SK Energy Daily

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2018년 4월 3일

1. News Summary (3 page)

News	
WTI comment	2분기 하락출발…WTI 3%↓
Headline	Sinopec, LNG 수입 capa 증설 및 셰일가스 생산량 증대 계획
News 1.	Sinopec, 남중국 부타디엔 가격 6.5% 인하
News 2.	-
News 3.	-
News 4.	-

Conclusion
중장기 PNG 계획 변함 없으나 단기적으로 가스 수요를 LNG로 충당할 것
라니냐 종료와 수요 약세가 겹쳐 제품 가격 상승세가 제한될 전망
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2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	$/bbl	63.0	(3.0)	(3.9)	2.9	4.4	25.4
Dubai	$/bbl	66.8	2.2	1.2	10.8	3.8	29.3
Gasoline	$/bbl	80.8	0.4	(0.2)	7.4	5.6	20.2
Diesel	$/bbl	82.8	1.3	1.9	10.5	5.1	30.5
Complex margin	$/bbl	8.0	(0.8)	(0.3)	(0.7)	0.4	0.6
1M lagging	$/bbl	11.6	1.5	(1.4)	9.0	0.9	7.6
Petrochemical			%	%	%	%	%
Naphtha	$/t	610	0.6	1.4	8.8	(1.2)	30.0
Butadiene	$/t	1,380	0.0	(2.1)	(0.7)	25.5	(21.1)
HDPE	$/t	1,310	(0.8)	(0.8)	(3.0)	2.3	12.4
MEG	$/t	950	2.2	3.8	(4.5)	(1.6)	28.4
PX	$/t	935	0.9	0.4	(1.5)	2.0	14.3
SM	$/t	1,310	3.4	4.3	(6.0)	0.5	13.1
Commodity			%	%	%	%	%
Natural Gas	$/mmbtu	2.68	(1.8)	1.0	(2.0)	(2.1)	(5.1)
Natural rubber	$/t	1,350	0.0	2.3	(8.2)	(6.9)	(25.4)
Cotton	C/lbs	81.0	(0.6)	(1.0)	(5.2)	3.0	7.3

*참고: 정제마진의 변동률은 %가 아닌 $/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	04/02	$/t	1,265	0.0	6.5	(0.6)	21.1
Propylene	04/02	$/t	945	(1.0)	(4.1)	5.3	21.9
Benzene	04/02	$/t	833	(2.6)	(8.0)	(6.5)	2.1
Toluene	04/02	$/t	725	0.7	(3.3)	(1.4)	7.4
Xylene	04/02	$/t	763	0.0	0.0	7.0	7.4
PP	04/02	$/t	1,228	(3.5)	(6.1)	6.0	16.1
PVC	04/02	$/t	965	0.0	(1.5)	10.9	3.8
ABS	04/02	$/t	1,960	(0.5)	(7.5)	(4.4)	18.1
SBR	04/02	$/t	1,670	(1.8)	(4.6)	1.2	(34.4)
SM	04/02	$/t	1,320	2.5	(9.1)	2.3	11.4
BPA	04/02	$/t	1,723	(2.0)	(12.2)	(13.7)	12.0
Caustic	04/02	$/t	639	1.3	8.3	3.2	42.3
2-EH	04/02	$/t	1,190	5.3	5.8	16.7	15.0
Caprolactam	04/02	$/t	2,200	0.0	3.3	6.8	(2.2)
Solar				%	%	%	%
Polysilicon	03/28	$/kg	14.9	0.0	(7.0)	(15.1)	1.9
Module	03/28	$/W	0.30	(0.3)	(1.3)	(3.5)	(11.7)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	73.2	(1.9)	(1.1)	(3.1)	(13.9)	(10.7)
Shell	EUR	2,234	0.0	1.1	(0.7)	(9.8)	6.6
Petrochina	CNY	7.65	0.1	(1.3)	(3.9)	(7.3)	(2.8)
Gazprom	RUB	140.3	(1.4)	1.5	1.3	7.5	9.7
Petrobras	BRL	20.9	(2.4)	(5.1)	(2.8)	26.3	44.2
Refinery							
Phillips66	USD	95.0	(1.0)	(1.1)	3.9	(6.7)	19.9
Valero	USD	91.6	(1.3)	(2.9)	(0.7)	(1.3)	38.1
JX	JPY	637.8	(0.9)	1.5	(1.1)	(12.3)	16.7
Neste Oil	EUR	56.6	0.0	0.0	(1.2)	6.1	54.8

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	82.5	0.0	0.8	(1.0)	(9.8)	(11.1)
DowDuPont	USD	62.0	(2.6)	(3.8)	(9.3)	(13.7)	(2.4)
SABIC	SAR	115.3	(0.6)	0.5	10.1	14.2	18.9
Formosa Pla.	TWD	102.5	(1.4)	(1.0)	2.0	4.5	13.3
Shin-Etsu	JPY	10,980	(0.2)	2.5	2.8	(4.1)	13.9
Renewable							
Wacker	EUR	133.4	0.0	(0.3)	2.4	(18.3)	38.1
First Solar	USD	69.39	(2.2)	(6.3)	7.9	(1.5)	156.1
GCL-Poly	HKD	0.97	0.0	(5.8)	(21.8)	(30.2)	(5.8)
Tesla Motors	USD	252.5	(5.1)	(17.0)	(24.7)	(21.2)	(9.3)

4. Coverage Summary

	04/02	1D	1W	1M	3M	6M	12M
KOSPI	2,444	(0.1)	0.3	1.7	(1.4)	2.1	13.1
KOSPI화학	6,172	1.2	2.5	1.9	0.7	8.3	19.9
LG화학	387,500	0.5	(3.1)	1.0	(5.7)	(1.1)	31.8
롯데케미칼	429,500	(0.8)	(2.5)	(9.5)	19.1	13.6	15.9
한화케미칼	29,300	(1.7)	(0.3)	(9.0)	(10.0)	(9.7)	11.0
금호석유화학	95,800	(0.6)	(2.0)	7.0	(7.4)	32.9	21.6
KCC	345,000	(0.1)	2.8	(2.5)	(9.7)	(7.9)	(2.5)
OCI	157,000	0.0	(6.0)	(4.3)	15.4	53.2	85.4
SKC	36,650	(4.2)	(2.3)	(4.9)	(21.2)	(11.2)	19.0
SK이노베이션	214,000	1.4	0.9	3.1	3.6	7.5	28.5
S-Oil	121,000	0.8	1.7	(4.0)	3.4	(5.1)	20.4
GS	64,000	3.1	2.9	(1.8)	2.4	(2.4)	8.3
SK가스	95,800	(0.2)	4.1	(0.4)	2.4	1.6	(20.8)
포스코대우	22,900	0.0	(1.7)	18.0	22.1	18.7	(4.0)
LG상사	27,250	(0.2)	0.7	3.8	(1.4)	(0.2)	(15.4)
한국전력	33,250	1.2	7.8	1.1	(11.9)	(14.7)	(28.4)
한국가스공사	48,300	(0.3)	(1.5)	(1.0)	8.9	14.7	7.5

투자의견	TP	%	P/E	P/B
			* 추정치는 12M fwd 기준임	
			* 모든 coverage 업체의 실적은 연결기준임	
매수	450,000	16.1	13.41	1.78
매수	480,000	11.8	12.40	1.21
매수	39,000	33.1	10.43	0.75
매수	150,000	56.6	9.33	1.44
매수	450,000	30.4	12.63	0.54
매수	180,000	14.6	11.71	1.05
매수	50,000	36.4	10.05	0.91
매수	230,000	7.5	13.06	1.08
매수	140,000	15.7	14.66	1.90
매수	80,000	25.0	6.01	0.81
매수	130,000	35.7	8.42	0.63
매수	25,000	9.2	12.17	0.97
매수	38,000	39.4	8.89	0.81
매수	45,000	35.3	7.32	0.26
매수	60,000	24.2	8.42	0.64

