

## 1. News Summary (3 page)

News	
<b>WTI comment</b>	미-이란 긴장고조에 상승...WTI 0.9%↑
<b>Headline</b>	발전사 `운실가스 축소` 3조 비용폭탄...전기료 인상 압박할듯
News 1.	-
News 2.	-
News 3.	-
News 4.	-

Conclusion	
	한전 적자가 지속되고 비용이 추가된다면 전기료 인상은 불가피함
	-
	-
	-
	-

## 2. Prices Summary (4~7 page)

Daily	Unit	Price	1D	1W	1M	3M	12M
<b>Refinery</b>			%	%	%	%	%
WTI	\$/bbl	68.5	0.9	0.6	0.6	1.2	43.1
Dubai	\$/bbl	71.6	0.1	1.7	(1.7)	0.5	51.4
Gasoline	\$/bbl	83.2	0.6	4.4	2.3	(1.9)	35.1
Diesel	\$/bbl	84.7	0.4	2.8	(1.0)	(2.3)	39.0
Complex margin	\$/bbl	7.4	0.1	1.3	1.7	0.1	(1.1)
1M lagging	\$/bbl	7.8	1.6	5.6	5.9	(5.4)	(4.6)
<b>Petrochemical</b>			%	%	%	%	%
Naphtha	\$/t	653	0.8	3.5	4.8	3.9	52.9
Butadiene	\$/t	1,680	0.0	1.8	3.7	26.3	84.6
HDPE	\$/t	1,310	(0.8)	(2.2)	(3.3)	(3.0)	20.7
MEG	\$/t	899	(0.4)	0.4	2.2	(11.9)	6.1
PX	\$/t	1,007	1.0	3.3	8.1	4.2	28.0
SM	\$/t	1,364	0.3	2.4	1.1	3.9	19.5
<b>Commodity</b>			%	%	%	%	%
Natural Gas	\$/mmbtu	2.73	0.4	(0.3)	(6.8)	(4.4)	(4.6)
Natural rubber	\$/t	1,310	0.8	(0.8)	(1.5)	(4.4)	(13.2)
Cotton	C/lbs	87.3	(0.2)	(2.1)	2.7	6.2	25.5

\*참고: 정제마진의 변동률은 %가 아닌 \$/bbl임

Weekly	Update	Unit	Price	1W	1M	3M	12M
<b>Petrochemical</b>				%	%	%	%
Ethylene	07/23	\$/t	1,265	(1.9)	0.4	(0.4)	38.3
Propylene	07/23	\$/t	990	2.1	(1.5)	(0.8)	30.7
Benzene	07/23	\$/t	830	0.0	3.1	(0.6)	12.5
Toluene	07/23	\$/t	790	(0.6)	(0.6)	4.6	25.4
Xylene	07/23	\$/t	823	0.0	(0.3)	7.9	33.2
PP	07/23	\$/t	1,243	(0.8)	(3.9)	(0.4)	17.5
PVC	07/23	\$/t	940	0.5	0.5	0.0	8.0
ABS	07/23	\$/t	1,920	(0.5)	(5.9)	(3.5)	6.1
SBR	07/23	\$/t	1,760	0.6	(2.2)	6.7	17.3
SM	07/23	\$/t	1,395	(0.5)	1.5	2.4	19.2
BPA	07/23	\$/t	1,813	0.8	1.4	(11.2)	18.5
Caustic	07/23	\$/t	420	2.4	(14.5)	(27.5)	(9.2)
2-EH	07/23	\$/t	1,100	0.9	(0.9)	(4.8)	15.8
Caprolactam	07/23	\$/t	2,155	0.5	1.2	(1.6)	26.8
<b>Solar</b>				%	%	%	%
Polysilicon	07/18	\$/kg	11.0	(1.0)	(7.2)	(28.5)	(20.4)
Module	07/18	\$/W	0.26	(1.5)	(7.2)	(14.0)	(21.1)

## 3. Global Peers Summary (8~9 page)

	Unit	Price	1D	1W	1M	3M	12M
<b>E&amp;P</b>			%	%	%	%	%
ExxonMobil	USD	83.0	2.0	0.9	2.0	5.9	3.9
Shell	EUR	2,671	0.5	2.3	2.4	4.8	29.8
Petrochina	CNY	7.57	1.5	3.7	3.7	(1.8)	(5.5)
Gazprom	RUB	138.9	0.3	(4.4)	1.5	(3.7)	16.5
Petrobras	BRL	19.7	2.1	7.5	30.1	(12.2)	52.6
<b>Refinery</b>							
Phillips66	USD	111.2	0.7	0.1	(0.7)	1.8	34.6
Valero	USD	107.3	0.9	1.1	(4.4)	(0.9)	58.5
JX	JPY	797.8	0.3	4.9	7.8	9.2	63.5
Neste Oil	EUR	67.1	(0.8)	1.3	2.4	23.2	80.8

	Unit	Price	1D	1W	1M	3M	12M
<b>Petrochemical</b>			%	%	%	%	%
BASF	EUR	84.0	1.9	0.9	0.9	(1.8)	3.5
DowDuPont	USD	66.9	1.9	(0.2)	(0.1)	5.9	1.1
SABIC	SAR	129.4	0.2	0.8	0.6	5.8	29.2
Formosa Pla.	TWD	109.5	0.9	2.3	0.0	5.3	19.0
Shin-Etsu	JPY	10,400	0.3	(0.0)	4.2	(4.4)	0.2
<b>Renewable</b>							
Wacker	EUR	118.3	1.9	0.8	4.4	(21.6)	17.3
First Solar	USD	53.05	0.8	(1.3)	0.8	(28.4)	17.9
GCL-Poly	HKD	0.69	3.0	3.0	(9.2)	(31.7)	(26.6)
Tesla Motors	USD	297.4	(1.9)	(7.8)	(10.9)	4.9	(13.2)

## 4. Coverage Summary

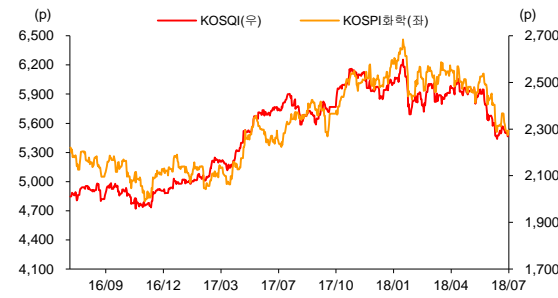
	07/24	1D	1W	1M	3M	6M	12M
KOSPI	2,280	0.5	(0.8)	(3.3)	(6.9)	(8.9)	(6.9)
KOSPI화학	5,529	0.9	(1.4)	(5.5)	(7.5)	(12.2)	(1.1)
LG화학	330,500	(0.8)	2.8	(3.6)	(6.2)	(20.9)	0.5
롯데케미칼	338,000	1.8	1.7	(2.9)	(16.1)	(15.9)	(6.8)
한화케미칼	20,100	(0.7)	(1.5)	(9.5)	(29.2)	(42.1)	(39.9)
금호석유화학	110,000	0.0	(0.5)	(1.8)	19.7	2.3	47.3
KCC	321,000	0.9	0.8	(2.6)	(16.6)	(20.8)	(25.4)
OCI	94,500	(0.1)	(2.4)	(14.5)	(40.2)	(44.2)	8.0
SKC	42,000	1.0	(1.5)	(7.8)	11.9	(3.0)	16.3
SK이노베이션	194,500	(1.0)	0.8	(3.7)	0.5	(0.3)	13.4
S-Oil	113,000	0.9	(2.2)	2.7	2.7	(4.2)	4.6
GS	52,200	1.0	2.0	(4.6)	(13.3)	(20.7)	(28.6)
SK가스	85,100	(0.2)	(2.7)	(5.7)	(8.4)	(13.3)	(24.4)
포스코대우	17,900	(10.5)	(11.8)	(12.9)	(21.0)	(12.7)	(23.2)
LG상사	22,600	(0.4)	0.2	(5.8)	(14.6)	(23.8)	(26.0)
한국전력	33,150	2.8	4.2	(5.0)	(8.6)	(4.3)	(27.1)
한국가스공사	58,300	0.9	(1.7)	(5.5)	7.4	19.1	17.1

