SK Energy Daily

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1. News Summary (3 page)

2017년 11월 9일

News		Conclusion
WTI comment	美재고 증가 속 이틀째 조정…WTI 0.7%↓	
Headline	Shell, 펜실베니아에 새 석유화학단지 건설 시작	ECC증설은 꾸준히 이뤄질 전망이며 화학 peakout 가속화시킬 전망
News 1.	거침없는 사우디 빈살만…이번엔 숙청 인사 891조 자산 몰수	아람코 IPO를 앞두고 비전 2030에 접어들며 유가도 일시 상승할 전망
News 2.	-	-
News 3.	-	-
News 4.	-	-

2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
Refinery			%	%	%	%	%
WTI	$/bbl	56.8	(0.7)	4.6	10.7	14.6	25.5
Dubai	$/bbl	61.8	(0.9)	3.7	12.8	20.6	45.2
Gasoline	$/bbl	76.7	(1.0)	2.3	10.6	13.3	33.4
Diesel	$/bbl	72.8	(1.1)	0.9	7.1	14.1	29.9
Complex margin	$/bbl	7.2	(0.3)	(1.0)	(0.9)	(1.2)	(1.8)
1M lagging	$/bbl	13.8	(1.8)	1.1	4.1	0.2	11.0
Petrochemical			%	%	%	%	%
Naphtha	$/t	593	1.0	4.7	13.6	26.7	42.0
Butadiene	$/t	945	0.0	0.0	(19.9)	3.8	(31.8)
HDPE	$/t	1,250	0.0	0.8	7.3	11.6	6.8
MEG	$/t	913	(0.2)	1.7	3.4	4.9	31.2
PX	$/t	883	(0.5)	3.3	5.5	8.5	14.3
SM	$/t	1,263	2.9	8.8	4.2	12.4	15.9
Commodity			%	%	%	%	%
Natural Gas	$/mmbtu	3.18	0.7	9.7	3.6	1.2	1.2
Natural rubber	$/t	1,420	(0.7)	2.9	1.4	(4.7)	(7.8)
Cotton	C/lbs	68.6	0.8	0.7	(0.1)	(4.4)	0.5

*참고: 정제마진의 변동률은 %가 아닌 $/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
Petrochemical				%	%	%	%
Ethylene	11/06	$/t	1,130	(3.8)	(10.0)	15.9	13.6
Propylene	11/06	$/t	808	1.6	(3.3)	5.9	17.5
Benzene	11/06	$/t	810	0.9	0.6	9.1	23.7
Toluene	11/06	$/t	690	(0.7)	(1.4)	8.7	4.5
Xylene	11/06	$/t	655	0.4	(0.4)	5.2	0.8
PP	11/06	$/t	1,148	(1.7)	(1.7)	7.0	11.4
PVC	11/06	$/t	890	(2.2)	(6.1)	3.5	(4.3)
ABS	11/06	$/t	1,920	(1.5)	(6.8)	5.5	31.5
SBR	11/06	$/t	1,700	(2.9)	(6.6)	14.1	(10.5)
SM	11/06	$/t	1,210	(0.6)	(10.4)	3.2	14.4
BPA	11/06	$/t	1,685	0.0	8.0	9.4	14.2
Caustic	11/06	$/t	598	8.7	23.6	29.3	63.8
2-EH	11/06	$/t	1,000	0.0	1.0	3.1	26.6
Caprolactam	11/06	$/t	2,170	4.8	18.6	25.4	52.3
Solar				%	%	%	%
Polysilicon	11/08	$/kg	16.7	(0.1)	(0.2)	7.1	15.1
Module	11/08	$/W	0.32	(0.3)	(1.3)	(3.4)	(20.6)

3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
E&P			%	%	%	%	%
ExxonMobil	USD	83.5	(0.1)	(0.5)	2.2	4.4	(2.2)
Shell	EUR	2,460	0.4	4.2	7.1	11.1	18.0
Petrochina	CNY	8.50	(1.0)	1.3	6.4	3.9	16.1
Gazprom	RUB	132.3	0.0	4.6	7.2	10.6	(5.0)
Petrobras	BRL	17.0	2.7	0.3	8.0	25.6	(0.5)
Refinery							
Phillips66	USD	94.6	(0.0)	2.4	1.9	11.2	18.4
Valero	USD	81.7	(0.2)	1.2	5.7	20.5	40.5
JX	JPY	630.3	(0.0)	4.6	10.5	28.1	55.3
Neste Oil	EUR	48.8	(0.4)	2.1	28.5	40.2	25.0

	Unit	Price	1D	1W	1M	3M	12M
Petrochemical			%	%	%	%	%
BASF	EUR	96.5	0.2	1.1	7.4	18.4	21.5
DowDuPont	USD	70.8	(0.5)	(3.4)	(0.6)	11.7	32.5
SABIC	SAR	99.4	0.8	(0.1)	(1.4)	1.3	14.9
Formosa Pla.	TWD	92.3	(0.4)	1.0	0.3	(1.0)	7.0
Shin-Etsu	JPY	12,525	0.1	4.0	23.9	25.8	58.5
Renewable							
Wacker	EUR	138.0	(0.4)	0.3	19.7	31.4	72.2
First Solar	USD	61.79	1.4	8.0	28.2	29.2	84.5
GCL-Poly	HKD	1.40	0.0	5.3	23.9	52.2	32.1
Tesla Motors	USD	304.4	(0.5)	(5.2)	(14.7)	(16.7)	56.1

4. Coverage Summary

	11/08	1D	1W	1M	3M	6M	12M	투자의견	TP	%	P/E	P/B
KOSPI	2,552	0.3	(0.2)	6.6	8.2	11.3	27.8				* 추정치는 12M fwd 기준임	
KOSPI화학	6,131	0.4	1.3	7.6	8.1	14.5	21.3				* 모든 coverage 업체의 실적은 연결기준임	
LG화학	409,000	0.0	(1.3)	4.3	21.2	46.1	63.6	매수	400,000	(2.2)	12.95	2.14
롯데케미칼	368,500	(0.5)	(2.1)	(2.5)	(2.5)	4.8	22.0	매수	410,000	11.3	5.79	1.27
한화케미칼	31,350	0.5	(0.8)	(3.4)	(6.6)	22.9	13.8	매수	39,000	24.4	5.29	0.87
금호석유화학	73,700	(0.4)	(1.6)	2.2	(1.3)	(2.3)	7.6	매수	100,000	35.7	12.49	1.37
KCC	411,500	(0.2)	6.5	9.9	1.1	18.8	7.6	매수	450,000	9.4	22.84	0.60
OCI	123,500	(2.0)	(1.2)	20.5	36.5	52.7	22.9	매수	120,000	(2.8)	15.68	0.95
SKC	39,650	(0.4)	(0.5)	(3.9)	4.5	37.4	42.6	매수	45,000	13.5	10.96	1.08
SK이노베이션	216,500	1.2	4.3	8.8	25.9	25.9	39.7	매수	210,000	(3.0)	8.74	1.16
S-Oil	127,000	(0.8)	(1.6)	(0.4)	7.6	24.5	53.4	매수	140,000	10.2	13.74	2.40
GS	66,800	(1.8)	0.6	1.8	(8.1)	13.0	24.4	매수	80,000	19.8	6.34	0.99
SK가스	95,700	0.0	2.8	1.5	(16.8)	(19.6)	(2.2)	매수	130,000	35.8	7.23	0.71
포스코대우	20,750	(1.7)	7.5	7.5	(10.9)	(12.4)	(16.0)	매수	25,000	20.5	11.62	0.90
LG상사	31,300	1.3	9.2	14.7	7.0	(3.1)	11.2	매수	38,000	21.4	11.39	1.01
한국전력	38,500	0.7	(0.1)	(1.3)	(13.4)	(15.9)	(16.3)	매수	55,000	42.9	7.38	0.31
한국가스공사	42,700	0.0	5.2	1.4	(16.3)	(6.5)	(8.4)	매수	60,000	40.5	8.72	0.55

