 증가를 계획한 것이 증산의 배경임
News 1.	Philippines Petron, 말레이시아 refinery 확장 계획	글로벌 refinery 숏티지 국면으로 추가적인 capa 진입 불가피
News 2.	-	-
News 3.	-	-
News 4.	-	-

2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	$/bbl	61.6	2.1	3.3	7.0	23.3	15.7
Dubai	$/bbl	64.2	(0.3)	0.3	6.5	19.0	18.8
Gasoline	$/bbl	75.4	(1.5)	(1.4)	1.1	11.1	7.6
Diesel	$/bbl	78.6	(0.2)	0.4	7.6	18.1	20.1
Complex margin	$/bbl	7.2	(0.4)	(0.5)	(0.5)	(0.5)	(0.9)
1M lagging	$/bbl	10.4	(0.3)	(0.2)	1.0	(2.0)	(1.3)
Petrochemical			%	%	%	%	%
Naphtha	$/t	606	(1.8)	(0.2)	3.0	18.6	22.1
Butadiene	$/t	1,100	0.0	0.0	8.9	(21.4)	(52.0)
HDPE	$/t	1,280	0.0	0.0	(1.5)	9.9	9.9
MEG	$/t	967	0.2	3.9	5.7	9.5	3.0
PX	$/t	918	0.1	1.5	3.2	11.2	7.0
SM	$/t	1,296	(0.6)	3.1	1.2	7.0	11.2
Commodity			%	%	%	%	%
Natural Gas	$/mmbtu	3.00	(1.7)	10.0	2.7	(7.5)	(13.3)
Natural rubber	$/t	1,430	(1.4)	(1.4)	0.7	(3.4)	(27.0)
Cotton	C/lbs	78.1	0.8	(1.1)	3.9	12.5	5.4

*참고: 정제마진의 변동률은 %가 아닌 $/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	12/25	$/t	1,273	2.2	6.5	1.4	28.5
Propylene	12/25	$/t	898	0.8	7.5	7.5	10.1
Benzene	12/25	$/t	890	(3.3)	1.4	10.6	8.2
Toluene	12/25	$/t	735	0.0	2.8	5.0	6.5
Xylene	12/25	$/t	713	0.4	2.5	8.4	5.6
PP	12/25	$/t	1,158	0.0	0.9	(0.9)	12.1
PVC	12/25	$/t	870	0.6	2.4	(8.2)	(5.4)
ABS	12/25	$/t	2,050	(1.0)	4.6	(0.5)	25.4
SBR	12/25	$/t	1,650	0.0	2.5	(9.8)	(17.5)
SM	12/25	$/t	1,290	(3.2)	(1.1)	(4.4)	7.1
BPA	12/25	$/t	1,995	6.5	18.9	27.9	26.1
Caustic	12/25	$/t	619	(0.3)	(11.6)	27.9	46.5
2-EH	12/25	$/t	1,020	(1.4)	0.0	3.0	17.9
Caprolactam	12/25	$/t	2,060	0.0	2.0	12.6	11.4
Solar				%	%	%	%
Polysilicon	01/03	$/kg	17.8	1.5	5.1	7.0	16.0
Module	01/03	$/W	0.31	0.0	(0.3)	(2.2)	(12.6)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	86.7	2.0	3.3	3.9	6.0	(4.6)
Shell	EUR	2,512	1.5	1.9	6.2	9.3	11.3
Petrochina	CNY	8.27	0.2	2.2	1.3	3.5	3.8
Gazprom	RUB	132.2	1.3	0.9	(0.6)	9.5	(16.2)
Petrobras	BRL	16.7	0.9	4.0	7.0	4.5	7.7
Refinery							
Phillips66	USD	102.4	0.7	0.4	5.0	9.4	18.0
Valero	USD	93.3	0.5	1.2	10.8	20.3	32.5
JX	JPY	727.0	0.0	(1.1)	12.3	26.2	47.0
Neste Oil	EUR	54.2	1.6	0.5	4.1	43.1	48.9

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	92.0	0.5	(1.6)	(1.2)	2.4	4.9
DowDuPont	USD	73.1	1.6	2.3	2.9	3.8	26.8
SABIC	SAR	101.5	0.5	(0.2)	0.0	0.0	10.0
Formosa Pla.	TWD	98.5	0.4	0.0	6.1	8.0	9.3
Shin-Etsu	JPY	11,450	0.0	(0.7)	(5.4)	12.9	26.3
Renewable							
Wacker	EUR	166.6	2.1	3.3	22.6	34.6	62.2
First Solar	USD	69.80	(0.9)	1.4	15.8	47.8	108.1
GCL-Poly	HKD	1.47	5.8	5.0	17.6	32.4	61.5
Tesla Motors	USD	317.3	(1.0)	1.8	3.5	(8.9)	46.2

4. Coverage Summary

	01/03	1D	1W	1M	3M	6M	12M	투자의견	TP	%	P/E	P/B
KOSPI	2,486	0.3	2.0	(0.6)	3.8	4.4	22.7				* 추정치는 12M fwd 기준임	
KOSPI화학	6,128	(0.1)	2.5	(1.1)	7.5	12.6	21.0				* 모든 coverage 업체의 실적은 연결기준임	
LG화학	409,500	(0.4)	3.8	(2.5)	4.5	41.2	61.9	매수	400,000	(2.3)	12.97	2.14
롯데케미칼	363,000	0.7	0.1	(1.6)	(4.0)	4.0	(5.3)	매수	410,000	12.9	5.71	1.25
한화케미칼	32,900	1.1	8.4	8.8	1.4	6.3	29.5	매수	39,000	18.5	5.55	0.91
금호석유화학	103,000	(0.5)	5.3	13.2	42.9	36.2	20.6	매수	100,000	(2.9)	17.46	1.91
KCC	380,000	(0.5)	3.5	(2.8)	1.5	(9.3)	4.4	매수	450,000	18.4	21.09	0.55
OCI	144,500	6.3	12.0	19.9	41.0	63.8	82.0	매수	120,000	(17.0)	18.35	1.11
SKC	49,000	5.4	11.7	17.2	18.8	48.0	45.8	매수	45,000	(8.2)	13.54	1.34
SK이노베이션	202,500	(1.9)	0.2	(2.4)	1.8	26.6	37.8	매수	210,000	3.7	8.17	1.08
S-Oil	113,500	(3.0)	(3.8)	(5.4)	(11.0)	17.6	34.2	매수	140,000	23.3	12.28	2.14
GS	61,300	(1.9)	(0.8)	0.7	(6.6)	(10.9)	12.9	매수	80,000	30.5	5.82	0.91
SK가스	93,800	0.2	(0.5)	(2.7)	(0.5)	(23.4)	(24.0)	매수	130,000	38.6	7.09	0.70
포스코대우	19,500	4.0	9.2	7.1	1.0	(11.6)	(29.0)	매수	25,000	28.2	10.92	0.85
LG상사	28,550	3.3	5.5	3.4	4.6	(6.4)	(3.4)	매수	38,000	33.1	10.39	0.92
한국전력	37,550	(0.5)	(2.2)	(0.8)	(3.7)	(9.1)	(14.5)	매수	55,000	46.5	7.20	0.30
한국가스공사	43,900	(1.0)	5.3	0.1	4.3	(15.1)	(9.1)	매수	60,000	36.7	8.96	0.57

