SK Energy Daily

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SK 증권

1. News Summary (3 page)

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News		Conclusion
WTI comment	사흘만에 하락…WTI 1.3%↓	
Headline	유럽 PE, 수요 감소로 가격 하락세 지속중	미국産 PE가 본격적으로 진입하면 공급 과잉이 더 심해질 것
News 1.	폴리실리콘 가격 널뛰기에 태양광업계 원가절감 총력	OCI, 한화케미칼의 수익 악화 가능성이 열려있음
News 2.	-	-
News 3.	-	-
News 4.	-	-

2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	$/bbl	64.3	(1.3)	5.1	3.9	10.2	34.8
Dubai	$/bbl	65.4	2.4	6.5	5.5	5.3	33.1
Gasoline	$/bbl	79.8	1.7	5.8	4.9	6.4	26.0
Diesel	$/bbl	80.5	2.0	5.3	5.3	5.7	33.2
Complex margin	$/bbl	7.9	(0.2)	(0.4)	(0.1)	0.2	1.0
1M lagging	$/bbl	11.6	1.3	2.1	8.0	2.3	10.0
Petrochemical			%	%	%	%	%
Naphtha	$/t	592	1.6	3.9	7.1	(1.9)	31.3
Butadiene	$/t	1,430	0.0	0.0	5.5	30.0	(31.9)
HDPE	$/t	1,320	0.0	(1.5)	(2.2)	3.1	13.8
MEG	$/t	907	0.9	3.1	(11.5)	(1.4)	17.2
PX	$/t	936	0.4	0.4	(2.2)	5.1	12.1
SM	$/t	1,256	2.0	(2.2)	(11.3)	1.3	4.0
Commodity			%	%	%	%	%
Natural Gas	$/mmbtu	2.64	(1.4)	(3.4)	(1.6)	3.7	(8.1)
Natural rubber	$/t	1,420	0.7	(2.1)	(1.4)	0.0	(24.5)
Cotton	C/lbs	82.6	(0.6)	(1.0)	4.7	9.1	6.8

*참고: 정제마진의 변동률은 %가 아닌 $/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	03/19	$/t	1,250	2.5	6.6	0.4	16.3
Propylene	03/19	$/t	980	(1.5)	(3.4)	10.1	13.3
Benzene	03/19	$/t	868	(1.7)	(3.1)	(5.7)	4.5
Toluene	03/19	$/t	720	0.0	(4.0)	(2.0)	4.3
Xylene	03/19	$/t	763	(0.3)	0.7	7.4	5.9
PP	03/19	$/t	1,298	(0.8)	1.8	12.1	17.2
PVC	03/19	$/t	970	(1.0)	(1.0)	12.1	3.2
ABS	03/19	$/t	2,020	(2.4)	(1.9)	(2.4)	12.2
SBR	03/19	$/t	1,750	0.0	(0.3)	6.1	(36.2)
SM	03/19	$/t	1,338	(4.3)	(7.0)	0.4	3.7
BPA	03/19	$/t	1,875	(4.5)	(1.7)	0.1	30.9
Caustic	03/19	$/t	601	1.9	9.5	(3.2)	34.8
2-EH	03/19	$/t	1,130	0.4	4.6	9.2	12.4
Caprolactam	03/19	$/t	2,180	1.4	5.8	5.8	(5.2)
Solar				%	%	%	%
Polysilicon	03/21	$/kg	14.9	0.0	(8.0)	(14.6)	(3.6)
Module	03/21	$/W	0.30	(0.3)	(1.6)	(3.2)	(11.7)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	73.5	(2.1)	(1.2)	(3.1)	(12.5)	(10.1)
Shell	EUR	2,204	(0.6)	0.5	(2.7)	(10.1)	4.7
Petrochina	CNY	8.05	0.2	1.3	(1.3)	(0.5)	0.9
Gazprom	RUB	139.5	(1.4)	0.9	(4.4)	5.3	6.0
Petrobras	BRL	21.7	(1.5)	1.9	4.7	37.9	59.0
Refinery							
Phillips66	USD	94.7	(1.5)	0.3	5.1	(6.1)	20.1
Valero	USD	93.0	(2.5)	0.8	1.1	2.1	37.7
JX	JPY	649.7	2.3	3.1	(0.6)	(9.7)	22.8
Neste Oil	EUR	57.1	(1.5)	(1.3)	(4.4)	6.6	57.2

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	82.4	(2.3)	(2.1)	(6.2)	(11.9)	(7.0)
DowDuPont	USD	65.6	(2.7)	(3.3)	(8.8)	(9.0)	4.5
SABIC	SAR	112.8	2.3	2.3	7.8	10.8	18.3
Formosa Pla.	TWD	104.0	(2.3)	2.0	1.5	9.0	12.8
Shin-Etsu	JPY	11,195	2.5	(0.7)	0.2	(3.2)	18.2
Renewable							
Wacker	EUR	133.3	(1.5)	3.1	(5.2)	(17.9)	32.7
First Solar	USD	72.09	(2.4)	4.9	8.8	4.7	149.7
GCL-Poly	HKD	1.02	(2.9)	(13.6)	(23.3)	(26.1)	(1.0)
Tesla Motors	USD	309.1	(2.3)	(5.1)	(10.7)	(5.0)	21.2

4. Coverage Summary

	03/22	1D	1W	1M	3M	6M	12M	투자의견	TP	%	P/E	P/B
KOSPI	2,496	0.4	0.1	3.3	2.3	3.5	14.6				* 추정치는 12M fwd 기준임	
KOSPI화학	6,095	0.5	(1.3)	1.9	1.9	7.4	19.4				* 모든 coverage 업체의 실적은 연결기준임	
LG화학	409,000	(0.2)	(2.4)	8.6	3.9	5.3	38.6	매수	450,000	10.0	13.65	1.93
롯데케미칼	439,500	0.9	(0.1)	(3.0)	21.9	15.4	18.3	매수	410,000	(6.7)	12.00	1.32
한화케미칼	30,550	4.1	(0.2)	(8.7)	2.0	(18.3)	20.8	매수	39,000	27.7	11.66	0.79
금호석유화학	99,600	1.8	4.8	9.6	2.9	31.2	31.7	매수	150,000	50.6	12.15	1.60
KCC	348,000	(0.1)	(1.1)	(4.3)	(8.2)	(9.4)	(3.3)	매수	450,000	29.3	12.89	0.51
OCI	157,500	10.1	6.4	0.0	23.5	41.9	85.7	매수	180,000	14.3	14.80	1.10
SKC	39,150	0.3	(2.9)	3.7	(11.1)	(8.0)	28.4	매수	55,000	40.5	9.85	0.96
SK이노베이션	213,500	0.7	1.7	9.8	4.7	11.8	27.1	매수	230,000	7.7	11.31	1.08
S-Oil	119,500	1.7	(0.8)	0.0	(4.0)	(0.4)	20.3	매수	140,000	17.2	13.66	2.17
GS	64,400	1.4	0.9	1.3	3.7	(2.6)	13.4	매수	80,000	24.2	6.29	0.83
SK가스	94,300	2.4	(3.6)	1.4	1.9	(9.8)	(22.7)	매수	130,000	37.9	8.17	0.63
포스코대우	22,450	5.6	6.4	7.4	25.8	7.4	(3.0)	매수	25,000	11.4	10.24	0.90
LG상사	27,100	0.4	0.0	(2.3)	0.6	(8.0)	(9.2)	매수	38,000	40.2	9.13	0.78
한국전력	32,000	1.1	(1.1)	(5.3)	(17.4)	(18.7)	(30.3)	매수	50,000	56.3	6.87	0.25
한국가스공사	47,850	3.1	1.2	1.4	13.0	10.5	6.3	매수	60,000	25.4	9.04	0.71

