Committee on Energy and Natural Resources

US Senate

Energy and Oil Market Outlook for the 112th Congress

Roger Diwan

PFC Energy

Thursday, February 3

Oil Market Outlook for 2011-2012

More than ever, the world is seeing a two-speed economy. Nearly all of the world economy is expanding again, but the divergence between recovery in the developed world and strong growth in the emerging markets is becoming more pronounced. In both Europe and the United States the medium-term outlook remains unexciting—the financial crisis that caused the recession is over, but its consequences will persist for years to come. In contrast, emerging markets are contending with the problems of excessively rapid growth—especially as it stokes inflation exacerbated by loose monetary policy. Despite concerns over inflation and the potential for monetary tightening in key emerging markets like China, the period through 2012 will likely see continued oil demand support that will far surpass any potential OECD demand increase.

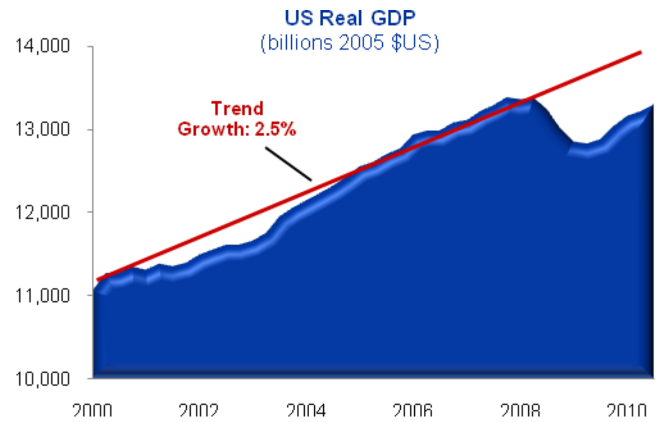
Although slowing from the 2.3 mmb/d global oil demand growth realized in 2010, PFC Energy forecasts demand to increase around 1.4 mmb/d in both 2011 and 2012. Global consumption over this period will be driven entirely by the emerging market economies, as economic stabilization also leads to marginal net changes in advanced economies' oil demand. Gains in non-OPEC supplies (including OPEC NGLs) and further ramping up of new Iraqi production will be sufficient to meet the bulk of this incremental demand. Although there is some projected shortfall in new supplies' ability to completely satisfy demand requirements, the first half of the year will still be characterized by a relative over-supply in physical markets. But the tightening of the market by the second half of the year will prove supportive of higher prices, reflected in our upward revision in our price forecast for WTI to a 2011 average of $90.75/b and $96.25/b in 2012, with average quarterly prices reaching the $100/b mark toward the end of this two-year period.

The growing turmoil in the Middle East is providing a bullish factor for oil markets right now. The instability in Egypt has pushed prices up, but PFC Energy views the potential impact on oil supplies as virtually nil, and that includes the Suez Canal. Protests have spread across much of North Africa, as well as Yemen, but the major oil producing countries of the Gulf states have seen little in the way of unrest.. Since Tunisia's Bin Ali was pushed from office, several governments have taken measures to promptly address the food price issue and have re-instated food subsidies. Bolstered by strong balance sheets routinely leveraged to lower political unrest, and still enjoying the support of many of its citizens, the Gulf countries will likely have no difficulty keeping regimes, oil supply, and still ample spare capacity intact. And even if in more oil producing North African states the protesters achieved a Tunisian style victory, a lack of cohesiveness regarding the next step would be unlikely to dislodge the state apparatus, particularly that associated with oil production and marketing, or in the case of Egypt, disruption in Suez shipments.

US Economy Slowly Getting Back on its Feet

The United States has shrugged off fears of a double-dip recession—GDP growth has more or less returned to its pre-recession trend rate of 2.5%—but without recovering to its full potential output. Failure to do that means the economy is producing less than it could, and employing less labor as a result. Re-engaging these idled resources is the most important policy challenge for the US government, but there may be little more that can be done while household and bank finances remain encumbered with debt. This suggests that high levels of unemployment are likely to persist for years.

Even so, there now appears to be a reliable base of private sector support for sustainable growth at these modest employment and capacity utilization levels. For nearly two years government transfers staved off a decline in real disposable income, but over the past two quarters underlying real income growth has risen back to a 2-2.5% range. At the same time, the personal savings rate has stabilized in a range of 5-6% of disposable income, substantially higher than the preceding decade but still below the longer-term historical average of 8-10%. Taken together, these data point to a sustainable 2-2.5% growth rate in personal consumption—and given the 70% GDP share of personal consumption that underpins PFC Energy's expectation that overall growth will be in the same range.

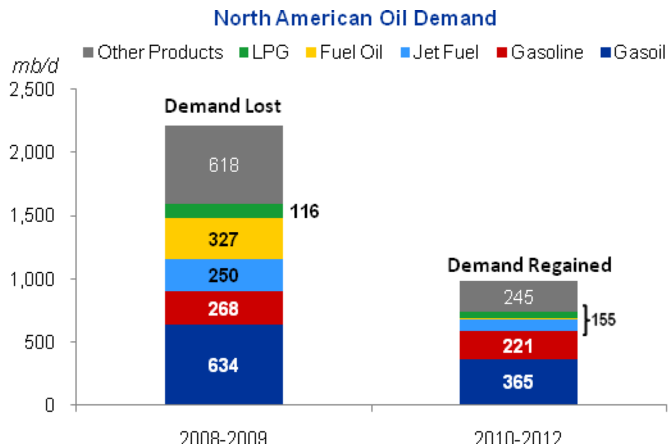


Other sources of growth are unlikely to add or subtract much to this underlying rate. Business investment has made a strong recovery from the depths of the recession, but appears to have stabilized at a modest 2-3% growth rate. Although capacity utilization rates had risen sharply from record lows, they have lately shown signs of stalling out at a level that still leaves significant slack in the economy and little incentive for large-scale new investment. Spending by the public sector will almost certainly decline this year, especially at the state and local level. As for trade, despite an encouraging rise in exports late last year it is still more likely that the deficit will widen than expand, making a net negative contribution to growth.

