

New York Energy Forum: 2012 Price Outlook - Fundamentals

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Powerful Thinking
for the global energy industry



Some Useful Preliminaries



Fundamentals vs. Financials

- This is not yet another wasted debate on "which it is" or "which matters most."
- Fundamentals and financials are dynamically intertwined through a set of volatile common and external factors.
- In addition, market behavior is driven by selective reading of input from both the fundamental and financial sides.
- Accuracy of the information and analysis of what it means for oil markets is less of an issue than timing of trades.
- Two (hopefully) useful quotes:
 - "Its very dangerous being smarter than the market." W.H. Brown
 - "The New York Mercantile Exchange is the most efficient mis-processor of misinformation in the history of Western economics." – D.H. Knapp



Fundamentals Counter Forces

Higher Prices

- Iran
- US Recovery
- Iraq, Nigeria Uncertainties
- Arab Spring Aftermath
- Asian Demand Growth

Lower Prices

- European Debt Crises
- Libyan Production Recovery
- US "Light-Tight" Oil
- Other Non-Opec Supply
- Saudi "Balancing"



"Truth In Forecasting" (1)

E	pecte	d vs. A	ctual 20	011 Pri	ces
		WTI		Bre	ent
2011	DHK	WHB†	Actual	DHK	Actual
Jan	\$92.19	\$89.48	\$89.53	\$101.01	\$96.48
Feb	\$88.25	\$88.00	\$97.16	\$91.25	\$110.70
Mar	\$80.00	\$88.25	\$86.44	\$82.50	\$109.43
Apr	\$78.85	\$91.80	\$85.49	\$79.85	\$113.08
May	\$76.00	\$94.40	\$86.37	\$76.75	\$110.52
Jun	\$74.50	\$96.50	\$97.18	\$74.25	\$116.85
Jul	\$75.00	\$97.50	\$96.28	\$74.20	\$114.04
Aug	\$78.50	\$101.15	\$101.27	\$75.00	\$115.14
Sep	\$78.00	\$90.25	\$109.93	\$76.75	\$123.60
Oct	\$80.00	\$86.75	\$103.00	\$79.00	\$114.56
Nov	\$83.00	\$73.85	\$89.77	\$82.10	\$103.74
Dec	\$88.00	\$73.30	\$98.58	\$87.25	\$107.86
* New Y	ork Energ	y Forum, F	Feb.3, 2011	1.	
+ Blend	ed Fundar	nentals nii	is Financia	ale	

† Blended Fundamentals plus Financials.



2011 Price Forecast

- WTI Prices were \$14.10 per barrel higher on average than the fundamentals-only based forecast.
- But adjusted for expected financial factors, the difference dropped to a \$5.85 underestimate.
- The difference for Dated Brent was more than double that for WTI, on greater sensitivity to Libya/Arab Spring effects, with the aid of high Cushing storage blowing out the WTI-Brent spread.
- The seasonal pattern was very different then expected for both benchmarks, with much larger WTI understatements in the earlier part of the year, closest fit in the third quarter.
- Financial adjustments had much less than expected impact at the end of the year prices.



"Truth In Forecasting" (2)

Expect	Expected vs. "Actual" 2011 Oil Supply-Demand Conditions									
	Global Demand					Global Supply				
	Estimate	Actual	Difference		Estimate	Actual	Difference			
OECD	46.17	45.73	-0.44	Non-Opec	53.21	53.04	-0.17			
US	19.39	18.99	-0.40	North America	14.63	15.18	+0.55			
Europe	14.32	14.30	-0.02	North Sea	3.78	3.50	-0.29			
Pacific	7.69	7.89	+0.20	S&C. America	4.99	4.84	-0.14			
Other	4.77	4.56	-0.21	FSU	13.86	13.73	-0.13			
Non-OECD	43.18	43.60	+0.42	Africa	2.65	2.58	-0.07			
China	9.70	9.36	-0.34	Asia	8.24	8.05	-0.19			
India	3.46	3.46	+0.00	Other Non-Opec	5.06	5.17	+0.10			
Opec	9.77	8.72	-1.06	Opec	35.62	35.92	+0.30			
FSU	4.19	4.67	+0.48	Crude	29.54	29.83	+0.29			
Other Non-OECD	16.06	17.39	+1.33	NGLs & Other	6.08	6.09	+0.01			
World Demand	89.35	89.33	-0.02	Global Supply	88.83	88.96	+0.13			
* New York Energy For	rum, Feb.3, 20	011. Other	non-OECD (demand adjusted for t	fuller biofuels	s coverage.				