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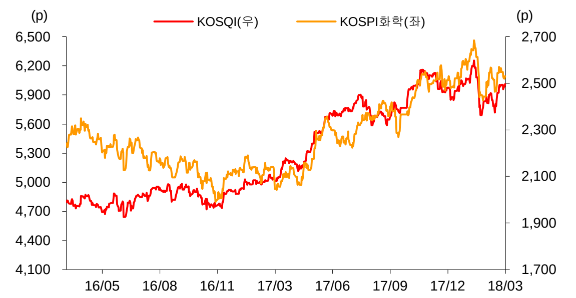
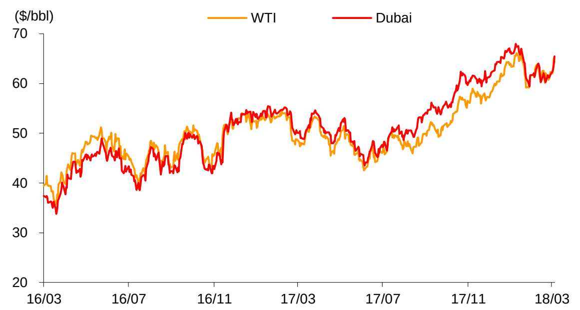
Key Chart

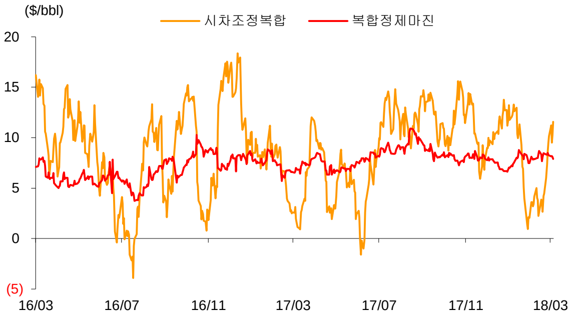
KOSPI/KOSPI화학



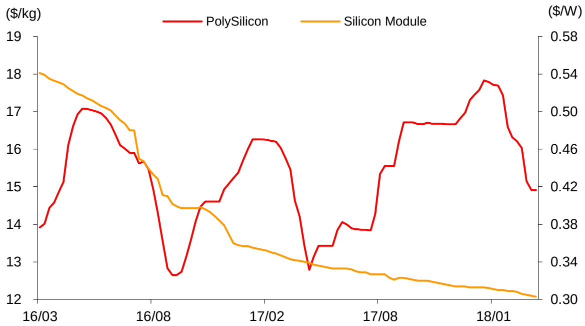
WTI/Dubai



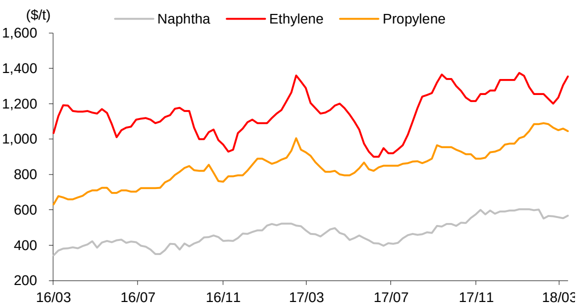
Complex & 1M lagging margin



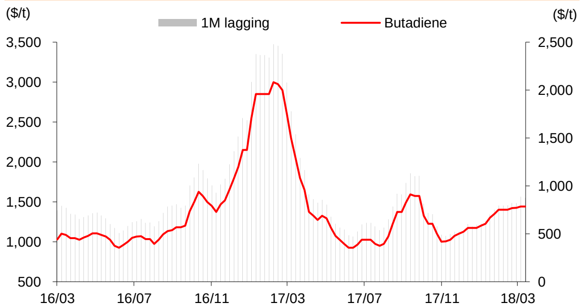
Polysilicon & Module prices



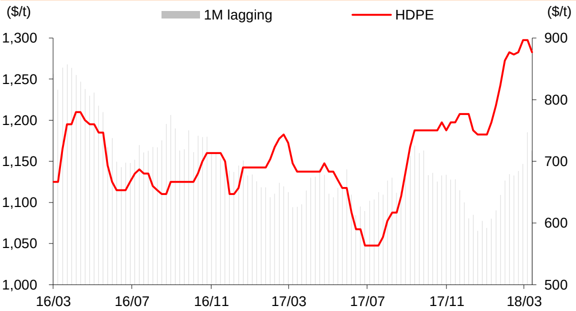
Naphtha/Ethylene/Propylene prices



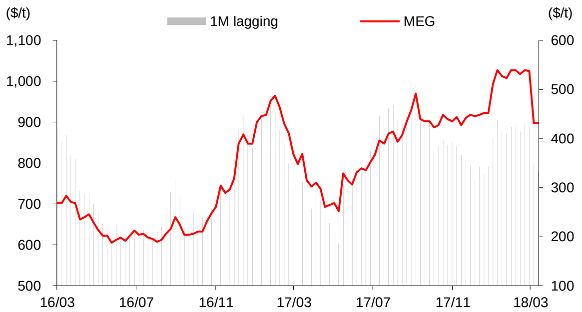
Butadiene price & 1M lagging naphtha spread



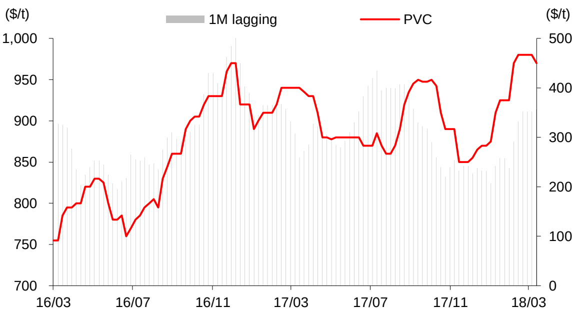
HDPE price & 1M lagging naphtha spread



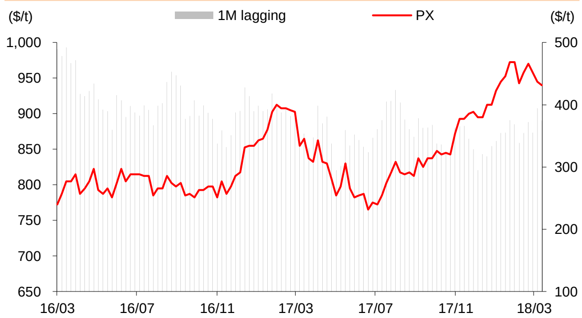
MEG price & 1M lagging naphtha spread



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: Platts)
제목	유럽 PE, 수요 감소로 가격 하락세 지속중
결론	미국産 PE가 본격적으로 진입하면 공급 과잉이 더 심해질 것
세부	
	1) 유럽 스팟 PE 가격이 계약가격 하락과 함께 지속적으로 하락세 시현중
	2) 트레이더, "현재 수요가 없으며 공급자간 격한 경쟁 상황에 놓임"
	3) 센티가 안좋아 부활절을 앞두고 가격이 어디까지 빠질지 관심사임
	4) 원재료인 에틸렌 계약 가격이 하락하며 PE 가격도 하락세 접어듦
	5) 미국産 PE가 본격적으로 진입하면 공급 과잉이 더 심해질 것

WTI Comment	(출처: 연합뉴스)
제목	사흘만에 하락…WTI 1.3%↓
상승 요인	
하락 요인	트럼프가 중국산 수입품에 천문학적 관세를 부과하며 무역전쟁 우려 최근 국제유가의 상승에 따른 차익 실현