Given these considerations, PFC Energy has revised upward its North American oil demand growth forecast for 2011 and 2012. After having grown by over 550 mb/d last year (essentially replacing 25% of the cumulative demand lost in 2008-09), we are confident that a sustained US recovery would add at least another 175 mb/d to North American demand levels this year (24.1 mmb/d versus 23.9 mmb/d in 2010). It is our perspective that structural changes to underlying US fuel consumption patterns have not been dramatically affected by higher oil prices in the lead-up to the Great Recession, and that unrealized demand for motor fuels remains. Income, more than price, seems to be the driving factor not only for US motorists, but for US consumers writ large.

Total Product Demand Growth (mb/d)			
	2010	2011	2012
Americas			
North America	556	224	204
Latin America	298	232	226
United States	394	175	158
Brazil	163	120	114
Total Americas	**854**	**456**	**431**
Europe & FSU			
OECD Europe	-59	-18	106
Other Europe	-35	18	10
FSU	187	46	59
Total Euro & FSU	**93**	**45**	**174**
Asia Pacific			
OECD Asia Pacific	7	-190	-179
Other Asia Pacific	820	694	722
Japan	-23	-162	-138
China	588	491	542
India	91	90	113
Total Asia Pacific	**827**	**503**	**543**
Middle East/ Africa			
Middle East	382	317	343
Africa	50	74	73
Saudi Arabia	242	193	190
Total ME/Africa	**432**	**391**	**416**
World	**2,263**	**1,414**	**1,424**

Indeed, middle distillate demand (i.e., the primary fuels used in commerce and air travel) was far more heavily impacted than gasoline, falling at an average rate of 7% per year in 2008-09 versus gasoline's -1.6%. It is notable that gasoline's post-recession recovery has also been less pronounced than that of middle distillates, underscoring the relative paucity of non-oil personal transportation alternatives in the United States as well as motorists' preference for gasoline. The contraction in 2008-09 highlighted the sensitivity of discretionary automotive use, not automotive use in general (or even a sweeping change in preference in favor of smaller cars). But whereas gasoline demand increased by 1% last year, diesel and jet fuel consumption surged by 3.5%—reflecting improved industrial activity and retail sales. Similar to the situation facing the general economy, middle distillates still have a long way to go in order to make up for the volumes of demand lost during the recession, and it is unlikely in our view that they will be able to do so by the end of 2012.



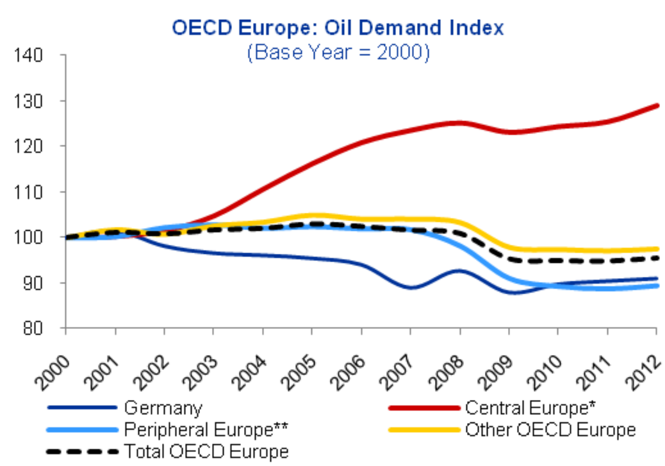
In addition to the demand recovery gap from middle distillates, other parts of the barrel are also unlikely to return to pre-recession levels over the next two years. The product categories most likely to be affected are at the heavier end of the spectrum, fuel oil and "other oils" (mainly asphalt). While the structural decline in the former has been common knowledge for years, weakness in asphalt is becoming more pronounced due to public sector budgetary constraints for transportation investment. This will likely become more pronounced this year as many US states struggle to fill widening budget deficits.

For North America as a whole, stabilized economic conditions mean an improvement in cross-border trade and economic growth. Other localized factors do impact our forecast (for instance, the much more fundamentally sound nature of the Canadian economy compared to Mexico's), but for the region as a whole we see demand rising by 225 mb/d in 2011 and 200 mb/d in 2012 (up 70 mb/d and 40 mb/d respectively since our December Global Oil Markets Report).

Europe: Periphery Weighs Down the Core

In contrast to the United States, Europe faces a serious threat to growth from the spreading Eurozone debt crisis—which has forced governments to accelerate fiscal adjustment even at the risk of undermining a still-fragile recovery. Portugal seems almost certain to join Greece and Ireland under an IMF emergency program with Spain likely to follow. Promises of austerity and a more buoyant European economy have done little to ease the pressure on the weakest governments. Until markets believe that their finances are on a sustainable path, they will be unable to raise funding without public assistance.