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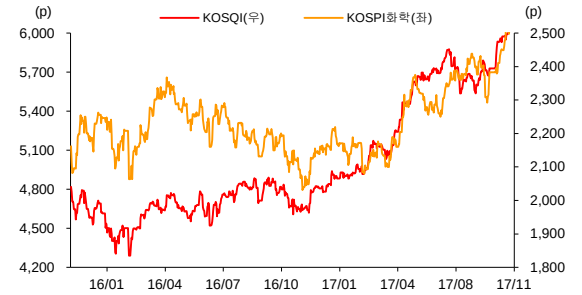
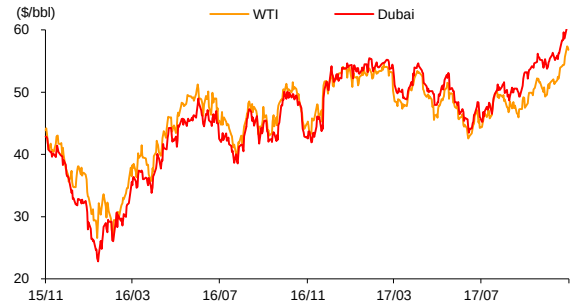
Key Chart

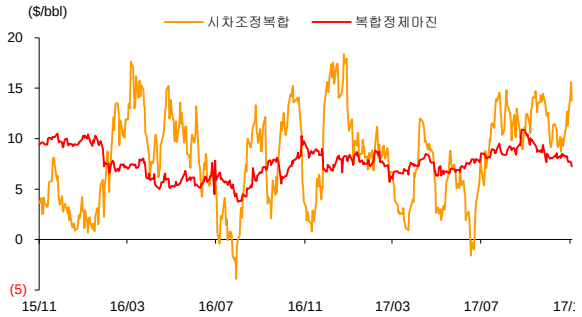
KOSPI/KOSPI화학



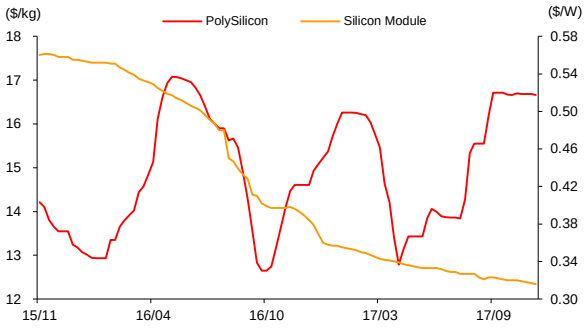
WTI/Dubai



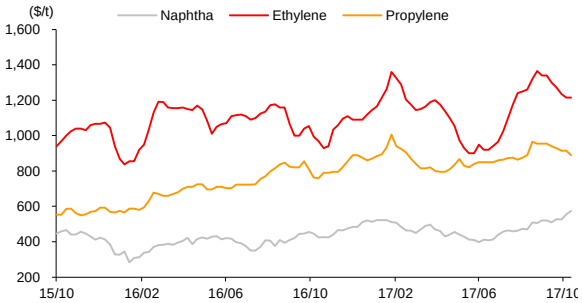
Complex & 1M lagging margin



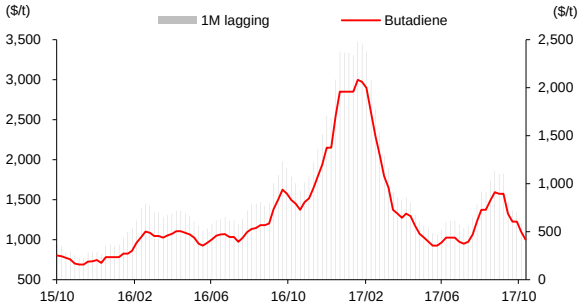
Polysilicon & Module prices



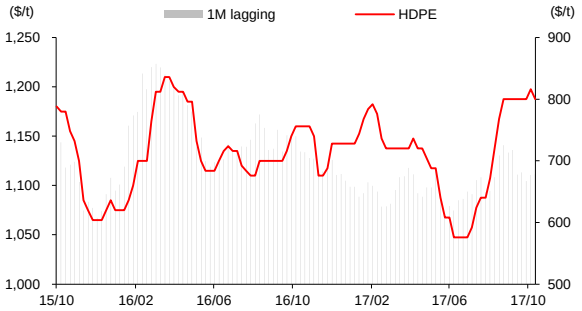
Naphtha/Ethylene/Propylene prices



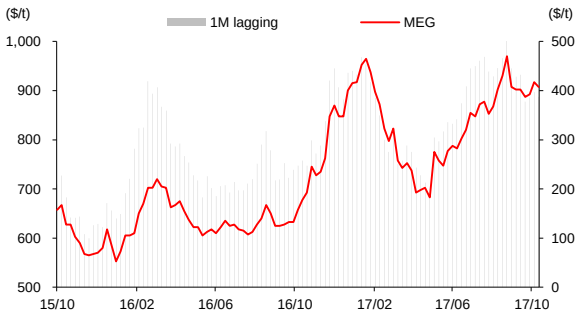
Butadiene price & 1M lagging naphtha spread



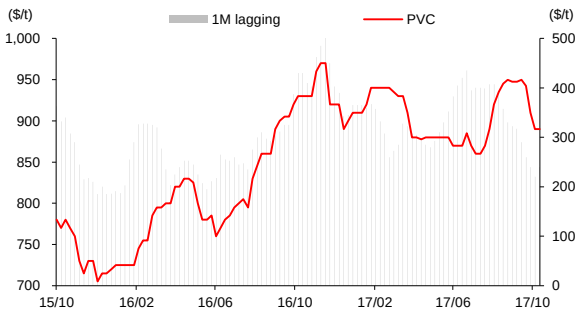
HDPE price & 1M lagging naphtha spread



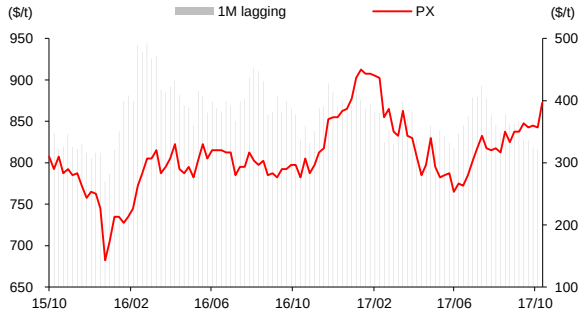
MEG price & 1M lagging naphtha spread



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 Shell, 펜실베니아에 새 석유화학단지 건설 시작

결론 ECC증설은 꾸준히 이뤄질 전망이며 화학 peakout 가속화시킬 전망

세부

1) Shell이 60억$ 규모의 석유화학단지를 펜실베니아 서부에 건설 시작
2) 동북지역에 최초로 싼 미국 천연가스 기반의 석유화학단지가 될 것
3) 160만톤/년 규모의 스팀크래커와 3기의 PE공장이 들어설 것임
4) PE공장 3기는 총 160만톤/년 규모이며 2020년이나 2021년 가동 예정
5) ECC증설은 꾸준히 이뤄질 전망이며 화학 peakout 가속화시킬 전망

WTI Comment **(출처: 연합뉴스)**

제목 美재고 증가 속 이틀째 조정…WTI 0.7%↓

상승

요인

하락 EIA에 따르면 지난주 원유재고는 전주 대비 220만 배럴 늘어남

요인

Issue 1 **(출처: 매일경제)**

제목 거침없는 사우디 빈살만…이번엔 숙청 인사 891조 자산 몰수

결론 아람코 IPO를 앞두고 비전 2030에 접어들며 유가도 일시 상승할 전망

세부

1) 빈살만이 숙청한 왕자와 기업인들에게서 총 891조원을 몰수하기로 함
2) WSJ, "정부는 압류한 자산을 국고에 귀속시킬 것이라고 거듭 밝힘"
3) 재정 지출이 늘고 저유가 기조가 겹치면서 사우디 외환보유액 감소함
4) WSJ, "8000억$는 조금만 압류에 성공해도 사우디 재정에 큰 도움될 것"
5) 아람코 IPO를 앞두고 비전 2030에 접어들며 유가도 일시 상승할 전망