Issue 1	(출처: 파이낸셜뉴스)
제목	폴리실리콘 가격 널뛰기에 태양광업계 원가절감 총력
결론	OCI, 한화케미칼의 수익 악화 가능성이 열려있음
세부	
	1) OCI 등 폴리실리콘 생산기업들은 생산 공정 개선과 물량 확대 총력
	2) OCI는 올해 태양광사업에서 생산량을 50MW 이상으로 늘린다는 방침
	3) 군산공장에서는 ESS로 전력비용을 줄여 2020년까지 70억원 절감 목표
	4) 이번주 폴리실리콘 평균 가격은 WoW 1.52% 하락한 14.91달러를 기록중
	5) OCI, 한화케미칼의 수익 악화 가능성이 열려있음

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	0.813	0.811	0.843	0.837	0.926	0.833	0.904	0.887	0.814
	Change, %		0.3	0.0	0.2	(3.6)	(2.9)	(12.2)	(2.4)	(10.1)	(8.3)	(0.2)
	USD/JPY	105.3	106.1	106.3	106.8	113.3	112.0	111.2	112.6	108.8	112.1	108.6
	Change, %		(0.7)	(1.0)	(1.4)	(7.1)	(6.0)	(5.3)	(6.5)	(3.2)	(6.1)	(3.0)
	USD/KRW	1,072.2	1,072.3	1,065.5	1,084.3	1,079.7	1,136.7	1,123.3	1,066.7	1,160.5	1,130.9	1,072.1
	Change, %		(0.0)	0.6	(1.1)	(0.7)	(5.7)	(4.5)	0.5	(7.6)	(5.2)	0.0
Agriculture	**Corn**	376.0	375.0	386.8	366.8	352.0	353.5	358.8	350.8	358.5	359.4	364.6
	Change, %		0.3	(2.8)	2.5	6.8	6.4	4.8	7.2	4.9	4.6	3.1
	Soybean	1,029.8	1,029.8	1,040.8	1,032.0	949.5	984.3	999.8	951.8	987.5	975.9	1,003.5
	Change, %		0.0	(1.1)	(0.2)	8.5	4.6	3.0	8.2	4.3	5.5	2.6
	Wheat	455.8	453.5	478.8	451.3	424.8	449.5	422.3	427.0	436.4	436.0	453.0
	Change, %		0.5	(4.8)	1.0	7.3	1.4	7.9	6.7	4.4	4.5	0.6
	Rice	12.3	12.3	12.4	12.0	12.0	12.4	9.8	11.7	10.3	11.1	12.1
	Change, %		0.1	(0.7)	2.5	3.1	(0.3)	26.0	5.5	19.2	11.4	1.7
	Oats	228.8	231.5	251.0	257.8	242.5	248.0	251.5	241.0	196.3	252.3	258.3
	Change, %		(1.2)	(8.9)	(11.3)	(5.7)	(7.8)	(9.0)	(5.1)	16.5	(9.3)	(11.4)
MYR/mt	**Palm Oil**	2,445.0	2,459.0	2,434.0	2,509.0	2,407.0	2,748.0	2,975.0	2,444.0	2,653.8	2,787.3	2,489.4
	Change, %		(0.6)	0.5	(2.6)	1.6	(11.0)	(17.8)	0.0	(7.9)	(12.3)	(1.8)
	Cocoa	2,535.0	2,524.0	2,536.0	2,156.0	1,809.0	1,983.0	2,165.0	1,892.0	2,854.0	2,005.2	2,143.7
	Change, %		0.4	(0.0)	17.6	40.1	27.8	17.1	34.0	(11.2)	26.4	18.3
	Cotton	82.2	82.6	83.5	80.5	77.9	69.1	77.3	78.6	65.6	73.5	80.3
	Change, %		(0.5)	(1.7)	2.0	5.5	18.9	6.2	4.5	25.2	11.7	2.3
	Sugar	12.8	12.7	12.7	13.7	14.6	14.0	17.3	15.2	18.2	15.8	13.6
	Change, %		0.8	0.2	(6.9)	(12.5)	(8.7)	(26.2)	(15.8)	(29.6)	(19.3)	(5.9)
	Coffee	119.0	118.9	117.7	119.6	120.4	134.5	141.7	126.2	136.1	133.0	121.5
	Change, %		0.1	1.1	(0.5)	(1.2)	(11.5)	(16.0)	(5.7)	(12.5)	(10.5)	(2.0)
Energy	**WTI**	64.3	65.2	61.2	62.8	58.5	50.7	48.0	60.4	43.4	51.0	62.7
	Change, %		(1.3)	5.1	2.4	10.0	26.9	33.8	6.4	48.2	26.2	2.5
	Brent	68.9	69.5	65.1	66.4	65.3	56.9	50.6	66.9	45.1	54.9	67.0
	Change, %		(0.8)	5.8	3.8	5.6	21.2	36.1	3.1	52.9	25.6	2.9
	Natural Gas	2.6	2.6	2.7	2.6	2.7	3.0	3.0	3.0	2.6	3.0	2.9
	Change, %		(0.8)	(2.4)	(0.6)	(1.9)	(11.6)	(13.1)	(11.4)	2.5	(13.4)	(8.5)
	Ethanol	1.5	1.5	1.5	1.5	1.3	1.5	1.5	1.3	1.5	1.5	1.4
	Change, %		0.7	(2.2)	(0.4)	13.4	(2.2)	(3.6)	12.2	(2.2)	(1.1)	4.1
	RBOB Gasoline	201.0	201.2	192.5	176.6	176.2	166.8	160.2	179.9	140.0	162.9	184.9
	Change, %		(0.1)	4.4	13.8	14.0	20.5	25.5	11.7	43.6	23.4	8.7
	Coal	96.7	97.2	97.9	105.7	100.2	97.2	80.4	100.8	65.5	88.2	103.4
	Change, %		(0.5)	(1.2)	(8.5)	(3.5)	(0.5)	20.3	(4.1)	47.7	9.6	(6.5)
Metal	**Gold**	1,329.0	1,332.5	1,316.3	1,332.2	1,275.3	1,297.4	1,248.5	1,302.6	1,248.5	1,258.6	1,329.0
	Change, %		(0.3)	1.0	(0.2)	4.2	2.4	6.4	2.0	6.5	5.6	0.0
	Silver	16.4	16.6	16.4	16.6	16.4	17.0	17.5	16.9	17.1	17.1	16.8
	Change, %		(1.1)	(0.1)	(1.4)	(0.0)	(3.6)	(6.6)	(3.3)	(4.2)	(4.0)	(2.3)
	Copper	6,695.0	6,793.0	6,920.0	7,162.0	7,125.0	6,457.0	5,808.0	7,247.0	4,872.0	6,199.4	7,023.4
	Change, %		(1.4)	(3.3)	(6.5)	(6.0)	3.7	15.3	(7.6)	37.4	8.0	(4.7)
	Nickel	856.2	876.9	884.5	895.4	770.0	686.9	658.4	809.1	646.4	680.2	855.5
	Change, %		(2.4)	(3.2)	(4.4)	11.2	24.6	30.0	5.8	32.5	25.9	0.1
	Zinc	3,203.0	3,249.0	3,235.0	3,531.0	3,265.5	3,031.0	2,856.5	3,319.0	2,097.5	2,888.5	3,399.6
	Change, %		(1.4)	(1.0)	(9.3)	(1.9)	5.7	12.1	(3.5)	52.7	10.9	(5.8)
	Lead	2,368.3	2,402.0	2,414.8	2,540.0	2,481.3	2,486.5	2,367.8	2,482.8	1,868.3	2,315.7	2,529.4
	Change, %		(1.4)	(1.9)	(6.8)	(4.6)	(4.8)	0.0	(4.6)	26.8	2.3	(6.4)
	Aluminum	13,855.0	13,825.0	13,795.0	14,075.0	14,540.0	16,445.0	13,735.0	15,020.0	12,373.5	14,556.6	14,357.6
	Change, %		0.2	0.4	(1.6)	(4.7)	(15.7)	0.9	(7.8)	12.0	(4.8)	(3.5)
	Cobalt	94,300.0	94,800.0	87,125.0	80,854.0	75,205.0	59,341.0	54,000.0	75,205.0	25,480.1	55,906.9	80,810.2
	Change, %		(0.5)	8.2	16.6	25.4	58.9	74.6	25.4	270.1	68.7	16.7
	HR Coil	825.0	825.0	817.0	745.0	636.0	620.0	653.0	662.0	519.3	620.1	739.3
	Change, %		0.0	1.0	10.7	29.7	33.1	26.3	24.6	58.9	33.1	11.6
	Scrap	410.0	410.0	425.0	385.0	367.0	350.0	345.0	367.0	275.7	344.7	384.2
	Change, %		0.0	(3.5)	6.5	11.7	17.1	18.8	11.7	48.7	18.9	6.7