The result is a clouded European outlook. Most European economies returned to growth in 2010, but the peripheral countries have either remained in recession or look poised to fall back into it. Adjustment policies in these countries aim to slash public spending and promote price deflation, but in weak economic conditions this is a guarantee of recession—and a further deterioration in public finances. The combination of state spending cuts and falling wages is already sparking political opposition, and this is certain to grow stronger. Problems in the periphery will hamper growth elsewhere, both through reduced trade and renewed financial sector difficulties. This suggests a weak growth forecast even if the Eurozone manages to muddle through 2011, but a slide back into recession if the debt crisis spreads beyond Spain.



Notes: (*) Poland, Slovakia, Hungary & Czech Republic
(**) Portugal, Italy, Ireland, Greece, Spain & Turkey

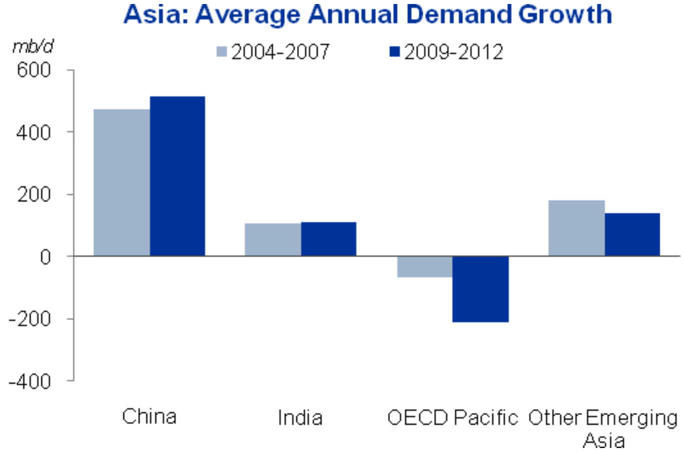
A Europe splintered along structural economic fault lines is reflected in oil demand. Whereas the industrial powerhouse of Europe—Germany—continues to truck along (pulling Poland and other smaller Central European countries along with it), other EU member states have simply stagnated and the so-called "peripheral countries" continue to contract.

Accordingly, PFC Energy expects the contraction in total OECD European oil product demand to bottom out in the second quarter of 2011 before rising to post yearly gains in 2012 (posting growth of -20 mb/d and +105 mb/d in 2011 and 2012, respectively). In contrast to North America, risks to this forecast are more to the downside, especially if the Euro zone financial crisis spreads to Italy and Spain.

Asian Demand Leads the Way

A long restocking cycle and easy, if not stimulative, monetary and fiscal policies underpinned a generally strong Asian economic performance and increased oil demand throughout 2010. But while China has embarked upon an ambitious attempt to re-orient its economy toward consumption-led growth, the majority of Southeast Asian economies have simply increased their economic export sector dependence. In 2011 this business-as-usual approach will result in lower growth for these countries. Aside from OECD goods import demand showing little upside for additional expansion and commodities inflation on the rise again, China's own economic transition (which encompasses reduction of both exports and imports) bodes ill for other Asian intermediate and capital goods.

While Japan and South Korea will need to continue emphasizing high-end niche markets, Southeast Asia must find avenues for effectively competing or partnering with China as well as stimulating domestic demand. But these are long-term processes and even if undertaken in 2011 all signs point to moderating economic growth. Even China will see somewhat slower growth, despite its large domestic consumption potential and strong industrial support from import substitution. After the country's GDP expanded by just over 10% last year, slowing growth in industrial production, lending, government spending and net exports is likely to reduce growth this year to about 9%. One of the key factors for these decelerations is increasingly difficult year-on-year comparisons: a weaker first half 2011 for example will find it hard to show gains against a strong 2010 base.



Aside from such accounting, inflationary pressures, particularly in rising food and housing prices, may also limit growth. Much of the year-to-year inflation, which has now reached 5%, has been a function of declining prices in the prior year period. But even as this base effect recedes, inflation is expected to exceed Beijing's new 2011 inflation target of 4% and likely stabilize at slightly under 5%.

The soon-to-be ratified Five-Year Plan (covering the period 2011-2015) goes beyond the emphasis on domestic consumption to an emphasis on several strategic industries, with energy efficiency and alternative energy sources an overriding concern—including an aim to limit the increase of oil consumption. While much of the groundwork for implementing these measures will be done during 2011-2012, no significant impacts are expected to appear before later in the five year period. Growth in China's oil consumption is expected to slow in 2011 to 490 mb/d (compared to 600 mb/d in 2010) and register 540 mb/d in 2012, but these trends reflect primarily the general economic conditions (and accounting effects), rather than any significant impact from initial stages of re-structuring along the guidelines laid out in the Five-Year Plan.

As with the global economy more generally, the most pronounced economic and oil demand weakness in Asia lies within the advanced economies. But the largest factors affecting the outlook for demand in the OECD Pacific region are more strongly influenced by developments in China than domestic economic conditions. These countries managed to keep demand flat in 2010 due to strong Chinese demand for Japanese and Korean goods in wake of the global restocking cycle as well as due to capricious weather. With this support fading in 2011 and a large cut in naphtha demand looming (as their petrochemical exports to China are crowded out by Chinese domestic production), OECD Pacific oil demand will continue to structurally decline through 2012, registering total losses of 190 mb/d during the forecast period.