투자의견	TP	%	P/E	P/B
			* 추정치는 12M fwd 기준임	
			* 모든 coverage 업체의 실적은 연결기준임	
매수	400,000	21.0	13.06	1.47
매수	400,000	18.3	10.49	0.96
매수	30,000	49.3	9.03	0.49
매수	150,000	36.4	10.26	1.42
매수	400,000	24.6	27.83	0.50
매수	140,000	48.1	7.19	0.68
매수	50,000	19.0	11.45	1.00
매수	230,000	18.3	11.44	0.97
매수	140,000	23.9	12.90	1.89
매수	80,000	53.3	4.84	0.59
매수	130,000	52.8	8.04	0.57
매수	25,000	39.7	9.39	0.70
매수	38,000	68.1	8.37	0.64
매수	45,000	35.7	8.02	0.26
매수	75,000	28.6	9.04	0.76

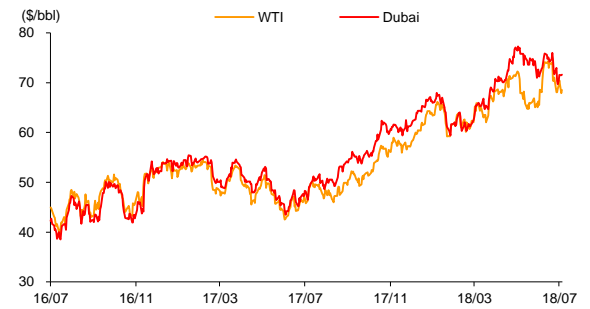
• 작성자(손지우)는 본 조사분석자료에 게재된 내용들이 본인의 의견을 정확히 반영하고 있으며, 외부의 부당한 압력이나 간섭없이 신의성실하게 작성되었음을 확인합니다.  
 • 본 보고서에 언급된 종목의 경우 당사 조사분석담당자는 본인의 담당종목을 보유하고 있지 않습니다.  
 • 본 보고서는 기관투자자 또는 제 3자에게 사전 제공된 사실이 없습니다.  
 • 당사는 본 보고서의 발간시점에 해당종목을 1% 이상 보유하고 있지 않습니다.

## Key Chart

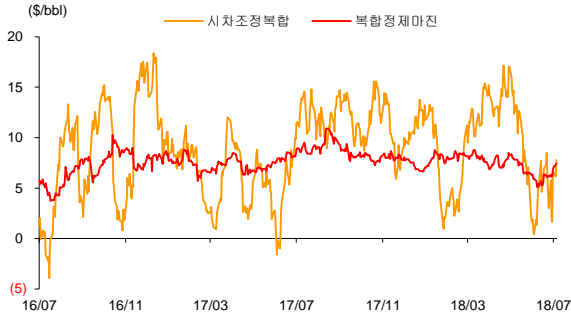
**KOSPI/KOSPI화학**



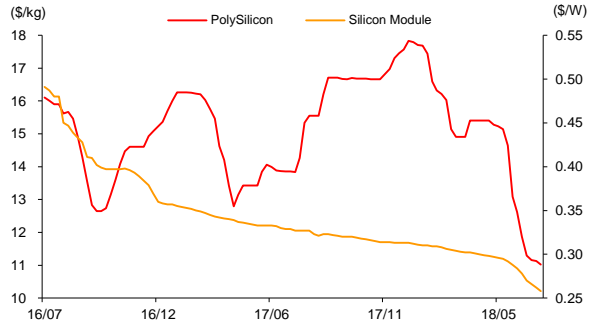
**WTI/Dubai**



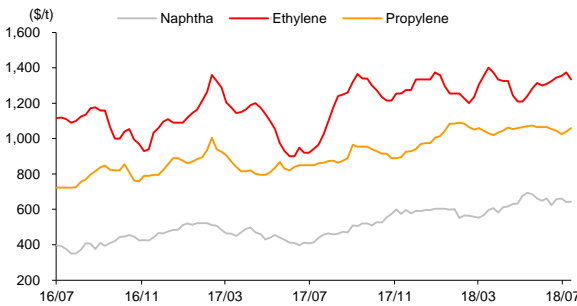
**Complex & 1M lagging margin**



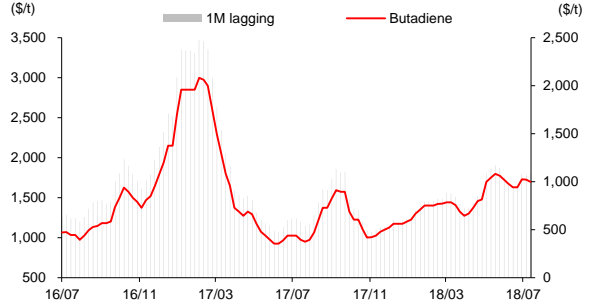
**Polysilicon & Module prices**



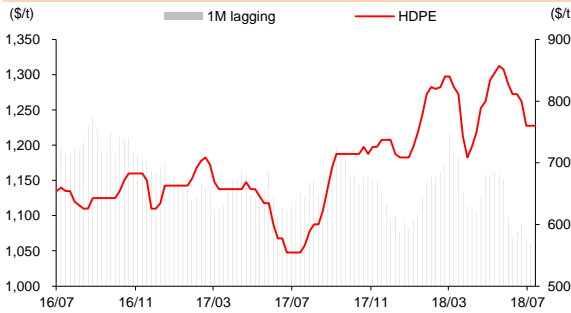
**Naphtha/Ethylene/Propylene prices**



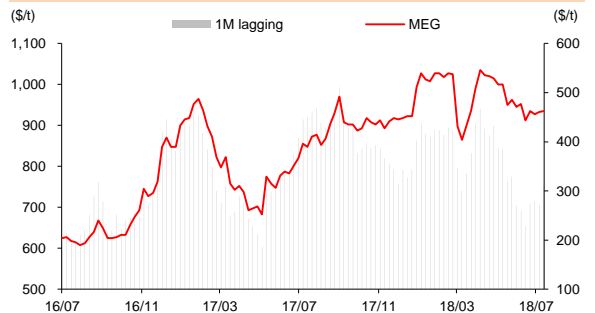
**Butadiene price & 1M lagging naphtha spread**



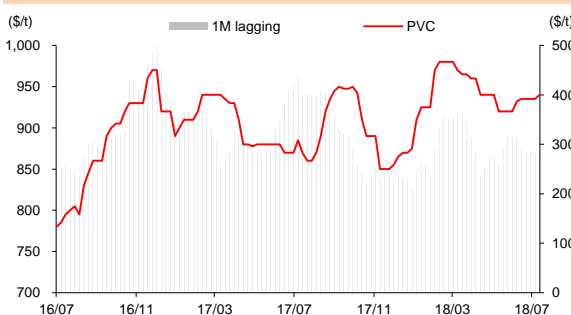
**HDPE price & 1M lagging naphtha spread**



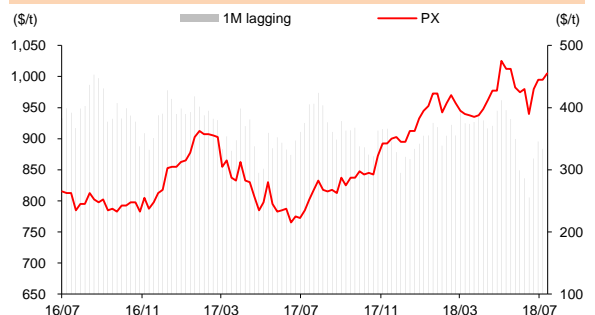
**MEG price & 1M lagging naphtha spread**



**PVC price & 1M lagging naphtha spread**



**PX price & 1M lagging naphtha spread**



자료: Bloomberg, Cischem, Petronet, Platts, Pvinfosights, SK증권  
참고: 상기 데이터는 일괄적으로 과거 2년치 적용

## News Comment

Headline	(출처: 매일경제)
<b>제목</b>	발전사 `온실가스 축소` 3조 비용폭탄...전기료 인상 압박할듯
<b>결론</b>	한전 적자가 지속되고 비용이 추가된다면 전기료 인상은 불가피함
<b>세부</b>	<ol style="list-style-type: none"> <li>1) 환경부, "2020년까지 3년간 시행될 온실가스 배출권 할당계획이 확정됨"</li> <li>2) 발전사들이 이 기간에 추가로 부담해야 할 비용이 3.1조원으로 추정됨</li> <li>3) 발전사들이 이번에 배출권 유상할당 업종으로 지정된 영향임</li> <li>4) 한전이 이 비용을 소비자에게 전가한다면 3년간 5.5%의 전기요금 인상</li> <li>5) 한전 적자가 지속되고 비용이 추가된다면 전기료 인상은 불가피함</li> </ol>