2011 Supply-Demand Forecasts

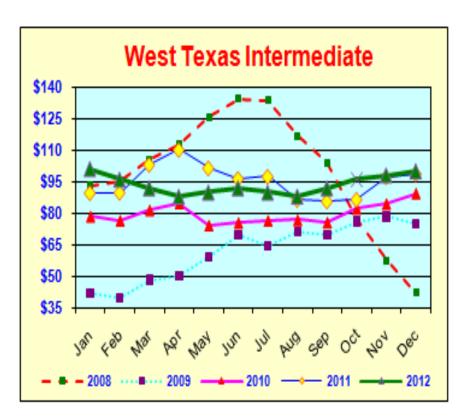
- US rally in "light-tight" oil was biggest surprise with North Dakota and Texas in the front.
- Most other non-Opec areas underperformed modestly with the North Sea again the worst.
- Opec was up despite Libyan Feb.-Sep. outages as Saudi and GCC-4 more than compensated.
- Opec NGLs & Other did about as expected.
- OECD demand underperformance vs. expectations offset by higher non-OECD.
- US lagged the most, but China also slowed more than expected.
 Opec hit by Libya as well as weakness elsewhere like Venezuela.
- Other Asia picked up much of the slack.

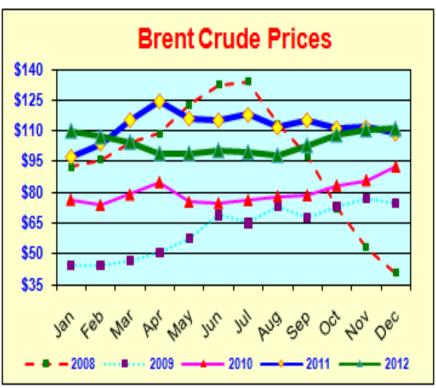


Price Forecast Details



Seasonal Benchmark Crude Price Patterns







Quarterly Oil Prices 2007-2012

Qı	uarterly	Brent F	Prices* (US\$ pe	r barre	l)
	2012	2011	2010	2009	2008	2007
Q1	\$107.17	\$105.51	\$76.60	\$45.02	\$97.59	\$57.83
Q2	\$99.49	\$118.64	\$78.42	\$58.89	\$121.38	\$69.03
Q3	\$100.14	\$114.99	\$77.73	\$68.56	\$115.19	\$75.50
Q4	\$109.83	\$110.50	\$87.21	\$74.86	\$55.35	\$89.04
Year	\$104.16	\$112.43	\$80.01	\$61.93	\$97.31	\$72.94

Q	Quarterly WTI Prices* (US\$ per barrel)									
	2012	2011	2010	2009	2008	2007				
Q1	\$96.34	\$94.25	\$78.79	\$43.21	\$97.96	\$58.23				
Q2	\$90.00	\$102.55	\$77.99	\$59.62	\$124.00	\$65.02				
Q3	\$89.98	\$89.81	\$76.21	\$68.29	\$118.13	\$75.33				
Q4	\$98.00	\$94.02	\$85.18	\$76.17	\$58.75	\$90.63				
Year	\$93.58	\$95.14	\$79.55	\$61.93	\$99.65	\$72.40				

"weighted by calendar days. Source: El, Energy Intelligence Research."