Large domestic consumption capacity has also been a driving force for Indian oil demand, which is expected to expand by a moderate 95 mb/d and 113 mb/d in 2011-2012. Substitution of liquid fuels in power generation and fertilizer feedstocks by natural gas, as well as likely monetary tightening will prevent greater demand growth. Total Asian oil demand growth to slow to slightly around 500 mb/d and 550 mb/d in 2011 and 2012, markedly down from the 820 mb/d growth seen in 2010.

Challenges for Middle East Energy

The Middle East is largely on a strong growth path that should weather even stronger than expected economic headwinds. The most salient risks to growth primarily reflect the problems of success. The primary challenges include managing increased power demand, containing inflationary pressures and ensuring sufficient job growth for locals, and are largely manageable in the short term. Power demand issues were marginally better this past summer, and a strong focus on investment in power generation should continue to improve this issue. Chronic unemployment in the region is an issue that has been present for years, but a prior baby boom will cause these issues to increase in the coming years as the number of new entrants to the labor force peak.

Within the context of those challenges, 2011 demand growth in the Middle East is forecast to be 320 mb/d. This is slightly lower than last year's 382 mb/d pace, but is not reflective of a slowdown in the region. Instead it reflects primarily a deceleration of the increase in demand by Saudi Arabia after changing its policies in 2008 to emphasize fuel oil (and subsequently, crude) burning for power generation. While the effects of the policy change are largely complete, continued increased demand to meet electricity demands will be the primary driver in Saudi Arabia's 190 mb/d growth this year. It is anticipated that this summer crude demand for power generation will average 886 mb/d and could reach peaks as high as 1,150 mb/d in the high heat of the summer.

This power demand will continue to grow strongly as construction projects are still in development throughout the region, with much of the construction activity centered in Saudi Arabia and Abu Dhabi—the new home for many of the construction cranes that were previously in Dubai. While most of Dubai's construction was underwritten by foreign debt, the construction boom now underway is largely financed or underwritten by foreign investors, and will allow continued growth in gasoil and other construction related fuels. The large financial reserves coupled with scant foreign debt for the major oil producers provides the region significant buffers from any further shocks to the global system. Consumer demand is also increasing as the recovery in car sales for the region is expected to continue, and with it gasoline demand, expected to rise 45 mb/d this year. Transportation demand is also expanding from the increased use of aircraft, a trend occurring globally during this recovery, but is even more of a factor for the Middle East as its flight capacity expands and it becomes an increasingly important hub for travel to Asia. This will help boost kerojet demand by an estimated 30 mb/d in 2011.

Iran's Subsidy Reform

Iran is a lone growth exception for the region, and it is expected to show another year of net demand decline in 2011. These declines are attributed to the strictures of an increasingly difficult multi-lateral sanctions program as well as the four-fold price increases introduced last December as part of a comprehensive subsidy restructuring. Demand in 2011 is forecast to decline 31 mb/d, with gasoline declining an estimated 30 mb/d as Iranians seek out alternative transportation. The alternatives include buses, which have already experienced increases in demand in the days after the price increases were announced. This factor that provides one of the few bright spots for Iranian demand, with diesel fuel expected to rise 15 mb/d on this increased public transportation use.

Given the relatively staid reception these price increases have had on the population (albeit under heavy police and Basij presence to shut down protests before they started) it could be that they will be absorbed with relatively little change in the actual appetite for the fuels. However, the lack of any consumer outrage can also be attributed to the initial offsetting subsidy payment of $120 (representing three months of accrued subsidy payments—in the future these payments will continue to be $40 per month).

The real effect of this change could be felt in the broader economy as the increased fuel prices translate into decreased consumer discretionary spending, as well as increased other costs across the board. President Mahmoud Ahmadinejad's plan seeks to avoid this particular problem with limited allowable price increases for businesses most affected by the fuel price increases, which in turn could shrink profit margins in other sectors and lead to lower business confidence. In the future, if the increased prices are believed to cause long-term economic problems, Tehran's response is likely to raise direct subsidy payments rather than roll back pump prices. This is in keeping with Ahmadinejad's plan to use the subsidy reform as a platform to strengthen his position within his political base, the rural poor, and a section of the population that saw limited benefits from the old subsidy program due to their low fuel consumption levels.

Latin America: An Economic Renaissance?

Latin American oil demand in 2010 recovered with a near 300 mb/d increase, a pace expected to slow to 230 mb/d in 2011. The deceleration is affected by base effects and changes in the macroeconomic climate, but 2010 was also punctuated by a number of significant weather events that increased demand. While the impact of such weather events is expected to be diminished this year, current drought conditions in Argentina are likely to negatively affect agriculture output, and by extension diesel demand growth.

Brazil continues to be the demand linchpin for the region, accounting for 163 mb/d of oil demand growth in 2010, a number that will slow to 120 mb/d in 2011. This oil demand growth was supported not just by an expanding economy and increased spending, but also a poor sugarcane harvest that pushed motorists to fuel up with gasoline C (a gasoline mix with a low, fixed level of ethanol) over hydrous ethanol (a straight ethanol product suitable for use in most Brazilians flex-fuel vehicles). A near record planting season in the fourth quarter should increase supplies of the fuel by the second half of the year, reducing the demand growth from gasoline, barring poor weather.

As the region has been exposed and profited from the recovery of commodity prices, demand support across the barrel has remained strong. Car sales have recovered from the low levels during the recession, fueled in part by tax incentives. But, at least in Brazil's case, the elimination of such incentives caused a downturn in sales for only a short period of time before recovering again. It is expected that even without such incentives Brazil car sales (now fourth largest in the world) will likely reach a new record in 2011.