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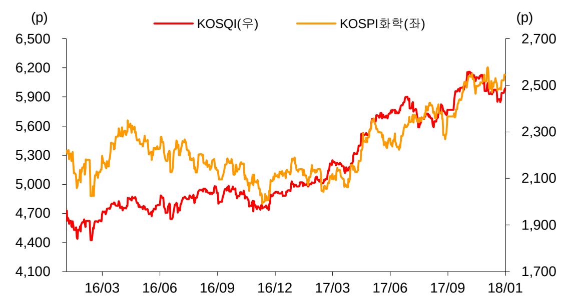
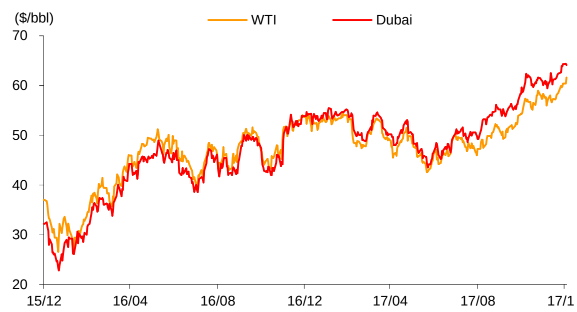
Key Chart

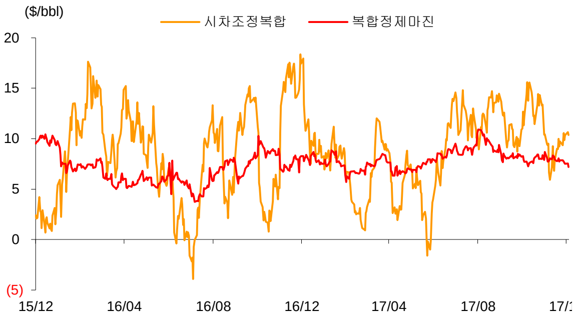
KOSPI/KOSPI화학



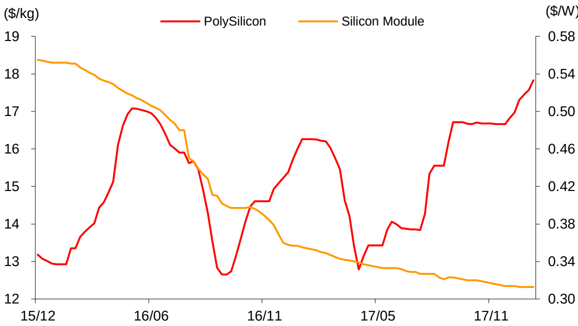
WTI/Dubai



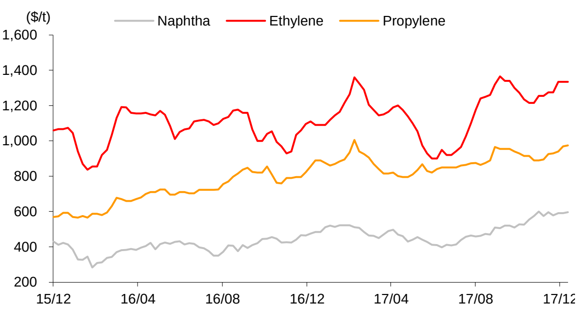
Complex & 1M lagging margin



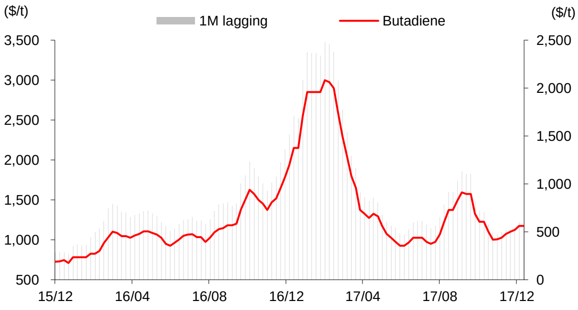
Polysilicon & Module prices



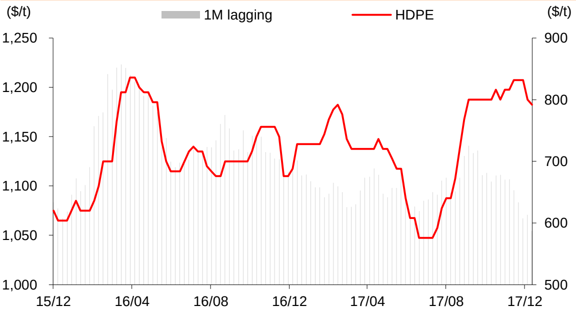
Naphtha/Ethylene/Propylene prices



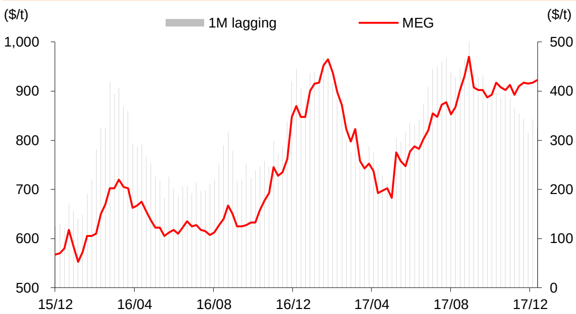
Butadiene price & 1M lagging naphtha spread



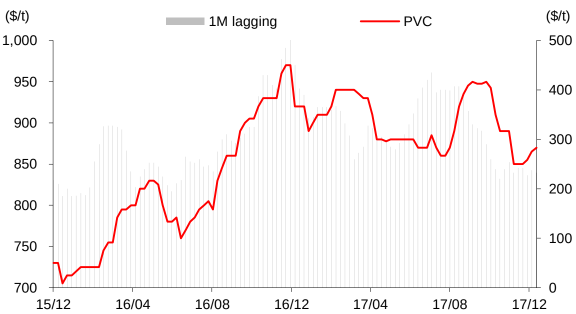
HDPE price & 1M lagging naphtha spread



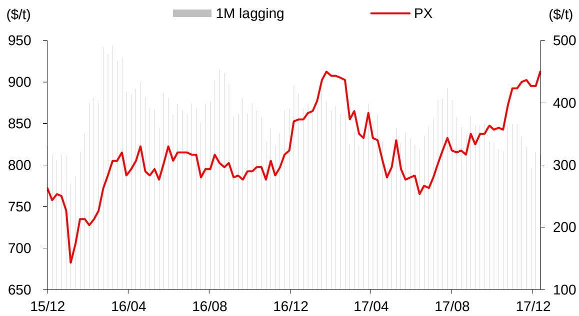
MEG price & 1M lagging naphtha spread



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: 글로벌이코노믹)
제목	러시아, 2017년 석유·천연가스 생산량 '구소련 붕괴이후 최대치' 기록
결론	對중국 수출 확대와 LNG 판매 증가를 계획한 것이 증산의 배경임
세부	
	1) 러시아가 OPEC의 감산 동참 불구, 작년 산유량 구소련 붕괴이후 최대
	2) 2017년 러시아 산유량은 1,098만b/d로 YoY 0.1% 증가해 9년 연속 상승
	3) 2017년 러시아 천연가스 생산량은 YoY 7.9% 증가해 6,905억㎥ 기록함
	4) 이는 2011년에 기록한 2.9%를 상회하는 수준으로 사상 최고치임
	5) 對중국 수출 확대와 LNG 판매 증가를 계획한 것이 증산의 배경임

WTI Comment	(출처: 조선비즈)
제목	이란 지정학 변수에 강세…WTI 2.1%↑
상승 요인	이란의 '반(反)정부 시위'가 국제유가에 상승 압력을 가함
하락 요인	

Issue 1	(출처: Platts)
제목	Philippines Petron, 말레이시아 refinery 확장 계획
결론	글로벌 refinery 숏티지 국면으로 추가적인 capa 진입 불가피
세부	
	1) Philippines Petron이 말레이시아 Dickson Port refinery capa 증설 계획
	2) 2020년까지 현재 8.8만b/d 규모의 capa를 2배로 늘릴 계획임
	3) 이미 지난 12월 Petron은 필리핀의 18만b/d Bataan refinery 증설 표명
	4) 이번 capa 증설로 9만b/d의 capa가 늘어나게 되며 35억$ 투입 전망
	5) 글로벌 refinery 숏티지 국면으로 추가적인 capa 진입 불가피