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

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Refining Price Data

Daily Price		03/22	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	**WTI**	64.3	65.2	61.2	61.9	58.4	50.6	47.7	53.7	43.4	50.9	62.7
	Change, %		*(1.3)*	*5.1*	*3.9*	*10.2*	*27.2*	*34.8*	*19.7*	*48.3*	*26.3*	*2.6*
	Dubai	65.4	63.9	61.5	62.1	62.2	54.7	49.2	53.8	41.3	53.1	63.8
	Change, %		*2.4*	*6.5*	*5.5*	*5.3*	*19.7*	*33.1*	*21.6*	*58.4*	*23.3*	*2.6*
Crude Oil Product	**Gasoline(휘발유)**	79.8	78.4	75.4	76.1	75.0	69.4	63.3	69.8	56.3	68.0	77.3
	Change, %		*1.7*	*5.8*	*4.9*	*6.4*	*15.0*	*26.0*	*14.2*	*41.8*	*17.3*	*3.1*
	Kerosene(등유)	80.9	79.2	76.3	78.5	76.0	68.7	59.9	66.4	52.9	65.2	79.8
	Change, %		*2.1*	*6.0*	*3.1*	*6.4*	*17.7*	*35.1*	*21.8*	*52.9*	*24.0*	*1.3*
	Diesel(경유)	80.5	78.9	76.5	76.5	76.1	68.7	60.4	65.5	52.1	65.6	78.5
	Change, %		*2.0*	*5.3*	*5.3*	*5.7*	*17.1*	*33.2*	*22.9*	*54.4*	*22.7*	*2.6*
	Bunker-C	58.4	57.3	56.2	56.8	57.1	51.6	44.4	52.1	35.5	49.7	57.5
	Change, %		*2.0*	*3.9*	*2.9*	*2.3*	*13.2*	*31.7*	*12.2*	*64.4*	*17.7*	*1.5*
	Naphtha	64.8	63.6	62.1	60.7	65.0	55.5	48.9	53.5	42.6	53.7	63.3
	Change, %		*1.8*	*4.4*	*6.8*	*(0.4)*	*16.8*	*32.5*	*21.2*	*52.1*	*20.6*	*2.4*
Dubai Spread	**Gasoline(휘발유)**	14.3	14.6	13.9	14.0	12.8	14.7	14.1	16.0	14.9	14.9	13.6
	Change		*(0.2)*	*0.4*	*0.3*	*1.5*	*(0.4)*	*0.2*	*(1.7)*	*(0.6)*	*(0.6)*	*0.8*
	Kerosene(등유)	15.4	15.4	14.9	16.4	13.9	14.1	10.7	12.6	11.6	12.1	16.0
	Change		*0.1*	*0.6*	*(1.0)*	*1.6*	*1.4*	*4.7*	*2.8*	*3.9*	*3.3*	*(0.6)*
	Diesel(경유)	15.0	15.1	15.0	14.4	13.9	14.1	11.3	11.7	10.8	12.5	14.7
	Change		*(0.0)*	*0.0*	*0.6*	*1.1*	*1.0*	*3.8*	*3.4*	*4.2*	*2.5*	*0.4*
	Bunker-C	(7.0)	(6.6)	(5.2)	(5.3)	(5.1)	(3.1)	(4.8)	(1.8)	(5.8)	(3.4)	(6.2)
	Change		*(0.4)*	*(1.8)*	*(1.7)*	*(2.0)*	*(4.0)*	*(2.2)*	*(5.3)*	*(1.2)*	*(3.6)*	*(0.8)*
	Naphtha	(0.6)	(0.3)	0.6	(1.4)	2.9	0.8	(0.3)	(0.4)	1.3	0.6	(0.5)
	Change		*(0.4)*	*(1.2)*	*0.7*	*(3.5)*	*(1.5)*	*(0.4)*	*(0.3)*	*(1.9)*	*(1.3)*	*(0.1)*
Refining Margin	**Simple(단순)**	2.0	2.3	2.9	2.7	2.5	3.8	2.0	3.8	1.9	3.2	2.3
	Change		*(0.3)*	*(0.9)*	*(0.7)*	*(0.6)*	*(1.9)*	*(0.0)*	*(1.8)*	*0.1*	*(1.2)*	*(0.3)*
	Complex(복합)	7.9	8.1	8.3	8.0	7.7	8.7	6.9	8.3	7.0	8.0	7.8
	Change		*(0.2)*	*(0.4)*	*(0.1)*	*0.2*	*(0.8)*	*1.0*	*(0.4)*	*0.9*	*(0.1)*	*0.1*
	Complex(lagging)	11.6	10.3	9.5	3.6	9.2	12.6	1.6	18.0	8.5	8.9	8.0
	Change		*1.3*	*2.1*	*8.0*	*2.3*	*(1.1)*	*10.0*	*(6.4)*	*3.1*	*2.6*	*3.5*

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			03/22	03/21	03/20	03/19	03/16	03/15	03/14	03/13	03/12	03/09
Spot Price	**Naphtha**	CFR Japan	592.0	582.9	578.5	575.5	572.0	570.0	566.0	558.0	564.5	553.5
	Ethylene	CFR SE Asia	1,380.0	1,280.0	1,280.0	1,280.0	1,280.0	1,250.0	1,250.0	1,250.0	1,230.0	1,230.0
	Propylene	FOB Korea	1,020.0	1,020.0	1,020.0	1,025.0	1,025.0	1,010.0	1,010.0	1,015.0	1,015.0	1,025.0
	Butadiene	FOB Korea	1,430.0	1,430.0	1,430.0	1,430.0	1,430.0	1,430.0	1,430.0	1,430.0	1,390.0	1,390.0
	HDPE	CFR FE Asia	1,320.0	1,320.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0
	LDPE	CFR FE Asia	1,215.0	1,215.0	1,220.0	1,225.0	1,225.0	1,225.0	1,225.0	1,225.0	1,225.0	1,230.0
	LLDPE	CFR FE Asia	1,190.0	1,190.0	1,200.0	1,205.0	1,205.0	1,205.0	1,205.0	1,205.0	1,205.0	1,210.0
	MEG	CFR China	907.0	899.0	908.0	911.0	865.0	880.0	917.0	910.0	895.0	895.0
	PP	CFR FE Asia	1,210.0	1,190.0	1,200.0	1,220.0	1,200.0	1,200.0	1,200.0	1,225.0	1,225.0	1,225.0
	PX	CFR China	936.0	932.0	931.0	933.0	929.0	932.0	932.5	935.5	935.3	934.3
	PTA	CFR China	770.0	769.0	769.0	770.0	770.0	775.0	775.0	780.0	785.0	785.0
	Benzene	FOB Korea	852.3	841.3	850.3	858.3	835.3	842.7	861.7	864.0	875.0	859.0
	Toluene	FOB Korea	678.5	678.0	677.0	677.0	677.0	677.0	677.0	682.0	686.0	685.0
	Xylene	FOB Korea	738.0	737.0	738.0	738.0	744.0	746.0	749.0	745.0	745.0	748.0
	SM	FOB Korea	1,256.0	1,231.0	1,251.0	1,276.0	1,259.0	1,284.0	1,326.0	1,326.0	1,326.0	1,326.0