Another U-Shaped Path, More "Normal" Spreads

2012 Monthly Crude Oil Price Outllok									
		1	Wti-Brent		Lt-Hvy				
2012	WTI	Brent	Spread	Dubai	Spread*				
Jan	\$101.00	\$110.00	-\$9.00	\$110.00	-\$9.00				
Feb	\$96.00	\$107.00	-\$11.00	\$103.00	-\$7.00				
Mar	\$92.00	\$104.50	-\$12.50	\$93.00	-\$1.00				
Apr	\$88.00	\$99.00	-\$11.00	\$87.00	\$1.00				
May	\$90.00	\$99.00	-\$9.00	\$88.80	\$1.20				
Jun	\$92.00	\$100.50	-\$8.50	\$90.75	\$1.25				
Jul	\$90.00	\$99.50	-\$9.50	\$88.00	\$2.00				
Aug	\$88.00	\$98.00	-\$10.00	\$85.75	\$2.25				
Sep	\$92.00	\$103.00	-\$11.00	\$90.00	\$2.00				
Oct	\$96.00	\$108.00	-\$12.00	\$94.25	\$1.75				
Nov	\$98.00	\$110.50	-\$12.50	\$96.50	\$1.50				
Dec	\$100.00	\$111.00	-\$11.00	\$98.00	\$2.00				
Avg.	\$93.58	\$104.17	-\$10.58	\$ 93.75	-\$0.17				

^{*}As measured by WTI-Dubai comparisons.



Supply-Demand Background



More Supply Than Needed?

2012 Quarterly Oil Market Balances									
					(Chg. vs.			
(million b/d)	Q1	Q2	Q3	Q4	2012	2011			
Demand	89.08	88.57	90.23	90.67	89.641	+0.51			
OECD	45.59	44.11	45.44	45.68	45.21	-0.53			
Non-OECD	43.49	44.46	44.79	45.00	44.43	+1.04			
Supply	90.46	89.41	90.05	91.62	90.389	+1.40			
Non-Opec	54.07	53.40	53.28	55.00	53.94	+0.89			
Opec NGLs & Other	6.32	6.47	6.60	6.68	6.52	+0.43			
Call on Opec Crude	28.69	28.69	30.35	29.00	29.18	-0.80			
Opec Crude	30.07	29.54	30.17	29.94	29.93	+0.08			
Implied Stock Chg.	+1.38	+0.84	-0.17	+0.95	+0.75	+0.88			
Source: Oil Market Int	elligence,	January	2012, for	thcomi	ng.				



The Evolution of 2012 Balances

Unbalanced economic and oil demand growth across countries and sectors
 OECD versus non-OECD

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- Weak OECD economic and demand growth
 - -- Debt crises, diminished stimulus, plus anti-oil policies for environmental and energy security reasons.
- Commercial stockbuilds in first and second quarters useful given low-side yearend inventories and high geopolitical risk
- SPR outflows for Libyan "relief" by IEA in US and Europe still not fully put back
- Non-OECD SPR are on the way up, but China has been price sensitive in its purchases, some downside price protection
- Small third quarter draw on high Mideast Gulf heat related demand and "normal" level of Gulf of Mexico storm-relate supply disruptions
- Contra-seasonal build in the fourth quarter on non-Opec seasonal jump and lack of accommodation by Opec



Oil Demand Issues

- Unbalanced economic and oil demand growth across countries and sectors
 - -- OECD versus non-OECD

- Weak OECD economic and demand growth
 - -- Debt crises, diminished stimulus, plus anti-oil policies for environmental and energy security reasons.