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	2016avg.	2017avg.	2018acc.
F/X	**USD/EUR**	0.832	0.829	0.841	0.841	0.852	0.880	0.961	0.833	0.904	0.887	0.832
	Change, %		*0.4*	*(1.0)*	*(1.0)*	*(2.2)*	*(5.4)*	*(13.4)*	*(0.1)*	*(7.9)*	*(6.1)*	*0.1*
	USD/JPY	112.5	112.3	113.4	112.2	112.9	113.4	117.8	112.6	108.8	112.1	112.5
	Change, %		*0.2*	*(0.7)*	*0.3*	*(0.3)*	*(0.8)*	*(4.5)*	*(0.1)*	*3.5*	*0.3*	*0.0*
	USD/KRW	1,064.7	1,061.4	1,074.2	1,086.4	1,147.1	1,146.8	1,203.5	1,066.7	1,160.5	1,130.9	1,064.4
	Change, %		*0.3*	*(0.9)*	*(2.0)*	*(7.2)*	*(7.2)*	*(11.5)*	*(0.2)*	*(8.3)*	*(5.9)*	*0.0*
Agriculture	**Corn**	353.0	353.3	353.8	344.8	349.5	378.0	355.8	350.8	358.5	359.4	352.5
	Change, %		*(0.1)*	*(0.2)*	*2.4*	*1.0*	*(6.6)*	*(0.8)*	*0.6*	*(1.5)*	*(1.8)*	*0.1*
	Soybean	959.8	955.0	955.5	994.3	955.3	964.8	986.8	951.8	987.5	975.9	956.6
	Change, %		*0.5*	*0.4*	*(3.5)*	*0.5*	*(0.5)*	*(2.7)*	*0.8*	*(2.8)*	*(1.7)*	*0.3*
	Wheat	436.0	433.5	428.0	414.5	448.0	536.8	406.5	427.0	436.4	436.0	433.1
	Change, %		*0.6*	*1.9*	*5.2*	*(2.7)*	*(18.8)*	*7.3*	*2.1*	*(0.1)*	*(0.0)*	*0.7*
	Rice	11.4	11.5	11.8	12.5	12.0	11.5	9.4	11.7	10.3	11.1	11.5
	Change, %		*(1.1)*	*(3.2)*	*(8.4)*	*(5.0)*	*(0.9)*	*21.8*	*(2.3)*	*10.3*	*3.2*	*(0.9)*
	Oats	244.5	242.5	242.8	247.3	251.3	284.5	235.5	241.0	196.3	252.3	243.1
	Change, %		*0.8*	*0.7*	*(1.1)*	*(2.7)*	*(14.1)*	*3.8*	*1.5*	*24.6*	*(3.1)*	*0.6*
MYR/mt	**Palm Oil**	2,555.0	2,472.0	2,474.0	2,495.0	2,704.0	2,642.0	3,250.0	2,444.0	2,653.8	2,787.3	2,506.5
	Change, %		*3.4*	*3.3*	*2.4*	*(5.5)*	*(3.3)*	*(21.4)*	*4.5*	*(3.7)*	*(8.3)*	*1.9*
	Cocoa	1,907.0	1,936.0	1,866.0	2,040.0	2,082.0	1,921.0	2,166.0	1,892.0	2,854.0	2,005.2	1,910.5
	Change, %		*(1.5)*	*2.2*	*(6.5)*	*(8.4)*	*(0.7)*	*(12.0)*	*0.8*	*(33.2)*	*(4.9)*	*(0.2)*
	Cotton	78.1	77.5	79.0	75.4	68.2	73.7	71.8	78.6	65.6	73.5	78.1
	Change, %		*0.8*	*(1.1)*	*3.6*	*14.6*	*6.0*	*8.8*	*(0.7)*	*19.1*	*6.2*	*0.0*
	Sugar	15.3	15.3	14.9	15.0	14.0	13.9	20.5	15.2	18.2	15.8	15.3
	Change, %		*(0.1)*	*2.5*	*2.2*	*9.0*	*10.0*	*(25.4)*	*1.0*	*(15.7)*	*(3.2)*	*0.2*
	Coffee	128.6	130.2	124.5	127.6	125.5	125.9	137.4	126.2	136.1	133.0	128.4
	Change, %		*(1.2)*	*3.3*	*0.8*	*2.5*	*2.2*	*(6.4)*	*1.9*	*(5.5)*	*(3.3)*	*0.2*
Energy	**WTI**	61.8	60.4	59.6	58.4	50.4	47.1	52.3	60.4	43.4	51.0	61.1
	Change, %		*2.4*	*3.7*	*5.9*	*22.6*	*31.4*	*18.2*	*2.3*	*42.5*	*21.3*	*1.2*
	Brent	67.9	66.6	66.4	63.7	56.0	49.7	55.5	66.9	45.1	54.9	67.3
	Change, %		*2.0*	*2.2*	*6.6*	*21.3*	*36.7*	*22.4*	*1.6*	*50.6*	*23.8*	*0.9*
	Natural Gas	3.0	3.1	2.7	3.1	2.9	3.0	3.3	3.0	2.6	3.0	3.0
	Change, %		*(1.7)*	*9.7*	*(1.9)*	*3.8*	*1.8*	*(9.7)*	*1.7*	*17.7*	*(0.6)*	*(0.0)*
	Ethanol	1.3	1.3	1.3	1.4	1.5	1.5	1.6	1.3	1.5	1.5	1.3
	Change, %		*(1.3)*	*1.7*	*(2.4)*	*(10.9)*	*(13.1)*	*(16.1)*	*(0.2)*	*(13.0)*	*(11.9)*	*(0.4)*
	RBOB Gasoline	180.5	176.3	179.2	174.2	156.6	153.5	162.2	179.9	140.0	162.9	179.3
	Change, %		*2.4*	*0.7*	*3.6*	*15.3*	*17.6*	*11.3*	*0.3*	*28.9*	*10.8*	*0.7*
	Coal	103.8	102.7	100.2	97.0	97.0	79.5	90.5	100.8	65.5	88.2	102.8
	Change, %		*1.1*	*3.6*	*7.1*	*7.0*	*30.6*	*14.7*	*3.0*	*58.6*	*17.7*	*1.0*
Metal	**Gold**	1,313.0	1,317.5	1,287.3	1,280.5	1,271.7	1,220.1	1,158.8	1,302.6	1,248.5	1,258.6	1,311.5
	Change, %		*(0.3)*	*2.0*	*2.5*	*3.3*	*7.6*	*13.3*	*0.8*	*5.2*	*4.3*	*0.1*
	Silver	17.1	17.2	16.7	16.4	16.6	16.1	16.3	16.9	17.1	17.1	17.1
	Change, %		*(0.3)*	*2.6*	*4.2*	*3.0*	*6.2*	*5.1*	*1.1*	*0.2*	*0.4*	*0.2*
	Copper	7,147.0	7,205.0	7,240.0	6,833.0	6,520.0	5,928.0	5,500.0	7,247.0	4,872.0	6,199.4	7,186.5
	Change, %		*(0.8)*	*(1.3)*	*4.6*	*9.6*	*20.6*	*29.9*	*(1.4)*	*46.7*	*15.3*	*(0.5)*
	Nickel	790.9	803.7	770.0	731.4	701.2	606.9	683.8	809.1	646.4	680.2	798.7
	Change, %		*(1.6)*	*2.7*	*8.1*	*12.8*	*30.3*	*15.7*	*(2.2)*	*22.4*	*16.3*	*(1.0)*
	Zinc	3,327.0	3,349.0	3,272.0	3,249.0	3,264.0	2,805.0	2,521.0	3,319.0	2,097.5	2,888.5	3,330.5
	Change, %		*(0.7)*	*1.7*	*2.4*	*1.9*	*18.6*	*32.0*	*0.2*	*58.6*	*15.2*	*(0.1)*
	Lead	2,578.5	2,570.5	2,536.0	2,550.5	2,588.0	2,324.8	2,002.3	2,482.8	1,868.3	2,315.7	2,552.6
	Change, %		*0.3*	*1.7*	*1.1*	*(0.4)*	*10.9*	*28.8*	*3.9*	*38.0*	*11.4*	*1.0*
	Aluminum	14,970.0	15,055.0	14,615.0	14,475.0	16,235.0	13,985.0	12,675.0	15,020.0	12,373.5	14,556.6	14,986.3
	Change, %		*(0.6)*	*2.4*	*3.4*	*(7.8)*	*7.0*	*18.1*	*(0.3)*	*21.0*	*2.8*	*(0.1)*
	Cobalt	75,205.0	75,205.0	75,205.0	66,775.0	59,651.0	59,460.0	32,735.0	75,205.0	25,480.1	55,906.9	75,205.0
	Change, %		*0.0*	*0.0*	*12.6*	*26.1*	*26.5*	*129.7*	*0.0*	*195.2*	*34.5*	*0.0*
	HR Coil	662.0	660.0	662.0	629.0	595.0	638.0	633.0	662.0	519.3	620.1	661.5
	Change, %		*0.3*	*0.0*	*5.2*	*11.3*	*3.8*	*4.6*	*0.0*	*27.5*	*6.8*	*0.1*
	Scrap	367.0	367.0	367.0	349.0	335.0	360.0	302.0	367.0	275.7	344.7	367.0
	Change, %		*0.0*	*0.0*	*5.2*	*9.6*	*1.9*	*21.5*	*0.0*	*33.1*	*6.5*	*0.0*