Supply Growth Largely Satisfies Demand

Although oil prices are moving to higher trading ranges on demand and general economic optimism, current liquids supply trends suggest that expected demand growth in 2011 and 2012 can easily be met from gains in non-OPEC production and OPEC gas liquids with only marginal demands on the still substantial OPEC spare capacity. Gains in non-OPEC liquids in 2010 are set to come in around 1.0 mmb/d although these increases will likely slow in 2011 and 2012. OPEC gas liquids will continue growing in both forecast years as domestic and export oriented gas projects reach full operation. And OPEC effective spare crude capacity is currently estimated at 5.7 mmb/d, providing the ability to cover any disappointments in non-OPEC performance—or unforeseen supply disruptions—throughout the forecast period.

PFC Energy forecasts 2011 non-OPEC supplies (including not only crude, but also gas liquids and biofuels) will increase by around 540 mb/d—a bit more bullish than prior estimates. The crude portion of this gain is 210 mb/d, somewhat lower than 2010's 640 mb/d increase. Most of this stems from the expectation that US crude output will decline rather than increase in 2011 as output drops in the Gulf of Mexico owing both to a lack of additional planned new projects as well as the drilling moratorium. Further adding to the slowdown will be smaller gains in Russia and China as new project start-ups are fewer in number exerting less of an upward pull.

The year 2012 is forecasted to show only a 60 mb/d gain in total non-OPEC production. The key reason for the drop is a 230 mb/d decrease in crude supplies as ongoing depletion in most countries will offset gains in those few that are adding to production. Key oil plays showing increases over the next two years include Canada's oil sands, Brazil's deepwater, Colombia's Llanos basin, Ghana (the Jubilee field that started mid December) and Oman (Oxy's Mukhaizna project). But these gains combined cannot offset declines in the United States, North Sea and Mexico as well as numerous smaller producers in Latin America, MENA and the Far East.

Non-OPEC Supply Changes (mb/d)			
	2010	**2011**	**2012**
Crude	639	210	-227
NGLs	103	176	124
Biofuels	235	153	162
Total	**977**	**538**	**59**
Key Crude Supply Changes (mb/d)			
	2010	**2011**	**2012**
Western Hemisphere			
United States	185	-90	-129
Canada	106	137	154
Mexico	-28	-82	-88
Brazil	96	107	152
Colombia	111	102	82
Total Western Hemisphere	**469**	**174**	**171**
Europe & FSU			
North Sea	-298	-189	-279
Russia	186	48	14
Kazakhstan	73	11	-28
Azerbaijan	24	28	-11
Total Europe & FSU	**-14**	**-103**	**-304**
Asia, Middle East, Africa			
China	208	90	-5
India	67	57	18
Oman	38	38	36
Ghana	8	94	140
Total Asia, Middle East, Africa	**321**	**279**	**189**
Other Countries	-136	-141	-283
Total Crude	**639**	**210**	**-227**

The other two elements of non-OPEC supply, gas liquids and biofuels, continue to show gains in both forecast years. Gas liquids (condensates and NGLs) should move up by around 175 mb/d in 2011 and 125 mb/d in 2012. They are increasing simply from the many countries pursuing gas projects to meet domestic energy demand. But the largest increase in 2010 and expected for 2011 is the United States. Both from increases in natural gas output as shale gas development continues (seemingly regardless of the weak price environment) and the incentive to look for areas with liquids rich gas (given strong oil prices that push up liquids values well above natural gas values) the country should see about a 100 mb/d increase in 2010 followed by 40-50 mb/d in 2011 and stabilizing in later years.

Biofuels will add another 150-160 mb/d per year in the forecast years. As in the past, the two main sources of biofuels output growth will be the United States and Brazil. After seeing an increase in ethanol production estimated at 160 mb/d in 2010 (a good 70% of 2010's global increase in biofuels output), gains in the United States will moderate to the 40 mb/d range unless a blend rate above the current 10% is approved. Current restrictions approving a higher ethanol content for late model cars only makes it infeasible to implement at the retail level. Brazil should see steady annual growth of 40-50 mb/d as well. Other areas of the world are expected to add 40-50 mb/d per year, mainly biodiesel in Europe and Southeast Asia. However, with recent concerns over renewed food price inflation and intermittent support from governments, these assumed gains are far from locked in and could ultimately come in under our current estimate.

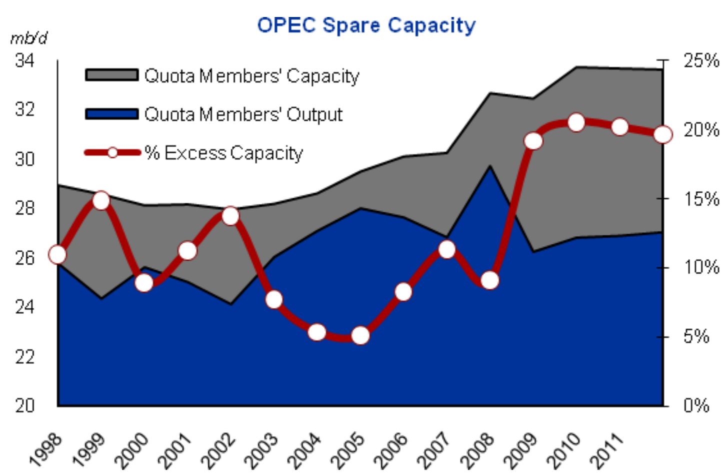
OPEC Gas Liquids Supply Changes (mb/d)			
	2010	2011	2012
Saudi Arabia	36	134	120
Qatar	230	162	100
UAE	2	100	120
Iran	27	16	12
Kuwait	0	0	0
Nigeria	80	21	25
Algeria	40	0	39
Total	415	434	416