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	**Naphtha**	CFR Japan	568.0	553.0	565.0	590.5	574.5	462.5	484.5	399.5	493.5	579.0
	Change, %			*2.7*	*0.5*	*(3.8)*	*(1.1)*	*22.8*	*17.2*	*42.2*	*15.1*	*(1.9)*
	Ethylene	CFR SE Asia	1,250.0	1,220.0	1,172.5	1,245.0	1,165.0	1,075.0	990.0	1,040.9	1,090.9	1,239.8
	Change, %			*2.5*	*6.6*	*0.4*	*7.3*	*16.3*	*26.3*	*20.1*	*14.6*	*0.8*
	Propylene	CFR SE Asia	980.0	995.0	1,015.0	890.0	810.0	865.0	815.0	705.7	823.6	1,057.3
	Change, %			*(1.5)*	*(3.4)*	*10.1*	*21.0*	*13.3*	*20.2*	*38.9*	*19.0*	*(7.3)*
	Butadiene	CFR SE Asia	1,390.0	1,390.0	1,350.0	1,125.0	965.0	2,000.0	2,100.0	1,116.8	1,481.1	1,313.6
	Change, %			*0.0*	*3.0*	*23.6*	*44.0*	*(30.5)*	*(33.8)*	*24.5*	*(6.1)*	*5.8*
	Benzene	CFR SE Asia	867.5	882.5	895.0	920.0	860.0	830.0	822.5	646.7	838.8	913.6
	Change, %			*(1.7)*	*(3.1)*	*(5.7)*	*0.9*	*4.5*	*5.5*	*34.1*	*3.4*	*(5.0)*
	Toluene	CFR SE Asia	720.0	720.0	750.0	735.0	715.0	690.0	690.0	630.5	689.5	746.8
	Change, %			*0.0*	*(4.0)*	*(2.0)*	*0.7*	*4.3*	*4.3*	*14.2*	*4.4*	*(3.6)*
	Xylene	CFR SE Asia	762.5	765.0	757.5	710.0	670.0	720.0	675.0	627.7	668.8	754.3
	Change, %			*(0.3)*	*0.7*	*7.4*	*13.8*	*5.9*	*13.0*	*21.5*	*14.0*	*1.1*
Spread	**Ethylene**	-Naphtha	682.0	667.0	607.5	654.5	590.5	612.5	505.5	641.4	597.4	660.8
	Change, %			*2.2*	*12.3*	*4.2*	*15.5*	*11.3*	*34.9*	*6.3*	*14.2*	*3.2*
	Propylene	-Naphtha	412.0	442.0	450.0	299.5	235.5	402.5	330.5	306.2	330.1	478.3
	Change, %			*(6.8)*	*(8.4)*	*37.6*	*74.9*	*2.4*	*24.7*	*34.6*	*24.8*	*(13.9)*
	Butadiene	-Naphtha	822.0	837.0	785.0	534.5	390.5	1,537.5	1,615.5	717.3	987.6	734.7
	Change, %			*(1.8)*	*4.7*	*53.8*	*110.5*	*(46.5)*	*(49.1)*	*14.6*	*(16.8)*	*11.9*
	Benzene	-Naphtha	299.5	329.5	330.0	329.5	285.5	367.5	338.0	247.2	345.3	334.7
	Change, %			*(9.1)*	*(9.2)*	*(9.1)*	*4.9*	*(18.5)*	*(11.4)*	*21.2*	*(13.3)*	*(10.5)*
	Toluene	-Naphtha	152.0	167.0	185.0	144.5	140.5	227.5	205.5	231.0	196.0	167.9
	Change, %			*(9.0)*	*(17.8)*	*5.2*	*8.2*	*(33.2)*	*(26.0)*	*(34.2)*	*(22.4)*	*(9.5)*
	Xylene	-Naphtha	194.5	212.0	192.5	119.5	95.5	257.5	190.5	228.2	175.3	175.4
	Change, %			*(8.3)*	*1.0*	*62.8*	*103.7*	*(24.5)*	*2.1*	*(14.8)*	*10.9*	*10.9*