Issue 2

제목

결론

세부

1)
2)
3)
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5)

Issue 3

제목

결론

세부

1)
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Issue 4

제목

결론

세부

1)
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Issue 5

제목

결론

세부

1)
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Issue 6

제목

결론

세부

1)
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Commodity Price Data

Daily Price		Today	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
F/X	USD/EUR	0.863	0.863	0.861	0.853	0.851	0.915	0.907	0.951	0.901	0.904	0.893
	Change, %		*(0.1)*	*0.2*	*1.2*	*1.4*	*(5.8)*	*(4.9)*	*(9.3)*	*(4.3)*	*(4.6)*	*(3.5)*
	USD/JPY	113.9	114.0	114.2	112.7	110.3	113.3	105.2	117.0	121.1	108.8	112.1
	Change, %		*(0.1)*	*(0.3)*	*1.1*	*3.2*	*0.5*	*8.3*	*(2.6)*	*(5.9)*	*4.7*	*1.6*
	USD/KRW	1,115.5	1,111.9	1,114.4	1,142.0	1,125.2	1,131.5	1,134.7	1,205.8	1,131.2	1,160.5	1,137.8
	Change, %		*0.3*	*0.1*	*(2.3)*	*(0.9)*	*(1.4)*	*(1.7)*	*(7.5)*	*(1.4)*	*(3.9)*	*(2.0)*
Agriculture	Corn	348.3	347.8	348.3	350.0	369.8	356.8	354.3	352.0	376.8	358.5	361.9
	Change, %		*0.1*	*0.0*	*(0.5)*	*(5.8)*	*(2.4)*	*(1.7)*	*(1.1)*	*(7.6)*	*(2.9)*	*(3.8)*
	Soybean	988.0	986.0	981.0	972.3	963.0	956.3	1,001.8	996.5	945.4	987.5	975.8
	Change, %		*0.2*	*0.7*	*1.6*	*2.6*	*3.3*	*(1.4)*	*(0.9)*	*4.5*	*0.1*	*1.3*
	Wheat	426.8	427.3	418.0	443.5	457.0	418.0	415.3	408.0	508.1	436.4	439.3
	Change, %		*(0.1)*	*2.1*	*(3.8)*	*(6.6)*	*2.1*	*2.8*	*4.6*	*(16.0)*	*(2.2)*	*(2.9)*
	Rice	11.1	11.2	11.2	11.9	12.1	9.7	9.5	9.4	11.1	10.3	10.9
	Change, %		*(0.9)*	*(0.5)*	*(6.3)*	*(8.3)*	*14.8*	*17.1*	*19.1*	*0.8*	*7.7*	*2.2*
	Oats	269.5	270.5	271.5	251.0	273.5	252.8	225.8	228.5	250.2	196.3	253.0
	Change, %		*(0.4)*	*(0.7)*	*7.4*	*(1.5)*	*6.6*	*19.4*	*17.9*	*7.7*	*37.3*	*6.5*
MYR/mt	Palm Oil	2,772.0	2,759.0	2,804.0	2,741.0	2,624.0	2,800.0	2,854.0	3,218.0	2,190.3	2,653.8	2,835.7
	Change, %		*0.5*	*(1.1)*	*1.1*	*5.6*	*(1.0)*	*(2.9)*	*(13.9)*	*26.6*	*4.5*	*(2.2)*
	Cocoa	2,216.0	2,163.0	2,123.0	2,085.0	2,018.0	1,955.0	2,501.0	2,126.0	3,091.6	2,854.0	2,007.4
	Change, %		*2.5*	*4.4*	*6.3*	*9.8*	*13.4*	*(11.4)*	*4.2*	*(28.3)*	*(22.4)*	*10.4*
	Cotton	68.6	68.1	68.2	69.5	71.9	76.8	68.8	70.7	63.3	65.6	73.5
	Change, %		*0.8*	*0.7*	*(1.2)*	*(4.6)*	*(10.6)*	*(0.2)*	*(2.9)*	*8.5*	*4.6*	*(6.6)*
	Sugar	14.8	14.7	14.6	14.0	13.8	15.4	22.0	19.5	13.1	18.2	16.0
	Change, %		*0.8*	*1.6*	*6.2*	*7.7*	*(3.5)*	*(32.5)*	*(23.9)*	*12.9*	*(18.2)*	*(7.2)*
	Coffee	125.8	124.7	123.0	130.0	142.8	134.6	167.5	137.1	132.6	136.1	134.5
	Change, %		*0.8*	*2.3*	*(3.3)*	*(11.9)*	*(6.5)*	*(24.9)*	*(8.2)*	*(5.2)*	*(7.6)*	*(6.5)*
Energy	WTI	56.8	57.2	54.3	49.3	49.2	46.4	45.0	53.7	48.8	43.4	49.8
	Change, %		*(0.7)*	*4.6*	*15.3*	*15.5*	*22.4*	*26.3*	*5.8*	*16.3*	*31.0*	*14.0*
	Brent	63.5	63.7	60.5	55.6	52.1	49.3	46.0	56.8	53.7	45.1	53.4
	Change, %		*(0.3)*	*5.0*	*14.1*	*21.8*	*28.7*	*37.9*	*11.7*	*18.3*	*40.8*	*19.0*
	Natural Gas	3.2	3.2	2.9	2.9	2.8	3.2	2.6	3.7	2.6	2.6	3.0
	Change, %		*0.7*	*9.7*	*10.9*	*12.5*	*0.1*	*20.6*	*(14.7)*	*20.8*	*24.4*	*4.3*
	Ethanol	1.4	1.5	1.4	1.4	1.6	1.5	1.6	1.6	1.5	1.5	1.5
	Change, %		*(1.5)*	*1.1*	*1.8*	*(9.3)*	*(2.4)*	*(6.9)*	*(10.0)*	*(4.2)*	*(4.5)*	*(5.0)*
	RBOB Gasoline	182.1	181.5	174.1	155.9	162.1	151.8	136.9	166.5	163.6	140.0	161.0
	Change, %		*0.3*	*4.6*	*16.8*	*12.4*	*20.0*	*33.0*	*9.4*	*11.3*	*30.1*	*13.1*
	Coal	98.0	98.5	100.0	97.4	94.1	74.2	112.1	88.4	59.0	65.5	86.5
	Change, %		*(0.5)*	*(2.0)*	*0.7*	*4.2*	*32.1*	*(12.6)*	*10.9*	*66.2*	*49.7*	*13.2*
Metal	Gold	1,281.4	1,275.3	1,274.7	1,276.6	1,261.0	1,226.3	1,275.7	1,152.3	1,160.6	1,248.5	1,255.9
	Change, %		*0.5*	*0.5*	*0.4*	*1.6*	*4.5*	*0.4*	*11.2*	*10.4*	*2.6*	*2.0*
	Silver	17.0	16.9	17.1	16.8	16.5	16.2	18.4	15.9	15.7	17.1	17.2
	Change, %		*0.5*	*(0.6)*	*1.3*	*3.5*	*5.0*	*(7.3)*	*7.1*	*8.4*	*(0.4)*	*(0.7)*
	Copper	6,855.0	6,826.0	6,930.0	6,666.5	6,480.0	5,486.0	5,235.5	5,535.5	5,503.1	4,872.0	6,086.2
	Change, %		*0.4*	*(1.1)*	*2.8*	*5.8*	*25.0*	*30.9*	*23.8*	*24.6*	*40.7*	*12.6*
	Nickel	822.3	826.2	815.7	693.2	684.0	589.7	745.1	682.0	759.5	646.4	668.5
	Change, %		*(0.5)*	*0.8*	*18.6*	*20.2*	*39.4*	*10.4*	*20.6*	*8.3*	*27.2*	*23.0*
	Zinc	3,192.0	3,166.0	3,277.0	3,235.0	2,925.0	2,589.0	2,478.0	2,576.0	1,941.9	2,097.5	2,836.7
	Change, %		*0.8*	*(2.6)*	*(1.3)*	*9.1*	*23.3*	*28.8*	*23.9*	*64.4*	*52.2*	*12.5*
	Lead	2,505.0	2,492.0	2,480.0	2,519.5	2,365.0	2,165.8	2,113.3	2,003.5	1,791.2	1,868.3	2,286.8
	Change, %		*0.5*	*1.0*	*(0.6)*	*5.9*	*15.7*	*18.5*	*25.0*	*39.9*	*34.1*	*9.5*
	Aluminum	15,705.0	15,895.0	16,220.0	16,235.0	15,270.0	13,735.0	14,030.0	12,765.0	12,184.0	12,373.5	14,536.6
	Change, %		*(1.2)*	*(3.2)*	*(3.3)*	*2.8*	*14.3*	*11.9*	*23.0*	*28.9*	*26.9*	*8.0*
	Cobalt	60,040.0	60,855.0	61,992.0	58,533.0	57,150.0	54,450.0	28,900.0	32,734.0	28,444.4	25,480.1	53,789.9
	Change, %		*(1.3)*	*(3.1)*	*2.6*	*5.1*	*10.3*	*107.8*	*83.4*	*111.1*	*135.6*	*11.6*
	HR Coil	610.0	609.0	612.0	604.0	619.0	610.0	492.0	633.0	461.5	519.3	618.7
	Change, %		*0.2*	*(0.3)*	*1.0*	*(1.5)*	*0.0*	*24.0*	*(3.6)*	*32.2*	*17.5*	*(1.4)*
	Scrap	325.0	325.0	330.0	335.0	360.0	360.0	245.0	302.0	252.9	275.7	343.5
	Change, %		*0.0*	*(1.5)*	*(3.0)*	*(9.7)*	*(9.7)*	*32.7*	*7.6*	*28.5*	*17.9*	*(5.4)*