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- Relatively strong growth in Asia, led by Asia and Middle East
 - -- Demand contractions in Africa and Non-OECD Europe

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- Overall global demand growth for 2012 only 500,000 b/d, compared to 900,000 in 2011 and 2.7 million b/d in 2010
 - -- Global economy and oil demand growth seen bottoming out this quarter and next
- However, a price shock, due to a major supply disruption for geopolitical reasons, could cause demand destruction



Demand's Mixed Bag

2012 Quarterly Oil Demand										
(million b/d)	Q1	Q2	Q3	Q4	2012	2011				
Demand	89.08	88.57	90.23	90.67	89.64	+0.51				
US	18.86	18.71	19.00	18.99	18.89	-0.10				
OECD Europe Big 5	8.54	8.22	8.62	8.53	8.48	-0.22				
Japan	4.75	4.03	4.15	4.46	4.35	-0.16				
Other OECD Pacific	3.46	3.28	3.30	3.46	3.37	-0.00				
Other Europe	5.42	5.41	5.73	5.61	5.54	-0.06				
Other OECD	4.56	4.46	4.64	4.63	4.57	+0.01				
Total OECD	45.59	44.11	45.44	45.68	45.21	-0.53				
China	9.37	9.79	9.82	10.05	9.76	+0.40				
India	3.66	3.59	3.31	3.59	3.53	+0.07				
Opec	8.65	9.16	9.59	9.01	9.10	+0.39				
FSU	4.62	4.53	4.78	4.76	4.67	+0.00				
Other Non-OECD	19.30	17.04	17.93	18.28	18.14	+0.95				
Total Non-OECD	43.49	44.46	44.79	45.00	44.43	+1.04				
Source: Oil Market In	telligence,	January	2012, in	progres	S.					



Oil Supply Issues

- Recovery and new fields extend non-Opec boost
 - -- US "light-tight" oil, Canada oil sands, Brazil/Colombia, Ghana
- Ongoing growth in Opec NGLs & Other
 - Saudi Arabia, Nigeria condensates, Qatar/UAE slowing
 - Iran and Iraq at risk
- Biofuels still growing, but not as fast
- Big uncertainties, Russia's upside, China's downside
- Will Opec Mideast Gulf Q3 jump offset US Gulf storms



Non-Opec Grows Strongly

2012 Qua	2012 Quarterly Non-Opec Oil Supplies								
	Q1 '12	Q2 '12	Q3 '12	Q4 '12	2012	Chg.			
Long-Term Growers									
North America	15,600	15,286	15,173	15,909	15,644	+463			
Non-Opec So. & C. America	4,732	4,994	5,271	5,513	5,222	+379			
FSU	13,981	13,903	13,935	14,131	13,988	+263			
Non-Opec Africa	2,597	2,587	2,599	2,651	2,616	+35			
Long-Term Decliners									
Other Europe	534	507	521	513	460	-14			
North Sea	3,724	3,394	3,148	3,662	3,482	-16			
Other Middle East	1,446	1,345	1,321	1,279	1,347	-112			
Asia	8,118	7,914	7,785	7,829	7,916	-132			
Total Non-Opec Production	35,132	34,643	34,580	35,577	35,031	+865			
Processing Gains & Biofuels	3,338	3,475	3,527	3,515	3,464	+232			
Total Non-Opec	38,470	38,118	38,106	39,092	38,495	+1,097			
Source: Oil Market Intellig	ence, Jan	uary 2012	, in prog	ress.					



Opec Other Liquids Still Gaining

2012 Qu	arterly (Opec O	ther Oil	Supply		
	Q1 '12	Q2 '12	Q3 '12	Q4 '12	2012	Chg.
Saudi Arabia	2,302	2,360	2,393	2,422	2,369	+168
Qatar	853	863	887	893	874	+61
Nigeria	575	583	600	600	590	+87
Iran	713	733	742	770	740	+52
UAE	650	677	690	705	680	+20
Iraq	138	147	147	158	148	+34
Angola	140	150	155	155	150	+15
Ecuador	2	2	2	2	2	+1
Kuwait	85	93	103	112	98	+13
Venezuela	272	275	292	262	275	-3
Algeria	525	520	513	510	517	-44
Libya	92	97	107	117	103	+55
Total Opec Other Liquids	+6,347	+6,500	+6,630	+6,705	+6,546	+458
Year-on-Year Changes	+381	+498	+468	+486	+458	
Source: Oil Market Intellig	ence lan	uary 201:	in prog	ross		