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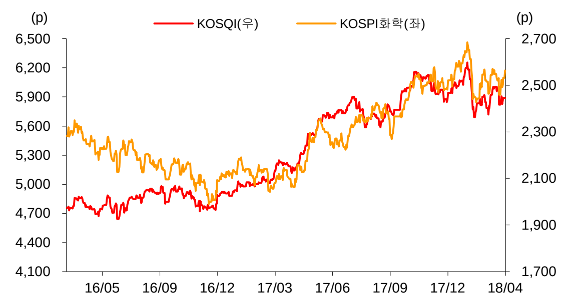
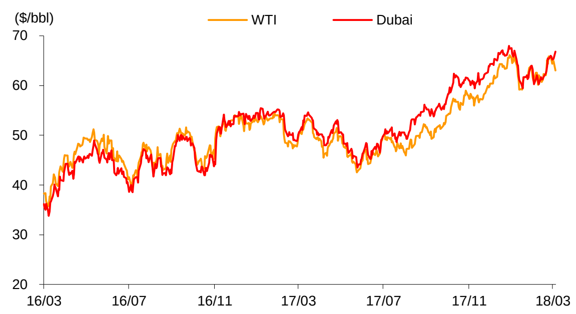
Key Chart

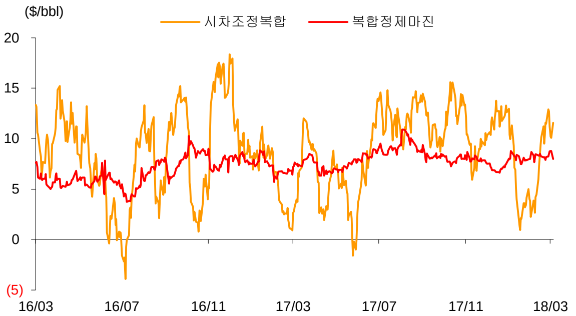
KOSPI/KOSPI화학



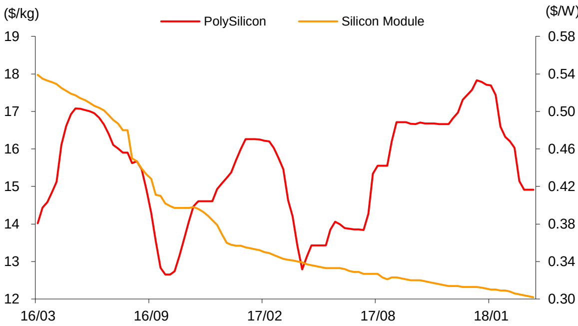
WTI/Dubai



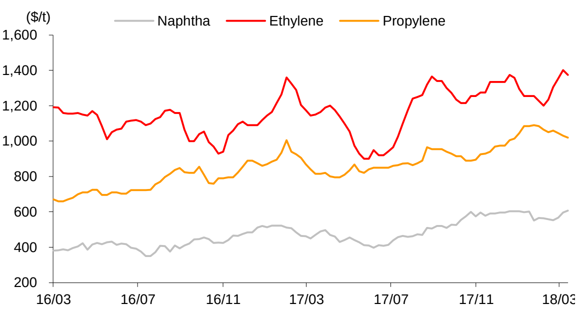
Complex & 1M lagging margin



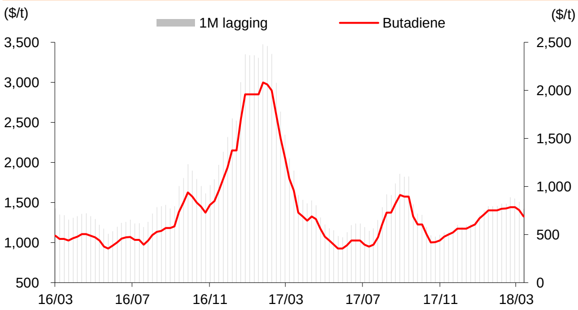
Polysilicon & Module prices



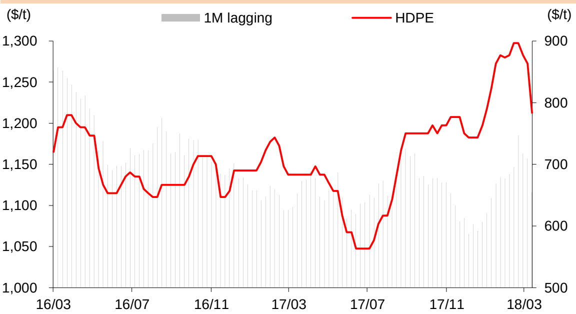
Naphtha/Ethylene/Propylene prices



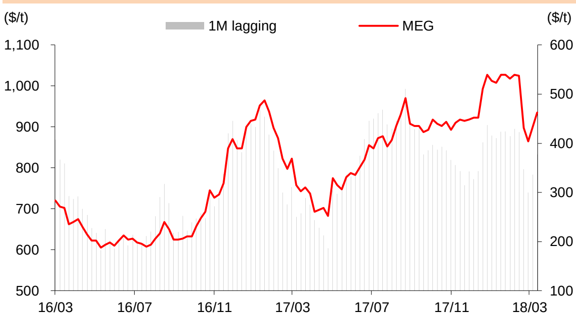
Butadiene price & 1M lagging naphtha spread



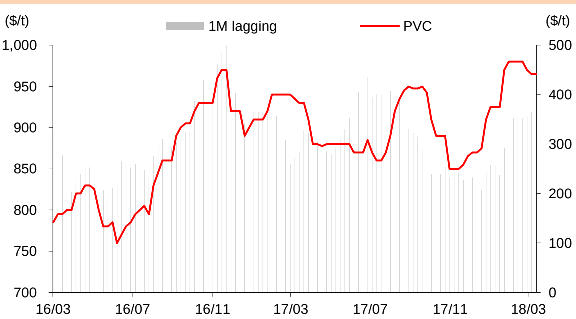
HDPE price & 1M lagging naphtha spread



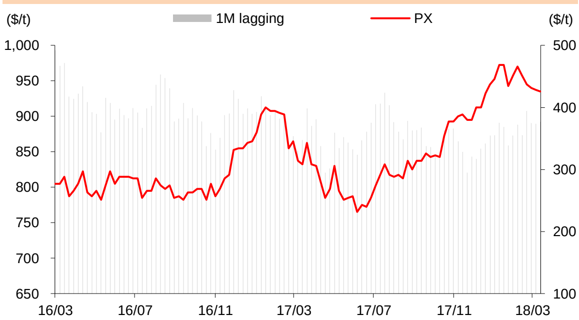
MEG price & 1M lagging naphtha spread



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: REUTERS)
제목	Sinopec, LNG 수입 capa 증설 및 셰일가스 생산량 증대 계획
결론	중장기 PNG 계획 변함 없으나 단기적으로 가스 수요를 LNG로 충당할 것
세부	
	1) Sinopec은 향후 6년간 LNG 수입 capa를 2배 이상 증설할 계획
	2) 아울러 자체 셰일가스 생산량도 2020년까지 3분의 2 이상 늘릴 계획
	3) LNG 수입 터미널은 동쪽 해안으로 2,600만톤/년 규모로 증설할 계획
	4) 자체 셰일가스 생산량은 2020년까지 10bcm으로 늘릴 계획
	5) 중장기 PNG 계획 변함 없으나 단기적으로 가스 수요를 LNG로 충당할 것

WTI Comment	(출처: 연합뉴스)
제목	2분기 하락출발…WTI 3%↓
상승 요인	
하락 요인	사우디아라비아와 이란 간 긴장 격화에 대한 우려가 다소 완화

Issue 1	(출처: Platts)
제목	Sinopec, 남중국 부타디엔 가격 6.5% 인하
결론	라니냐 종료와 수요 약세가 겹쳐 제품 가격 상승세가 제한될 전망
세부	
	1) Sinopec은 남중국 부타디엔 오퍼 가격을 Yuan 10,100/mt로 6.5% 인하함
	2) Yuan 700/mt 인하한 것으로 3월 22일의 Yuan 300/mt 인하에 이은 것
	3) 3월 29일에는 동중국 부타디엔 오퍼 가격을 Yuan 700/mt 인하한 바 있음
	4) 내수 합성고무 수요 약세로 가격을 인하한 것으로 파악됨
	5) 라니냐 종료와 수요 약세가 겹쳐 제품 가격 상승세가 제한될 전망