WTI Comment	(출처: 연합뉴스)
<b>제목</b>	미-이란 긴장고조에 상승...WTI 0.9% ↑
<b>상승</b>	미국의 이란 제재 복원을 앞두고 양국 간 긴장이 고조되고 있음
<b>요인</b>	중국이 인프라에 대한 지출을 늘릴 것이라는 소식
<b>하락</b>	
<b>요인</b>	

Issue 1
<b>제목</b>
<b>결론</b>
<b>세부</b>
1)
2)
3)
4)
5)

Issue 2
<b>제목</b>
<b>결론</b>
<b>세부</b>
1)
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Issue 3
<b>제목</b>
<b>결론</b>
<b>세부</b>
1)
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Issue 4
<b>제목</b>
<b>결론</b>
<b>세부</b>
1)
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4)
5)

Issue 5
<b>제목</b>
<b>결론</b>
<b>세부</b>
1)
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Issue 6
<b>제목</b>
<b>결론</b>
<b>세부</b>
1)
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3)
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5)

## Commodity Price Data

Daily Price		Today	1D	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.	
F/X	USD/EUR	0.856	0.855	0.858	0.858	0.818	0.806	0.859	0.833	0.904	0.887	0.830	
	Change, %		0.1	(0.2)	(0.3)	4.7	6.2	(0.4)	2.7	(5.3)	(3.5)	3.1	
	USD/JPY	111.2	111.4	112.9	110.0	108.8	109.2	111.1	112.6	108.8	112.1	109.1	
	Change, %		(0.1)	(1.5)	1.1	2.2	1.8	0.1	(1.3)	2.2	(0.8)	2.0	
	USD/KRW	1,135.2	1,131.2	1,124.1	1,107.5	1,076.8	1,070.2	1,114.1	1,066.7	1,160.5	1,130.9	1,081.7	
	Change, %		0.4	1.0	2.5	5.4	6.1	1.9	6.4	(2.2)	0.4	4.9	
	Agriculture	Corn	352.0	357.3	346.3	357.3	381.3	356.5	377.3	350.8	358.5	359.4	371.3
		Change, %		(1.5)	1.7	(1.5)	(7.7)	(1.3)	(6.7)	0.4	(1.8)	(2.0)	(5.2)
Soybean		858.0	847.8	839.5	894.5	1,022.3	992.3	997.5	951.8	987.5	975.9	982.0	
Change, %			1.2	2.2	(4.1)	(16.1)	(13.5)	(14.0)	(9.9)	(13.1)	(12.1)	(12.6)	
	Wheat	510.3	513.8	497.8	491.3	472.5	433.0	488.8	427.0	436.4	436.0	478.7	
	Change, %		(0.7)	2.5	3.9	8.0	17.8	4.4	19.5	16.9	17.0	6.6	
	Rice	12.1	12.0	12.0	12.6	13.1	12.2	12.1	11.7	10.3	11.1	12.2	
	Change, %		0.5	0.4	(4.3)	(8.2)	(0.9)	(0.7)	3.2	16.6	9.0	(1.2)	
	Oats	230.5	231.5	231.5	244.5	224.3	275.5	288.8	241.0	196.3	252.3	245.6	
	Change, %		(0.4)	(0.4)	(5.7)	2.8	(16.3)	(20.2)	(4.4)	17.4	(8.6)	(6.2)	
	MYR/mt	Palm Oil	2,095.0	2,130.0	2,162.0	2,283.0	2,395.0	2,512.0	2,589.0	2,444.0	2,653.8	2,787.3	2,400.7
		Change, %		(1.6)	(3.1)	(8.2)	(12.5)	(16.6)	(19.1)	(14.3)	(21.1)	(24.8)	(12.7)
Cocoa		2,257.0	2,299.0	2,395.0	2,484.0	2,835.0	1,955.0	1,968.0	1,892.0	2,854.0	2,005.2	2,394.7	
Change, %			(1.8)	(5.8)	(9.1)	(20.4)	15.4	14.7	19.3	(20.9)	12.6	(5.8)	
	Cotton	87.3	87.5	89.2	85.4	82.3	82.3	69.0	78.6	65.6	73.5	84.0	
	Change, %		(0.2)	(2.1)	2.2	6.2	6.1	26.6	11.1	33.1	18.7	4.0	
	Sugar	11.2	11.1	11.1	12.1	11.1	13.2	14.4	15.2	18.2	15.8	12.5	
	Change, %		1.0	0.5	(7.1)	0.4	(15.0)	(22.3)	(26.2)	(38.4)	(29.3)	(10.6)	
	Coffee	111.0	111.7	105.7	113.9	118.5	122.5	132.6	126.2	136.1	133.0	117.9	
	Change, %		(0.6)	5.0	(2.5)	(6.4)	(9.4)	(16.3)	(12.1)	(18.5)	(16.6)	(5.9)	
	Energy	WTI	68.5	67.9	68.1	68.6	67.7	65.6	46.3	60.4	43.4	51.0	66.1
		Change, %		0.9	0.6	(0.1)	1.2	4.4	47.9	13.4	57.9	34.4	3.6
Brent		73.4	73.1	72.2	75.6	73.9	70.5	48.6	66.9	45.1	54.9	71.6	
Change, %			0.5	1.8	(2.8)	(0.6)	4.1	51.1	9.8	62.9	33.9	2.5	
	Natural Gas	2.7	2.7	2.7	2.9	2.8	3.5	2.9	3.0	2.6	3.0	2.8	
	Change, %		0.4	(0.3)	(7.2)	(1.8)	(22.1)	(5.8)	(7.5)	7.0	(9.6)	(3.6)	
	Ethanol	1.4	1.4	1.4	1.4	1.5	1.3	1.5	1.3	1.5	1.5	1.4	
	Change, %		(0.6)	0.7	0.4	(3.1)	5.5	(6.2)	7.8	(6.1)	(4.9)	(1.0)	
	RBOB Gasoline	209.6	209.1	202.6	207.1	209.5	191.6	155.7	179.9	140.0	162.9	200.0	
	Change, %		0.2	3.4	1.2	0.0	9.4	34.6	16.5	49.7	28.7	4.8	
	Coal	119.3	118.7	118.7	114.1	93.3	107.0	86.4	100.8	65.5	88.2	105.0	
	Change, %		0.5	0.5	4.6	27.9	11.5	38.2	18.4	82.2	35.3	13.6	
Metal	Gold	1,224.6	1,224.5	1,227.6	1,269.4	1,330.4	1,358.5	1,255.4	1,302.6	1,248.5	1,258.6	1,308.9	
	Change, %		0.0	(0.2)	(3.5)	(8.0)	(9.9)	(2.5)	(6.0)	(1.9)	(2.7)	(6.4)	
	Silver	15.5	15.4	15.6	16.5	16.7	17.6	16.5	16.9	17.1	17.1	16.5	
	Change, %		0.6	(0.7)	(6.0)	(7.6)	(11.9)	(6.2)	(8.8)	(9.6)	(9.4)	(6.5)	
	Copper	6,295.0	6,130.0	6,152.0	6,789.0	7,013.0	7,150.0	6,027.0	7,247.0	4,872.0	6,199.4	6,862.4	
	Change, %		2.7	2.3	(7.3)	(10.2)	(12.0)	4.4	(13.1)	29.2	1.5	(8.3)	
	Nickel	934.3	918.4	923.6	1,038.8	933.3	857.5	625.9	809.1	646.4	680.2	918.3	
	Change, %		1.7	1.2	(10.1)	0.1	9.0	49.3	15.5	44.5	37.3	1.7	
	Zinc	2,616.0	2,555.0	2,512.0	2,917.0	3,212.0	3,440.0	2,788.0	3,319.0	2,097.5	2,888.5	3,171.4	
	Change, %		2.4	4.1	(10.3)	(18.6)	(24.0)	(6.2)	(21.2)	24.7	(9.4)	(17.5)	
	Lead	2,148.3	2,122.0	2,160.5	2,418.0	2,309.0	2,648.5	2,244.5	2,482.8	1,868.3	2,315.7	2,425.0	
	Change, %		1.2	(0.6)	(11.2)	(7.0)	(18.9)	(4.3)	(13.5)	15.0	(7.2)	(11.4)	
	Aluminum	14,230.0	14,120.0	13,975.0	14,140.0	14,360.0	14,555.0	14,330.0	15,020.0	12,373.5	14,556.6	14,335.4	
	Change, %		0.8	1.8	0.6	(0.9)	(2.2)	(0.7)	(5.3)	15.0	(2.2)	(0.7)	
	Cobalt	69,750.0	69,750.0	69,750.0	79,150.0	91,250.0	79,363.0	57,700.0	75,205.0	25,480.1	55,906.9	83,112.6	
	Change, %		0.0	0.0	(11.9)	(23.6)	(12.1)	20.9	(7.3)	173.7	24.8	(16.1)	
	HR Coil	916.0	916.0	919.0	902.0	864.0	679.0	617.0	662.0	519.3	620.1	827.4	
	Change, %		0.0	(0.3)	1.6	6.0	34.9	48.5	38.4	76.4	47.7	10.7	
	Scrap	393.0	394.0	397.0	400.0	385.0	375.0	355.0	367.0	275.7	344.7	389.5	
	Change, %		(0.3)	(1.0)	(1.8)	2.1	4.8	10.7	7.1	42.6	14.0	0.9	