Opec (Saudi) Crude Output Accommodates

2012 Qu	2012 Quarterly Opec Crude Oil Supply									
	Q1 '12	Q2 '12	Q3 '12	Q4 '12	2012	Chg.				
Saudi Arabia	8,699	8,000	7,984	7,950	8,157	-963				
Iraq	2,700	2,766	2,949	3,117	2,884	+198				
Nigeria	2,143	2,301	2,416	2,483	2,336	+415				
Kuwait	2,455	2,185	2,247	2,183	2,267	-99				
UAE	2,603	2,650	2,715	2,314	2,570	-18				
Qatar	739	770	785	772	766	+34				
Neutral Zone	570	516	517	518	530	-59				
Ecuador	520	517	513	528	519	+17				
Iran	3,393	3,366	3,434	3,383	3,394	-134				
Venezuela	2,341	2,309	2,272	2,269	2,298	-202				
Algeria	1,113	1,103	1,080	1,070	1,092	-87				
Angola	1,756	1,845	1,916	1,931	1,863	+180				
Libya	1,038	1,207	1,343	1,425	1,254	+801				
Total Opec Crude	30,070	29,536	30,171	29,944	29,931	+82				
Year-on-Year Changes	+21,479	+20,513	+20,720	+20,542	+20,811					
Opec 11	27,370	26,770	27,221	26,827	27,047					
Source: Oil Market Intelli	gence, Jan	uary, 2012	, in prog	ress.						

SUPPLEMENTAL DETAIL ON 2012 NON-OPEC OIL SUPPLY

North America's Renaissance

2012 Qu	2012 Quarterly North America Oil Supply								
	Q1 '12	Q2 '12	Q3 '12	Q4 '12	2012	Chg.			
US	9,036	8,947	8,784	9,395	9,192	+451			
Gulf of Mexico	1,562	1,565	1,536	1,462	1,531	+170			
Texas	1,207	1,202	1,195	1,259	1,216	+28			
Alaska	595	555	495	587	558	-34			
Other Crude	1,989	1,955	1,848	2,362	2,190	-63			
NGLs & Other	3,684	3,668	3,710	3,725	3,697	+351			
Canada	3,786	3,597	3,678	3,783	3,711	+203			
Mined Synthetics	1,031	1,050	1,092	1,058	1,058	+201			
In Situ Bitumen	828	807	821	866	831	+58			
Eastern Offshore	305	304	323	330	315	+30			
Other Crude	1,018	914	940	989	965	-6			
NGLs	604	522	502	540	542	-80			
Mexico	2,778	2,741	2,711	2,730	2,740	-191			
Crude	2,414	2,385	2,369	2,397	2,391	-154			
NGLs	364	357	342	333	349	-37			
Total North America	15,600	15,286	15,173	15,909	15,644	+463			
Source: Oil Market Intell	igence, Jan	uary, 201:	2, in prog	ress.					

So. & Cent. America Just Behind

2012 Quarterly Non-Opec So. & Cent. America Supply								
	Q1 '12	Q2 '12	Q3 '12	Q4 '12	2012	Chg.		
Brazil	2,612	2,895	3,113	3,287	3,072	+258		
Colombia	1,022	1,083	1,087	1,154	1,087	+163		
Peru	167	165	168	174	168	+6		
Trinidad & Tobago	144	144	143	136	141	+2		
Argentina	648	568	626	636	620	-32		
Other	139	140	135	126	135	-17		
Total So. & C. America	4,732	4,994	5,271	5,513	5,222	+379		

FSU Still on the Ups

1	2012 Quarte	rly FSU	Oil Su	pply		
	Q1 '12	Q2 '12	Q3 '12	Q4 '12	2012	Chg.
Russia	10,699	10,701	10,740	10,780	10,730	+124
Kazakhstan	1,721	1,664	1,604	1,686	1,669	+63
Azerbaijan	1,133	1,116	1,163	1,222	1,159	+36
Other Republics	428	423	428	443	431	+40
Total FSU	13,981	13,903	13,935	14,131	13,988	+263
Source: Oil Market In	telligence, Jan	uary, 2011	2, in prog	ress.		