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

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

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

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

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

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Commodity Price Data

Daily Price		Today	1D	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
F/X	**USD/EUR**	0.813	0.811	0.804	0.812	0.829	0.852	0.939	0.833	0.904	0.887	0.814
	Change, %		*0.2*	*1.2*	*0.1*	*(2.0)*	*(4.6)*	*(13.4)*	*(2.4)*	*(10.1)*	*(8.3)*	*(0.1)*
	USD/JPY	105.9	106.3	105.4	105.8	112.3	112.8	111.4	112.6	108.8	112.1	108.2
	Change, %		*(0.4)*	*0.5*	*0.1*	*(5.7)*	*(6.1)*	*(4.9)*	*(6.0)*	*(2.6)*	*(5.6)*	*(2.2)*
	USD/KRW	1,056.5	1,063.6	1,081.2	1,080.5	1,061.4	1,146.7	1,118.5	1,066.7	1,160.5	1,130.9	1,071.8
	Change, %		*(0.7)*	*(2.3)*	*(2.2)*	*(0.5)*	*(7.9)*	*(5.5)*	*(1.0)*	*(9.0)*	*(6.6)*	*(1.4)*
Agriculture	**Corn**	387.3	387.8	374.0	377.3	353.3	351.5	364.3	350.8	358.5	359.4	366.7
	Change, %		*(0.1)*	*3.5*	*2.7*	*9.6*	*10.2*	*6.3*	*10.4*	*8.0*	*7.8*	*5.6*
	Soybean	1,035.5	1,044.8	1,025.5	1,060.8	955.0	957.3	946.0	951.8	987.5	975.9	1,007.0
	Change, %		*(0.9)*	*1.0*	*(2.4)*	*8.4*	*8.2*	*9.5*	*8.8*	*4.9*	*6.1*	*2.8*
	Wheat	446.3	451.0	454.3	492.0	433.5	444.8	426.5	427.0	436.4	436.0	452.9
	Change, %		*(1.1)*	*(1.8)*	*(9.3)*	*2.9*	*0.3*	*4.6*	*4.5*	*2.3*	*2.3*	*(1.5)*
	Rice	12.3	12.4	12.5	12.3	11.5	12.0	9.9	11.7	10.3	11.1	12.2
	Change, %		*(0.4)*	*(1.2)*	*0.4*	*6.7*	*2.4*	*24.4*	*5.4*	*19.0*	*11.3*	*1.3*
	Oats	231.8	225.0	226.5	265.0	242.5	252.5	224.3	241.0	196.3	252.3	254.5
	Change, %		*3.0*	*2.3*	*(12.5)*	*(4.4)*	*(8.2)*	*3.3*	*(3.8)*	*18.1*	*(8.1)*	*(8.9)*
MYR/mt	**Palm Oil**	2,430.0	2,380.0	2,405.0	2,496.0	2,472.0	2,689.0	2,833.0	2,444.0	2,653.8	2,787.3	2,478.8
	Change, %		*2.1*	*1.0*	*(2.6)*	*(1.7)*	*(9.6)*	*(14.2)*	*(0.6)*	*(8.4)*	*(12.8)*	*(2.0)*
	Cocoa	2,635.0	2,556.0	2,629.0	2,320.0	1,936.0	2,037.0	2,095.0	1,892.0	2,854.0	2,005.2	2,197.5
	Change, %		*3.1*	*0.2*	*13.6*	*36.1*	*29.4*	*25.8*	*39.3*	*(7.7)*	*31.4*	*19.9*
	Cotton	81.0	81.5	81.8	82.7	77.5	68.2	77.3	78.6	65.6	73.5	80.5
	Change, %		*(0.6)*	*(1.0)*	*(2.1)*	*4.5*	*18.7*	*4.7*	*3.0*	*23.4*	*10.1*	*0.6*
	Sugar	12.5	12.4	12.4	13.4	15.3	14.3	16.8	15.2	18.2	15.8	13.4
	Change, %		*1.4*	*0.8*	*(6.7)*	*(18.3)*	*(12.5)*	*(25.3)*	*(17.4)*	*(31.0)*	*(20.8)*	*(6.8)*
	Coffee	116.4	118.2	118.2	120.4	130.2	127.2	139.3	126.2	136.1	133.0	121.0
	Change, %		*(1.5)*	*(1.5)*	*(3.3)*	*(10.6)*	*(8.5)*	*(16.4)*	*(7.8)*	*(14.4)*	*(12.5)*	*(3.8)*
Energy	**WTI**	63.0	64.9	65.6	61.3	60.4	50.6	50.6	60.4	43.4	51.0	63.0
	Change, %		*(3.0)*	*(3.9)*	*2.9*	*4.4*	*24.6*	*24.5*	*4.3*	*45.2*	*23.6*	*0.1*
	Brent	67.6	70.3	70.1	64.4	66.6	56.1	52.8	66.9	45.1	54.9	67.3
	Change, %		*(3.7)*	*(3.5)*	*5.1*	*1.6*	*20.5*	*28.0*	*1.2*	*50.0*	*23.3*	*0.5*
	Natural Gas	2.7	2.7	2.6	2.7	3.1	2.9	3.2	3.0	2.6	3.0	2.8
	Change, %		*(1.8)*	*2.5*	*(0.4)*	*(12.2)*	*(8.0)*	*(15.9)*	*(9.1)*	*5.1*	*(11.2)*	*(5.5)*
	Ethanol	1.4	1.5	1.4	1.5	1.3	1.5	1.6	1.3	1.5	1.5	1.4
	Change, %		*(3.0)*	*(1.4)*	*(3.3)*	*5.6*	*(4.7)*	*(12.6)*	*6.8*	*(6.9)*	*(5.8)*	*(1.0)*
	RBOB Gasoline	196.6	201.8	201.0	190.1	176.3	155.5	170.0	179.9	140.0	162.9	186.8
	Change, %		*(2.6)*	*(2.2)*	*3.4*	*11.5*	*26.4*	*15.6*	*9.3*	*40.5*	*20.7*	*5.2*
	Coal	92.3	96.4	96.6	102.9	102.7	95.9	80.8	100.8	65.5	88.2	102.5
	Change, %		*(4.3)*	*(4.5)*	*(10.3)*	*(10.1)*	*(3.8)*	*14.2*	*(8.5)*	*40.9*	*4.6*	*(10.0)*
Metal	**Gold**	1,341.2	1,325.0	1,353.4	1,322.8	1,317.5	1,270.9	1,249.4	1,302.6	1,248.5	1,258.6	1,330.1
	Change, %		*1.2*	*(0.9)*	*1.4*	*1.8*	*5.5*	*7.4*	*3.0*	*7.4*	*6.6*	*0.8*
	Silver	16.6	16.4	16.7	16.5	17.2	16.6	18.3	16.9	17.1	17.1	16.7
	Change, %		*1.4*	*(0.6)*	*0.5*	*(3.4)*	*0.1*	*(9.1)*	*(2.1)*	*(3.0)*	*(2.8)*	*(0.9)*
	Copper	6,714.0	6,714.0	6,602.0	6,898.0	7,205.0	6,493.0	5,837.5	7,247.0	4,872.0	6,199.4	6,982.8
	Change, %		*0.0*	*1.7*	*(2.7)*	*(6.8)*	*3.4*	*15.0*	*(7.4)*	*37.8*	*8.3*	*(3.8)*
	Nickel	879.5	841.4	839.7	879.9	803.7	678.7	643.4	809.1	646.4	680.2	854.5
	Change, %		*4.5*	*4.7*	*(0.0)*	*9.4*	*29.6*	*36.7*	*8.7*	*36.1*	*29.3*	*2.9*
	Zinc	3,274.0	3,274.0	3,260.5	3,355.0	3,349.0	3,236.0	2,771.0	3,319.0	2,097.5	2,888.5	3,383.6
	Change, %		*0.0*	*0.4*	*(2.4)*	*(2.2)*	*1.2*	*18.2*	*(1.4)*	*56.1*	*13.3*	*(3.2)*
	Lead	2,399.0	2,399.0	2,393.0	2,447.3	2,570.5	2,520.5	2,335.8	2,482.8	1,868.3	2,315.7	2,512.9
	Change, %		*0.0*	*0.3*	*(2.0)*	*(6.7)*	*(4.8)*	*2.7*	*(3.4)*	*28.4*	*3.6*	*(4.5)*
	Aluminum	13,845.0	13,705.0	13,630.0	14,300.0	15,055.0	16,235.0	13,785.0	15,020.0	12,373.5	14,556.6	14,284.6
	Change, %		*1.0*	*1.6*	*(3.2)*	*(8.0)*	*(14.7)*	*0.4*	*(7.8)*	*11.9*	*(4.9)*	*(3.1)*
	Cobalt	93,550.0	93,550.0	94,050.0	79,250.0	75,205.0	59,589.0	54,500.0	75,205.0	25,480.1	55,906.9	82,325.1
	Change, %		*0.0*	*(0.5)*	*18.0*	*24.4*	*57.0*	*71.7*	*24.4*	*267.1*	*67.3*	*13.6*
	HR Coil	860.0	859.0	825.0	836.0	660.0	595.0	630.0	662.0	519.3	620.1	752.0
	Change, %		*0.1*	*4.2*	*2.9*	*30.3*	*44.5*	*36.5*	*29.9*	*65.6*	*38.7*	*14.4*
	Scrap	400.0	400.0	400.0	389.0	367.0	335.0	350.0	367.0	275.7	344.7	386.0
	Change, %		*0.0*	*0.0*	*2.8*	*9.0*	*19.4*	*14.3*	*9.0*	*45.1*	*16.0*	*3.6*

