Crude Oil:
A Call for Enlightened Price Management

*By William R. Edwards**

Crude oil prices: is there any logic to explain the erratic nature of the recent price swings? Of the apparent lack of connection between oil prices and industry fundamentals? Is the price of crude oil at an economically sound or justifiable level? Is there anything that can be done to correct the unsatisfactory prices? These are questions that need to be answered, but more importantly they need to be understood.

To begin to understand the price puzzle, we must first identify and examine the role of each of the major players:

- Crude oil producers
- The members of OPEC, who are a special group of producers
- The New York Mercantile Exchange

The role of the first group, the oil producers, is generally one of dependency. Most producers are dependent upon the actions of others. If OPEC gets a cold, the rest of the producers get the flu. The role of the second group, OPEC, is of key importance in oil pricing. In actual practice, their actions determine the course of oil prices. So before we get to the third group, we need to amplify upon some of the characteristics and tendencies demonstrated by most producers.

Generally oil producers take a very one-sided view of oil prices. Although there are two sides to pricing, cause and effect, producers commonly concern themselves solely with the *effect*, leaving the *cause* to be handled by others or "the free market."

In the case of petroleum pricing, a complete misunderstanding of cause and effect has brought about the inability to stabilize prices. Most people in the industry believe that high prices are caused by underproduction. In the same way they believe that low prices are caused by overproduction. *As logical as this sounds, it is not true. As widely believed as it is, it is still not true.*

There are two more universally-accepted beliefs within the petroleum industry, which are actually incorrect:

- Production levels control price.
- There is an instantaneous relationship between price and demand.

These two misconceptions are the foundation for the instability and unreasonably low levels of petroleum prices that have prevailed for the last thirteen years. The application of these misunderstood factors has caused attempts at price stabilization to fail.

It is generally believed that OPEC determines production levels and that production levels determine prices. Based upon this inaccurate perception, OPEC's member countries spend their time and energies trying to implement production quotas which they hope will produce the desired price effect. The problem is that their premise – the assumption that they control production levels – is incorrect. Naturally all actions built upon this false premise will be ineffective.

OPEC can no more control production levels than your corner service station can control its gasoline sales. Both entities, the OPEC producers and your local gasoline retailer, are in the position of pumping oil into whatever tanks the customer brings to the pump. Therefore, the customer, not the supplier, determines production levels. The assertion that OPEC overproduces is an impossibility. Customers can overbuy, to the extent that they have empty tanks to pump the oil into, *but OPEC cannot overproduce.*

In the existing global system, OPEC and its member countries determine oil price levels. This is not to say that the price levels are where OPEC wishes them to be. Quite the contrary. Prices are much lower than they would choose. But their decisions and their actions set the price of crude oil, whether it be the roller-coaster prices of the recent past or the relatively stable prices of the 1982 to 1985 time period.

This raises the question, if OPEC's decisions and actions determine prices, how can it be that prices are not what they wish them to be? One major reason is that they are allowing prices to be determined by *the futures market.*

This brings us to the role of the third group, the New York Mercantile Exchange. This group's role is probably the one that is most misunderstood. The general perception is that the Nymex reflects the free market in action and the prices reported for oil futures represents the ultimate in transparent free market oil prices. It is further believed that the prices emanating from the oil futures trading floor are the result of fundamental factors at work in the oil supply system.

The very existence of oil futures is justified on the basis that it provides a hedging mechanism for oil producers and customers. While true hedging can occur in theory, and even in practice to a very limited extent, the nature of this activity cannot be used effectively in any large volume hedging because the futures market is just too small to handle much of the business. The fact that it is too small is revealed whenever some company decides to use the futures market for true hedging in a significant magnitude. The disaster at Metalgeschellshaft in their oil futures activity is one example. The actions of a large U.S. gas company in the gas futures market more recently is another example. While the number of transactions in the futures markets is high, the quantity of oil or gas involved, stated as "open interest", is very low.

While it is common for there to be 100,000 trades on the futures market in a single day, the amount of oil which could be delivered based on the *maximum* open interest for a year would amount to only 500 MB/D, or about 0.5% of worldwide production. Again, that's *maximum*. The actual quantity, based on historical figures of oil delivered through the Nymex, is less than 0.01 percent of worldwide production. Therefore, the role of futures in actual hedging is insignificant.

The role of futures in *setting* oil prices, however, is not insignificant. In fact, the futures price in the current world actually becomes the oil price. And while this sounds contradictory to the earlier statement that OPEC's actions determine oil prices, both statements are true since OPEC's current action is to adopt the futures price as their selling price. Were they to choose another indicator to set their price, the Nymex prices would no longer become the price of oil. Unfortunately, OPEC persists in allowing Nymex prices to determine the price of oil, to the detriment of the industry.

Futures prices for any commodity are erratic. Oil futures are no different. The underlying cause of the volatile nature of futures prices is a combination of substantial leverage and

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instantaneous financial accountability. When money is due, you have to pay or get "blown out". Getting "blown out" means buying or selling at any price you can get at the moment. No opportunity to "work things out". It's like having a call on your bank note and having to put up or fold up right now!