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

SK Energy Daily

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Refining Price Data

Daily Price		11/08	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	**WTI**	56.8	57.2	54.3	51.3	49.6	47.3	45.3	53.7	48.8	43.4	49.8
	Change, %		*(0.7)*	*4.6*	*10.7*	*14.6*	*20.0*	*25.5*	*5.8*	*16.5*	*31.0*	*14.1*
	Dubai	61.8	62.4	59.6	54.8	51.2	48.4	42.6	53.8	50.8	41.3	51.7
	Change, %		*(0.9)*	*3.7*	*12.8*	*20.6*	*27.7*	*45.2*	*14.8*	*21.7*	*49.6*	*19.5*
Crude Oil	**Gasoline(휘발유)**	76.7	77.5	75.0	69.3	67.7	62.9	57.5	69.8	69.5	56.3	66.7
Product	*Change, %*		*(1.0)*	*2.3*	*10.6*	*13.3*	*21.9*	*33.4*	*9.8*	*10.3*	*36.3*	*14.9*
	Kerosene(등유)	74.5	75.0	72.3	67.1	63.4	58.3	55.5	66.4	64.7	52.9	63.6
	Change, %		*(0.7)*	*3.0*	*11.1*	*17.4*	*27.7*	*34.3*	*12.1*	*15.0*	*40.8*	*17.1*
	Diesel(경유)	72.8	73.6	72.1	68.0	63.8	59.3	56.0	65.5	64.8	52.1	64.1
	Change, %		*(1.1)*	*0.9*	*7.1*	*14.1*	*22.8*	*29.9*	*11.1*	*12.3*	*39.6*	*13.5*
	Bunker-C	57.3	58.7	56.3	51.0	48.3	45.4	41.0	52.1	45.3	35.5	48.5
	Change, %		*(2.4)*	*1.7*	*12.5*	*18.6*	*26.2*	*39.7*	*10.1*	*26.6*	*61.3*	*18.2*
	Naphtha	64.9	65.9	62.8	56.4	50.4	47.1	45.3	53.5	52.6	42.6	51.9
	Change, %		*(1.6)*	*3.2*	*15.0*	*28.6*	*37.8*	*43.0*	*21.3*	*23.3*	*52.3*	*25.0*
Dubai	**Gasoline(휘발유)**	14.9	15.1	15.4	14.5	16.4	14.5	14.9	16.0	18.7	14.9	15.0
Spread	*Change*		*(0.2)*	*(0.5)*	*0.4*	*(1.5)*	*0.4*	*(0.0)*	*(1.1)*	*(3.9)*	*(0.1)*	*(0.1)*
	Kerosene(등유)	12.7	12.6	12.7	12.3	12.2	10.0	12.9	12.6	14.0	11.6	11.9
	Change		*0.1*	*(0.0)*	*0.4*	*0.5*	*2.7*	*(0.2)*	*0.1*	*(1.3)*	*1.1*	*0.8*
	Diesel(경유)	11.0	11.2	12.5	13.2	12.5	10.9	13.5	11.7	14.0	10.8	12.4
	Change		*(0.2)*	*(1.5)*	*(2.2)*	*(1.5)*	*0.1*	*(2.5)*	*(0.7)*	*(3.0)*	*0.2*	*(1.4)*
	Bunker-C	(4.5)	(3.7)	(3.3)	(3.8)	(2.9)	(3.0)	(1.6)	(1.8)	(5.5)	(5.8)	(3.2)
	Change		*(0.8)*	*(1.2)*	*(0.7)*	*(1.6)*	*(1.5)*	*(2.9)*	*(2.7)*	*1.0*	*1.3*	*(1.2)*
	Naphtha	3.1	3.5	3.2	1.6	(0.8)	(1.3)	2.8	(0.4)	1.8	1.3	0.1
	Change		*(0.5)*	*(0.2)*	*1.5*	*3.9*	*4.4*	*0.3*	*3.4*	*1.2*	*1.8*	*2.9*
Refining	**Simple(단순)**	2.2	2.7	3.3	3.1	3.5	2.7	4.7	3.8	3.3	1.9	3.2
Margin	*Change*		*(0.4)*	*(1.1)*	*(0.9)*	*(1.3)*	*(0.5)*	*(2.5)*	*(1.6)*	*(1.1)*	*0.3*	*(1.0)*
	Complex(복합)	7.2	7.6	8.3	8.1	8.4	7.2	9.1	8.3	9.3	7.0	8.0
	Change		*(0.3)*	*(1.0)*	*(0.9)*	*(1.2)*	*0.1*	*(1.8)*	*(1.0)*	*(2.0)*	*0.3*	*(0.7)*
	Complex(lagging)	13.8	15.6	12.7	9.7	13.6	2.9	2.7	18.0	7.3	8.5	8.5
	Change		*(1.8)*	*1.1*	*4.1*	*0.2*	*10.9*	*11.0*	*(4.2)*	*6.5*	*5.3*	*5.3*