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

SK Energy Daily

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Refining Price Data

Daily Price		04/02	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	**WTI**	63.0	64.9	65.6	61.3	60.4	50.6	50.2	53.7	43.4	50.9	62.9
	Change, %		*(3.0)*	*(3.9)*	*2.9*	*4.4*	*24.6*	*25.4*	*17.3*	*45.3*	*23.8*	*0.1*
	Dubai	66.8	65.3	66.0	60.3	64.4	55.2	51.7	53.8	41.3	53.1	64.0
	Change, %		*2.2*	*1.2*	*10.8*	*3.8*	*21.1*	*29.3*	*24.1*	*61.7*	*25.8*	*4.4*
Crude Oil	**Gasoline(휘발유)**	80.8	80.5	80.9	75.2	76.5	69.2	67.2	69.8	56.3	68.0	77.7
Product	*Change, %*		*0.4*	*(0.2)*	*7.4*	*5.6*	*16.7*	*20.2*	*15.7*	*43.6*	*18.8*	*4.0*
	Kerosene(등유)	83.3	81.9	81.6	79.5	79.2	69.0	62.7	66.4	52.9	65.2	80.1
	Change, %		*1.6*	*2.1*	*4.8*	*5.2*	*20.7*	*32.9*	*25.4*	*57.5*	*27.7*	*4.0*
	Diesel(경유)	82.8	81.7	81.2	74.9	78.7	69.4	63.4	65.5	52.1	65.6	78.8
	Change, %		*1.3*	*1.9*	*10.5*	*5.1*	*19.2*	*30.5*	*26.3*	*58.8*	*26.1*	*5.0*
	Bunker-C	58.6	58.0	59.2	55.4	58.3	51.4	46.6	52.1	35.5	49.7	57.6
	Change, %		*1.0*	*(1.0)*	*5.7*	*0.6*	*14.0*	*25.8*	*12.6*	*65.0*	*18.1*	*1.7*
	Naphtha	66.8	66.6	65.8	60.8	67.7	56.2	52.0	53.5	42.6	53.7	63.6
	Change, %		*0.3*	*1.5*	*10.0*	*(1.3)*	*18.9*	*28.4*	*25.0*	*56.8*	*24.3*	*5.1*
Dubai	**Gasoline(휘발유)**	14.0	15.2	15.0	15.0	12.1	14.0	15.6	16.0	14.9	14.9	13.7
Spread	*Change*		*(1.2)*	*(1.0)*	*(1.0)*	*1.9*	*(0.0)*	*(1.6)*	*(2.0)*	*(0.9)*	*(0.9)*	*0.3*
	Kerosene(등유)	16.5	16.6	15.6	19.2	14.8	13.8	11.0	12.6	11.6	12.1	16.1
	Change		*(0.1)*	*0.9*	*(2.7)*	*1.7*	*2.6*	*5.5*	*3.9*	*4.9*	*4.3*	*0.4*
	Diesel(경유)	16.0	16.4	15.3	14.6	14.4	14.2	11.7	11.7	10.8	12.5	14.8
	Change		*(0.4)*	*0.7*	*1.3*	*1.6*	*1.7*	*4.2*	*4.3*	*5.2*	*3.4*	*1.2*
	Bunker-C	(8.2)	(7.3)	(6.7)	(4.8)	(6.1)	(3.7)	(5.1)	(1.8)	(5.8)	(3.4)	(6.3)
	Change		*(0.9)*	*(1.4)*	*(3.3)*	*(2.1)*	*(4.5)*	*(3.1)*	*(6.4)*	*(2.4)*	*(4.7)*	*(1.8)*
	Naphtha	0.0	1.3	(0.2)	0.5	3.3	1.0	0.4	(0.4)	1.3	0.6	(0.4)
	Change		*(1.3)*	*0.2*	*(0.5)*	*(3.3)*	*(1.0)*	*(0.3)*	*0.4*	*(1.3)*	*(0.6)*	*0.4*
Refining	**Simple(단순)**	1.7	2.5	2.3	3.5	2.1	3.5	2.2	3.8	1.9	3.2	2.3
Margin	*Change*		*(0.8)*	*(0.5)*	*(1.8)*	*(0.4)*	*(1.7)*	*(0.4)*	*(2.1)*	*(0.2)*	*(1.4)*	*(0.5)*
	Complex(복합)	8.0	8.8	8.2	8.7	7.5	8.4	7.4	8.3	7.0	8.0	7.8
	Change		*(0.8)*	*(0.3)*	*(0.7)*	*0.4*	*(0.4)*	*0.6*	*(0.3)*	*1.0*	*0.0*	*0.1*
	Complex(lagging)	11.6	10.1	12.9	2.6	10.7	13.7	4.0	18.0	8.5	8.9	8.4
	Change		*1.5*	*(1.4)*	*9.0*	*0.9*	*(2.1)*	*7.6*	*(6.4)*	*3.1*	*2.6*	*3.2*

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

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Petrochemical Price Data

Daily Price			04/02	03/30	03/29	03/28	03/27	03/26	03/23	03/22	03/21	03/20
Spot Price	**Naphtha**	CFR Japan	609.8	606.3	606.3	602.5	601.3	601.3	596.0	592.0	582.9	578.5
	Ethylene	CFR SE Asia	1,285.0	1,285.0	1,285.0	1,285.0	1,285.0	1,285.0	1,285.0	1,280.0	1,280.0	1,280.0
	Propylene	FOB Korea	1,000.0	1,000.0	1,000.0	1,010.0	1,020.0	1,020.0	1,020.0	1,020.0	1,020.0	1,020.0
	Butadiene	FOB Korea	1,380.0	1,380.0	1,380.0	1,380.0	1,395.0	1,410.0	1,410.0	1,430.0	1,430.0	1,430.0
	HDPE	CFR FE Asia	1,310.0	1,320.0	1,320.0	1,320.0	1,320.0	1,320.0	1,320.0	1,320.0	1,320.0	1,340.0
	LDPE	CFR FE Asia	1,190.0	1,190.0	1,190.0	1,190.0	1,190.0	1,190.0	1,215.0	1,215.0	1,215.0	1,220.0
	LLDPE	CFR FE Asia	1,160.0	1,160.0	1,160.0	1,160.0	1,160.0	1,175.0	1,190.0	1,190.0	1,190.0	1,200.0
	MEG	CFR China	950.0	930.0	930.0	929.0	928.0	915.0	898.0	907.0	899.0	908.0
	PP	CFR FE Asia	1,185.0	1,185.0	1,185.0	1,185.0	1,185.0	1,185.0	1,185.0	1,210.0	1,190.0	1,200.0
	PX	CFR China	934.7	926.0	926.0	925.7	928.7	930.8	928.0	936.0	932.0	931.0
	PTA	CFR China	765.0	760.0	760.0	760.0	760.0	761.0	761.0	770.0	769.0	769.0
	Benzene	FOB Korea	841.0	826.0	826.0	827.0	830.3	831.8	836.3	852.3	841.3	850.3
	Toluene	FOB Korea	696.0	683.0	683.0	677.0	677.0	677.0	677.0	678.5	678.0	677.0
	Xylene	FOB Korea	744.0	737.0	737.0	736.5	736.0	734.0	738.0	738.0	737.0	738.0
	SM	FOB Korea	1,310.0	1,267.5	1,267.5	1,267.5	1,260.5	1,256.5	1,246.0	1,256.0	1,231.0	1,251.0