자료: Bloomberg

참고) NYMEX, ICE, LME 중 대표지수를 사용

## Refining Price Data

Daily Price		07/24	1D	1W	1M	3M	6M	12M	YTD	2015avg.	2016avg.	2017acc.
Crude Oil	<b>WTI</b>	68.5	67.9	68.1	68.1	67.7	64.5	47.9	53.7	43.4	50.9	66.1
	<i>Change, %</i>		<i>0.9</i>	<i>0.6</i>	<i>0.6</i>	<i>1.2</i>	<i>6.3</i>	<i>43.1</i>	<i>27.6</i>	<i>58.0</i>	<i>34.6</i>	<i>3.6</i>
	<b>Dubai</b>	71.6	71.5	70.4	72.8	71.2	66.5	47.3	53.8	41.3	53.1	68.7
	<i>Change, %</i>		<i>0.1</i>	<i>1.7</i>	<i>(1.7)</i>	<i>0.5</i>	<i>7.7</i>	<i>51.4</i>	<i>33.0</i>	<i>73.3</i>	<i>34.8</i>	<i>4.2</i>
Crude Oil Product	<b>Gasoline(휘발유)</b>	83.2	82.7	79.6	81.3	84.8	79.4	61.6	69.8	56.3	68.0	81.2
	<i>Change, %</i>		<i>0.6</i>	<i>4.4</i>	<i>2.3</i>	<i>(1.9)</i>	<i>4.8</i>	<i>35.1</i>	<i>19.1</i>	<i>47.9</i>	<i>22.3</i>	<i>2.4</i>
	<b>Kerosene(등유)</b>	86.3	85.9	84.1	85.7	88.1	81.1	59.6	66.4	52.9	65.2	84.1
	<i>Change, %</i>		<i>0.4</i>	<i>2.5</i>	<i>0.6</i>	<i>(2.1)</i>	<i>6.4</i>	<i>44.8</i>	<i>29.8</i>	<i>63.1</i>	<i>32.2</i>	<i>2.5</i>
	<b>Diesel(경유)</b>	84.7	84.3	82.4	85.5	86.6	81.1	60.9	65.5	52.1	65.6	83.1
	<i>Change, %</i>		<i>0.4</i>	<i>2.8</i>	<i>(1.0)</i>	<i>(2.3)</i>	<i>4.3</i>	<i>39.0</i>	<i>29.2</i>	<i>62.4</i>	<i>29.0</i>	<i>1.9</i>
	<b>Bunker-C</b>	69.4	69.7	67.4	68.8	62.7	59.0	45.9	52.1	35.5	49.7	62.9
	<i>Change, %</i>		<i>(0.4)</i>	<i>3.0</i>	<i>0.9</i>	<i>10.7</i>	<i>17.6</i>	<i>51.2</i>	<i>33.3</i>	<i>95.4</i>	<i>39.8</i>	<i>10.4</i>
	<b>Naphtha</b>	71.8	71.2	69.1	69.2	69.0	65.3	45.7	53.5	42.6	53.7	67.7
	<i>Change, %</i>		<i>0.9</i>	<i>3.9</i>	<i>3.8</i>	<i>4.1</i>	<i>9.9</i>	<i>57.2</i>	<i>34.3</i>	<i>68.6</i>	<i>33.6</i>	<i>6.0</i>
Dubai Spread	<b>Gasoline(휘발유)</b>	11.6	11.2	9.3	8.5	13.5	12.9	14.3	16.0	14.9	14.9	12.5
	<i>Change</i>		<i>0.4</i>	<i>2.3</i>	<i>3.1</i>	<i>(1.9)</i>	<i>(1.3)</i>	<i>(2.7)</i>	<i>(4.4)</i>	<i>(3.4)</i>	<i>(3.3)</i>	<i>(0.9)</i>
	<b>Kerosene(등유)</b>	14.7	14.4	13.8	12.9	16.9	14.6	12.3	12.6	11.6	12.1	15.4
	<i>Change</i>		<i>0.2</i>	<i>0.9</i>	<i>1.7</i>	<i>(2.2)</i>	<i>0.1</i>	<i>2.4</i>	<i>2.1</i>	<i>3.1</i>	<i>2.5</i>	<i>(0.8)</i>
	<b>Diesel(경유)</b>	13.1	12.8	12.0	12.7	15.4	14.6	13.6	11.7	10.8	12.5	14.4
	<i>Change</i>		<i>0.2</i>	<i>1.1</i>	<i>0.3</i>	<i>(2.3)</i>	<i>(1.6)</i>	<i>(0.5)</i>	<i>1.4</i>	<i>2.3</i>	<i>0.5</i>	<i>(1.3)</i>
	<b>Bunker-C</b>	(2.2)	(1.8)	(3.0)	(4.0)	(8.5)	(7.5)	(1.4)	(1.8)	(5.8)	(3.4)	(5.8)
	<i>Change</i>		<i>(0.4)</i>	<i>0.8</i>	<i>1.8</i>	<i>6.3</i>	<i>5.3</i>	<i>(0.8)</i>	<i>(0.4)</i>	<i>3.6</i>	<i>1.2</i>	<i>3.6</i>
	<b>Naphtha</b>	0.2	(0.3)	(1.3)	(3.7)	(2.3)	(1.2)	(1.6)	(0.4)	1.3	0.6	(1.0)
	<i>Change</i>		<i>0.5</i>	<i>1.5</i>	<i>3.9</i>	<i>2.5</i>	<i>1.4</i>	<i>1.8</i>	<i>0.6</i>	<i>(1.1)</i>	<i>(0.4)</i>	<i>1.2</i>
Refining Margin	<b>Simple(단순)</b>	3.2	3.3	2.2	1.5	1.2	1.4	4.3	3.8	1.9	3.2	2.1
	<i>Change</i>		<i>(0.0)</i>	<i>1.0</i>	<i>1.7</i>	<i>2.0</i>	<i>1.9</i>	<i>(1.1)</i>	<i>(0.6)</i>	<i>1.3</i>	<i>0.1</i>	<i>1.1</i>
	<b>Complex(복합)</b>	7.4	7.3	6.1	5.7	7.4	7.2	8.6	8.3	7.0	8.0	7.4
	<i>Change</i>		<i>0.1</i>	<i>1.3</i>	<i>1.7</i>	<i>0.1</i>	<i>0.3</i>	<i>(1.1)</i>	<i>(0.8)</i>	<i>0.5</i>	<i>(0.5)</i>	<i>0.1</i>
	<b>Complex(lagging)</b>	7.8	6.1	2.2	1.9	13.2	12.3	12.4	18.0	8.5	8.9	9.3
	<i>Change</i>		<i>1.6</i>	<i>5.6</i>	<i>5.9</i>	<i>(5.4)</i>	<i>(4.5)</i>	<i>(4.6)</i>	<i>(10.2)</i>	<i>(0.7)</i>	<i>(1.1)</i>	<i>(1.5)</i>