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	1,282.5	1,297.5	1,280.0	1,187.5	1,197.5	1,137.5	1,142.5	1,134.6	1,142.5	1,257.7
	Change, %			(1.2)	0.2	8.0	7.1	12.7	12.3	13.0	12.3	2.0
	MEG	CFR SE Asia	897.5	897.5	1,017.5	917.5	892.5	822.5	847.5	660.8	850.6	996.4
	Change, %			0.0	(11.8)	(2.2)	0.6	9.1	5.9	35.8	5.5	(9.9)
	PVC	CFR SE Asia	970.0	980.0	980.0	865.0	850.0	940.0	920.0	823.4	899.9	947.3
	Change, %			(1.0)	(1.0)	12.1	14.1	3.2	5.4	17.8	7.8	2.4
	PP	CFR SE Asia	1,297.5	1,307.5	1,275.0	1,157.5	1,147.5	1,107.5	1,032.5	978.4	1,099.6	1,257.4
	Change, %			(0.8)	1.8	12.1	13.1	17.2	25.7	32.6	18.0	3.2
	2-EH	CFR Korea	1,130.0	1,125.0	1,080.0	1,035.0	990.0	1,005.0	865.0	772.4	970.0	1,082.7
	Change, %			0.4	4.6	9.2	14.1	12.4	30.6	46.3	16.5	4.4
	ABS	CFR SE Asia	2,020.0	2,070.0	2,060.0	2,070.0	1,930.0	1,800.0	1,635.0	1,347.1	1,844.7	2,049.1
	Change, %			(2.4)	(1.9)	(2.4)	4.7	12.2	23.5	49.9	9.5	(1.4)
	SBR	CFR SE Asia	1,750.0	1,750.0	1,755.0	1,650.0	1,590.0	2,745.0	2,000.0	1,483.0	1,980.5	1,729.1
	Change, %			0.0	(0.3)	6.1	10.1	(36.2)	(12.5)	18.0	(11.6)	1.2
	SM	CFR SE Asia	1,337.5	1,397.5	1,437.5	1,332.5	1,280.0	1,290.0	1,205.0	1,064.6	1,253.8	1,404.1
	Change, %			(4.3)	(7.0)	0.4	4.5	3.7	11.0	25.6	6.7	(4.7)
	Caustic	FOB NEA	601.0	590.0	549.0	621.0	700.0	446.0	422.5	316.6	491.2	579.4
	Change, %			1.9	9.5	(3.2)	(14.1)	34.8	42.2	89.8	22.4	3.7
	PX	CFR SE Asia	940.0	945.0	957.5	895.0	892.5	865.0	855.0	790.4	844.4	953.4
	Change, %			(0.5)	(1.8)	5.0	5.3	8.7	9.9	18.9	11.3	(1.4)
	PO	CFR China	1,875.0	1,962.5	1,907.5	1,872.5	1,782.5	1,432.5	1,562.5	1,396.8	1,601.2	1,941.6
	Change, %			(4.5)	(1.7)	0.1	5.2	30.9	20.0	34.2	17.1	(3.4)
	Caprolactam	CFR SE Asia	2,180.0	2,150.0	2,060.0	2,060.0	2,040.0	2,300.0	1,850.0	1,344.9	1,936.4	2,073.6
	Change, %			1.4	5.8	5.8	6.9	(5.2)	17.8	62.1	12.6	5.1
	PTA	CFR SE Asia	790.0	810.0	777.5	727.5	707.5	667.5	642.5	613.7	667.8	772.7
	Change, %			(2.5)	1.6	8.6	11.7	18.4	23.0	28.7	18.3	2.2
Spread	HDPE		714.5	744.5	715.0	597.0	623.0	675.0	658.0	735.1	649.0	678.8
	Change, %			(4.0)	(0.1)	19.7	14.7	5.9	8.6	(2.8)	10.1	5.3
	MEG		329.5	344.5	452.5	327.0	318.0	360.0	363.0	261.3	357.1	417.4
	Change, %			(4.4)	(27.2)	0.8	3.6	(8.5)	(9.2)	26.1	(7.7)	(21.1)
	PVC		402.0	427.0	415.0	274.5	275.5	477.5	435.5	423.9	406.4	368.3
	Change, %			(5.9)	(3.1)	46.4	45.9	(15.8)	(7.7)	(5.2)	(1.1)	9.1
	PP		729.5	754.5	710.0	567.0	573.0	645.0	548.0	578.9	606.1	678.4
	Change, %			(3.3)	2.7	28.7	27.3	13.1	33.1	26.0	20.4	7.5
	2-EH		562.0	572.0	515.0	444.5	415.5	542.5	380.5	372.9	476.5	503.8
	Change, %			(1.7)	9.1	26.4	35.3	3.6	47.7	50.7	17.9	11.6
	ABS		1,452.0	1,517.0	1,495.0	1,479.5	1,355.5	1,337.5	1,150.5	947.6	1,351.2	1,470.1
	Change, %			(4.3)	(2.9)	(1.9)	7.1	8.6	26.2	53.2	7.5	(1.2)
	SBR	BD spread	360.0	360.0	405.0	525.0	625.0	745.0	(100.0)	366.2	499.4	415.5
	Change, %			0.0	(11.1)	(31.4)	(42.4)	(51.7)	(460.0)	(1.7)	(27.9)	(13.3)
	SM		769.5	844.5	872.5	742.0	705.5	827.5	720.5	665.1	760.3	825.1
	Change, %			(8.9)	(11.8)	3.7	9.1	(7.0)	6.8	15.7	1.2	(6.7)
	Caustic											
	Change, %											
	PX		372.0	392.0	392.5	304.5	318.0	402.5	370.5	390.9	351.0	374.5
	Change, %			(5.1)	(5.2)	22.2	17.0	(7.6)	0.4	(4.8)	6.0	(0.7)
	PO	propylene sprea	895.0	967.5	892.5	982.5	972.5	567.5	747.5	691.1	777.6	884.3
	Change, %			(7.5)	0.3	(8.9)	(8.0)	57.7	19.7	29.5	15.1	1.2
	Caprolactam	benzene spread	1,312.5	1,267.5	1,165.0	1,140.0	1,180.0	1,470.0	1,027.5	698.2	1,097.6	1,160.0
	Change, %			3.6	12.7	15.1	11.2	(10.7)	27.7	88.0	19.6	13.1
	PTA	px spread	132.0	148.5	107.3	101.0	82.8	62.0	44.0	60.4	76.7	105.3
	Change, %			(11.1)	23.1	30.7	59.5	112.9	200.0	118.5	72.1	25.3