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	**Naphtha**	CFR Japan	607.0	596.0	558.0	597.0	579.0	469.5	484.5	399.5	493.5	582.4
	Change, %			*1.8*	*8.8*	*1.7*	*4.8*	*29.3*	*25.3*	*51.9*	*23.0*	*4.2*
	Ethylene	CFR SE Asia	1,265.0	1,265.0	1,187.5	1,272.5	1,200.0	1,045.0	990.0	1,040.9	1,090.9	1,243.7
	Change, %			*0.0*	*6.5*	*(0.6)*	*5.4*	*21.1*	*27.8*	*21.5*	*16.0*	*1.7*
	Propylene	CFR SE Asia	945.0	955.0	985.0	897.5	845.0	775.0	815.0	705.7	823.6	1,052.3
	Change, %			*(1.0)*	*(4.1)*	*5.3*	*11.8*	*21.9*	*16.0*	*33.9*	*14.7*	*(10.2)*
	Butadiene	CFR SE Asia	1,275.0	1,355.0	1,375.0	1,125.0	1,050.0	1,600.0	2,100.0	1,116.8	1,481.1	1,313.8
	Change, %			*(5.9)*	*(7.3)*	*13.3*	*21.4*	*(20.3)*	*(39.3)*	*14.2*	*(13.9)*	*(3.0)*
	Benzene	CFR SE Asia	832.5	855.0	905.0	890.0	892.5	815.0	822.5	646.7	838.8	902.9
	Change, %			*(2.6)*	*(8.0)*	*(6.5)*	*(6.7)*	*2.1*	*1.2*	*28.7*	*(0.8)*	*(7.8)*
	Toluene	CFR SE Asia	725.0	720.0	750.0	735.0	715.0	675.0	690.0	630.5	689.5	743.1
	Change, %			*0.7*	*(3.3)*	*(1.4)*	*1.4*	*7.4*	*5.1*	*15.0*	*5.2*	*(2.4)*
	Xylene	CFR SE Asia	762.5	762.5	762.5	712.5	695.0	710.0	675.0	627.7	668.8	755.6
	Change, %			*0.0*	*0.0*	*7.0*	*9.7*	*7.4*	*13.0*	*21.5*	*14.0*	*0.9*
Spread	**Ethylene**	-Naphtha	658.0	669.0	629.5	675.5	621.0	575.5	505.5	641.4	597.4	661.2
	Change, %			*(1.6)*	*4.5*	*(2.6)*	*6.0*	*14.3*	*30.2*	*2.6*	*10.1*	*(0.5)*
	Propylene	-Naphtha	338.0	359.0	427.0	300.5	266.0	305.5	330.5	306.2	330.1	469.9
	Change, %			*(5.8)*	*(20.8)*	*12.5*	*27.1*	*10.6*	*2.3*	*10.4*	*2.4*	*(28.1)*
	Butadiene	-Naphtha	668.0	759.0	817.0	528.0	471.0	1,130.5	1,615.5	717.3	987.6	731.4
	Change, %			*(12.0)*	*(18.2)*	*26.5*	*41.8*	*(40.9)*	*(58.7)*	*(6.9)*	*(32.4)*	*(8.7)*
	Benzene	-Naphtha	225.5	259.0	347.0	293.0	313.5	345.5	338.0	247.2	345.3	320.5
	Change, %			*(12.9)*	*(35.0)*	*(23.0)*	*(28.1)*	*(34.7)*	*(33.3)*	*(8.8)*	*(34.7)*	*(29.6)*
	Toluene	-Naphtha	118.0	124.0	192.0	138.0	136.0	205.5	205.5	231.0	196.0	160.7
	Change, %			*(4.8)*	*(38.5)*	*(14.5)*	*(13.2)*	*(42.6)*	*(42.6)*	*(48.9)*	*(39.8)*	*(26.6)*
	Xylene	-Naphtha	155.5	166.5	204.5	115.5	116.0	240.5	190.5	228.2	175.3	173.2
	Change, %			*(6.6)*	*(24.0)*	*34.6*	*34.1*	*(35.3)*	*(18.4)*	*(31.9)*	*(11.3)*	*(10.2)*