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			11/08	11/07	11/06	11/03	11/02	11/01	10/31	10/30	10/27	10/26
Spot Price	**Naphtha**	CFR Japan	593.4	587.4	588.1	580.0	573.1	567.0	564.5	557.5	554.0	548.5
	Ethylene	CFR SE Asia	1,160.0	1,140.0	1,140.0	1,140.0	1,140.0	1,140.0	1,140.0	1,140.0	1,140.0	1,150.0
	Propylene	FOB Korea	899.0	903.0	918.0	918.0	918.0	923.0	925.0	940.0	943.0	943.0
	Butadiene	FOB Korea	945.0	945.0	945.0	945.0	945.0	945.0	950.0	950.0	950.0	1,165.0
	HDPE	CFR FE Asia	1,250.0	1,250.0	1,240.0	1,240.0	1,240.0	1,240.0	1,240.0	1,240.0	1,240.0	1,240.0
	LDPE	CFR FE Asia	1,250.0	1,250.0	1,240.0	1,240.0	1,240.0	1,240.0	1,240.0	1,250.0	1,250.0	1,255.0
	LLDPE	CFR FE Asia	1,190.0	1,180.0	1,170.0	1,170.0	1,170.0	1,170.0	1,170.0	1,170.0	1,180.0	1,190.0
	MEG	CFR China	913.0	915.0	910.0	900.0	898.0	898.0	898.0	904.0	903.0	900.0
	PP	CFR FE Asia	1,120.0	1,120.0	1,120.0	1,130.0	1,130.0	1,120.0	1,115.0	1,115.0	1,125.0	1,130.0
	PX	CFR China	883.0	887.0	877.0	864.3	855.3	854.7	840.7	839.3	831.3	831.3
	PTA	CFR China	685.0	685.0	665.0	660.0	660.0	655.0	653.0	653.0	650.0	650.0
	Benzene	FOB Korea	872.0	856.0	828.0	815.0	811.0	812.0	794.0	795.0	791.0	794.0
	Toluene	FOB Korea	691.0	695.0	682.0	676.0	676.0	678.0	668.0	672.0	664.5	658.5
	Xylene	FOB Korea	705.0	708.0	689.0	677.0	677.0	671.0	664.0	661.0	660.0	654.0
	SM	FOB Korea	1,263.0	1,228.0	1,189.0	1,168.0	1,169.0	1,161.0	1,159.5	1,165.5	1,169.5	1,193.5

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Spot Price	**Naphtha**	CFR Japan	554.5	526.5	520.5	456.5	411.5	446.5	484.5	493.0	399.5	475.2
	Change, %			*5.3*	*6.5*	*21.5*	*34.8*	*24.2*	*14.4*	*12.5*	*38.8*	*16.7*
	Ethylene	CFR SE Asia	1,130.0	1,175.0	1,255.0	975.0	875.0	995.0	990.0	1,103.7	1,040.9	1,068.1
	Change, %			*(3.8)*	*(10.0)*	*15.9*	*29.1*	*13.6*	*14.1*	*2.4*	*8.6*	*5.8*
	Propylene	CFR SE Asia	807.5	795.0	835.0	762.5	742.5	687.5	815.0	770.0	705.7	876.6
	Change, %			*1.6*	*(3.3)*	*5.9*	*8.8*	*17.5*	*(0.9)*	*4.9*	*14.4*	*(7.9)*
	Butadiene	CFR SE Asia	1,050.0	1,175.0	1,525.0	900.0	975.0	1,450.0	2,100.0	877.5	1,116.8	1,567.5
	Change, %			*(10.6)*	*(31.1)*	*16.7*	*7.7*	*(27.6)*	*(50.0)*	*19.7*	*(6.0)*	*(33.0)*
	Benzene	CFR SE Asia	810.0	802.5	805.0	742.5	760.0	655.0	822.5	690.0	646.7	831.0
	Change, %			*0.9*	*0.6*	*9.1*	*6.6*	*23.7*	*(1.5)*	*17.4*	*25.3*	*(2.5)*
	Toluene	CFR SE Asia	690.0	695.0	700.0	635.0	630.0	660.0	690.0	700.8	630.5	684.0
	Change, %			*(0.7)*	*(1.4)*	*8.7*	*9.5*	*4.5*	*0.0*	*(1.5)*	*9.4*	*0.9*
	Xylene	CFR SE Asia	655.0	652.5	657.5	622.5	610.0	650.0	675.0	699.3	627.7	664.0
	Change, %			*0.4*	*(0.4)*	*5.2*	*7.4*	*0.8*	*(3.0)*	*(6.3)*	*4.3*	*(1.4)*
Spread	**Ethylene**	-Naphtha	575.5	648.5	734.5	518.5	463.5	548.5	505.5	610.6	641.4	592.9
	Change, %			*(11.3)*	*(21.6)*	*11.0*	*24.2*	*4.9*	*13.8*	*(5.8)*	*(10.3)*	*(2.9)*
	Propylene	-Naphtha	253.0	268.5	314.5	306.0	331.0	241.0	330.5	277.0	306.2	401.4
	Change, %			*(5.8)*	*(19.6)*	*(17.3)*	*(23.6)*	*5.0*	*(23.4)*	*(8.7)*	*(17.4)*	*(37.0)*
	Butadiene	-Naphtha	495.5	648.5	1,004.5	443.5	563.5	1,003.5	1,615.5	384.5	717.3	1,092.3
	Change, %			*(23.6)*	*(50.7)*	*11.7*	*(12.1)*	*(50.6)*	*(69.3)*	*28.9*	*(30.9)*	*(54.6)*
	Benzene	-Naphtha	255.5	276.0	284.5	286.0	348.5	208.5	338.0	197.0	247.2	355.8
	Change, %			*(7.4)*	*(10.2)*	*(10.7)*	*(26.7)*	*22.5*	*(24.4)*	*29.7*	*3.4*	*(28.2)*
	Toluene	-Naphtha	135.5	168.5	179.5	178.5	218.5	213.5	205.5	207.8	231.0	208.8
	Change, %			*(19.6)*	*(24.5)*	*(24.1)*	*(38.0)*	*(36.5)*	*(34.1)*	*(34.8)*	*(41.3)*	*(35.1)*
	Xylene	-Naphtha	100.5	126.0	137.0	166.0	198.5	203.5	190.5	206.3	228.2	188.8
	Change, %			*(20.2)*	*(26.6)*	*(39.5)*	*(49.4)*	*(50.6)*	*(47.2)*	*(51.3)*	*(56.0)*	*(46.8)*