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

SK Energy Daily

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Refining Price Data

Daily Price		01/03	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	**WTI**	61.6	60.4	59.6	57.6	50.0	45.1	53.3	53.7	43.4	50.9	61.0
	Change, %		*2.1*	*3.3*	*7.0*	*23.3*	*36.6*	*15.7*	*14.7*	*42.1*	*21.1*	*1.0*
	Dubai	64.2	64.4	63.9	60.2	53.9	48.3	54.0	53.8	41.3	53.1	64.3
	Change, %		*(0.3)*	*0.3*	*6.5*	*19.0*	*32.7*	*18.8*	*19.2*	*55.3*	*20.8*	*(0.2)*
Crude Oil Product	**Gasoline(휘발유)**	75.4	76.5	76.5	74.5	67.9	61.1	70.1	69.8	56.3	68.0	75.9
	Change, %		*(1.5)*	*(1.4)*	*1.1*	*11.1*	*23.3*	*7.6*	*7.9*	*34.0*	*10.8*	*(0.7)*
	Kerosene(등유)	78.9	79.2	78.6	73.2	66.2	60.3	65.7	66.4	52.9	65.2	79.0
	Change, %		*(0.4)*	*0.4*	*7.7*	*19.1*	*30.8*	*20.0*	*18.7*	*49.1*	*20.9*	*(0.2)*
	Diesel(경유)	78.6	78.7	78.2	73.0	66.6	61.9	65.4	65.5	52.1	65.6	78.7
	Change, %		*(0.2)*	*0.4*	*7.6*	*18.1*	*26.9*	*20.1*	*19.9*	*50.8*	*19.8*	*(0.1)*
	Bunker-C	57.8	58.3	58.5	55.3	50.2	46.9	52.0	52.1	35.5	49.7	58.0
	Change, %		*(0.8)*	*(1.2)*	*4.4*	*15.2*	*23.2*	*11.1*	*11.0*	*62.6*	*16.3*	*(0.4)*
	Naphtha	66.5	67.7	67.0	63.2	54.5	45.4	53.5	53.5	42.6	53.7	67.1
	Change, %		*(1.8)*	*(0.8)*	*5.2*	*22.0*	*46.5*	*24.2*	*24.4*	*56.1*	*23.8*	*(0.9)*
Dubai Spread	**Gasoline(휘발유)**	11.2	12.1	12.5	14.3	13.9	12.8	16.1	16.0	14.9	14.9	11.7
	Change		*(0.9)*	*(1.3)*	*(3.1)*	*(2.7)*	*(1.6)*	*(4.8)*	*(4.8)*	*(3.7)*	*(3.7)*	*(0.5)*
	Kerosene(등유)	14.7	14.8	14.6	13.0	12.3	11.9	11.7	12.6	11.6	12.1	14.7
	Change		*(0.1)*	*0.1*	*1.7*	*2.4*	*2.8*	*3.0*	*2.1*	*3.1*	*2.6*	*(0.0)*
	Diesel(경유)	14.4	14.4	14.3	12.8	12.6	13.6	11.4	11.7	10.8	12.5	14.4
	Change		*0.0*	*0.1*	*1.6*	*1.8*	*0.9*	*3.0*	*2.7*	*3.6*	*1.9*	*0.0*
	Bunker-C	(6.4)	(6.1)	(5.5)	(4.9)	(3.8)	(1.5)	(2.0)	(1.8)	(5.8)	(3.4)	(6.3)
	Change		*(0.3)*	*(0.9)*	*(1.5)*	*(2.6)*	*(4.9)*	*(4.4)*	*(4.6)*	*(0.6)*	*(2.9)*	*(0.1)*
	Naphtha	2.3	3.3	3.1	3.0	0.6	(3.0)	(0.5)	(0.4)	1.3	0.6	2.8
	Change		*(1.0)*	*(0.7)*	*(0.6)*	*1.8*	*5.3*	*2.8*	*2.7*	*1.1*	*1.7*	*(0.5)*
Refining Margin	**Simple(단순)**	1.9	2.1	2.4	2.5	2.9	4.0	3.6	3.8	1.9	3.2	2.0
	Change		*(0.3)*	*(0.6)*	*(0.6)*	*(1.0)*	*(2.1)*	*(1.7)*	*(1.9)*	*(0.0)*	*(1.3)*	*(0.1)*
	Complex(복합)	7.2	7.5	7.7	7.7	7.7	8.0	8.1	8.3	7.0	8.0	7.4
	Change		*(0.4)*	*(0.5)*	*(0.5)*	*(0.5)*	*(0.8)*	*(0.9)*	*(1.1)*	*0.2*	*(0.8)*	*(0.2)*
	Complex(lagging)	10.4	10.7	10.5	9.4	12.3	8.0	11.7	18.0	8.5	8.9	10.5
	Change		*(0.3)*	*(0.2)*	*1.0*	*(2.0)*	*2.3*	*(1.3)*	*(7.6)*	*1.9*	*1.4*	*(0.1)*