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	1,212.5	1,272.5	1,297.5	1,182.5	1,207.5	1,137.5	1,142.5	1,134.6	1,142.5	1,255.4
	Change, %			*(4.7)*	*(6.6)*	*2.5*	*0.4*	*6.6*	*6.1*	*6.9*	*6.1*	*(3.4)*
	MEG	CFR SE Asia	935.0	900.0	1,025.0	922.5	917.5	742.5	847.5	660.8	850.6	981.7
	Change, %			*3.9*	*(8.8)*	*1.4*	*1.9*	*25.9*	*10.3*	*41.5*	*9.9*	*(4.8)*
	PVC	CFR SE Asia	965.0	965.0	980.0	870.0	850.0	930.0	920.0	823.4	899.9	950.0
	Change, %			*0.0*	*(1.5)*	*10.9*	*13.5*	*3.8*	*4.9*	*17.2*	*7.2*	*1.6*
	PP	CFR SE Asia	1,227.5	1,272.5	1,307.5	1,157.5	1,147.5	1,057.5	1,032.5	978.4	1,099.6	1,256.2
	Change, %			*(3.5)*	*(6.1)*	*6.0*	*7.0*	*16.1*	*18.9*	*25.5*	*11.6*	*(2.3)*
	2-EH	CFR Korea	1,190.0	1,130.0	1,125.0	1,020.0	1,030.0	1,035.0	865.0	772.4	970.0	1,094.6
	Change, %			*5.3*	*5.8*	*16.7*	*15.5*	*15.0*	*37.6*	*54.1*	*22.7*	*8.7*
	ABS	CFR SE Asia	1,960.0	1,970.0	2,120.0	2,050.0	2,000.0	1,660.0	1,635.0	1,347.1	1,844.7	2,036.2
	Change, %			*(0.5)*	*(7.5)*	*(4.4)*	*(2.0)*	*18.1*	*19.9*	*45.5*	*6.3*	*(3.7)*
	SBR	CFR SE Asia	1,670.0	1,700.0	1,750.0	1,650.0	1,640.0	2,545.0	2,000.0	1,483.0	1,980.5	1,722.3
	Change, %			*(1.8)*	*(4.6)*	*1.2*	*1.8*	*(34.4)*	*(16.5)*	*12.6*	*(15.7)*	*(3.0)*
	SM	CFR SE Asia	1,320.0	1,287.5	1,452.5	1,290.0	1,327.5	1,185.0	1,205.0	1,064.6	1,253.8	1,388.7
	Change, %			*2.5*	*(9.1)*	*2.3*	*(0.6)*	*11.4*	*9.5*	*24.0*	*5.3*	*(4.9)*
	Caustic	FOB NEA	639.0	631.0	590.0	619.0	705.0	449.0	422.5	316.6	491.2	587.9
	Change, %			*1.3*	*8.3*	*3.2*	*(9.4)*	*42.3*	*51.2*	*101.8*	*30.1*	*8.7*
	PX	CFR SE Asia	935.0	937.5	957.5	912.5	902.5	832.5	855.0	790.4	844.4	950.8
	Change, %			*(0.3)*	*(2.3)*	*2.5*	*3.6*	*12.3*	*9.4*	*18.3*	*10.7*	*(1.7)*
	PO	CFR China	1,722.5	1,757.5	1,962.5	1,995.0	1,732.5	1,537.5	1,562.5	1,396.8	1,601.2	1,910.6
	Change, %			*(2.0)*	*(12.2)*	*(13.7)*	*(0.6)*	*12.0*	*10.2*	*23.3*	*7.6*	*(9.8)*
	Caprolactam	CFR SE Asia	2,200.0	2,200.0	2,130.0	2,060.0	2,020.0	2,250.0	1,850.0	1,344.9	1,936.4	2,093.1
	Change, %			*0.0*	*3.3*	*6.8*	*8.9*	*(2.2)*	*18.9*	*63.6*	*13.6*	*5.1*
	PTA	CFR SE Asia	772.5	785.0	790.0	717.5	715.0	662.5	642.5	613.7	667.8	773.7
	Change, %			*(1.6)*	*(2.2)*	*7.7*	*8.0*	*16.6*	*20.2*	*25.9*	*15.7*	*(0.1)*
Spread	**HDPE**		605.5	676.5	739.5	585.5	628.5	668.0	658.0	735.1	649.0	673.0
	Change, %			*(10.5)*	*(18.1)*	*3.4*	*(3.7)*	*(9.4)*	*(8.0)*	*(17.6)*	*(6.7)*	*(10.0)*
	MEG		328.0	304.0	467.0	325.5	338.5	273.0	363.0	261.3	357.1	399.3
	Change, %			*7.9*	*(29.8)*	*0.8*	*(3.1)*	*20.1*	*(9.6)*	*25.5*	*(8.1)*	*(17.9)*
	PVC		358.0	369.0	422.0	273.0	271.0	460.5	435.5	423.9	406.4	367.6
	Change, %			*(3.0)*	*(15.2)*	*31.1*	*32.1*	*(22.3)*	*(17.8)*	*(15.5)*	*(11.9)*	*(2.6)*
	PP		620.5	676.5	749.5	560.5	568.5	588.0	548.0	578.9	606.1	673.8
	Change, %			*(8.3)*	*(17.2)*	*10.7*	*9.1*	*5.5*	*13.2*	*7.2*	*2.4*	*(7.9)*
	2-EH		583.0	534.0	567.0	423.0	451.0	565.5	380.5	372.9	476.5	512.2
	Change, %			*9.2*	*2.8*	*37.8*	*29.3*	*3.1*	*53.2*	*56.4*	*22.3*	*13.8*
	ABS		1,353.0	1,374.0	1,562.0	1,453.0	1,421.0	1,190.5	1,150.5	947.6	1,351.2	1,453.7
	Change, %			*(1.5)*	*(13.4)*	*(6.9)*	*(4.8)*	*13.6*	*17.6*	*42.8*	*0.1*	*(6.9)*
	SBR	BD spread	395.0	345.0	375.0	525.0	590.0	945.0	(100.0)	366.2	499.4	408.5
	Change, %			*14.5*	*5.3*	*(24.8)*	*(33.1)*	*(58.2)*	*(495.0)*	*7.9*	*(20.9)*	*(3.3)*
	SM		713.0	691.5	894.5	693.0	748.5	715.5	720.5	665.1	760.3	806.2
	Change, %			*3.1*	*(20.3)*	*2.9*	*(4.7)*	*(0.3)*	*(1.0)*	*7.2*	*(6.2)*	*(11.6)*
	Caustic											
	Change, %											
	PX		328.0	341.5	399.5	315.5	323.5	363.0	370.5	390.9	351.0	368.3
	Change, %			*(4.0)*	*(17.9)*	*4.0*	*1.4*	*(9.6)*	*(11.5)*	*(16.1)*	*(6.5)*	*(11.0)*
	PO	propylene sprea	777.5	802.5	977.5	1,097.5	887.5	762.5	747.5	691.1	777.6	858.3
	Change, %			*(3.1)*	*(20.5)*	*(29.2)*	*(12.4)*	*2.0*	*4.0*	*12.5*	*(0.0)*	*(9.4)*
	Caprolactam	benzene spreac	1,367.5	1,345.0	1,225.0	1,170.0	1,127.5	1,435.0	1,027.5	698.2	1,097.6	1,190.2
	Change, %			*1.7*	*11.6*	*16.9*	*21.3*	*(4.7)*	*33.1*	*95.9*	*24.6*	*14.9*
	PTA	px spread	118.0	128.8	119.8	78.8	83.3	79.8	44.0	60.4	76.7	108.1
	Change, %			*(8.3)*	*(1.5)*	*49.8*	*41.7*	*48.0*	*168.2*	*95.3*	*53.8*	*9.1*