OPEC non-quota-constrained gas liquids are making an impact on global balances, although somewhat haltingly due to construction delays and lengthy commissioning times. After adding an estimated 415 mb/d to supplies in 2010, OPEC gas liquids should see additional growth averaging about 420 mb/d in both 2011 and 2012. Qatar is the key contributor, stemming from expansion of its LNG industry that is nearing completion. As the trains reach full operational output in 2011 gas liquids will continue to grow. Another important contributor will be start-up in 2011 of Shell's Pearl GTL project whose first phase will throw off another 70 mb/d of gas liquids. Saudi Arabia and the UAE are the other main contributors as both countries pursue oil and gas projects that will lead to increases in condensates and NGLs.

At one time, Iran was expected to see equal if not larger gains in gas liquids output, but delays to the country's South Pars project schedule stemming from ongoing sanctions suggest minor gains over the next couple of years. This compares to the steady increases seen over the past decade, when the first of the now completed first eight phases of South Pars went into service. Kuwait is also being held back from further development of its sour and high pressure gas reserves until agreements are reached with foreign companies that can assist with the technical challenges of such development.

OPEC: Both the Call and Actual Output to Remain Steady

This expansion of global liquids outside of quota constrained OPEC crude reached 1.4 mmb/d in 2010 covering almost 60% of the robust demand growth (+2.3 mmb/d). Similarly, non-OPEC liquids plus OPEC NGLs should cover about 1.0 mmb/d of 2011's 1.4 mmb/d demand increment, or about 70% of expected demand growth. The call on OPEC should begin to rise more significantly in 2012, when projected gains in total non-OPEC liquids should net only 0.5 mmb/d, or roughly 35% of incremental demand. Based on this supply and demand path, 2012 could see the first major increase in the call on OPEC crude totaling almost 1.0 mmb/d. after a relatively minor 0.5 mmb/d increase in 2011.



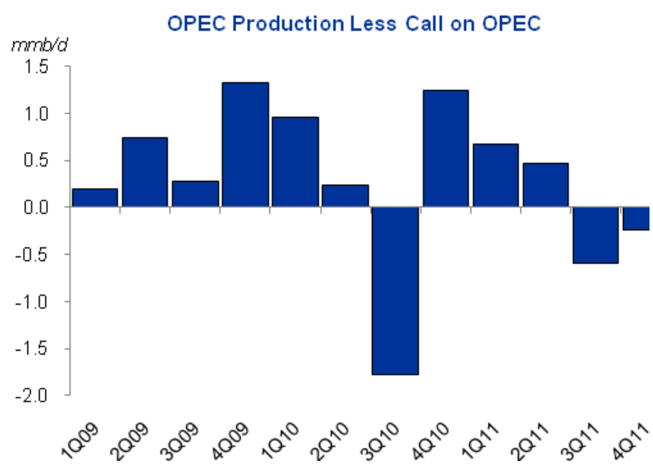
This does not however suggest a material tightening of supply conditions is in the offing. Capacity expansions in Saudi Arabia as well as maintained production restraint throughout the Gulf Arab and North African member states leave effective spare capacity at 5.7 mmb/d. Both absolute and relative spare capacity are at levels not seen since the 1990s—an era of very weak prices. But a combination of operational flexibility and strategic considerations—both at the commercial strategic level of the operating national oil companies as well as in the political perspectives of the member states—means that such high levels of spare capacity will not play the same bearish role it has in the past.

However it is not only quota members who are increasing capacity, but Iraq as well. PFC Energy's forecast sees Iraqi production rising 380 mb/d by year end 2011 and a similar amount by year end 2012. And progress is being made. ENI announced in early December that it was now in the cost recovery and fee payment phase with the Zubair field, triggered when production hit 10% above the initial output rate of 183 mb/d. And BP announced this week that the 10% threshold on the 1.077 mmb/d Rumaila field has been met as well. Assuming that existing export infrastructure is improved, these projected additional incremental volumes coming in 2011 should be able to reach market. In addition to increases in Iraq southern volumes, we are still holding to our assumption that Kurdistan exports will re-start and average about 70 mb/d for the year. For 2011, Iraq's annual average output should move up by about 400 mb/d, with a similar increment expected in 2012.

Stocks and Balances Show Tightening

Between non-OPEC and OPEC the world is well supplied with liquids. Even if 2011 or 2012 demand proves more robust than thought, supplies should readily be available to cover increased crude needs at OPEC's discretion depending on price and actual global stock changes. The unexpectedly sharp increase in 2010 oil demand—and third quarter draws from total commercial stocks—has lessened PFC Energy's concerns over impending stock builds in the first half of 2011. This is reflected in a substantial upward revision to our 1Q11 price outlook ($92/b for WTI). However, the early part of this year nevertheless still features not insignificant builds of nearly 1.0 mmb/d. A near-term continuation of over-supply conditions (albeit greatly reduced from our previous estimates) suggest prices may still weaken on a fundamentals basis over the second quarter ($86/b). From then onward our global supply/demand balance points to continual price increases through the end of the forecast period, eventually averaging $100/b in 4Q12.