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			01/03	01/02	12/29	12/28	12/27	12/26	12/22	12/21	12/20	12/19
Spot Price	**Naphtha**	CFR Japan	606.3	617.3	613.9	612.3	607.8	599.8	603.8	598.3	592.0	588.5
	Ethylene	CFR SE Asia	1,270.0	1,270.0	1,270.0	1,270.0	1,250.0	1,250.0	1,250.0	1,250.0	1,250.0	1,200.0
	Propylene	FOB Korea	955.0	946.0	946.0	937.0	936.0	930.0	928.0	928.0	925.0	925.0
	Butadiene	FOB Korea	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0	1,100.0
	HDPE	CFR FE Asia	1,280.0	1,280.0	1,280.0	1,280.0	1,280.0	1,280.0	1,280.0	1,280.0	1,280.0	1,280.0
	LDPE	CFR FE Asia	1,190.0	1,190.0	1,190.0	1,190.0	1,190.0	1,190.0	1,190.0	1,190.0	1,190.0	1,190.0
	LLDPE	CFR FE Asia	1,155.0	1,155.0	1,155.0	1,155.0	1,155.0	1,155.0	1,155.0	1,155.0	1,155.0	1,155.0
	MEG	CFR China	967.0	965.0	951.0	942.0	931.0	923.0	920.0	920.0	927.0	918.0
	PP	CFR FE Asia	1,170.0	1,155.0	1,150.0	1,150.0	1,150.0	1,150.0	1,140.0	1,140.0	1,140.0	1,130.0
	PX	CFR China	917.7	916.7	911.0	908.0	904.0	900.3	891.0	890.0	888.0	885.0
	PTA	CFR China	720.0	715.0	715.0	715.0	715.0	715.0	710.0	715.0	720.0	720.0
	Benzene	FOB Korea	876.0	886.0	876.0	877.5	864.5	855.5	849.0	868.0	874.5	882.5
	Toluene	FOB Korea	703.0	703.5	699.0	697.0	697.0	695.0	693.0	698.0	692.0	705.5
	Xylene	FOB Korea	727.0	725.0	720.5	719.0	716.5	715.0	714.0	713.0	711.0	710.0
	SM	FOB Korea	1,296.0	1,304.0	1,286.5	1,292.5	1,256.5	1,242.5	1,239.5	1,259.5	1,266.5	1,266.5

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Spot Price	**Naphtha**	CFR Japan	597.0	590.5	595.5	520.5	474.0	484.5	484.5	493.0	399.5	492.5
	Change, %			*1.1*	*0.3*	*14.7*	*25.9*	*23.2*	*23.2*	*21.1*	*49.4*	*21.2*
	Ethylene	CFR SE Asia	1,272.5	1,245.0	1,195.0	1,255.0	1,185.0	990.0	990.0	1,103.7	1,040.9	1,088.4
	Change, %			*2.2*	*6.5*	*1.4*	*7.4*	*28.5*	*28.5*	*15.3*	*22.2*	*16.9*
	Propylene	CFR SE Asia	897.5	890.0	835.0	835.0	790.0	815.0	815.0	770.0	705.7	884.3
	Change, %			*0.8*	*7.5*	*7.5*	*13.6*	*10.1*	*10.1*	*16.6*	*27.2*	*1.5*
	Butadiene	CFR SE Asia	1,125.0	1,125.0	1,025.0	1,525.0	1,325.0	2,100.0	2,100.0	877.5	1,116.8	1,484.8
	Change, %			*0.0*	*9.8*	*(26.2)*	*(15.1)*	*(46.4)*	*(46.4)*	*28.2*	*0.7*	*(24.2)*
	Benzene	CFR SE Asia	890.0	920.0	877.5	805.0	795.0	822.5	822.5	690.0	646.7	838.3
	Change, %			*(3.3)*	*1.4*	*10.6*	*11.9*	*8.2*	*8.2*	*29.0*	*37.6*	*6.2*
	Toluene	CFR SE Asia	735.0	735.0	715.0	700.0	655.0	690.0	690.0	700.8	630.5	689.5
	Change, %			*0.0*	*2.8*	*5.0*	*12.2*	*6.5*	*6.5*	*4.9*	*16.6*	*6.6*
	Xylene	CFR SE Asia	712.5	710.0	695.0	657.5	627.5	675.0	675.0	699.3	627.7	667.8
	Change, %			*0.4*	*2.5*	*8.4*	*13.5*	*5.6*	*5.6*	*1.9*	*13.5*	*6.7*
Spread	**Ethylene**	-Naphtha	675.5	654.5	599.5	734.5	711.0	505.5	505.5	610.6	641.4	595.9
	Change, %			*3.2*	*12.7*	*(8.0)*	*(5.0)*	*33.6*	*33.6*	*10.6*	*5.3*	*13.4*
	Propylene	-Naphtha	300.5	299.5	239.5	314.5	316.0	330.5	330.5	277.0	306.2	391.8
	Change, %			*0.3*	*25.5*	*(4.5)*	*(4.9)*	*(9.1)*	*(9.1)*	*8.5*	*(1.8)*	*(23.3)*
	Butadiene	-Naphtha	528.0	534.5	429.5	1,004.5	851.0	1,615.5	1,615.5	384.5	717.3	992.3
	Change, %			*(1.2)*	*22.9*	*(47.4)*	*(38.0)*	*(67.3)*	*(67.3)*	*37.3*	*(26.4)*	*(46.8)*
	Benzene	-Naphtha	293.0	329.5	282.0	284.5	321.0	338.0	338.0	197.0	247.2	345.8
	Change, %			*(11.1)*	*3.9*	*3.0*	*(8.7)*	*(13.3)*	*(13.3)*	*48.7*	*18.5*	*(15.3)*
	Toluene	-Naphtha	138.0	144.5	119.5	179.5	181.0	205.5	205.5	207.8	231.0	197.0
	Change, %			*(4.5)*	*15.5*	*(23.1)*	*(23.8)*	*(32.8)*	*(32.8)*	*(33.6)*	*(40.3)*	*(29.9)*
	Xylene	-Naphtha	115.5	119.5	99.5	137.0	153.5	190.5	190.5	206.3	228.2	175.3
	Change, %			*(3.3)*	*16.1*	*(15.7)*	*(24.8)*	*(39.4)*	*(39.4)*	*(44.0)*	*(49.4)*	*(34.1)*