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

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SK 증권

Global peers

	Currency	04/02	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	62.0	(2.6)	(3.8)	(9.3)	(13.7)	(11.9)	(2.4)	(12.9)	168,245	17.7	14.9	1.8	1.7	10.2	9.2
Eastman	USD	102.7	(2.7)	(2.5)	1.9	8.9	12.9	27.1	10.8	13,550	11.6	10.7	2.5	2.2	8.7	8.1
BASF	EUR	82.5	0.0	0.8	(1.0)	(9.8)	(8.2)	(11.1)	(10.1)	101,214	14.6	13.6	2.4	2.2	7.8	7.4
Akzo Nobel	EUR	76.7	0.0	2.2	0.6	5.8	(2.1)	(1.3)	5.1	22,073	17.0	15.8	3.0	2.8	9.3	8.8
Arkema	EUR	106.0	0.0	2.0	2.0	4.5	2.0	14.6	4.4	9,270	13.2	12.2	1.7	1.6	6.3	6.0
Lanxess	EUR	62.2	0.0	0.8	(4.7)	(5.8)	(6.8)	(1.1)	(6.2)	7,282	15.5	13.1	2.1	1.9	9.3	8.2
Sumitomo Chemical	JPY	616	(0.6)	4.6	(2.4)	(24.0)	(12.6)	(1.0)	(24.0)	11,911	10.1	10.5	1.3	1.2	7.4	8.0
Mitsubishi Chemical	JPY	1,020	(1.1)	3.7	(3.7)	(17.5)	(6.1)	18.4	(17.5)	16,544	9.2	8.7	1.3	1.2	6.3	6.1
Shin-Etsu Chemical	JPY	10,980	(0.2)	2.5	2.8	(4.1)	8.8	13.9	(4.1)	43,948	18.5	16.6	1.9	1.8	8.1	7.4
Asahi Kasei	JPY	1,401	0.1	1.3	6.9	(3.6)	0.3	29.7	(3.6)	18,109	14.4	13.6	1.5	1.4	7.4	7.0
JSR	JPY	2,376	(0.7)	2.3	(4.5)	7.1	11.7	26.6	7.1	4,455	14.5	13.4	1.2	1.1	7.7	7.2
Nitto Denko	JPY	7,934	(0.6)	2.2	(6.7)	(20.7)	(15.6)	(7.8)	(20.7)	15,450	15.7	14.6	2.1	1.9	7.3	7.0
SABIC	SAR	115.3	(0.6)	0.5	10.1	14.2	13.4	18.9	13.7	80,773	14.2	13.7	1.7	1.7	7.3	7.1
Yansab	SAR	72.0	(0.6)	0.1	6.4	21.8	22.4	24.7	22.0	8,861	13.7	13.9	2.2	1.9	9.0	8.9
Formosa Plastics	TWD	102.5	(1.4)	(1.0)	2.0	4.5	11.7	13.3	3.9	21,114	14.4	13.9	1.8	1.8	18.9	19.2
Formosa Fiber	TWD	107.5	(0.9)	(1.8)	2.4	3.9	17.0	13.9	4.4	20,511	13.7	13.4	1.7	1.7	11.6	11.5
Nan Ya Plastics	TWD	81.6	0.0	(1.1)	4.2	6.0	9.7	13.5	4.7	20,648	14.8	15.3	1.7	1.7	16.2	16.4
Sinopec Shanghai	CNY	5.91	(1.0)	(1.0)	1.5	(10.3)	(6.3)	(7.7)	(6.6)	9,462	12.0	12.6	2.2	2.0	6.8	7.3
Sinopec Yizheng(Fibe	CNY	2.04	0.5	(7.7)	(10.9)	(25.0)	(35.2)	(44.3)	(23.6)	5,394	50.4	66.3	5.3	5.0	13.9	10.3
Reliance	INR	893	1.2	(0.9)	(5.8)	(2.0)	14.3	35.2	(1.8)	93,404	14.4	12.9	1.7	1.5	9.4	8.7
Industries Qatar	QAR	109.0	0.8	0.4	4.7	11.5	17.2	(1.4)	12.4	16,144	14.5	13.9	1.6	1.5	46.4	27.2
PTT Chemical	THB	96.5	2.1	(2.5)	(2.5)	13.5	21.8	31.7	13.5	11,766	10.7	10.4	1.4	1.3	5.5	5.4
Petronas	MYR	8.3	0.4	1.7	2.3	5.6	13.6	7.7	7.7	15,624	16.1	15.5	2.0	1.9	9.2	8.9
LG화학	KRW	387,500	0.5	(3.1)	1.0	(5.7)	(1.1)	31.8	(4.3)	27,313	13.8	12.8	1.8	1.6	6.5	6.1
롯데케미칼	KRW	429,500	(0.8)	(2.5)	(9.5)	19.1	13.6	15.9	16.7	11,632	5.5	5.2	0.9	0.8	3.6	3.3
한화케미칼	KRW	29,300	(1.7)	(0.3)	(9.0)	(10.0)	(9.7)	11.0	(7.3)	5,050	5.7	5.5	0.8	0.7	6.7	6.5
금호석유	KRW	95,800	(0.6)	(2.0)	7.0	(7.4)	32.9	21.6	(3.7)	2,969	14.1	11.9	1.6	1.5	9.3	8.4
SKC	KRW	36,650	(4.2)	(2.3)	(4.9)	(21.2)	(11.2)	19.0	(22.0)	1,643	9.9	8.7	1.1	1.0	8.8	7.9
국도화학	KRW	59,500	(0.7)	0.8	(4.3)	(9.3)	7.8	20.8	(5.7)	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	9,710	(0.9)	1.7	5.4	29.0	46.0	14.2	28.1	4,595	8.2	7.3	1.1	1.0	7.2	6.8
Average			**(0.5)**	**(0.2)**	**(0.6)**	**(1.2)**	**5.0**	**11.5**	**(0.7)**							
Refinery																
Valero	USD	91.6	(1.3)	(2.9)	(0.7)	(1.3)	18.8	38.1	(0.4)	40,608	14.1	13.4	2.0	2.0	6.9	6.9
Conoco Phillips	USD	58.1	(2.0)	(1.7)	7.5	5.0	15.5	16.5	5.8	66,136	34.0	25.9	2.2	2.2	7.2	6.7
Formosa Petrochemic	TWD	117.0	(1.3)	(1.3)	4.0	1.7	9.3	10.4	1.3	37,040	18.2	18.7	3.2	3.2	11.7	12.1
Andeavor	USD	100.5	(0.1)	(3.2)	9.2	(12.4)	(3.1)	24.0	(12.1)	17,904	12.9	11.4	1.8	1.7	7.3	7.1
Marathon Petroleum	USD	71.8	(1.8)	(2.6)	10.1	6.9	28.5	42.1	8.8	32,812	15.0	12.8	2.6	2.7	7.7	7.5
Devon Energy	USD	30.4	(4.5)	(6.5)	(3.2)	(28.1)	(17.1)	(27.3)	(26.7)	22,192	17.5	14.0	2.7	2.3	8.4	7.4
Hollyfrontier	USD	48.3	(1.1)	(2.1)	9.6	(5.8)	33.8	70.4	(5.7)	9,094	16.8	15.2	1.8	1.8	8.0	8.0
Phillips 66	USD	95.0	(1.0)	(1.1)	3.9	(6.7)	2.8	19.9	(6.1)	51,561	15.6	14.5	2.3	2.2	9.0	8.8
Murphy Oil	USD	25.1	(2.7)	(3.0)	(4.7)	(21.8)	(5.5)	(12.1)	(19.0)	5,548	162.4	113.2	1.2	1.1	4.9	4.5
JX Holdings	JPY	637.8	(0.9)	1.5	(1.1)	(12.3)	11.2	16.7	(12.3)	22,130	8.8	8.0	0.9	0.9	7.0	6.6
Idemitsu	JPY	3,990.0	(1.4)	3.1	(0.4)	(11.8)	27.9	3.1	(11.8)	8,360	7.9	7.5	1.0	0.9	6.8	6.8
Nesteoil	EUR	56.6	0.0	0.0	(1.2)	6.1	50.1	54.8	6.1	16,473	16.7	16.7	2.9	2.7	10.2	10.3
Ashland	USD	68.4	(2.0)	(1.7)	(2.1)	(6.5)	4.1	12.9	(3.9)	4,550	21.6	18.7	1.3	1.3	10.2	9.6
Fuchs Petrolub	EUR	44.1	0.0	1.0	(3.8)	(0.9)	(11.8)	(3.6)	(0.3)	7,127	22.1	20.9	4.1	3.7	13.0	12.3
SK이노베이션	KRW	214,000	1.4	0.9	3.1	3.6	7.5	28.5	4.6	17,975	7.9	7.7	0.9	0.9	4.9	4.8
S-Oil	KRW	121,000	0.8	1.7	(4.0)	3.4	(5.1)	20.4	3.4	12,400	9.3	8.1	1.8	1.6	7.6	6.6
GS	KRW	64,000	3.1	2.9	(1.8)	2.4	(2.4)	8.3	2.9	5,467	6.0	5.5	0.7	0.6	6.9	6.3
Average			**(0.9)**	**(0.9)**	**1.4**	**(4.6)**	**9.7**	**19.0**	**(3.8)**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임