Despite the projected rise in prices, PFC Energy does not see OPEC substantially raising production in the next several months. Even with concerns of long term demand destruction and worries of another price spike potentially derailing the global economic recovery, the results of rising prices so far have not shown strong oil prices to be particularly pernicious. Furthermore, the global overhang of oil products has only just begun to recede, making risks to the downside from adverse change in the fundamentals less of a threat. Saudi Oil Minister Ali Naimi's characterization of $90/b as the new fair oil price was less a statement on the Kingdom's targeting of such a price level, but rather that current prices were achieved primarily as a result of a healthy return of demand. The pull of consumption on prices therefore also guards against threats that rising oil prices could de-rail the economy. OPEC is likely comforted in this assessment by the judgment that rising non-energy commodity prices produced little noticeable drag on economic performance in 2010. While general inflationary troubles could translate into economic and political problems over time, for the moment OPEC's concerns may turn to favoring further nominal price increases, even if only an attempt to preserve the purchasing power of the dollar-denominated barrel. And perhaps most fundamentally of all, the cartel may be willing to resume its prior stance of taking pro-active steps to guard against downside price risks and address upside demand surprises reactively—a position that helped generate the historic boom in oil prices from 2004.



SUPPLY-DEMAND BALANCE TABLE

million b/d	2010	1Q11	2Q11	3Q11	4Q11	2011	1Q12	2Q12	3Q12	4Q12	2012
I. Crude Fundamentals											
TOTAL REFINERY RUNS	**84.6**	**85.4**	**85.7**	**86.7**	**86.8**	**86.1**	**86.7**	**87.1**	**88.1**	**88.2**	**87.5**
(Change from previous year)	1.9	2.7	2.0	2.3	0.6	1.5	2.1	1.7	2.4	1.5	1.4
CRUDE + OTHER LIQUIDS SUPPLY	**84.8**	**86.1**	**86.1**	**86.1**	**86.6**	**86.2**	**86.9**	**87.1**	**87.2**	**87.8**	**87.3**
Non-OPEC Total Liquids *	**50.3**	**51.2**	**50.9**	**50.4**	**51.0**	**50.9**	**51.1**	**50.9**	**50.6**	**51.0**	**50.9**
US	8.5	8.6	8.6	8.4	8.5	8.5	8.5	8.5	8.4	8.5	8.5
FSU	13.6	13.8	13.7	13.6	13.7	13.7	13.7	13.7	13.7	13.8	13.7
North Sea	3.8	3.9	3.7	3.3	3.6	3.6	3.5	3.4	3.1	3.4	3.4
Others	24.5	24.8	24.8	25.1	25.3	25.0	25.4	25.3	25.4	25.4	25.4
Latin America	7.5	7.6	7.6	7.7	7.7	7.7	7.8	7.8	7.9	7.9	7.8
Asia	7.8	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Mideast/North Africa	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Sub-Saharan Africa	1.7	1.8	1.7	1.8	1.7	1.7	1.7	1.7	1.7	1.7	1.7
OPEC NGLs	**5.3**	**5.5**	**5.6**	**5.8**	**5.9**	**5.7**	**6.0**	**6.1**	**6.2**	**6.3**	**6.2**
OPEC Crude *	**29.2**	**29.4**	**29.6**	**29.9**	**29.7**	**29.6**	**29.8**	**30.1**	**30.4**	**30.4**	**30.2**
Call on OPEC Crude (excl. crude stocks)	29.0	28.7	29.2	30.5	29.9	29.5	29.7	30.1	31.3	30.8	30.4
CHANGE IN CRUDE STOCKS	**0.2**	**0.7**	**0.5**	**-0.6**	**-0.2**	**0.1**	**0.1**	**0.0**	**-0.9**	**-0.4**	**-0.2**
II. Product Fundamentals											
Total Refinery Runs +	84.6	85.4	85.7	86.7	86.8	86.1	86.7	87.1	88.1	88.2	87.5
Processing Gains =	2.3	2.3	2.4	2.4	2.3	2.4	2.4	2.4	2.4	2.4	2.4
TOTAL PRODUCT SUPPLIES	**86.9**	**87.7**	**88.0**	**89.0**	**89.2**	**88.4**	**89.1**	**89.5**	**90.5**	**90.5**	**89.9**
TOTAL PRODUCT DEMAND	**86.9**	**87.5**	**87.5**	**88.7**	**89.5**	**88.3**	**88.9**	**89.0**	**90.2**	**90.8**	**89.8**
Percent Change	*2.7%*	*1.6%*	*1.4%*	*0.9%*	*2.6%*	*1.6%*	*1.6%*	*1.7%*	*1.7%*	*1.5%*	*1.6%*