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	1,182.5	1,187.5	1,207.5	1,187.5	1,107.5	1,142.5	1,142.5	1,230.1	1,134.6	1,141.4
	Change, %			*(0.4)*	*(2.1)*	*(0.4)*	*6.8*	*3.5*	*3.5*	*(3.9)*	*4.2*	*3.6*
	MEG	CFR SE Asia	922.5	917.5	910.0	902.5	902.5	847.5	847.5	780.8	660.8	850.9
	Change, %			*0.5*	*1.4*	*2.2*	*2.2*	*8.8*	*8.8*	*18.1*	*39.6*	*8.4*
	PVC	CFR SE Asia	870.0	865.0	850.0	947.5	920.0	920.0	920.0	820.8	823.4	899.7
	Change, %			*0.6*	*2.4*	*(8.2)*	*(5.4)*	*(5.4)*	*(5.4)*	*6.0*	*5.7*	*(3.3)*
	PP	CFR SE Asia	1,157.5	1,157.5	1,147.5	1,167.5	1,117.5	1,032.5	1,032.5	1,109.8	978.4	1,098.0
	Change, %			*0.0*	*0.9*	*(0.9)*	*3.6*	*12.1*	*12.1*	*4.3*	*18.3*	*5.4*
	2-EH	CFR Korea	1,020.0	1,035.0	1,020.0	990.0	990.0	865.0	865.0	930.1	772.4	967.5
	Change, %			*(1.4)*	*0.0*	*3.0*	*3.0*	*17.9*	*17.9*	*9.7*	*32.1*	*5.4*
	ABS	CFR SE Asia	2,050.0	2,070.0	1,960.0	2,060.0	1,895.0	1,635.0	1,635.0	1,431.1	1,347.1	1,842.0
	Change, %			*(1.0)*	*4.6*	*(0.5)*	*8.2*	*25.4*	*25.4*	*43.3*	*52.2*	*11.3*
	SBR	CFR SE Asia	1,650.0	1,650.0	1,610.0	1,830.0	1,650.0	2,000.0	2,000.0	1,332.1	1,483.0	1,982.8
	Change, %			*0.0*	*2.5*	*(9.8)*	*0.0*	*(17.5)*	*(17.5)*	*23.9*	*11.3*	*(16.8)*
	SM	CFR SE Asia	1,290.0	1,332.5	1,305.0	1,350.0	1,242.5	1,205.0	1,205.0	1,100.7	1,064.6	1,251.4
	Change, %			*(3.2)*	*(1.1)*	*(4.4)*	*3.8*	*7.1*	*7.1*	*17.2*	*21.2*	*3.1*
	Caustic	FOB NEA	619.0	621.0	700.0	484.0	471.0	422.5	422.5	296.8	316.6	488.9
	Change, %			*(0.3)*	*(11.6)*	*27.9*	*31.4*	*46.5*	*46.5*	*108.6*	*95.5*	*26.6*
	PX	CFR SE Asia	912.5	895.0	900.0	837.5	817.5	855.0	855.0	842.9	790.4	843.7
	Change, %			*2.0*	*1.4*	*9.0*	*11.6*	*6.7*	*6.7*	*8.3*	*15.5*	*8.2*
	PO	CFR China	1,995.0	1,872.5	1,677.5	1,560.0	1,992.5	1,582.5	1,562.5	1,683.4	1,396.8	1,597.2
	Change, %			*6.5*	*18.9*	*27.9*	*0.1*	*26.1*	*27.7*	*18.5*	*42.8*	*24.9*
	Caprolactam	CFR SE Asia	2,060.0	2,060.0	2,020.0	1,830.0	1,770.0	1,850.0	1,850.0	1,581.5	1,344.9	1,931.1
	Change, %			*0.0*	*2.0*	*12.6*	*16.4*	*11.4*	*11.4*	*30.3*	*53.2*	*6.7*
	PTA	CFR SE Asia	717.5	727.5	712.5	667.5	657.5	642.5	642.5	648.0	613.7	667.2
	Change, %			*(1.4)*	*0.7*	*7.5*	*9.1*	*11.7*	*11.7*	*10.7*	*16.9*	*7.5*
Spread	**HDPE**		585.5	597.0	612.0	667.0	633.5	658.0	658.0	737.1	735.1	648.9
	Change, %			*(1.9)*	*(4.3)*	*(12.2)*	*(7.6)*	*(11.0)*	*(11.0)*	*(20.6)*	*(20.3)*	*(9.8)*
	MEG		325.5	327.0	314.5	382.0	428.5	363.0	363.0	287.8	261.3	358.4
	Change, %			*(0.5)*	*3.5*	*(14.8)*	*(24.0)*	*(10.3)*	*(10.3)*	*13.1*	*24.6*	*(9.2)*
	PVC		273.0	274.5	254.5	427.0	446.0	435.5	435.5	327.8	423.9	407.2
	Change, %			*(0.5)*	*7.3*	*(36.1)*	*(38.8)*	*(37.3)*	*(37.3)*	*(16.7)*	*(35.6)*	*(33.0)*
	PP		560.5	567.0	552.0	647.0	643.5	548.0	548.0	616.8	578.9	605.5
	Change, %			*(1.1)*	*1.5*	*(13.4)*	*(12.9)*	*2.3*	*2.3*	*(9.1)*	*(3.2)*	*(7.4)*
	2-EH		423.0	444.5	424.5	469.5	516.0	380.5	380.5	437.0	372.9	475.0
	Change, %			*(4.8)*	*(0.4)*	*(9.9)*	*(18.0)*	*11.2*	*11.2*	*(3.2)*	*13.4*	*(10.9)*
	ABS		1,453.0	1,479.5	1,364.5	1,539.5	1,421.0	1,150.5	1,150.5	938.1	947.6	1,349.5
	Change, %			*(1.8)*	*6.5*	*(5.6)*	*2.3*	*26.3*	*26.3*	*54.9*	*53.3*	*7.7*
	SBR	BD spread	525.0	525.0	585.0	305.0	325.0	(100.0)	(100.0)	454.7	366.2	498.0
	Change, %			*0.0*	*(10.3)*	*72.1*	*61.5*	*(625.0)*	*(625.0)*	*15.5*	*43.4*	*5.4*
	SM		693.0	742.0	709.5	829.5	768.5	720.5	720.5	607.7	665.1	758.9
	Change, %			*(6.6)*	*(2.3)*	*(16.5)*	*(9.8)*	*(3.8)*	*(3.8)*	*14.0*	*4.2*	*(8.7)*
	Caustic											
	Change, %											
	PX		315.5	304.5	304.5	317.0	343.5	370.5	370.5	349.9	390.9	351.2
	Change, %			*3.6*	*3.6*	*(0.5)*	*(8.2)*	*(14.8)*	*(14.8)*	*(9.8)*	*(19.3)*	*(10.2)*
	PO	propylene sprea	1,097.5	982.5	842.5	725.0	1,202.5	767.5	747.5	913.4	691.1	712.8
	Change, %			*11.7*	*30.3*	*51.4*	*(8.7)*	*43.0*	*46.8*	*20.2*	*58.8*	*54.0*
	Caprolactam	benzene spreac	1,170.0	1,140.0	1,142.5	1,025.0	975.0	1,027.5	1,027.5	891.6	698.2	1,092.8
	Change, %			*2.6*	*2.4*	*14.1*	*20.0*	*13.9*	*13.9*	*31.2*	*67.6*	*7.1*
	PTA	px spread	78.8	101.0	82.5	81.3	85.3	44.0	44.0	58.0	60.4	76.6
	Change, %			*(22.0)*	*(4.5)*	*(3.1)*	*(7.6)*	*79.0*	*79.0*	*35.8*	*30.3*	*2.8*