자료 : Cischem, Platts, Bloomberg, SK증권

참고 : Spread는 Polymer와 Naphtha의 가격차이임

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Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Spot Price	HDPE	CFR SE Asia	1,197.5	1,187.5	1,187.5	1,057.5	1,047.5	1,160.0	1,142.5	1,230.1	1,134.6	1,131.4
	Change, %			*0.8*	*0.8*	*13.2*	*14.3*	*3.2*	*4.8*	*(2.7)*	*5.5*	*5.8*
	MEG	CFR SE Asia	907.5	917.5	902.5	872.5	802.5	677.5	847.5	780.8	660.8	839.9
	Change, %			*(1.1)*	*0.6*	*4.0*	*13.1*	*33.9*	*7.1*	*16.2*	*37.3*	*8.1*
	PVC	CFR SE Asia	890.0	910.0	947.5	860.0	870.0	930.0	920.0	820.8	823.4	906.0
	Change, %			*(2.2)*	*(6.1)*	*3.5*	*2.3*	*(4.3)*	*(3.3)*	*8.4*	*8.1*	*(1.8)*
	PP	CFR SE Asia	1,147.5	1,167.5	1,167.5	1,072.5	1,037.5	1,030.0	1,032.5	1,109.8	978.4	1,088.8
	Change, %			*(1.7)*	*(1.7)*	*7.0*	*10.6*	*11.4*	*11.1*	*3.4*	*17.3*	*5.4*
	2-EH	CFR Korea	1,000.0	1,000.0	990.0	970.0	920.0	790.0	865.0	930.1	772.4	959.4
	Change, %			*0.0*	*1.0*	*3.1*	*8.7*	*26.6*	*15.6*	*7.5*	*29.5*	*4.2*
	ABS	CFR SE Asia	1,920.0	1,950.0	2,060.0	1,820.0	1,790.0	1,460.0	1,635.0	1,431.1	1,347.1	1,816.7
	Change, %			*(1.5)*	*(6.8)*	*5.5*	*7.3*	*31.5*	*17.4*	*34.2*	*42.5*	*5.7*
	SBR	CFR SE Asia	1,700.0	1,750.0	1,820.0	1,490.0	1,450.0	1,900.0	2,000.0	1,332.1	1,483.0	2,047.2
	Change, %			*(2.9)*	*(6.6)*	*14.1*	*17.2*	*(10.5)*	*(15.0)*	*27.6*	*14.6*	*(17.0)*
	SM	CFR SE Asia	1,210.0	1,217.5	1,350.0	1,172.5	1,152.5	1,057.5	1,205.0	1,100.7	1,064.6	1,243.9
	Change, %			*(0.6)*	*(10.4)*	*3.2*	*5.0*	*14.4*	*0.4*	*9.9*	*13.7*	*(2.7)*
	Caustic	FOB NEA	598.0	550.0	484.0	462.5	447.5	365.0	422.5	296.8	316.6	455.8
	Change, %			*8.7*	*23.6*	*29.3*	*33.6*	*63.8*	*41.5*	*101.5*	*88.9*	*31.2*
	PX	CFR SE Asia	842.5	845.0	837.5	817.5	775.0	797.5	855.0	842.9	790.4	834.3
	Change, %			*(0.3)*	*0.6*	*3.1*	*8.7*	*5.6*	*(1.5)*	*(0.0)*	*6.6*	*1.0*
	PO	CFR China	1,685.0	1,685.0	1,560.0	1,540.0	1,485.0	1,475.0	1,562.5	1,683.4	1,396.8	1,558.6
	Change, %			*0.0*	*8.0*	*9.4*	*13.5*	*14.2*	*7.8*	*0.1*	*20.6*	*8.1*
	Caprolactam	CFR SE Asia	2,170.0	2,070.0	1,830.0	1,730.0	1,610.0	1,425.0	1,850.0	1,581.5	1,344.9	1,906.9
	Change, %			*4.8*	*18.6*	*25.4*	*34.8*	*52.3*	*17.3*	*37.2*	*61.4*	*13.8*
	PTA	CFR SE Asia	667.5	667.5	667.5	667.5	630.0	617.5	642.5	648.0	613.7	659.5
	Change, %			*0.0*	*0.0*	*0.0*	*6.0*	*8.1*	*3.9*	*3.0*	*8.8*	*1.2*
Spread	HDPE		643.0	661.0	667.0	601.0	636.0	713.5	658.0	737.1	735.1	656.2
	Change, %			*(2.7)*	*(3.6)*	*7.0*	*1.1*	*(9.9)*	*(2.3)*	*(12.8)*	*(12.5)*	*(2.0)*
	MEG		353.0	391.0	382.0	416.0	391.0	231.0	363.0	287.8	261.3	364.7
	Change, %			*(9.7)*	*(7.6)*	*(15.1)*	*(9.7)*	*52.8*	*(2.8)*	*22.7*	*35.1*	*(3.2)*
	PVC		335.5	383.5	427.0	403.5	458.5	483.5	435.5	327.8	423.9	430.8
	Change, %			*(12.5)*	*(21.4)*	*(16.9)*	*(26.8)*	*(30.6)*	*(23.0)*	*2.3*	*(20.9)*	*(22.1)*
	PP		593.0	641.0	647.0	616.0	626.0	583.5	548.0	616.8	578.9	613.5
	Change, %			*(7.5)*	*(8.3)*	*(3.7)*	*(5.3)*	*1.6*	*8.2*	*(3.9)*	*2.4*	*(3.3)*
	2-EH		445.5	473.5	469.5	513.5	508.5	343.5	380.5	437.0	372.9	484.2
	Change, %			*(5.9)*	*(5.1)*	*(13.2)*	*(12.4)*	*29.7*	*17.1*	*1.9*	*19.5*	*(8.0)*
	ABS		1,365.5	1,423.5	1,539.5	1,363.5	1,378.5	1,013.5	1,150.5	938.1	947.6	1,341.5
	Change, %			*(4.1)*	*(11.3)*	*0.1*	*(0.9)*	*34.7*	*18.7*	*45.6*	*44.1*	*1.8*
	SBR	BD spread	650.0	575.0	295.0	590.0	475.0	450.0	(100.0)	454.7	366.2	479.7
	Change, %			*13.0*	*120.3*	*10.2*	*36.8*	*44.4*	*(750.0)*	*43.0*	*77.5*	*35.5*
	SM		655.5	691.0	829.5	716.0	741.0	611.0	720.5	607.7	665.1	768.7
	Change, %			*(5.1)*	*(21.0)*	*(8.4)*	*(11.5)*	*7.3*	*(9.0)*	*7.9*	*(1.4)*	*(14.7)*
	Caustic											
	Change, %											
	PX		288.0	318.5	317.0	361.0	363.5	351.0	370.5	349.9	390.9	359.1
	Change, %			*(9.6)*	*(9.1)*	*(20.2)*	*(20.8)*	*(17.9)*	*(22.3)*	*(17.7)*	*(26.3)*	*(19.8)*
	PO	propylene sprea	877.5	890.0	725.0	777.5	742.5	787.5	747.5	913.4	691.1	682.0
	Change, %			*(1.4)*	*21.0*	*12.9*	*18.2*	*11.4*	*17.4*	*(3.9)*	*27.0*	*28.7*
	Caprolactam	benzene spread	1,360.0	1,267.5	1,025.0	987.5	850.0	770.0	1,027.5	891.6	698.2	1,076.0
	Change, %			*7.3*	*32.7*	*37.7*	*60.0*	*76.6*	*32.4*	*52.5*	*94.8*	*26.4*
	PTA	px spread	77.8	76.0	81.3	95.3	87.5	59.3	44.0	58.0	60.4	75.5
	Change, %			*2.3*	*(4.3)*	*(18.4)*	*(11.1)*	*31.2*	*76.7*	*34.0*	*28.7*	*3.0*