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

SK Energy Daily

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SK 증권

Global peers

	Currency	03/22	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	65.6	(2.7)	(3.3)	(8.8)	(9.0)	(6.2)	4.5	(7.9)	168,245	17.7	14.9	1.8	1.7	10.2	9.2
Eastman	USD	104.0	(3.3)	(2.8)	2.4	12.2	20.2	33.6	12.2	13,550	11.6	10.7	2.5	2.2	8.7	8.1
BASF	EUR	82.4	(2.3)	(2.1)	(6.2)	(11.9)	(7.0)	(7.0)	(10.2)	101,214	14.6	13.6	2.4	2.2	7.8	7.4
Akzo Nobel	EUR	77.6	(2.6)	(3.7)	(2.7)	5.9	(1.2)	2.4	6.3	22,073	17.0	15.8	3.0	2.8	9.3	8.8
Arkema	EUR	107.5	(1.9)	(0.9)	0.4	5.7	6.3	17.2	5.9	9,270	13.2	12.2	1.7	1.6	6.3	6.0
Lanxess	EUR	63.0	(3.7)	(2.0)	(7.9)	(3.0)	(4.8)	3.3	(5.0)	7,282	15.5	13.1	2.1	1.9	9.3	8.2
Sumitomo Chemical	JPY	614	0.0	(0.8)	(6.4)	(26.0)	(12.2)	(2.7)	(24.2)	11,911	10.1	10.5	1.3	1.2	7.4	8.0
Mitsubishi Chemical	JPY	1,023	0.6	(2.2)	(5.1)	(18.3)	(2.6)	21.8	(17.3)	16,544	9.2	8.7	1.3	1.2	6.3	6.1
Shin-Etsu Chemical	JPY	11,195	2.5	(0.7)	0.2	(3.2)	10.8	18.2	(2.2)	43,948	18.5	16.6	1.9	1.8	8.1	7.4
Asahi Kasei	JPY	1,399	(0.3)	(0.9)	5.5	(4.8)	1.6	30.2	(3.8)	18,109	14.4	13.6	1.5	1.4	7.4	7.0
JSR	JPY	2,405	(0.6)	(3.3)	(0.9)	8.5	13.7	26.4	8.4	4,455	14.5	13.4	1.2	1.1	7.7	7.2
Nitto Denko	JPY	8,100	0.1	(6.0)	(4.7)	(20.9)	(14.6)	(5.9)	(19.1)	15,450	15.7	14.6	2.1	1.9	7.3	7.0
SABIC	SAR	112.8	2.3	2.3	7.8	10.8	11.8	18.3	11.2	80,773	14.2	13.7	1.7	1.7	7.3	7.1
Yansab	SAR	70.4	1.0	(0.1)	5.3	20.8	18.9	27.4	19.3	8,861	13.7	13.9	2.2	1.9	9.0	8.9
Formosa Plastics	TWD	104.0	(2.3)	2.0	1.5	9.0	11.8	12.8	5.4	21,114	14.4	13.9	1.8	1.8	18.9	19.2
Formosa Fiber	TWD	111.0	0.0	3.7	4.2	13.8	19.1	16.2	7.8	20,511	13.7	13.4	1.7	1.7	11.6	11.5
Nan Ya Plastics	TWD	83.1	0.7	3.5	5.9	9.1	8.8	16.1	6.7	20,648	14.8	15.3	1.7	1.7	16.2	16.4
Sinopec Shanghai	CNY	6.09	0.0	1.8	3.0	(4.5)	(4.1)	(6.2)	(3.8)	9,462	12.0	12.6	2.2	2.0	6.8	7.3
Sinopec Yizheng(Fibe	CNY	2.32	0.4	0.9	2.2	(16.2)	(28.6)	(38.3)	(13.1)	5,394	50.4	66.3	5.3	5.0	13.9	10.3
Reliance	INR	908	1.3	(0.4)	(1.8)	(1.3)	11.1	44.2	(0.2)	93,404	14.4	12.9	1.7	1.5	9.4	8.7
Industries Qatar	QAR	108.4	1.3	3.3	(0.3)	9.6	20.4	(3.2)	11.7	16,144	14.5	13.9	1.6	1.5	46.4	27.2
PTT Chemical	THB	98.0	1.3	(0.3)	4.5	15.0	25.6	36.6	15.3	11,766	10.7	10.4	1.4	1.3	5.5	5.4
Petronas	MYR	8.2	(1.0)	0.7	1.2	8.0	12.5	9.8	6.6	15,624	16.1	15.5	2.0	1.9	9.2	8.9
LG화학	KRW	409,000	(0.2)	(2.4)	8.6	3.9	10.8	40.8	1.0	27,313	13.8	12.8	1.8	1.6	6.5	6.1
롯데케미칼	KRW	439,500	0.9	(0.1)	(0.7)	21.9	18.5	21.6	19.4	11,632	5.5	5.2	0.9	0.8	3.6	3.3
한화케미칼	KRW	30,550	4.1	(0.2)	(5.7)	2.0	(14.2)	21.5	(3.3)	5,050	5.7	5.5	0.8	0.7	6.7	6.5
금호석유	KRW	99,600	1.8	4.8	12.5	2.9	37.4	35.9	0.1	2,969	14.1	11.9	1.6	1.5	9.3	8.4
SKC	KRW	39,150	0.3	(2.9)	4.5	(11.1)	(3.2)	29.6	(16.7)	1,643	9.9	8.7	1.1	1.0	8.8	7.9
국도화학	KRW	62,200	(0.2)	1.0	4.5	(0.8)	14.8	28.6	(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	9,850	(1.5)	4.6	0.3	31.0	50.8	16.6	29.9	4,595	8.2	7.3	1.1	1.0	7.2	6.8
Average			**(0.1)**	**(0.2)**	**0.8**	**2.0**	**7.5**	**15.7**	**1.3**							
Refinery																
Valero	USD	93.0	(2.5)	0.8	1.1	2.1	25.2	37.7	1.2	40,608	14.1	13.4	2.0	2.0	6.9	6.9
Conoco Phillips	USD	56.5	(0.9)	4.6	2.9	1.8	15.1	26.5	2.9	66,136	34.0	25.9	2.2	2.2	7.2	6.7
Formosa Petrochemic	TWD	116.5	9.9	(0.4)	3.1	3.1	11.5	9.4	0.9	37,040	18.2	18.7	3.2	3.2	11.7	12.1
Andeavor	USD	100.9	(1.4)	3.8	9.2	(10.0)	(3.0)	23.1	(11.7)	17,904	12.9	11.4	1.8	1.7	7.3	7.1
Marathon Petroleum	USD	73.0	(0.3)	6.3	9.8	10.0	33.3	47.2	10.6	32,812	15.0	12.8	2.6	2.7	7.7	7.5
Devon Energy	USD	32.3	(1.9)	1.8	6.2	(22.3)	(9.8)	(17.9)	(22.0)	22,192	17.5	14.0	2.7	2.3	8.4	7.4
Hollyfrontier	USD	48.2	(1.7)	5.7	9.3	(4.8)	40.7	75.0	(5.9)	9,094	16.8	15.2	1.8	1.8	8.0	8.0
Phillips 66	USD	94.7	(1.5)	0.3	5.1	(6.1)	5.4	20.1	(6.4)	51,561	15.6	14.5	2.3	2.2	9.0	8.8
Murphy Oil	USD	25.7	(3.7)	1.7	(1.7)	(17.6)	(1.9)	(2.8)	(17.3)	5,548	162.4	113.2	1.2	1.1	4.9	4.5
JX Holdings	JPY	649.7	2.3	3.1	(0.6)	(9.7)	11.7	22.8	(10.6)	22,130	8.8	8.0	0.9	0.9	7.0	6.6
Idemitsu	JPY	4,145.0	5.2	4.9	5.2	(7.2)	36.1	7.9	(8.4)	8,360	7.9	7.5	1.0	0.9	6.8	6.8
Nesteoil	EUR	57.1	(1.5)	(1.3)	(4.4)	6.6	54.6	57.2	7.0	16,473	16.7	16.7	2.9	2.7	10.2	10.3
Ashland	USD	68.2	(2.7)	(5.6)	(3.1)	(4.6)	6.2	14.4	(4.2)	4,550	21.6	18.7	1.3	1.3	10.2	9.6
Fuchs Petrolub	EUR	45.4	(3.9)	(4.7)	(3.4)	1.9	(7.3)	5.9	2.7	7,127	22.1	20.9	4.1	3.7	13.0	12.3
SK이노베이션	KRW	213,500	0.7	1.7	10.6	4.7	14.5	31.0	4.4	17,975	7.9	7.7	0.9	0.9	4.9	4.8
S-Oil	KRW	119,500	1.7	(0.8)	3.0	(4.0)	(0.4)	23.1	2.1	12,400	9.3	8.1	1.8	1.6	7.6	6.6
GS	KRW	64,400	1.4	0.9	2.7	3.7	(0.3)	15.6	3.5	5,467	6.0	5.5	0.7	0.6	6.9	6.3
Average			**(0.1)**	**1.3**	**3.2**	**(3.1)**	**13.6**	**23.3**	**(3.0)**							