Ghana Finally Hits Stride

2012 Quar	terly No	n-Opec	Africa	Oil Sup	ply	
	Q1 '12	Q2 '12	Q3 '12	Q4 '12	2012	Chg.
Ghana	127	143	165	175	153	+68
Sudan	495	477	477	488	484	+24
Equatorial Guinea	341	347	339	357	346	+18
Chad	111	119	112	113	114	-6
Congo (Brazzaville)	251	260	281	237	257	-23
Gabon	251	233	223	250	239	-15
Egypt	691	682	691	701	691	-13
Other	330	326	312	330	332	-18
Total Non-Opec Africa	2,597	2,587	2,599	2,651	2,616	+35

North Sea Loses More Ground

2012 Qu	arterly	North 9	Sea Oil	Supply		
	Q1 '12	Q2 '12	Q3 '12	Q4 '12	2012	Chg.
Norway	2,094	1,965	1,971	2,097	2,031	-9
Norwegian Sea	383	378	401	443	402	+30
Central North Sea	818	744	753	750	766	-44
Barents Sea	0	0	0	0	0	0
Southern North Sea	204	195	192	200	198	-7
Tampen Area	298	258	229	265	262	-13
NGLs & Condensates	316	300	323	321	315	-6
UK	1,358	1,185	979	1,321	1,200	+3
Brent-Flotta-Beryl	246	208	182	228	215	-16
West of Shetlands	115	116	104	103	92	-
Forties Area (inc. Buzzard)	575	464	399	533	489	+15
Other Crude	422	397	293	456	404	+4
NGLs	118	106	78	120	122	+6
Denmark	234	233	208	213	222	-3
Other	39	11	-9	32	18	-37
Total North Sea	3,724	3,394	3,148	3,662	3,482	-16

Asia Supply Slumps on China Drop

2012	Quarte	rly Asia	Oil Su	pply		
	Q1 '12	Q2 '12	Q3 '12	Q4 '12	2012	Chg.
China	3,987	3,966	3,848	3,809	3,902	-176
India	962	974	967	962	966	+36
Thailand	247	240	233	230	237	+1
Brunei	155	142	161	161	155	+3
Vietnam	322	322	338	338	330	+8
Australia	623	548	488	598	564	+64
Malaysia	598	506	543	538	548	-26
Indonesia	926	917	909	896	912	-35
Other	298	297	297	296	301	-7
Total Non-Opec Asia	8,118	7,914	7,785	7,829	7,916	-132

Still No Help From The Others

2012 Quart	erly Non	-Opec I	Mideas1	t Oil Su	pply	
	Q1 '12	Q2 '12	Q3 '12	Q4 '12	2012	Chg.
Oman	890	888	892	892	890	+3
Syria	350	336	320	296	325	-30
Yemen	173	96	87	69	106	-78
Other	34	24	22	22	26	-7
Total Non-Opec Mideast	1,446	1,345	1,321	1,279	1,347	-112
2012.0						
2012 Qua	arteriv ()	ther Hi	rone ()	II SIIRRI	•	
2012 3(4)	anteny o	uiei Lu	nope o	II Ouppi	y	
2012 44		Q2 '12			y 2012	Chg.
Italy				Q4 '12		Chg.
	Q1 '12	Q2 '12	Q3 '12	Q4 '12	2012	M
Italy	Q1 '12 113	Q2 '12 90	Q3 '12 113 82	Q4 '12 107	2012 106	M
Italy Romania	Q1 '12 113 85	Q2 '12 90 83	Q3 '12 113 82	Q4 '12 107 81	2012 106 83	-2 -4
Italy Romania Turkey	Q1 '12 113 85 45	Q2 '12 90 83 45	Q3 '12 113 82 45	Q4 '12 107 81 45	2012 106 83 45	-2 -4



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