* 국내업체의 multiple은 Dataguidepro 기준임

Global peers

	Currency	04/02	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	73	(1.9)	(1.1)	(3.1)	(13.9)	(10.3)	(10.7)	(12.5)	310,267	15.7	15.6	1.6	1.6	7.2	7.0
BP	GBP	479	0.0	2.1	3.3	(7.4)	(0.2)	4.7	(8.3)	134,037	14.9	14.1	1.4	1.3	5.3	5.1
Shell	EUR	2,234	0.0	1.1	(0.7)	(9.8)	(1.3)	6.6	(9.9)	263,466	13.2	12.3	1.3	1.3	5.8	5.6
Chevron	USD	112	(1.6)	(2.7)	0.5	(12.0)	(4.4)	4.5	(10.3)	214,407	18.1	17.8	1.4	1.4	6.4	6.2
Total	EUR	46	0.0	0.5	1.4	0.2	2.0	(2.7)	0.2	149,333	11.9	11.6	1.2	1.2	5.2	4.9
Sinopec	CNY	6	(0.8)	(3.2)	1.6	0.9	9.0	12.0	4.9	120,312	11.3	10.7	1.0	1.0	3.9	3.8
Petrochina	CNY	8	0.1	(1.3)	(3.9)	(7.3)	(4.3)	(2.8)	(5.4)	211,773	25.5	20.9	1.1	1.1	5.6	5.4
CNOOC	CNY	11	1.0	(2.6)	5.8	6.5	0.4	(9.9)	8.0	65,761	9.1	9.0	1.0	0.9	3.5	3.5
Gazprom	RUB	140	(1.4)	1.5	1.3	7.5	15.1	9.7	7.5	57,719	3.8	3.9	0.3	0.2	3.6	3.5
Rosneft	RUB	309	(1.5)	0.3	(3.3)	6.0	(1.9)	(4.5)	6.0	56,911	7.5	6.5	0.8	0.7	4.8	4.4
Anadarko	USD	58	(3.7)	(7.1)	1.3	6.2	17.8	(6.2)	8.4	29,977	39.1	36.9	2.5	2.3	6.1	5.6
Petrobras	BRL	21	(2.4)	(5.1)	(2.8)	26.3	35.7	44.2	29.8	86,406	10.1	8.4	0.8	0.8	5.4	5.0
Lukoil	USD	3,956	(0.1)	4.1	5.5	18.6	29.9	32.7	18.6	58,604	6.1	6.1	0.8	0.7	N/A	N/A
Kinder	USD	15	(1.1)	(1.5)	(7.5)	(20.7)	(22.0)	(31.5)	(17.5)	47,497	18.1	16.5	1.0	1.0	9.7	9.4
Statoil	NOK	185	0.0	1.2	5.6	4.1	15.4	25.9	5.4	78,559	15.6	14.9	1.8	1.8	3.6	3.4
BHP	AUD	28	0.0	(1.4)	(4.8)	(5.0)	8.0	17.3	(4.6)	111,090	14.7	15.5	1.9	1.8	5.8	5.9
PTT E&P	THB	116	1.3	(1.3)	0.9	16.0	27.8	24.7	16.0	14,750	13.3	12.6	1.2	1.1	3.8	3.6
Petronas gas	MYR	18	0.8	1.0	3.2	2.6	0.4	(9.0)	2.9	9,188	18.9	18.5	2.7	2.6	10.5	10.3
Chesapeake	USD	3	(1.7)	(4.8)	0.3	(27.6)	(31.7)	(50.0)	(25.0)	2,700	3.9	4.1	#N/A N/A	4.8	5.9	5.9
Noble Energy	USD	29	(3.9)	(4.3)	(4.4)	(3.6)	2.9	(15.2)	(0.1)	14,328	37.2	24.8	1.4	1.3	7.3	6.2
Average		**0**	**(0.8)**	**(1.2)**	**0.0**	**(0.6)**	**4.4**	**2.0**	**0.7**							
PV																
WACKER	EUR	133.4	0.0	(0.3)	2.4	(18.3)	7.8	38.1	(17.8)	8,548	19.4	16.5	2.0	1.9	6.7	6.4
GCL-Poly	HKD	1.0	0.0	(5.8)	(21.8)	(30.2)	(9.3)	(5.8)	(30.7)	2,298	6.1	5.4	0.6	0.5	6.2	5.7
SunPower	USD	7.6	(4.4)	(7.4)	6.1	(14.9)	4.0	25.1	(9.5)	1,068	#N/A N/A	47.1	4.4	3.9	13.0	8.8
Canadian Solar	USD	16.3	0.2	(6.9)	2.8	(4.9)	(2.4)	32.8	(3.3)	945	13.1	10.5	1.0	0.9	9.0	8.9
JA Solar	USD	7.0	7.0	2.0	(5.6)	(5.5)	(6.6)	7.3	(5.9)	334	13.2	11.0	1.5	1.5	3.9	3.6
Yingli	USD	1.7	1.2	2.4	3.0	0.0	(26.4)	(21.7)	0.6	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	69.4	(2.2)	(6.3)	7.9	(1.5)	47.1	156.1	2.8	7,249	41.7	21.2	1.3	1.2	12.2	7.3
한화큐셀	USD	7.4	(2.9)	(4.2)	(10.9)	2.1	(10.2)	1.0	4.8	613	33.5	23.7	#N/A N/A	#N/A N/A	8.1	7.3
OCI	KRW	157,000	0.0	(6.0)	(4.3)	15.4	53.2	85.4	15.4	3,542	0.0	14.2	0.0	1.0	0.0	6.6
웅진에너지	KRW	6,700	(1.6)	(2.2)	(6.6)	(21.0)	(11.3)	28.8	(18.5)	188	N/A	0.0	1.0	0.0	6.6	0.0
신성솔라에너지	KRW	1,700	(2.6)	(1.2)	(6.3)	(12.1)	(5.6)	(7.9)	(11.2)	278	N/A	1.0	0.0	6.6	0.0	8.2
Average			**(0.5)**	**(3.3)**	**(3.0)**	**(8.3)**	**3.6**	**30.8**	**(6.7)**							
Gas Company																
Towngas China	HKD	6.8	0.0	(2.0)	7.4	8.4	24.6	55.6	8.8	2,409	13.5	12.1	1.1	1.1	11.9	10.8
Kulun	HKD	6.8	0.0	(0.1)	(6.2)	(19.1)	(11.3)	(6.0)	(16.8)	6,963	9.1	7.9	1.0	0.9	5.5	5.0
Beijing Enterprise	HKD	41.0	0.0	(2.7)	(3.6)	(12.5)	(2.4)	2.0	(11.6)	6,593	7.2	6.5	0.7	0.7	12.1	11.5
ENN Energy	HKD	70.1	0.0	4.4	15.3	21.9	23.9	60.2	25.7	9,686	15.2	13.0	3.0	2.6	9.1	8.2
China Resources Gas	HKD	27.3	0.0	(0.4)	3.0	(2.7)	0.2	(0.9)	(3.9)	7,722	14.6	13.2	2.5	2.2	8.2	7.6
China Gas Holdings	HKD	28.6	0.0	1.2	17.7	32.2	22.0	128.0	32.2	18,074	19.5	16.5	4.8	4.0	14.9	12.8
Shenzen Gas	HKD	17.2	0.0	5.3	8.5	12.3	17.0	34.9	15.5	4,448	11.4	9.7	1.4	1.3	7.6	6.6
Shann Xi	CNY	6.9	(0.6)	1.2	(6.0)	(19.3)	(16.5)	(26.3)	(18.1)	1,224	13.1	14.9	1.3	1.2	#N/A N/A	#N/A N/A
Suntien	HKD	2.2	0.0	0.9	18.9	5.3	13.4	46.7	6.3	1,041	6.0	5.2	0.7	0.6	7.7	6.7
China Oil & Gas	HKD	0.6	0.0	(7.4)	(10.0)	(21.3)	18.9	6.8	(25.9)	468	9.7	8.4	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
Average			**(0.1)**	**0.0**	**4.5**	**0.5**	**9.0**	**30.1**	**1.2**							
EV																
LG화학	KRW	387,500	0.5	(3.1)	1.0	(5.7)	(1.1)	31.8	(4.3)	25,875	13.6	12.5	1.6	1.5	6.2	5.7
삼성SDI	KRW	199,500	3.6	(1.0)	17.0	(5.9)	0.5	44.6	(2.4)	12,976	15.8	11.6	1.1	1.0	12.7	10.2
Panasonic	JPY	1514.0	(0.5)	(3.6)	(6.6)	(8.2)	(7.1)	20.3	(8.2)	35,030	14.3	12.3	1.9	1.7	5.6	5.1
GS Yuasa	JPY	571.0	(1.6)	2.3	0.7	1.8	(2.4)	10.0	1.8	2,227	15.4	14.0	1.3	1.2	7.1	6.6
NEC	JPY	2956.0	(1.2)	(2.9)	(7.0)	(2.8)	(2.6)	10.3	(2.8)	7,262	20.0	14.0	0.8	0.8	6.6	5.9
BYD Auto	CNY	55.7	(1.1)	(7.8)	(11.5)	(15.5)	(18.5)	15.9	(14.4)	23,233	24.6	19.8	2.5	2.3	12.2	10.7
Tesla Motors	USD	252.5	(5.1)	(17.0)	(24.7)	(21.2)	(26.1)	(9.3)	(18.9)	42,649	#N/A N/A	116.0	9.0	8.2	39.4	14.8
Kandi Technologies	USD	4.5	(7.2)	(9.1)	(12.6)	(37.5)	(32.3)	18.4	(33.8)	243	#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			**(1.6)**	**(5.3)**	**(5.4)**	**(11.9)**	**(11.2)**	**17.8**	**(10.4)**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임