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

## Petrochemical Price Data

Daily Price			07/24	07/23	07/20	07/19	07/18	07/17	07/16	07/13	07/12	07/11
Spot Price	<b>Naphtha</b>	CFR Japan	653.4	648.4	647.9	633.4	626.8	631.5	651.4	647.3	655.3	669.9
	<b>Ethylene</b>	CFR SE Asia	1,250.0	1,260.0	1,270.0	1,270.0	1,270.0	1,280.0	1,280.0	1,280.0	1,280.0	1,270.0
	<b>Propylene</b>	FOB Korea	1,060.0	1,060.0	1,060.0	1,060.0	1,050.0	1,050.0	1,050.0	1,035.0	1,035.0	1,035.0
	<b>Butadiene</b>	FOB Korea	1,680.0	1,680.0	1,680.0	1,650.0	1,650.0	1,650.0	1,650.0	1,650.0	1,650.0	1,650.0
	<b>HDPE</b>	CFR FE Asia	1,310.0	1,320.0	1,320.0	1,320.0	1,320.0	1,340.0	1,340.0	1,340.0	1,340.0	1,340.0
	<b>LDPE</b>	CFR FE Asia	1,150.0	1,150.0	1,150.0	1,150.0	1,150.0	1,170.0	1,170.0	1,170.0	1,170.0	1,170.0
	<b>LLDPE</b>	CFR FE Asia	1,110.0	1,110.0	1,115.0	1,115.0	1,115.0	1,115.0	1,110.0	1,110.0	1,110.0	1,115.0
	<b>MEG</b>	CFR China	899.0	903.0	901.0	899.0	893.0	895.0	905.0	898.0	898.0	900.0
	<b>PP</b>	CFR FE Asia	1,205.0	1,205.0	1,205.0	1,220.0	1,220.0	1,230.0	1,230.0	1,230.0	1,230.0	1,230.0
	<b>PX</b>	CFR China	1,006.8	996.5	997.0	986.7	973.7	974.3	985.3	986.0	989.0	991.0
	<b>PTA</b>	CFR China	850.0	845.0	845.0	844.0	844.0	844.0	844.0	844.0	848.0	852.0
	<b>Benzene</b>	FOB Korea	837.0	838.7	839.0	828.0	823.0	825.3	833.7	831.3	831.0	834.7
	<b>Toluene</b>	FOB Korea	760.0	753.0	748.0	746.0	741.0	740.0	752.0	752.0	747.0	747.0
	<b>Xylene</b>	FOB Korea	842.5	830.0	842.0	825.0	813.0	808.0	823.0	816.0	814.0	823.0
	<b>SM</b>	FOB Korea	1,364.0	1,359.5	1,359.5	1,350.0	1,339.5	1,331.5	1,346.5	1,379.0	1,374.0	1,364.0

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	<b>Naphtha</b>	CFR Japan	643.0	642.5	623.5	616.5	596.0	438.5	484.5	399.5	493.5	617.4
	<i>Change, %</i>			0.1	3.1	4.3	7.9	46.6	32.7	60.9	30.3	4.1
	<b>Ethylene</b>	CFR SE Asia	1,265.0	1,290.0	1,260.0	1,270.0	1,265.0	915.0	990.0	1,040.9	1,090.9	1,238.4
	<i>Change, %</i>			(1.9)	0.4	(0.4)	0.0	38.3	27.8	21.5	16.0	2.1
	<b>Propylene</b>	CFR SE Asia	990.0	970.0	1,005.0	997.5	955.0	757.5	815.0	705.7	823.6	1,054.1
	<i>Change, %</i>			2.1	(1.5)	(0.8)	3.7	30.7	21.5	40.3	20.2	(6.1)
	<b>Butadiene</b>	CFR SE Asia	1,650.0	1,675.0	1,580.0	1,325.0	1,355.0	925.0	2,100.0	1,116.8	1,481.1	1,448.6
	<i>Change, %</i>			(1.5)	4.4	24.5	21.8	78.4	(21.4)	47.7	11.4	13.9
	<b>Benzene</b>	CFR SE Asia	830.0	830.0	805.0	835.0	855.0	737.5	822.5	646.7	838.8	866.7
	<i>Change, %</i>			0.0	3.1	(0.6)	(2.9)	12.5	0.9	28.3	(1.1)	(4.2)
	<b>Toluene</b>	CFR SE Asia	790.0	795.0	795.0	755.0	720.0	630.0	690.0	630.5	689.5	768.8
	<i>Change, %</i>			(0.6)	(0.6)	4.6	9.7	25.4	14.5	25.3	14.6	2.8
	<b>Xylene</b>	CFR SE Asia	822.5	822.5	825.0	762.5	762.5	617.5	675.0	627.7	668.8	783.4
	<i>Change, %</i>			0.0	(0.3)	7.9	7.9	33.2	21.9	31.0	23.0	5.0

Spread	<b>Ethylene</b>	-Naphtha	622.0	647.5	636.5	653.5	669.0	476.5	505.5	641.4	597.4	621.1
	<i>Change, %</i>			(3.9)	(2.3)	(4.8)	(7.0)	30.5	23.0	(3.0)	4.1	0.2
	<b>Propylene</b>	-Naphtha	347.0	327.5	381.5	381.0	359.0	319.0	330.5	306.2	330.1	436.7
	<i>Change, %</i>			6.0	(9.0)	(8.9)	(3.3)	8.8	5.0	13.3	5.1	(20.5)
	<b>Butadiene</b>	-Naphtha	1,007.0	1,032.5	956.5	708.5	759.0	486.5	1,615.5	717.3	987.6	831.2
	<i>Change, %</i>			(2.5)	5.3	42.1	32.7	107.0	(37.7)	40.4	2.0	21.1
	<b>Benzene</b>	-Naphtha	187.0	187.5	181.5	218.5	259.0	299.0	338.0	247.2	345.3	249.3
	<i>Change, %</i>			(0.3)	3.0	(14.4)	(27.8)	(37.5)	(44.7)	(24.3)	(45.8)	(25.0)
	<b>Toluene</b>	-Naphtha	147.0	152.5	171.5	138.5	124.0	191.5	205.5	231.0	196.0	151.4
<i>Change, %</i>			(3.6)	(14.3)	6.1	18.5	(23.2)	(28.5)	(36.4)	(25.0)	(2.9)	
<b>Xylene</b>	-Naphtha	179.5	180.0	201.5	146.0	166.5	179.0	190.5	228.2	175.3	166.1	
<i>Change, %</i>			(0.3)	(10.9)	22.9	7.8	0.3	(5.8)	(21.3)	2.4	8.1	