자료 : Cischem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

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Global peers

	Currency	11/08	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER 17E	PER 18E	PBR 17E	PBR 18E	EV/EBITDA 17E	EV/EBITDA 18E
Petrochemical																
DowDuPont	USD	70.8	(0.5)	(3.4)	(0.6)	11.7	13.5	32.5	23.8	165,695	20.5	17.1	1.6	1.8	11.6	10.0
Eastman	USD	90.6	(0.0)	(0.4)	(0.5)	7.7	14.3	24.7	20.4	13,021	12.8	11.1	2.6	2.4	9.3	8.5
BASF	EUR	96.5	0.2	1.1	7.4	18.4	8.2	21.5	9.3	102,784	15.8	15.7	2.6	2.4	8.4	8.3
Akzo Nobel	EUR	79.3	1.0	2.5	1.2	2.7	3.2	36.2	33.5	23,163	19.3	18.5	3.4	3.3	10.4	10.0
Arkema	EUR	109.6	0.3	0.3	6.3	13.1	11.7	30.2	17.9	9,632	16.0	14.6	2.1	1.9	7.1	6.7
Lanxess	EUR	69.5	(0.4)	0.8	4.5	2.5	3.3	23.0	11.5	7,376	18.1	15.7	2.4	2.2	7.8	8.2
Sumitomo Chemical	JPY	850	3.5	4.2	22.1	34.1	29.8	76.7	52.9	12,367	11.5	11.2	1.5	1.4	8.0	7.7
Mitsubishi Chemical	JPY	1,216	0.2	1.0	9.9	28.2	32.5	74.7	60.4	16,098	9.9	9.8	1.4	1.3	6.8	6.6
Shin-Etsu Chemical	JPY	12,525	0.1	4.0	23.9	25.8	25.9	58.5	38.1	47,567	24.4	21.5	2.3	2.2	11.0	9.6
Asahi Kasei	JPY	1,508	7.1	6.9	8.8	17.0	36.2	59.7	47.9	18,584	16.3	15.9	1.7	1.6	8.0	7.8
JSR	JPY	2,252	1.4	1.7	8.2	18.5	12.3	45.9	22.2	4,476	15.8	15.2	1.3	1.2	8.6	8.0
Nitto Denko	JPY	11,395	(2.5)	2.1	20.3	12.7	23.3	56.1	27.0	17,402	21.6	19.8	2.6	2.4	9.7	9.1
SABIC	SAR	99.4	0.8	(0.1)	(1.4)	1.3	4.2	14.9	8.6	79,481	14.7	13.9	1.8	1.7	7.4	7.2
Yansab	SAR	56.3	0.7	0.5	(2.1)	2.3	2.6	21.9	3.4	8,441	14.1	13.2	2.3	2.3	9.0	8.7
Formosa Plastics	TWD	92.3	(0.4)	1.0	0.3	(1.0)	2.0	7.0	3.5	19,475	13.5	14.1	1.8	1.7	19.4	19.2
Formosa Fiber	TWD	93.0	0.5	1.2	1.2	0.1	1.0	(3.2)	(3.4)	18,067	12.0	12.7	1.7	1.6	10.7	10.8
Nan Ya Plastics	TWD	75.0	(0.1)	0.1	2.2	(1.8)	5.6	14.5	5.3	19,715	14.4	14.8	1.7	1.7	14.7	15.0
Sinopec Shanghai	CNY	6.57	0.3	2.7	4.1	(7.2)	2.2	11.5	2.0	9,345	12.7	12.2	2.5	2.2	6.9	6.9
Sinopec Yizheng(Fibe	CNY	3.09	(1.0)	2.7	(1.9)	(4.9)	(4.3)	(21.6)	(24.6)	5,985	#N/A N/A	57.2	5.9	6.0	28.8	15.1
Reliance	INR	888	(2.1)	(6.8)	6.1	10.8	34.4	76.9	64.0	88,912	16.5	13.7	1.9	1.6	11.4	9.6
Industries Qatar	QAR	94.0	(1.0)	(1.9)	1.6	(0.9)	(6.7)	(7.1)	(20.0)	14,800	15.9	13.6	1.6	1.6	53.6	50.3
PTT Chemical	THB	80.3	2.9	2.6	(3.0)	11.5	10.3	34.3	27.4	10,891	10.5	10.7	1.4	1.3	5.5	5.4
Petronas	MYR	7.5	1.9	1.4	1.6	6.4	4.5	7.5	7.0	14,131	16.2	16.2	2.1	1.9	8.9	8.8
LG화학	KRW	409,000	0.0	(1.3)	4.3	20.3	46.1	62.0	56.7	25,922	15.2	14.4	2.0	1.8	6.7	6.3
롯데케미칼	KRW	368,500	(0.5)	(2.1)	(2.5)	(4.7)	4.8	22.0	(0.1)	11,340	5.5	5.4	1.1	0.9	3.7	3.3
한화케미칼	KRW	31,350	0.5	(0.8)	(3.4)	(6.8)	22.9	12.0	26.9	4,639	5.1	5.5	0.8	0.7	6.6	6.5
금호석유	KRW	73,700	(0.4)	(1.6)	2.2	(1.2)	(2.3)	8.9	(10.1)	2,016	12.8	11.9	1.3	1.2	9.6	8.5
SKC	KRW	39,650	(0.4)	(0.5)	(3.9)	9.5	37.4	44.4	20.2	1,336	10.5	9.4	1.0	0.9	9.4	7.8
국도화학	KRW	58,800	(1.5)	(0.2)	6.5	3.7	22.1	7.7	7.1	307	0.0	0.0	0.0	0.0	0.0	0.0
효성	KRW	7,730	1.3	(5.5)	16.2	19.3	4.3	43.1	13.7	4,225	8.2	7.1	1.2	1.0	6.8	6.0
Average			**0.4**	**0.4**	**4.7**	**8.3**	**13.5**	**29.9**	**18.4**							
Refinery																
Valero	USD	81.7	(0.2)	1.2	5.7	20.5	23.5	40.5	19.5	35,737	16.8	13.2	1.8	1.8	7.2	6.3
Conoco Phillips	USD	53.5	0.1	2.7	9.5	17.3	13.6	20.7	6.7	63,984	130.5	36.9	2.2	2.2	9.3	7.4
Formosa Petrochemic	TWD	106.5	0.0	0.9	(0.9)	1.4	2.9	(1.4)	(4.9)	33,627	14.8	18.0	3.2	3.2	9.4	11.0
Andeavor	USD	111.1	(0.1)	1.8	4.9	16.0	35.8	39.0	27.1	17,438	15.8	13.4	1.7	1.7	9.1	7.2
Marathon Petroleum	USD	63.2	0.2	3.8	12.9	16.1	23.1	51.2	25.6	30,877	17.2	15.5	2.5	2.5	8.4	7.6
Devon Energy	USD	40.3	(2.4)	3.0	12.5	25.3	5.5	(4.1)	(11.8)	21,157	22.8	18.4	2.9	2.6	9.5	8.5
Hollyfrontier	USD	42.3	(0.0)	6.7	19.5	42.8	53.4	86.4	29.2	7,502	20.2	16.3	1.5	1.5	8.7	7.4
Phillips 66	USD	94.6	(0.0)	2.4	1.9	11.2	18.7	18.4	9.4	47,912	20.9	15.3	2.2	2.1	10.6	8.8
Murphy Oil	USD	29.0	(0.7)	6.0	11.5	11.9	8.4	7.8	(6.7)	5,012	#N/A N/A	250.3	1.1	1.1	5.3	4.9
JX Holdings	JPY	630.3	(0.0)	4.6	10.5	28.1	22.4	55.3	27.4	18,984	9.9	9.2	0.9	0.9	8.0	7.5
Idemitsu	JPY	3,490.0	(0.6)	2.8	10.1	32.8	(8.5)	49.5	12.4	6,380	7.9	7.9	0.9	0.9	8.9	8.6
Nesteoil	EUR	48.8	(0.4)	2.1	28.5	40.2	27.6	25.0	33.6	14,501	15.7	15.7	2.9	2.7	9.1	9.6
Ashland	USD	65.2	(1.4)	(5.0)	(2.4)	4.7	8.4	16.0	22.0	4,071	16.2	19.1	1.3	1.2	7.6	9.4
Fuchs Petrolub	EUR	47.7	(0.7)	(3.0)	(4.4)	(0.7)	(0.3)	25.3	19.6	7,256	25.1	23.6	4.9	4.4	14.5	13.7
SK이노베이션	KRW	216,500	1.2	4.3	8.8	22.3	25.9	40.1	47.8	17,973	8.6	8.2	1.1	1.0	5.3	4.7
S-Oil	KRW	127,000	(0.8)	(1.6)	(0.4)	8.5	24.5	52.3	49.9	12,837	12.5	9.5	2.2	2.0	9.6	7.0
GS	KRW	66,800	(1.8)	0.6	1.8	(11.1)	13.0	24.4	23.5	5,572	6.4	6.0	0.8	0.7	7.2	6.8
Average			**(0.5)**	**2.0**	**7.7**	**16.9**	**17.5**	**32.1**	**19.4**							