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

Global peers

	Currency	03/22	1D	1W	1M	3M	6M	12M	YTD	MKT CAP	PER		PBR		EV/EBITDA	
										(mil USD)	18E	19E	18E	19E	18E	19E
E&P/Shale																
Exxon Mobil	USD	74	(2.1)	(1.2)	(3.1)	(12.5)	(8.0)	(10.1)	(12.1)	311,453	15.8	15.7	1.6	1.6	7.2	7.0
BP	GBP	463	(2.0)	(0.3)	(2.2)	(10.4)	(0.7)	1.9	(11.4)	130,141	14.5	13.7	1.3	1.3	5.2	5.0
Shell	EUR	2,204	(0.6)	0.5	(2.7)	(10.1)	0.6	4.7	(11.1)	261,762	13.1	12.2	1.3	1.3	5.8	5.5
Chevron	USD	114	(2.9)	(1.6)	3.5	(9.0)	(3.1)	4.9	(9.2)	217,196	18.3	18.1	1.5	1.5	6.5	6.3
Total	EUR	46	(0.6)	(1.4)	(1.3)	(0.5)	0.7	0.0	0.5	149,872	12.0	11.7	1.3	1.2	5.2	4.9
Sinopec	CNY	7	(0.1)	6.5	5.6	13.4	16.3	19.2	11.6	125,100	12.9	12.3	1.1	1.0	4.6	4.6
Petrochina	CNY	8	0.2	1.3	(1.3)	(0.5)	1.3	0.9	(0.5)	220,651	28.6	19.7	1.2	1.2	5.9	5.6
CNOOC	CNY	12	6.1	3.8	6.9	11.1	2.7	(8.8)	9.8	66,562	9.2	9.1	1.0	0.9	3.7	3.6
Gazprom	RUB	140	(1.4)	0.9	(4.4)	5.3	14.4	6.0	6.9	57,843	3.8	3.9	0.3	0.2	3.5	3.5
Rosneft	RUB	316	(0.4)	0.6	(6.3)	7.6	(0.2)	(1.3)	8.5	58,687	7.6	6.6	0.8	0.7	4.8	4.5
Anadarko	USD	61	(1.4)	4.7	4.1	14.6	24.2	(1.6)	13.1	32,301	41.9	39.7	2.6	2.4	6.5	5.9
Petrobras	BRL	22	(1.5)	1.9	4.7	37.9	38.4	59.0	34.9	90,137	10.4	8.4	0.9	0.8	5.4	5.1
Lukoil	USD	3,857	(0.4)	1.5	0.5	15.2	29.9	23.6	15.7	57,073	6.0	5.9	0.8	0.7	N/A	N/A
Kinder	USD	15	(3.5)	(5.8)	(7.8)	(14.9)	(20.3)	(26.8)	(15.0)	47,497	18.9	17.2	1.0	1.0	9.9	9.5
Statoil	NOK	180	(1.2)	1.3	1.2	2.9	15.6	23.2	2.8	77,639	15.6	14.8	1.8	1.7	3.5	3.4
BHP	AUD	30	2.7	2.9	(1.7)	2.1	14.5	24.2	0.4	115,171	16.1	16.8	2.0	1.9	6.1	6.2
PTT E&P	THB	116	0.0	0.0	0.9	16.3	31.1	27.1	16.0	14,724	13.3	12.6	1.2	1.1	3.8	3.6
Petronas gas	MYR	18	0.0	0.0	0.2	5.3	(0.1)	(9.9)	3.0	9,100	18.9	18.6	2.7	2.6	10.5	10.3
Chesapeake	USD	3	(3.7)	3.0	(2.8)	(19.2)	(26.3)	(37.8)	(21.5)	2,828	3.9	4.3	#N/A N/A	5.1	6.0	5.9
Noble Energy	USD	31	(1.4)	4.2	3.9	6.1	13.1	(8.8)	4.8	15,036	38.9	25.2	1.4	1.4	7.6	6.5
Average		**0**	**(0.7)**	**1.1**	**(0.1)**	**3.0**	**7.2**	**4.5**	**2.4**							
PV																
WACKER	EUR	133.3	(1.5)	3.1	(5.2)	(17.9)	14.3	32.7	(17.8)	8,550	19.4	16.4	2.0	1.9	6.7	6.4
GCL-Poly	HKD	1.0	(2.9)	(13.6)	(23.3)	(26.1)	(4.7)	(1.0)	(27.1)	2,416	6.4	5.7	0.6	0.5	6.3	5.7
SunPower	USD	7.8	(3.5)	10.4	9.0	(14.2)	1.6	25.4	(7.9)	1,086	#N/A N/A	47.9	4.5	4.0	13.1	8.9
Canadian Solar	USD	16.9	(1.2)	7.6	8.9	(0.9)	2.9	41.6	0.5	983	11.3	10.1	1.0	0.9	8.7	9.0
JA Solar	USD	6.7	(2.3)	(8.0)	(9.6)	(9.5)	(15.2)	21.9	(10.5)	318	12.7	10.6	1.5	1.4	3.9	3.5
Yingli	USD	1.6	(7.2)	(9.9)	(4.9)	(8.8)	(36.2)	(25.1)	(8.3)	28	#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	72.1	(2.4)	4.9	8.8	4.7	40.2	149.7	6.8	7,532	43.1	22.1	1.4	1.3	13.0	7.8
한화큐셀	USD	8.0	(1.1)	(0.6)	(6.0)	10.1	(1.8)	10.7	13.5	663	36.2	25.7	#N/A N/A	#N/A N/A	8.4	7.6
OCI	KRW	157,500	10.1	6.4	(0.6)	23.5	47.9	88.4	15.8	3,483	0.0	14.2	0.0	1.0	0.0	6.8
웅진에너지	KRW	7,020	3.7	(3.2)	(6.0)	(13.8)	(20.2)	44.4	(14.6)	193	N/A	0.0	1.0	0.0	6.8	0.0
신성솔라에너지	KRW	1,765	(1.1)	(2.8)	(6.1)	(9.7)	(11.1)	(5.9)	(7.8)	283	N/A	1.0	0.0	6.8	0.0	8.4
Average			**(0.9)**	**(0.5)**	**(3.2)**	**(5.7)**	**1.6**	**34.8**	**(5.2)**							
Gas Company																
Towngas China	HKD	7.0	(0.4)	9.5	7.5	16.7	31.6	58.2	12.1	2,484	14.0	12.6	1.2	1.1	12.1	11.0
Kulun	HKD	6.9	(3.1)	(3.1)	(6.0)	(16.1)	(5.5)	(3.7)	(15.7)	7,056	9.4	8.1	1.1	1.0	5.7	5.2
Beijing Enterprise	HKD	41.9	(1.6)	(1.9)	(4.1)	(8.8)	(1.8)	0.4	(9.7)	6,738	7.3	6.6	0.8	0.7	12.9	12.7
ENN Energy	HKD	64.2	(3.0)	3.1	2.1	12.2	17.0	48.0	15.1	8,865	14.3	12.2	2.8	2.4	8.8	7.7
China Resources Gas	HKD	27.0	(1.3)	4.9	1.5	(3.9)	0.2	(3.6)	(4.8)	7,652	14.3	12.8	2.5	2.2	8.4	7.7
China Gas Holdings	HKD	27.9	(1.1)	14.4	13.9	26.0	19.5	116.2	28.9	17,632	19.1	16.1	4.6	3.9	14.6	12.6
Shenzen Gas	HKD	16.8	3.7	7.0	4.8	14.5	13.9	44.2	12.6	4,340	11.1	10.1	1.4	1.3	8.1	8.1
Shann Xi	CNY	7.3	(0.5)	(1.0)	0.7	(21.3)	(13.6)	(22.8)	(13.9)	1,276	13.8	15.6	1.4	1.3	#N/A N/A	#N/A N/A
Suntien	HKD	2.2	1.4	9.0	14.2	8.5	10.2	42.8	4.8	1,027	6.2	5.5	0.7	0.6	8.0	7.0
China Oil & Gas	HKD	0.7	1.4	1.4	1.4	2.9	32.1	14.8	(17.6)	520	10.8	9.3	#N/A N/A	#N/A N/A	#N/A N/A	#N/A N/A
Average			**(0.4)**	**4.3**	**3.6**	**3.1**	**10.4**	**29.4**	**1.2**							
EV																
LG화학	KRW	409,000	(0.2)	(2.4)	8.6	3.9	10.8	40.8	1.0	26,772	14.3	13.2	1.7	1.6	6.5	6.0
삼성SDI	KRW	208,000	1.7	(3.0)	16.2	2.7	(0.2)	54.1	1.7	13,262	15.9	11.9	1.2	1.1	13.3	10.7
Panasonic	JPY	1645.0	(0.1)	(2.6)	1.3	(1.4)	0.8	36.5	(0.3)	38,155	15.6	13.5	2.1	1.9	6.0	5.6
GS Yuasa	JPY	576.0	0.0	(1.7)	(3.8)	2.7	1.2	10.3	2.7	2,252	16.4	14.7	1.3	1.2	7.1	6.5
NEC	JPY	3180.0	(0.3)	(1.9)	(0.8)	3.9	7.1	14.0	4.6	7,832	21.5	15.0	0.9	0.9	6.9	6.2
BYD Auto	CNY	62.6	(0.0)	(3.3)	0.4	0.6	0.4	28.0	(3.8)	26,404	26.8	21.4	2.8	2.5	12.8	11.3
Tesla Motors	USD	309.1	(2.3)	(5.1)	(10.7)	(5.0)	(12.0)	21.2	(0.7)	52,213	#N/A N/A	123.0	11.4	10.2	45.2	17.5
Kandi Technologies	USD	5.0	(4.8)	(3.9)	(10.0)	(31.3)	1.0	35.6	(27.2)	267	#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			**(0.8)**	**(3.0)**	**0.2**	**(3.0)**	**1.2**	**30.1**	**(2.8)**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임