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

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Global peers

	Currency	01/03	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	73.1	1.6	2.3	2.9	3.8	14.2	26.8	2.6	168,245	17.7	14.9	1.8	1.7	10.2	9.2
Eastman	USD	95.4	1.1	3.0	3.7	4.5	12.8	25.6	2.9	13,550	11.6	10.7	2.5	2.2	8.7	8.1
BASF	EUR	92.0	0.5	(1.6)	(1.2)	2.4	11.0	4.9	0.2	101,214	14.6	13.6	2.4	2.2	7.8	7.4
Akzo Nobel	EUR	73.5	1.3	(0.2)	(3.0)	(6.2)	(5.2)	22.5	0.6	22,073	17.0	15.8	3.0	2.8	9.3	8.8
Arkema	EUR	102.5	1.0	0.0	0.4	(1.4)	5.7	9.5	0.9	9,270	13.2	12.2	1.7	1.6	6.3	6.0
Lanxess	EUR	67.6	2.3	3.1	7.9	1.3	0.1	2.4	1.9	7,282	15.5	13.1	2.1	1.9	9.3	8.2
Sumitomo Chemical	JPY	810	0.0	(1.1)	2.0	15.5	25.4	45.7	0.0	11,911	10.1	10.5	1.3	1.2	7.4	8.0
Mitsubishi Chemical	JPY	1,237	0.0	(1.2)	1.9	13.0	29.5	63.1	0.0	16,544	9.2	8.7	1.3	1.2	6.3	6.1
Shin-Etsu Chemical	JPY	11,450	0.0	(0.7)	(5.4)	12.9	12.9	26.3	0.0	43,948	18.5	16.6	1.9	1.8	8.1	7.4
Asahi Kasei	JPY	1,454	0.0	(0.8)	3.3	4.3	18.4	42.6	0.0	18,109	14.4	13.6	1.5	1.4	7.4	7.0
JSR	JPY	2,218	0.0	(0.7)	1.7	4.4	13.1	20.3	0.0	4,455	14.5	13.4	1.2	1.1	7.7	7.2
Nitto Denko	JPY	10,010	0.0	(0.6)	(9.6)	4.9	7.7	11.6	0.0	15,450	15.7	14.6	2.1	1.9	7.3	7.0
SABIC	SAR	101.5	0.5	(0.2)	0.0	0.0	(1.4)	10.0	0.1	80,773	14.2	13.7	1.7	1.7	7.3	7.1
Yansab	SAR	59.1	0.0	1.2	(2.7)	1.0	7.7	9.1	0.2	8,861	13.7	13.9	2.2	1.9	9.0	8.9
Formosa Plastics	TWD	98.5	0.4	0.0	6.1	8.0	6.0	9.3	(0.2)	21,114	14.4	13.9	1.8	1.8	18.9	19.2
Formosa Fiber	TWD	103.5	0.0	2.5	9.8	13.0	7.6	6.4	0.5	20,511	13.7	13.4	1.7	1.7	11.6	11.5
Nan Ya Plastics	TWD	78.2	1.6	0.9	4.3	5.7	3.6	9.8	0.4	20,648	14.8	15.3	1.7	1.7	16.2	16.4
Sinopec Shanghai	CNY	6.76	2.6	6.8	6.5	7.1	2.1	4.0	6.8	9,462	12.0	12.6	2.2	2.0	6.8	7.3
Sinopec Yizheng(Fibe	CNY	2.74	0.7	2.2	(8.1)	(13.0)	(18.0)	(33.7)	2.6	5,394	50.4	66.3	5.3	5.0	13.9	10.3
Reliance	INR	915	0.4	(1.0)	0.5	14.6	32.5	67.9	0.6	93,404	14.4	12.9	1.7	1.5	9.4	8.7
Industries Qatar	QAR	96.6	(1.2)	(0.9)	9.0	3.9	2.9	(19.5)	(0.4)	16,144	14.5	13.9	1.6	1.5	46.4	27.2
PTT Chemical	THB	86.3	1.5	0.6	8.8	7.8	25.5	36.9	1.5	11,766	10.7	10.4	1.4	1.3	5.5	5.4
Petronas	MYR	8.0	1.3	1.9	7.4	9.1	8.9	13.7	3.2	15,624	16.1	15.5	2.0	1.9	9.2	8.9
LG화학	KRW	409,500	(0.4)	3.8	(0.6)	4.5	38.1	56.3	1.1	27,313	13.8	12.8	1.8	1.6	6.5	6.1
롯데케미칼	KRW	363,000	0.7	0.1	1.4	(4.0)	2.7	(5.8)	(1.4)	11,632	5.5	5.2	0.9	0.8	3.6	3.3
한화케미칼	KRW	32,900	1.1	8.4	13.8	1.4	7.5	25.3	4.1	5,050	5.7	5.5	0.8	0.7	6.7	6.5
금호석유	KRW	103,000	(0.5)	5.3	13.3	42.9	33.2	20.9	3.5	2,969	14.1	11.9	1.6	1.5	9.3	8.4
SKC	KRW	49,000	5.4	11.7	19.7	18.8	45.8	44.5	4.3	1,643	9.9	8.7	1.1	1.0	8.8	7.9
국도화학	KRW	64,000	(2.4)	2.4	(1.5)	15.9	20.5	14.1	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	7,450	(1.1)	(1.2)	(7.5)	12.0	23.5	4.2	(1.7)	4,595	8.2	7.3	1.1	1.0	7.2	6.8
Average			**0.6**	**1.5**	**2.8**	**6.9**	**13.2**	**19.2**	**1.2**							
Refinery																
Valero	USD	93.3	0.5	1.2	10.8	20.3	37.2	32.5	1.5	40,608	14.1	13.4	2.0	2.0	6.9	6.9
Conoco Phillips	USD	56.3	1.8	1.3	8.9	14.4	23.4	11.3	2.6	66,136	34.0	25.9	2.2	2.2	7.2	6.7
Formosa Petrochemic	TWD	117.5	2.2	0.4	8.8	9.8	10.8	7.3	1.7	37,040	18.2	18.7	3.2	3.2	11.7	12.1
Andeavor	USD	116.5	1.5	1.3	11.5	11.2	22.6	31.2	1.9	17,904	12.9	11.4	1.8	1.7	7.3	7.1
Marathon Petroleum	USD	68.6	2.1	3.3	9.2	22.2	29.2	29.6	4.0	32,812	15.0	12.8	2.6	2.7	7.7	7.5
Devon Energy	USD	42.7	1.2	2.1	10.0	16.9	30.3	(9.3)	3.2	22,192	17.5	14.0	2.7	2.3	8.4	7.4
Hollyfrontier	USD	51.4	0.2	(0.5)	16.1	40.9	83.3	53.1	0.3	9,094	16.8	15.2	1.8	1.8	8.0	8.0
Phillips 66	USD	102.4	0.7	0.4	5.0	9.4	22.9	18.0	1.3	51,561	15.6	14.5	2.3	2.2	9.0	8.8
Murphy Oil	USD	32.4	0.9	2.7	11.0	21.9	23.6	2.6	4.5	5,548	162.4	113.2	1.2	1.1	4.9	4.5
JX Holdings	JPY	727.0	0.0	(1.1)	12.3	26.2	46.4	47.0	0.0	22,130	8.8	8.0	0.9	0.9	7.0	6.6
Idemitsu	JPY	4,525.0	0.0	(2.5)	16.2	45.0	38.8	45.7	0.0	8,360	7.9	7.5	1.0	0.9	6.8	6.8
Nesteoil	EUR	54.2	1.6	0.5	4.1	43.1	56.0	48.9	1.6	16,473	16.7	16.7	2.9	2.7	10.2	10.3
Ashland	USD	73.6	0.6	3.2	0.1	9.8	11.0	37.8	3.4	4,550	21.6	18.7	1.3	1.3	10.2	9.6
Fuchs Petrolub	EUR	44.5	(0.1)	(0.9)	3.3	(11.0)	(8.5)	9.8	0.5	7,127	22.1	20.9	4.1	3.7	13.0	12.3
SK이노베이션	KRW	202,500	(1.9)	0.2	0.0	1.8	25.8	30.6	(1.0)	17,975	7.9	7.7	0.9	0.9	4.9	4.8
S-Oil	KRW	113,500	(3.0)	(3.8)	(4.6)	(11.0)	17.0	30.5	(3.0)	12,400	9.3	8.1	1.8	1.6	7.6	6.6
GS	KRW	61,300	(1.9)	(0.8)	1.0	(6.6)	(12.1)	12.3	(1.4)	5,467	6.0	5.5	0.7	0.6	6.9	6.3
Average			**0.4**	**0.4**	**7.3**	**15.5**	**26.9**	**25.8**	**1.2**							