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

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Global peers

	Currency	11/08	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER 17E	PER 18E	PBR 17E	PBR 18E	EV/EBITDA 17E	EV/EBITDA 18E
E&P/Shale																
Exxon Mobil	USD	83	(0.1)	(0.5)	2.2	4.4	0.7	(2.2)	(7.5)	353,671	23.6	20.9	2.0	2.0	10.1	9.1
BP	GBP	524	(0.1)	2.0	7.4	11.2	15.3	14.8	2.8	136,099	23.6	17.9	1.4	1.4	6.7	6.0
Shell	EUR	2,460	0.4	4.2	7.1	11.1	18.1	18.0	9.7	268,773	17.7	16.0	1.4	1.3	7.0	6.4
Chevron	USD	117	(0.5)	0.7	(0.3)	5.7	9.4	8.7	(0.9)	221,600	29.3	23.4	1.5	1.5	8.3	7.2
Total	EUR	49	0.1	1.3	7.4	11.4	2.3	13.2	0.4	143,303	13.8	13.3	1.3	1.3	6.4	5.7
Sinopec	CNY	6	(1.1)	1.8	5.4	3.2	8.7	25.2	15.0	108,849	14.3	13.3	1.0	1.0	4.6	4.5
Petrochina	CNY	9	(1.0)	1.3	6.4	3.9	13.6	16.1	6.9	222,711	53.8	32.3	1.3	1.3	6.8	6.4
CNOOC	CNY	12	(1.1)	4.4	5.3	4.8	11.9	(2.8)	(6.9)	62,764	13.6	11.8	1.1	1.0	4.3	4.0
Gazprom	RUB	132	0.0	4.6	7.2	10.6	(1.6)	(5.0)	(14.4)	52,842	4.6	4.2	0.3	0.2	3.8	3.5
Rosneft	RUB	333	0.9	3.1	3.9	5.7	6.6	(2.2)	(17.3)	59,552	10.5	7.4	0.9	0.8	5.2	4.4
Anadarko	USD	51	0.2	2.0	5.2	15.7	(2.2)	(14.3)	(26.6)	27,993	#N/A N/A	#N/A N/A	2.0	1.9	7.8	6.9
Petrobras	BRL	17	2.7	0.3	8.0	25.6	20.4	(0.5)	14.0	69,798	15.0	10.5	0.7	0.7	5.7	5.3
Lukoil	USD	3,336	0.3	6.1	9.0	12.2	18.7	10.1	(3.3)	48,235	7.1	6.6	0.7	0.7	N/A	N/A
Kinder	USD	18	(0.2)	(0.7)	(5.4)	(8.9)	(10.7)	(11.8)	(13.1)	47,497	27.9	25.8	1.1	1.1	11.2	10.8
Statoil	NOK	171	0.3	2.6	7.7	13.6	14.5	24.7	7.8	69,139	16.9	18.2	1.8	1.7	3.6	3.6
BHP	AUD	28	(0.9)	5.7	7.1	9.2	24.0	22.3	13.7	111,101	15.6	18.0	1.9	1.9	6.3	6.7
PTT E&P	THB	95	0.0	10.2	5.6	8.6	0.0	14.2	(1.8)	11,331	14.9	13.1	0.9	0.9	3.5	3.3
Petronas gas	MYR	17	(3.3)	(5.6)	(5.7)	(9.8)	(8.2)	(22.5)	(19.9)	7,982	19.1	17.8	2.7	2.6	10.9	10.1
Chesapeake	USD	4	(5.0)	0.3	(5.5)	(9.8)	(28.5)	(25.2)	(43.4)	3,607	5.7	5.5	#N/A N/A	#N/A N/A	7.6	6.5
Noble Energy	USD	28	(1.7)	(0.4)	0.4	12.0	(9.0)	(24.0)	(25.3)	13,834	#N/A N/A	1,015.4	1.4	1.5	8.3	7.6
Average		**0**	**(0.5)**	**2.2**	**3.9**	**7.0**	**5.2**	**2.8**	**(5.5)**							
PV																
WACKER	EUR	138.0	(0.4)	0.3	19.7	31.4	38.5	72.2	39.6	8,341	26.5	24.1	2.2	2.1	7.8	7.3
GCL-Poly	HKD	1.4	0.0	5.3	23.9	52.2	48.9	32.1	50.5	3,338	10.2	9.8	1.0	0.9	6.8	6.3
SunPower	USD	8.7	1.5	22.3	22.8	(6.7)	26.4	18.8	31.9	1,217	#N/A N/A	#N/A N/A	1.6	1.5	18.8	12.4
Canadian Solar	USD	18.9	0.6	6.3	14.2	8.3	40.3	41.8	54.9	1,095	10.8	7.4	1.1	1.0	10.0	8.7
JA Solar	USD	8.0	2.7	3.5	10.7	27.4	12.2	37.0	68.1	381	7.8	15.1	1.9	1.8	3.4	3.3
Yingli	USD	2.2	(0.5)	(1.9)	(5.3)	(4.4)	(4.9)	(42.5)	(16.2)	40	#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	61.8	1.4	8.0	28.2	29.2	75.8	84.5	92.6	6,453	25.2	52.5	1.1	1.2	11.6	12.4
한화큐셀	USD	9.0	2.4	13.3	10.2	5.4	33.9	(16.9)	9.8	746	99.6	49.8	#N/A N/A	#N/A N/A	7.8	8.2
OCI	KRW	123,500	(2.0)	(1.2)	20.5	35.0	52.7	21.7	56.9	2,644	14.1	15.3	0.9	0.8	7.7	6.4
웅진에너지	KRW	7,730	(1.4)	(3.1)	2.4	(5.5)	49.5	35.6	63.3	174	N/A	0.9	0.8	7.7	6.4	8.2
신성솔라에너지	KRW	1,730	(1.4)	(1.1)	(3.9)	(23.3)	(3.9)	(37.3)	(21.7)	269	N/A	0.8	7.7	6.4	8.2	7.1
Average			**0.3**	**4.7**	**13.0**	**13.5**	**33.6**	**22.5**	**39.1**							
Gas Company																
Towngas China	HKD	6.5	0.3	1.9	18.1	17.5	37.8	54.9	59.8	2,315	15.1	13.7	1.2	1.1	13.3	12.2
Kulun	HKD	7.2	(0.7)	1.1	(4.5)	(5.5)	5.9	24.1	24.5	7,476	11.5	10.5	1.3	1.2	5.8	5.6
Beijing Enterprise	HKD	45.5	(1.0)	(2.2)	3.1	11.1	24.8	20.2	24.1	7,365	8.7	8.0	0.9	0.8	15.9	14.7
ENN Energy	HKD	58.3	(1.6)	3.4	0.6	8.1	37.1	57.2	82.6	8,089	15.5	13.6	3.0	2.5	9.4	8.5
China Resources Gas	HKD	29.0	0.9	2.5	6.0	(1.7)	11.6	16.7	32.8	8,258	16.5	14.7	3.1	2.8	9.7	8.8
China Gas Holdings	HKD	23.7	0.4	(1.5)	(3.7)	21.7	96.1	101.8	124.8	15,072	20.4	17.2	4.7	3.9	16.0	13.7
Shenzen Gas	HKD	14.8	(1.5)	(1.3)	(5.5)	3.1	13.0	22.8	30.8	3,844	12.1	11.6	1.4	1.3	9.0	8.4
Shann Xi	CNY	8.3	0.4	0.4	0.6	(5.7)	(1.5)	(16.7)	(13.1)	1,399	17.6	15.8	1.7	1.6	#N/A N/A	#N/A N/A
Suntien	HKD	2.1	0.5	0.5	7.6	23.3	37.7	96.3	112.0	1,010	8.0	6.9	0.8	0.7	10.0	8.6
China Oil & Gas	HKD	0.5	0.0	0.0	(5.3)	0.0	(3.6)	(6.9)	(11.5)	404	9.3	8.1	0.9	0.8	6.2	5.6
Average			**(0.2)**	**0.5**	**1.7**	**7.2**	**25.9**	**37.0**	**46.7**							
EV																
LG화학	KRW	409,000	0.0	(1.3)	4.3	20.3	46.1	62.0	56.7	25,922	14.2	13.8	1.9	1.7	6.9	6.6
삼성SDI	KRW	221,000	0.0	(1.6)	11.3	24.5	55.6	133.1	102.8	13,644	22.5	13.9	1.4	1.2	24.2	15.3
Panasonic	JPY	1763.5	2.0	(0.5)	8.6	17.2	28.1	75.8	48.3	38,020	23.2	17.6	2.4	2.2	7.5	6.5
GS Yuasa	JPY	580.0	0.0	1.4	(2.0)	3.2	8.4	30.3	19.3	2,108	17.6	15.9	1.4	1.3	7.8	7.3
NEC	JPY	3035.0	0.3	1.2	(1.0)	(0.2)	5.7	5.7	(2.1)	6,948	18.2	16.9	0.9	0.9	7.1	6.6
BYD Auto	CNY	67.4	2.8	4.9	(1.4)	36.9	38.1	21.1	35.6	26,810	38.7	27.0	3.4	3.0	16.3	13.1
Tesla Motors	USD	304.4	(0.5)	(5.2)	(14.7)	(16.7)	(0.9)	56.1	42.4	51,158	#N/A N/A	#N/A N/A	10.5	10.3	129.4	30.4
Kandi Technologies	USD	7.4	(3.0)	7.3	(20.1)	83.8	67.0	65.2	50.0	353	#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			**0.2**	**0.8**	**(1.9)**	**21.1**	**31.0**	**56.2**	**44.1**							

* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임