Putting it another way, every day is crunch day. Buying and selling decisions in the futures market are not made on the basis of considered judgment of what prices should be. The decisions are usually based on what one can get at the moment, usually from a futures professional who is skilled at taking advantage of the panicked, non-professional buyer or seller.

I have just described the psychology surrounding oil futures trading. This is a key element in understanding the wild swings we see in the futures market. But we need also to appreciate the distinct difference between the futures "free market" and the real oil "free market". This will help us understand why the futures market can never be representative of the real oil world fundamentals *and should never be the basis for oil prices*.

Unlike the real world of oil, oil futures have no supply/demand constraints. Supply and demand are completely elastic. Since the futures market is dealing with paper, IOUs, or whatever description you wish to give them, you can create as many as you wish as long as you have two people willing to take opposite sides of the speculation. There can be a constraint on the number of available buyers or available sellers, but the constraint has nothing to do with the supply/demand relationship of real oil. The tank can be almost full, but if the professional paper traders are inclined to take a "buy" position, futures prices will rise, regardless of the real oil inventory. The reasons why the professionals take a buy or sell stance is not based on their understanding of the oil supply/demand situation because they have no real knowledge of this and, in addition, they don't care. The position they take is based on who is in a crunch and who is ripe for victimization. Futures traders do not care what level their trades take place. They do not care whether prices go up or down. They only care that they move. They can take advantage of the "suckers" or novices in either or both directions.

Remember that futures prices are the free market price of IOUs, not oil! This should clear up the question as to why there is no correlation between futures prices, which are oil prices only by adoption, and the supply/demand fundamentals for oil or gas. The realization of this fact makes it obvious why futures prices should not be used to guide the real oil world.

A study of the history of crude oil prices is necessary to underscore what has been suggested above. Chart 1 details the history of crude oil price, as expressed by the West Texas Intermediate futures price, over the past fifteen years. We are justified in using futures prices inasmuch as the industry currently uses these numbers as their prices. The first thing we notice is that prices during the first three years of the period, 1983 through 1985, were much higher than has been the case ever since. The chart reveals that during the past twelve years prices have moved in a roller-coaster pattern with more than a 100 percent difference between the lows and the highs. Except for a short period during the Iraq/Kuwait/UN conflict, prices never again reached the levels enjoyed during the early eighties. This provides sufficient proof for the conclusion that prices do not follow OPEC's wishes.

Chart 1
West Texas Crude Price

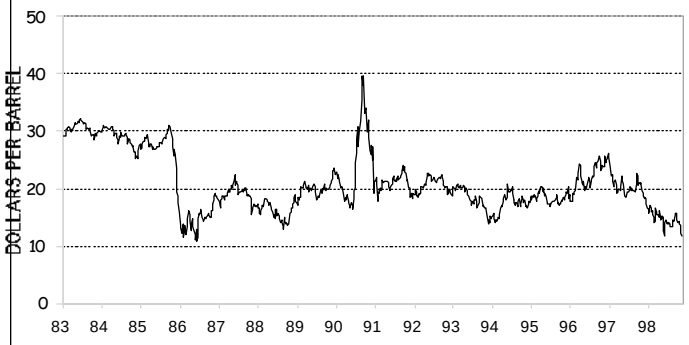
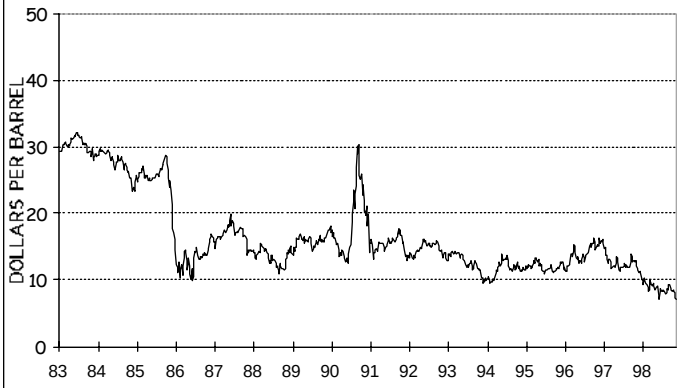


Chart 2
Crude Price in 1983 Dollars



Let us next examine price levels from a fundamental standpoint to gauge the appropriateness of the current price levels. The prices shown on the Cart 1 were expressed in "dollars of the day". For comparison, Chart 2 shows the price expressed in constant dollars. This is a better measure of real purchasing power as inflation has been factored out. As can be seen, the purchasing power of prices received in 1985 were four times that which current crude oil prices generate. It is important to observe that the world economy and the oil industry were functioning smoothly *with these prices* at the time. Therefore, it is appropriate to conclude that there is no justification for disposing of such a valuable, irreplaceable resource for such meager compensation as current pricing provides.