OECD	**46.0**	**46.3**	**45.0**	**45.8**	**46.8**	**46.0**	**46.5**	**45.1**	**45.9**	**46.9**	**46.1**
Percent Change	*1.1%*	*1.0%*	*-0.3%*	*-1.8%*	*1.2%*	*0.0%*	*0.4%*	*0.2%*	*0.2%*	*0.3%*	*0.3%*
North America	23.9	23.9	23.8	24.2	24.4	24.1	24.1	24.0	24.4	24.6	24.3
Percent Change	*2.4%*	*1.8%*	*0.6%*	*-0.3%*	*1.7%*	*0.9%*	*0.9%*	*0.8%*	*0.8%*	*0.8%*	*0.8%*
Europe	14.4	14.4	14.0	14.5	14.8	14.4	14.5	14.1	14.5	14.9	14.5
Percent Change	*-0.4%*	*1.6%*	*-0.9%*	*-2.3%*	*1.1%*	*-0.1%*	*1.0%*	*0.6%*	*0.5%*	*0.8%*	*0.7%*
Pacific	7.7	8.0	7.1	7.2	7.6	7.5	7.8	7.0	7.0	7.5	7.3
Percent Change	*0.1%*	*-2.2%*	*-1.9%*	*-5.4%*	*-0.4%*	*-2.5%*	*-2.4%*	*-2.5%*	*-2.6%*	*-2.2%*	*-2.4%*
Non-OECD	**40.8**	**41.1**	**42.4**	**42.8**	**42.5**	**42.2**	**42.4**	**43.9**	**44.3**	**43.9**	**43.6**
Percent Change	*4.3%*	*2.5%*	*3.2%*	*4.0%*	*3.8%*	*3.4%*	*3.2%*	*3.6%*	*3.6%*	*3.3%*	*3.4%*
FSU	4.2	4.3	4.2	4.1	4.3	4.2	4.4	4.2	4.2	4.3	4.3
Percent Change	*4.7%*	*-0.2%*	*-0.6%*	*1.6%*	*3.7%*	*1.1%*	*1.4%*	*1.3%*	*1.9%*	*1.0%*	*1.4%*
Latin America	6.3	6.3	6.6	6.7	6.7	6.6	6.5	6.8	6.9	6.9	6.8
Percent Change	*4.9%*	*3.8%*	*3.7%*	*3.6%*	*3.6%*	*3.7%*	*3.5%*	*3.4%*	*3.4%*	*3.5%*	*3.4%*
China	8.7	8.8	9.2	9.3	9.4	9.2	9.3	9.8	9.9	9.9	9.7
Percent Change	*7.3%*	*4.0%*	*6.8%*	*5.9%*	*5.8%*	*5.7%*	*5.6%*	*5.9%*	*6.0%*	*6.1%*	*5.9%*
Other Asia	9.9	10.1	10.2	10.0	10.1	10.1	10.2	10.4	10.2	10.3	10.3
Percent Change	*2.4%*	*1.2%*	*1.4%*	*3.1%*	*2.5%*	*2.1%*	*1.8%*	*1.7%*	*2.1%*	*1.7%*	*1.8%*
Middle East	7.6	7.4	7.9	8.5	7.9	7.9	7.7	8.4	8.9	8.2	8.3
Percent Change	*5.3%*	*3.1%*	*3.6%*	*5.3%*	*4.4%*	*4.2%*	*3.6%*	*5.5%*	*4.5%*	*3.7%*	*4.3%*
Africa	3.4	3.5	3.6	3.5	3.4	3.5	3.6	3.7	3.6	3.5	3.6
Percent Change	*1.5%*	*2.5%*	*2.1%*	*2.0%*	*2.0%*	*2.2%*	*2.1%*	*2.1%*	*2.1%*	*2.1%*	*2.1%*
Non-OECD Europe	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Percent Change	*-4.8%*	*2.5%*	*3.1%*	*2.4%*	*2.0%*	*2.5%*	*1.3%*	*1.2%*	*1.5%*	*1.5%*	*1.4%*
Strategic Inventory Injections	**0.1**	**0.1**	**0.1**	**0.2**	**0.2**	**0.1**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
CHANGE IN PRODUCT STOCKS	**0.0**	**0.2**	**0.5**	**0.3**	**-0.3**	**0.1**	**0.2**	**0.5**	**0.3**	**-0.3**	**0.1**
TOTAL CHANGE IN COMMERCIAL STOCKS	**0.2**	**0.9**	**1.0**	**-0.3**	**-0.5**	**0.2**	**0.3**	**0.5**	**-0.6**	**0.0**	**-0.1**
WTI Prices ($/barrel)	**$79.61**	**$92.00**	**$86.00**	**$90.00**	**$95.00**	**$90.75**	**$93.00**	**$95.00**	**$97.00**	**$100.00**	**$96.25**
Brent Prices ($/barrel)	**$80.34**	**$94.50**	**$88.25**	**$92.00**	**$97.00**	**$92.94**	**$94.50**	**$96.50**	**$98.50**	**$101.50**	**$97.75**
Memo Items:											
Call on OPEC Quota Members Crude	**26.6**	**26.1**	**26.4**	**27.6**	**27.0**	**26.7**	**26.6**	**27.0**	**28.1**	**0.0**	**27.3**
Call on OPEC (IEA calculation)	**29.0**	**28.5**	**28.7**	**30.2**	**30.2**	**29.4**	**29.5**	**29.6**	**31.0**	**0.0**	**30.3**
OPEC Quota Members Crude Output**	**26.8**	**26.8**	**26.9**	**27.1**	**26.8**	**26.9**	**26.8**	**27.0**	**27.2**	**0.0**	**27.0**
OPEC Quota Members Capacity**	**33.7**	**33.7**	**33.7**	**33.7**	**33.6**	**33.7**	**33.6**	**33.6**	**33.6**	**0.0**	**33.6**
Iraqi Crude Output	**2.4**	**2.6**	**2.7**	**2.8**	**2.9**	**2.8**	**3.0**	**3.1**	**3.2**	**0.0**	**3.2**
Angolan Crude Output	**1.8**	**1.7**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**1.8**	**0.0**	**1.8**
Ecuadoran Crude Output	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.0**	**0.5**
Indonesian Crude Output	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.8**	**0.0**	**0.8**