자료 : Cischem, Platts, Bloomberg, SK증권

참고 : Spread는 Polymer와 Naphtha의 가격차이임

Weekly Price			Last Week	1W	1M	3M	6M	12M	YTD	2016avg.	2017avg.	2018acc.
Spot Price	HDPE	CFR SE Asia	1,227.5	1,227.5	1,272.5	1,217.5	1,272.5	1,047.5	1,142.5	1,134.6	1,142.5	1,256.0
	Change, %			0.0	(3.5)	0.8	(3.5)	17.2	7.4	8.2	7.4	(2.3)
	MEG	CFR SE Asia	935.0	932.5	912.5	1,022.5	900.0	847.5	847.5	660.8	850.6	975.8
	Change, %			0.3	2.5	(8.6)	3.9	10.3	10.3	41.5	9.9	(4.2)
	PVC	CFR SE Asia	940.0	935.0	935.0	940.0	965.0	870.0	920.0	823.4	899.9	942.2
	Change, %			0.5	0.5	0.0	(2.6)	8.0	2.2	14.2	4.5	(0.2)
	PP	CFR SE Asia	1,242.5	1,252.5	1,292.5	1,247.5	1,272.5	1,057.5	1,032.5	978.4	1,099.6	1,260.7
	Change, %			(0.8)	(3.9)	(0.4)	(2.4)	17.5	20.3	27.0	13.0	(1.4)
	2-EH	CFR Korea	1,100.0	1,090.0	1,110.0	1,155.0	1,130.0	950.0	865.0	772.4	970.0	1,116.6
	Change, %			0.9	(0.9)	(4.8)	(2.7)	15.8	27.2	42.4	13.4	(1.5)
	ABS	CFR SE Asia	1,920.0	1,930.0	2,040.0	1,990.0	1,970.0	1,810.0	1,635.0	1,347.1	1,844.7	2,023.4
	Change, %			(0.5)	(5.9)	(3.5)	(2.5)	6.1	17.4	42.5	4.1	(5.1)
	SBR	CFR SE Asia	1,760.0	1,750.0	1,800.0	1,650.0	1,700.0	1,500.0	2,000.0	1,483.0	1,980.5	1,753.8
	Change, %			0.6	(2.2)	6.7	3.5	17.3	(12.0)	18.7	(11.1)	0.4
	SM	CFR SE Asia	1,395.0	1,402.5	1,375.0	1,362.5	1,287.5	1,170.0	1,205.0	1,064.6	1,253.8	1,400.3
	Change, %			(0.5)	1.5	2.4	8.3	19.2	15.8	31.0	11.3	(0.4)
	Caustic	FOB NEA	420.0	410.0	491.0	579.0	631.0	462.5	422.5	316.6	491.2	563.3
	Change, %			2.4	(14.5)	(27.5)	(33.4)	(9.2)	(0.6)	32.7	(14.5)	(25.4)
	PX	CFR SE Asia	1,005.0	995.0	940.0	962.5	937.5	802.5	855.0	790.4	844.4	967.8
	Change, %			1.0	6.9	4.4	7.2	25.2	17.5	27.2	19.0	3.8
PO	CFR China	1,812.5	1,797.5	1,787.5	2,040.0	1,757.5	1,530.0	1,562.5	1,396.8	1,601.2	1,872.6	
Change, %			0.8	1.4	(11.2)	3.1	18.5	16.0	29.8	13.2	(3.2)	
Caprolactam	CFR SE Asia	2,155.0	2,145.0	2,130.0	2,190.0	2,200.0	1,700.0	1,850.0	1,344.9	1,936.4	2,122.2	
Change, %			0.5	1.2	(1.6)	(2.0)	26.8	16.5	60.2	11.3	1.5	
PTA	CFR SE Asia	855.0	855.0	845.0	802.5	785.0	672.5	642.5	613.7	667.8	807.8	
Change, %			0.0	1.2	6.5	8.9	27.1	33.1	39.3	28.0	5.8	
Spread	HDPE		584.5	585.0	649.0	601.0	676.5	609.0	658.0	735.1	649.0	638.6
	Change, %			(0.1)	(9.9)	(2.7)	(13.6)	(4.0)	(11.2)	(20.5)	(9.9)	(8.5)
	MEG		292.0	290.0	289.0	406.0	304.0	409.0	363.0	261.3	357.1	358.4
	Change, %			0.7	1.0	(28.1)	(3.9)	(28.6)	(19.6)	11.8	(18.2)	(18.5)
	PVC		297.0	292.5	311.5	323.5	369.0	431.5	435.5	423.9	406.4	324.8
	Change, %			1.5	(4.7)	(8.2)	(19.5)	(31.2)	(31.8)	(29.9)	(26.9)	(8.5)
	PP		599.5	610.0	669.0	631.0	676.5	619.0	548.0	578.9	606.1	643.3
	Change, %			(1.7)	(10.4)	(5.0)	(11.4)	(3.2)	9.4	3.6	(1.1)	(6.8)
	2-EH		457.0	447.5	486.5	538.5	534.0	511.5	380.5	372.9	476.5	499.2
	Change, %			2.1	(6.1)	(15.1)	(14.4)	(10.7)	20.1	22.6	(4.1)	(8.4)
	ABS		1,277.0	1,287.5	1,416.5	1,373.5	1,374.0	1,371.5	1,150.5	947.6	1,351.2	1,406.1
	Change, %			(0.8)	(9.8)	(7.0)	(7.1)	(6.9)	11.0	34.8	(5.5)	(9.2)
	SBR	BD spread	110.0	75.0	220.0	325.0	345.0	575.0	(100.0)	366.2	499.4	305.2
	Change, %			46.7	(50.0)	(66.2)	(68.1)	(80.9)	(210.0)	(70.0)	(78.0)	(64.0)
	SM		752.0	760.0	751.5	746.0	691.5	731.5	720.5	665.1	760.3	782.9
	Change, %			(1.1)	0.1	0.8	8.7	2.8	4.4	13.1	(1.1)	(4.0)
	Caustic											
	Change, %											
	PX		362.0	352.5	316.5	346.0	341.5	364.0	370.5	390.9	351.0	350.4
	Change, %			2.7	14.4	4.6	6.0	(0.5)	(2.3)	(7.4)	3.1	3.3
PO	propylene spread	822.5	827.5	782.5	1,042.5	802.5	772.5	747.5	691.1	777.6	818.5	
Change, %			(0.6)	5.1	(21.1)	2.5	6.5	10.0	19.0	5.8	0.5	
Caprolactam	benzene spread	1,325.0	1,315.0	1,325.0	1,355.0	1,345.0	962.5	1,027.5	698.2	1,097.6	1,255.5	
Change, %			0.8	0.0	(2.2)	(1.5)	37.7	29.0	89.8	20.7	5.5	
PTA	px spread	151.5	158.5	187.0	128.8	128.8	110.8	44.0	60.4	76.7	130.3	
Change, %			(4.4)	(19.0)	17.7	17.7	36.8	244.3	150.7	97.5	16.2	