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

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Global peers

	Currency	01/03	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	2.0	3.3	3.9	6.0	5.6	(4.6)	3.7	367,357	20.5	19.4	2.0	1.9	9.1	9.0
BP	GBP	524	1.3	1.1	6.5	7.8	16.2	1.3	0.3	140,537	17.4	15.4	1.4	1.4	5.9	5.5
Shell	EUR	2,512	1.5	1.9	6.2	9.3	21.2	11.3	1.3	284,569	15.1	13.7	1.4	1.4	6.6	6.2
Chevron	USD	129	0.7	2.4	7.5	9.1	20.9	9.0	2.7	244,089	23.7	21.4	1.7	1.7	7.5	7.0
Total	EUR	47	1.1	0.1	(1.8)	2.1	5.4	(4.8)	1.1	141,608	12.7	11.9	1.2	1.2	5.5	5.1
Sinopec	CNY	6	1.6	6.1	7.5	9.7	8.9	17.4	5.5	114,352	13.4	12.2	1.0	1.0	4.5	4.3
Petrochina	CNY	8	0.2	2.2	1.3	3.5	6.8	3.8	2.2	220,815	30.2	25.8	1.2	1.2	6.1	5.9
CNOOC	CNY	11	(0.5)	2.1	(3.1)	(6.2)	(3.8)	(17.7)	0.9	66,367	11.3	10.1	1.0	1.0	4.1	3.8
Gazprom	RUB	132	1.3	0.9	(0.6)	9.5	10.3	(16.2)	1.3	54,746	3.9	4.1	0.2	0.2	3.6	3.5
Rosneft	RUB	298	2.2	0.8	2.0	(5.8)	(9.5)	(29.0)	2.2	55,237	7.3	6.4	0.7	0.7	4.6	4.2
Anadarko	USD	55	0.0	1.8	12.4	11.2	18.8	(22.0)	2.1	29,968	#N/A N/A	129.5	2.0	2.0	6.9	5.8
Petrobras	BRL	17	0.9	4.0	7.0	4.5	35.1	7.7	3.7	69,169	9.9	7.3	0.6	0.6	4.7	4.6
Lukoil	USD	3,422	2.6	4.2	2.3	12.0	17.2	(4.3)	2.6	50,574	6.3	5.9	0.7	0.6	N/A	N/A
Kinder	USD	19	0.9	4.6	8.9	0.6	(2.9)	(12.3)	4.9	47,497	27.1	24.8	1.2	1.2	11.0	10.6
Statoil	NOK	180	1.3	1.6	7.0	12.0	28.8	10.3	2.6	73,629	17.8	16.2	1.8	1.8	3.6	3.3
BHP	AUD	30	1.7	2.8	9.4	15.4	29.9	18.5	2.1	120,122	19.1	18.2	2.0	2.0	7.0	6.8
PTT E&P	THB	102	1.5	(0.5)	10.0	11.8	16.7	5.5	1.5	12,484	13.5	12.9	1.0	0.9	3.6	3.5
Petronas gas	MYR	18	2.4	4.4	13.0	(0.8)	(4.6)	(16.1)	2.6	8,830	18.7	18.1	2.7	2.6	10.5	10.2
Chesapeake	USD	4	(0.7)	4.9	(0.5)	(5.1)	(20.5)	(41.2)	2.8	3,698	5.0	4.4	#N/A N/A	10.4	6.5	5.9
Noble Energy	USD	31	2.7	6.2	14.9	9.9	7.2	(19.3)	6.4	15,090	155.8	45.3	1.6	1.5	7.7	6.2
Average		**0**	**1.2**	**2.8**	**5.7**	**5.8**	**10.4**	**(5.1)**	**2.6**							
PV																
WACKER	EUR	166.6	2.1	3.3	22.6	34.6	74.4	62.2	2.7	10,447	26.2	22.7	2.5	2.5	8.4	8.0
GCL-Poly	HKD	1.5	5.8	5.0	17.6	32.4	77.1	61.5	5.0	3,496	9.4	8.3	0.9	0.8	6.3	5.8
SunPower	USD	8.8	(1.6)	0.5	12.2	22.0	(6.1)	28.9	4.7	1,232	#N/A N/A	33.1	1.7	2.0	12.4	9.8
Canadian Solar	USD	17.1	(0.4)	(0.5)	(5.0)	2.0	6.7	34.7	1.2	990	9.0	10.3	1.0	0.8	9.4	9.3
JA Solar	USD	7.4	(0.3)	(0.5)	1.9	(2.2)	16.7	52.2	(0.7)	353	13.9	12.4	1.7	1.6	3.9	3.7
Yingli	USD	1.7	1.7	(1.2)	(16.0)	(23.8)	(23.1)	(36.6)	2.3	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	69.8	(0.9)	1.4	15.8	47.8	74.2	108.1	3.4	7,289	46.4	20.7	1.3	1.2	13.7	7.8
한화큐셀	USD	7.3	1.4	0.4	(1.7)	(12.2)	2.0	(9.9)	4.1	608	33.2	23.6	#N/A N/A	#N/A N/A	8.1	7.3
OCI	KRW	144,500	6.3	12.0	19.9	41.0	62.2	82.4	6.3	3,238	16.2	18.1	1.0	1.0	8.7	7.5
웅진에너지	KRW	8,410	(0.8)	2.3	(4.5)	11.4	24.6	80.7	2.3	199	N/A	1.0	1.0	8.7	7.5	8.8
신성솔라에너지	KRW	1,940	0.3	2.4	(7.6)	7.8	(8.3)	(7.6)	1.3	315	N/A	1.0	8.7	7.5	8.8	8.8
Average			**1.2**	**2.3**	**5.0**	**14.6**	**27.3**	**41.5**	**3.0**							
Gas Company																
Towngas China	HKD	6.3	(0.6)	1.1	0.3	12.8	22.7	54.2	(0.3)	2,217	12.8	11.6	1.1	1.0	11.8	10.5
Kulun	HKD	8.3	(1.1)	2.0	21.8	6.6	22.3	42.3	1.7	8,550	11.6	10.3	1.3	1.2	6.0	5.6
Beijing Enterprise	HKD	47.2	0.6	1.9	5.6	9.7	24.6	27.4	1.6	7,612	8.3	7.5	0.9	0.8	14.0	14.8
ENN Energy	HKD	56.4	(1.9)	0.6	1.3	0.5	20.8	73.3	1.2	7,813	13.0	11.2	2.4	2.1	8.0	7.0
China Resources Gas	HKD	27.6	(1.6)	(2.8)	(6.3)	0.7	4.0	25.8	(2.8)	7,838	14.0	12.4	2.6	2.3	8.4	7.6
China Gas Holdings	HKD	21.9	1.4	0.9	(9.7)	(12.2)	36.9	108.2	1.4	13,919	15.0	12.6	3.6	3.0	12.0	10.4
Shenzen Gas	HKD	15.5	1.0	4.2	9.2	1.2	8.0	37.3	3.9	4,012	11.5	10.4	1.3	1.2	8.3	7.9
Shann Xi	CNY	8.6	0.8	(2.2)	5.6	4.2	(2.2)	(10.7)	2.3	1,476	16.4	19.2	1.6	1.5	#N/A N/A	#N/A N/A
Suntien	HKD	2.1	1.0	1.9	8.8	7.1	44.5	104.9	1.9	1,003	6.6	5.6	0.7	0.6	8.4	7.4
China Oil & Gas	HKD	0.8	(3.8)	0.0	32.8	37.5	42.6	26.2	(9.4)	574	10.7	9.4	1.1	1.0	6.4	5.8
Average			**(0.4)**	**0.8**	**6.9**	**6.8**	**22.4**	**48.9**	**0.1**							
EV																
LG화학	KRW	409,500	(0.4)	3.8	(0.6)	4.5	38.1	56.3	1.1	27,164	13.7	12.9	1.7	1.6	6.5	6.1
삼성SDI	KRW	207,500	(2.1)	5.1	(3.3)	4.5	22.1	88.6	1.5	13,408	13.0	10.9	1.2	1.1	14.6	11.7
Panasonic	JPY	1649.5	0.0	(0.7)	0.0	1.5	7.5	38.7	0.0	35,942	16.1	14.1	2.1	1.9	6.1	5.6
GS Yuasa	JPY	561.0	0.0	(1.2)	(2.1)	(6.3)	14.7	15.4	0.0	2,061	15.4	13.7	1.3	1.2	6.8	6.3
NEC	JPY	3040.0	0.0	0.0	1.7	(0.8)	2.0	(1.9)	0.0	7,034	17.9	15.1	0.9	0.8	6.1	5.9
BYD Auto	CNY	66.1	0.4	(1.5)	4.4	(3.2)	32.2	32.7	1.6	26,774	27.7	21.8	3.0	2.7	13.0	11.2
Tesla Motors	USD	317.3	(1.0)	1.8	3.5	(8.9)	(10.0)	46.2	1.9	53,319	#N/A N/A	75.7	11.1	9.4	32.0	16.0
Kandi Technologies	USD	7.0	(2.8)	0.7	(4.8)	4.5	57.3	45.8	2.9	336	#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			**(0.7)**	**1.0**	**(0.1)**	**(0.5)**	**20.5**	**40.2**	**1.1**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임