자료 : Ciscchem, Platts, SK증권

참고 : Spread는 Naphtha spread로 일괄적용

## Global peers

	Currency	07/24	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER		PBR		EV/EBITDA	
											18E	19E	18E	19E	18E	19E
<b>Petrochemical</b>																
DowDuPont	USD	66.9	1.9	(0.2)	(0.1)	5.9	(12.0)	1.1	(6.0)	168,245	17.7	14.9	1.8	1.7	10.2	9.2
Eastman	USD	100.2	0.8	(0.4)	(1.8)	(4.8)	1.6	16.8	8.2	13,550	11.6	10.7	2.5	2.2	8.7	8.1
BASF	EUR	84.0	1.9	0.9	0.9	(1.8)	(12.6)	3.5	(8.4)	101,214	14.6	13.6	2.4	2.2	7.8	7.4
Akzo Nobel	EUR	78.3	0.1	4.7	4.7	2.8	4.6	4.0	7.3	22,073	17.0	15.8	3.0	2.8	9.3	8.8
Arkema	EUR	104.7	2.0	0.1	2.7	(6.5)	(1.6)	7.1	3.1	9,270	13.2	12.2	1.7	1.6	6.3	6.0
Lanxess	EUR	69.3	2.8	0.7	0.9	10.1	(3.8)	5.4	4.5	7,282	15.5	13.1	2.1	1.9	9.3	8.2
Sumitomo Chemical	JPY	615	0.0	(1.3)	0.5	(5.2)	(27.1)	(9.3)	(24.1)	11,911	10.1	10.5	1.3	1.2	7.4	8.0
Mitsubishi Chemical	JPY	955	(0.3)	0.1	6.4	(10.3)	(21.1)	(3.4)	(22.8)	16,544	9.2	8.7	1.3	1.2	6.3	6.1
Shin-Etsu Chemical	JPY	10,400	0.3	(0.0)	4.2	(4.4)	(17.5)	0.2	(9.2)	43,948	18.5	16.6	1.9	1.8	8.1	7.4
Asahi Kasei	JPY	1,453	(0.1)	(0.2)	4.2	(4.5)	(1.5)	12.6	(0.1)	18,109	14.4	13.6	1.5	1.4	7.4	7.0
JSR	JPY	1,930	(0.7)	(0.9)	6.2	(20.2)	(15.7)	(0.4)	(13.0)	4,455	14.5	13.4	1.2	1.1	7.7	7.2
Nitto Denko	JPY	7,970	1.1	0.1	(3.8)	(5.2)	(20.7)	(19.2)	(20.4)	15,450	15.7	14.6	2.1	1.9	7.3	7.0
SABIC	SAR	129.4	0.2	0.8	0.6	5.8	21.3	29.2	27.6	80,773	14.2	13.7	1.7	1.7	7.3	7.1
Yansab	SAR	74.6	0.7	(2.9)	1.5	6.5	15.9	35.4	26.4	8,861	13.7	13.9	2.2	1.9	9.0	8.9
Formosa Plastics	TWD	109.5	0.9	2.3	0.0	5.3	10.4	19.0	10.9	21,114	14.4	13.9	1.8	1.8	18.9	19.2
Formosa Fiber	TWD	116.0	1.8	3.1	(1.3)	8.4	7.9	26.6	12.6	20,511	13.7	13.4	1.7	1.7	11.6	11.5
Nan Ya Plastics	TWD	84.4	0.8	0.4	(0.2)	4.3	5.1	12.4	8.3	20,648	14.8	15.3	1.7	1.7	16.2	16.4
Sinopec Shanghai	CNY	5.35	1.1	2.7	(6.1)	(8.7)	(22.9)	(22.2)	(15.5)	9,462	12.0	12.6	2.2	2.0	6.8	7.3
Sinopec Yizheng(Fibe	CNY	1.93	1.6	2.1	3.8	(4.5)	(34.4)	(39.3)	(27.7)	5,394	50.4	66.3	5.3	5.0	13.9	10.3
Reliance	INR	1,111	(0.8)	1.7	9.7	14.5	15.0	37.6	22.1	93,404	14.4	12.9	1.7	1.5	9.4	8.7
Industries Qatar	QAR	122.8	2.4	3.3	14.7	11.1	9.9	22.4	26.5	16,144	14.5	13.9	1.6	1.5	46.4	27.2
PTT Chemical	THB	80.8	(0.3)	8.0	(0.6)	(18.0)	(17.8)	15.4	(5.0)	11,766	10.7	10.4	1.4	1.3	5.5	5.4
Petronas	MYR	8.8	(0.1)	0.0	4.8	3.7	10.0	25.7	14.3	15,624	16.1	15.5	2.0	1.9	9.2	8.9
LG화학	KRW	330,500	(0.8)	2.8	(3.6)	(11.7)	(24.5)	(1.3)	(18.4)	27,313	13.8	12.8	1.8	1.6	6.5	6.1
롯데케미칼	KRW	338,000	1.8	1.7	(2.9)	(16.9)	(16.1)	(7.1)	(8.2)	11,632	5.5	5.2	0.9	0.8	3.6	3.3
한화케미칼	KRW	20,100	(0.7)	(1.5)	(9.5)	(30.4)	(42.0)	(39.3)	(36.4)	5,050	5.7	5.5	0.8	0.7	6.7	6.5
금호석유	KRW	110,000	0.0	(0.5)	(1.8)	15.9	5.3	47.5	10.6	2,969	14.1	11.9	1.6	1.5	9.3	8.4
SKC	KRW	42,000	1.0	(1.5)	(7.8)	8.7	(7.2)	13.7	(10.6)	1,643	9.9	8.7	1.1	1.0	8.8	7.9
국도화학	KRW	52,300	(1.1)	(7.3)	(17.2)	(21.2)	(18.7)	(4.7)	(17.1)	359	#N/A	N/A	#N/A	N/A	#N/A	N/A
효성	KRW	5,830	(0.3)	(4.1)	(13.5)	(27.8)	(41.7)	(6.4)	(23.1)	4,595	8.2	7.3	1.1	1.0	7.2	6.8
<b>Average</b>			<b>0.6</b>	<b>0.5</b>	<b>(0.1)</b>	<b>(3.3)</b>	<b>(8.4)</b>	<b>6.1</b>	<b>(2.8)</b>							
<b>Refinery</b>																
Valero	USD	107.3	0.9	1.1	(4.4)	(0.9)	9.8	58.5	16.7	40,608	14.1	13.4	2.0	2.0	6.9	6.9
Conoco Phillips	USD	70.9	1.2	0.8	4.5	8.5	17.1	66.3	29.1	66,136	34.0	25.9	2.2	2.2	7.2	6.7
Formosa Petrochemical	TWD	120.5	(0.4)	1.7	0.4	2.6	(0.8)	15.3	4.3	37,040	18.2	18.7	3.2	3.2	11.7	12.1
Andeavor	USD	139.0	0.8	2.5	2.9	16.9	19.2	43.7	21.5	17,904	12.9	11.4	1.8	1.7	7.3	7.1
Marathon Petroleum	USD	73.7	1.0	2.8	1.5	(7.6)	3.0	32.7	11.8	32,812	15.0	12.8	2.6	2.7	7.7	7.5
Devon Energy	USD	44.6	0.8	1.1	3.0	29.2	0.1	40.4	7.6	22,192	17.5	14.0	2.7	2.3	8.4	7.4
Hollyfrontier	USD	70.9	(0.1)	0.5	(0.4)	17.4	43.9	157.2	38.4	9,094	16.8	15.2	1.8	1.8	8.0	8.0
Phillips 66	USD	111.2	0.7	0.1	(0.7)	1.8	6.3	34.6	10.0	51,561	15.6	14.5	2.3	2.2	9.0	8.8
Murphy Oil	USD	32.3	2.1	1.5	(5.6)	7.2	(7.1)	29.4	4.0	5,548	162.4	113.2	1.2	1.1	4.9	4.5
JX Holdings	JPY	797.8	0.3	4.9	7.8	9.2	4.2	63.5	9.7	22,130	8.8	8.0	0.9	0.9	7.0	6.6
Idemitsu	JPY	4,960.0	1.6	8.4	38.7	16.8	15.6	83.7	9.6	8,360	7.9	7.5	1.0	0.9	6.8	6.8
Nesteoil	EUR	67.1	(0.8)	1.3	2.4	23.2	18.5	80.8	25.7	16,473	16.7	16.7	2.9	2.7	10.2	10.3
Ashland	USD	82.0	(0.6)	1.3	4.4	19.7	10.1	23.3	15.1	4,550	21.6	18.7	1.3	1.3	10.2	9.6
Fuchs Petrolub	EUR	44.4	1.3	2.4	2.9	0.9	3.2	(9.1)	0.3	7,127	22.1	20.9	4.1	3.7	13.0	12.3
SK이노베이션	KRW	194,500	(1.0)	0.8	(3.7)	(2.5)	(2.5)	13.1	(4.9)	17,975	7.9	7.7	0.9	0.9	4.9	4.8
S-Oil	KRW	113,000	0.9	(2.2)	2.7	(1.7)	(4.2)	4.1	(3.4)	12,400	9.3	8.1	1.8	1.6	7.6	6.6
GS	KRW	52,200	1.0	2.0	(4.6)	(13.9)	(21.5)	(28.5)	(16.1)	5,467	6.0	5.5	0.7	0.6	6.9	6.3
<b>Average</b>			<b>0.6</b>	<b>1.8</b>	<b>3.0</b>	<b>7.5</b>	<b>6.8</b>	<b>41.7</b>	<b>10.6</b>							

\* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임

\* 국내업체의 multiple은 Dataguidepro 기준임

## Global peers

	Currency	07/24	1D	1W	1M	3M	6M	12M	YTD	MKT CAP (mil USD)	PER		PBR		EV/EBITDA	
											18E	19E	18E	19E	18E	19E
<b>E&amp;P/Shale</b>																
Exxon Mobil	USD	83	2.0	0.9	2.0	5.9	(6.2)	3.9	(0.8)	351,451	16.6	15.3	1.8	1.7	7.7	7.2
BP	GBP	568	0.2	1.4	(1.5)	6.5	10.2	29.2	8.7	149,140	13.6	12.6	1.5	1.4	5.3	5.0
Shell	EUR	2,671	0.5	2.3	2.4	4.8	6.7	29.8	7.7	296,397	12.4	11.1	1.4	1.4	5.8	5.5
Chevron	USD	124	2.1	1.6	(1.0)	1.1	(5.7)	20.0	(1.1)	236,672	15.3	14.6	1.6	1.5	6.4	6.1
Total	EUR	53	0.5	0.2	0.7	2.0	11.2	23.9	14.8	164,652	11.7	10.8	1.3	1.2	5.5	5.2
Sinopec	CNY	7	1.4	5.2	4.0	(6.1)	(10.9)	7.4	6.4	115,176	10.4	9.9	1.0	1.0	3.9	3.8
Petrochina	CNY	8	1.5	3.7	3.7	(1.8)	(18.9)	(5.5)	(6.4)	195,586	24.0	20.4	1.1	1.1	5.4	5.3
CNOOC	CNY	9	1.7	3.5	2.0	(19.1)	(29.4)	(16.1)	(11.2)	70,781	8.9	8.8	1.2	1.1	3.8	3.8
Gazprom	RUB	139	0.3	(4.4)	1.5	(3.7)	(7.2)	16.5	6.4	51,908	3.0	3.1	0.2	0.2	2.5	2.5
Rosneft	RUB	395	0.1	(1.2)	1.0	12.1	14.6	26.0	35.5	66,091	7.5	6.4	0.9	0.8	4.5	4.3
Anadarko	USD	72	1.8	1.3	(2.4)	9.5	17.8	63.7	34.9	37,272	23.6	19.0	2.9	2.6	6.9	6.0
Petrobras	BRL	20	2.1	7.5	30.1	(12.2)	1.7	52.6	22.1	73,003	7.4	6.4	0.8	0.7	4.5	4.2
Lukoil	USD	4,322	(0.4)	1.4	4.8	8.1	12.3	52.9	29.6	58,689	5.5	5.7	0.8	0.7	N/A	N/A
Kinder	USD	18	(0.3)	(0.2)	1.5	8.5	(7.8)	(13.2)	(2.3)	47,497	21.5	17.9	1.1	1.2	10.6	10.4
Equinor ASA	NOK	214	0.3	0.3	(0.2)	4.6	14.1	52.7	22.0	87,241	13.6	12.5	2.0	1.8	3.3	3.2
BHP	AUD	33	1.7	1.6	1.5	5.6	7.6	35.3	11.6	125,841	14.4	16.2	2.1	2.1	6.1	6.4
PTT E&P	THB	132	(1.1)	1.2	1.5	(4.7)	11.9	56.1	31.5	15,639	12.7	12.0	1.3	1.3	3.9	3.6
Petronas gas	MYR	18	0.5	(0.1)	6.0	2.4	4.0	(2.1)	5.3	8,970	19.3	19.1	2.8	2.7	10.6	10.5
Chesapeake	USD	5	0.2	(5.2)	(10.5)	53.7	10.8	(3.0)	14.1	4,121	5.4	5.8	301.3	5.1	6.2	5.9
Noble Energy	USD	35	2.0	2.4	(2.2)	6.0	6.6	25.2	21.1	17,091	30.4	22.2	1.6	1.5	7.7	6.5
<b>Average</b>		<b>0</b>	<b>0.9</b>	<b>1.2</b>	<b>2.2</b>	<b>4.2</b>	<b>2.2</b>	<b>22.8</b>	<b>12.5</b>							
<b>PV</b>																
WACKER	EUR	118.3	1.9	0.8	4.4	(21.6)	(31.1)	17.3	(27.1)	7,207	17.4	15.7	1.8	1.8	6.0	5.9
GCL-Poly	HKD	0.7	3.0	3.0	(9.2)	(31.7)	(48.1)	(26.6)	(50.7)	1,614	6.2	5.5	0.4	0.4	6.5	5.9
SunPower	USD	7.3	(0.5)	(2.9)	(11.3)	(18.3)	(6.0)	(34.0)	(13.4)	1,028	#N/A	#N/A	#N/A	#N/A	20.0	11.6
Canadian Solar	USD	13.0	3.8	2.9	4.4	(15.1)	(16.1)	(22.0)	(22.7)	764	8.7	8.8	0.8	0.7	7.8	8.4
JA Solar	USD	7.5	0.0	0.0	9.7	10.3	1.4	17.4	0.4	356	#N/A	#N/A	#N/A	#N/A	4.9	7.1
Yingli	USD	0.4	(5.3)	(12.2)	(77.0)	(79.7)	(80.1)	(84.2)	(78.7)	7	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
First Solar	USD	53.1	0.8	(1.3)	0.8	(28.4)	(23.1)	17.9	(21.4)	5,558	31.1	17.2	1.0	1.0	9.3	5.1
한화큐셀	USD	6.0	1.7	4.6	(1.2)	(17.7)	(18.2)	(34.8)	(15.0)	497	10.7	22.1	#N/A	#N/A	7.9	8.1
OCI	KRW	94,500	(0.1)	(2.4)	(14.5)	(43.4)	(39.8)	8.5	(30.5)	1,998	0.0	9.4	0.0	0.6	0.0	4.4
웅진에너지	KRW	3,060	2.0	(12.3)	(22.1)	(50.2)	(66.6)	(65.9)	(62.8)	81	N/A	0.0	0.6	0.0	4.4	0.0
신성솔라에너지	KRW	1,270	1.2	(6.6)	(17.0)	(22.6)	(34.5)	(44.2)	(33.7)	195	N/A	0.6	0.0	4.4	0.0	2.2
<b>Average</b>			<b>0.8</b>	<b>(2.4)</b>	<b>(12.1)</b>	<b>(28.9)</b>	<b>(32.9)</b>	<b>(22.8)</b>	<b>(32.3)</b>							
<b>Gas Company</b>																
Towngas China	HKD	7.9	0.1	0.9	6.2	12.0	27.8	41.8	26.0	2,833	15.5	13.9	1.3	1.2	12.9	11.7
Kulun	HKD	6.7	0.8	(2.2)	(3.6)	4.1	(15.0)	(13.9)	(18.1)	6,862	9.8	8.5	1.1	1.0	5.6	5.1
Beijing Enterprise	HKD	39.4	(0.1)	3.7	(3.0)	0.9	(21.2)	(3.5)	(15.1)	6,337	6.9	6.2	0.7	0.6	12.0	11.4
ENN Energy	HKD	83.9	(1.7)	0.8	3.5	19.1	46.1	61.1	50.4	11,596	19.0	16.0	3.8	3.3	11.0	9.7
China Resources Gas	HKD	35.7	(2.2)	0.0	11.4	25.9	39.2	20.0	25.9	10,118	18.6	16.7	3.2	2.8	10.1	9.2
China Gas Holdings	HKD	33.5	(2.5)	(4.4)	2.6	18.2	52.0	80.8	54.9	21,180	21.6	18.1	5.0	4.2	16.2	13.7
Shenzen Gas	HKD	14.8	1.8	(0.3)	(8.8)	(12.2)	(7.7)	10.7	(0.3)	3,988	9.1	7.8	1.2	1.1	5.7	5.0
Shann Xi	CNY	7.6	0.8	5.4	11.2	3.4	(7.3)	(12.8)	(9.5)	1,251	17.6	15.4	1.4	1.4	#N/A	#N/A
Suntien	HKD	2.4	3.1	2.2	2.6	1.3	16.8	41.3	14.0	1,117	6.3	5.6	0.8	0.7	8.5	7.3
China Oil & Gas	HKD	0.6	3.3	1.6	(6.1)	5.1	(22.5)	8.8	(27.1)	461	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
<b>Average</b>			<b>0.3</b>	<b>0.8</b>	<b>1.6</b>	<b>7.8</b>	<b>10.8</b>	<b>23.4</b>	<b>10.1</b>							
<b>EV</b>																
LG화학	KRW	330,500	(0.8)	2.8	(3.6)	(11.7)	(24.5)	(1.3)	(18.4)	20,681	12.6	11.3	1.4	1.3	5.9	5.3
삼성SDI	KRW	228,000	3.4	(0.2)	0.4	24.9	9.6	26.7	11.5	13,898	21.4	15.5	1.3	1.2	14.6	11.4
Panasonic	JPY	1412.5	(0.9)	(2.1)	(6.2)	(12.1)	(17.7)	(5.5)	(14.4)	31,137	12.8	11.3	1.8	1.6	4.7	4.3
GS Yuasa	JPY	507.0	1.4	0.8	1.8	(14.2)	(14.5)	(0.6)	(9.6)	1,884	15.3	14.1	1.1	1.1	7.0	6.5
NEC	JPY	3020.0	(0.2)	0.2	(2.1)	1.3	(4.0)	1.7	(0.7)	7,069	22.9	12.9	0.9	0.8	7.2	5.5
BYD Auto	CNY	44.3	1.8	1.7	(5.5)	(18.1)	(33.4)	(11.2)	(31.9)	16,995	26.9	20.1	2.1	1.9	12.1	10.3
Tesla Motors	USD	297.4	(1.9)	(7.8)	(10.9)	4.9	(14.0)	(13.2)	(4.5)	50,502	#N/A	#N/A	9.9	9.2	58.4	19.2
Kandi Technologies	USD	4.2	(0.6)	(4.0)	(8.2)	(13.9)	(31.0)	1.2	(38.6)	213	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
<b>Average</b>			<b>0.3</b>	<b>(1.1)</b>	<b>(4.3)</b>	<b>(4.9)</b>	<b>(16.2)</b>	<b>(0.3)</b>	<b>(13.3)</b>							

\* Bloomberg 기준 / valuation multiple 또한 Bloomberg consensus 기준임