It is worthwhile at this point to discuss an oversimplification that frequently occurs when considering prices. This oversimplification presumes that the word "price" is all inclusive, particularly when we identify it as "the free market price". Let me suggest that there exist at least two distinctly different types of prices: "whimsical prices" and "enlightened prices".

"Whimsical prices" are what you see reported as "The Price". In the case of petroleum, this whimsical but popular price is taken from futures trading and is usually thought of as "the free market price". The definition of whimsical, "erratic in behavior or degree of unpredictability"[1], applies perfectly to the recent history of oil prices. While popular and universally accepted, the futures-based price has no relationship to a fundamentally sound price or what I call the

(continued on page 26

Crude Oil:.... *(continued from page 25)*

"enlightened price". Arriving at an enlightened price requires some assessment of the nature of the commodity, its cost and availability, and the corresponding demand curve for the product. An enlightened price is more reflective of the true value of the commodity. Obviously, this enlightened price is much more difficult to ascertain than the whimsical price. The difficulty of determining this price and the lack of recognition that it exists are the two main reasons why an enlightened price is not applied to crude oil.

It seems obvious that crude oil price management needs to be drastically restructured so that prices of oil reflect more nearly its true value. In the words of the popular culture, crude oil price management needs to be "reinvented".

There is one additional aspect of the oil price outlook that we should consider. Environmentalists are pushing for a reduction in fossil fuel use. The oil industry has attempted to apply reason and intelligence to the subject. The rest of the world is more inclined to proceed on the basis of emotion and preconceived notions, and they represent the majority. Therefore, they will prevail in this contest. We should accept the inevitability of some sort of oil use reduction in the future and devise an effective strategy for capitalizing upon this event.

In summary, oil prices today follow an erratic, variable path that is not justified by petroleum fundamentals. Neither is it the result of intelligent consideration and guidance. Current oil prices are merely adopted futures prices. OPEC has the inherent power as well as the responsibility to provide effective price leadership. Therefore, OPEC should adopt a revised approach, one of enlightened price management that will incorporate stability and reason into oil prices as we enter the challenges of the next century.

[1] *The American Heritage® Dictionary of the English Language, Third Edition* copyright © 1992 by Houghton Mifflin Company. Electronic version licensed from INSO Corporation. All rights reserved.

Special Issue of *The Energy Journal* Planned on Analyses of Kyoto Protocol

During 1998 the Energy Modeling Forum at Stanford University has been coordinating a set of standardized comparisons of the energy-economic consequences of various implementations of the Kyoto protocol on climate change policy. Thirteen modeling teams have participated in this work. A special issue of *The Energy Journal* is planned which will consist of a paper by each modeling team describing key insights obtained from its analysis of the standardized scenarios, as well as from analyzing other relevant scenarios. Also included will be an introductory chapter laying out the study design and comparing model results for four core scenarios. The wide variety of model structures will provide a rich set of model comparisons and policy insights.

The special issue will be edited by John Weyant, EMF Director and coordinator of the study. He will be assisted by the other members of the study design – Henry Jacoby of MIT, Jae Edmonds of Batelle Northwest National Laboratory and Richard Richels of EPRI.

Publication is planned for early this year.

The British Are Coming! The British Are Coming!

*By Fereidoon P. Sioshansi**

For some time, the UK power companies have been trying to buy into the United States market, but without success. But it was bound to happen, and in December two big deals were announced. The first was Scottish Power PLC buying Portland, OR-based PacifiCorp for $7.04 billion. Before the analysts could digest the news, it was announced that the National Grid Company (NGC) was buying a New England distribution company, the New England Electric System (NEES) for $3.2 billion. The latter was more of a surprise, since it is the takeover of a regulated U.S. distribution utility by what is essentially a for-profit ISO in England and Wales.

As is usually the case, skeptics on both side of the Atlantic were scratching their heads, trying to make sense out of these latest two mergers, both acquired at a significant price premium. The acquiring companies, of course, were doing their part to explain why it was such a good deal. Others were speculating that this is merely the tip of the iceberg, that many more cash-rich foreign utilities will be buying into the U.S.utility sector in 1999. *The Wall Street Journal* (8 December 1998), for example, heralded the start of a U.S. utility invasion and speculated who the next invaders may be.

Who May Be Next?
Global Utilities with Big Cash Chests

Company	Equity Market Value ($B)
Tokyo Electric Power (Japan)	$33
Suez Lyonnaise des Eaux (France)	$29
VEBA (Germany)	$26
Endesa (Spain)	$26
RWE (Germany)	$25
Duke Energy (US)	$22
Southern (US)	$21
Electrabel (Belgium)	$20
Kansai Electric Power (Japan)	$20
Iberdrola (Spain)	$15
Tractebel (Belgium)	$14
Texas Utilities (US)	$13
National Grid (UK)	$12
Electricite de France (France)	Govt Owned

SOURCE: *The Wall Street Journal*, 8 Dec 1998, Goldman Sachs & Co.

The problem facing foreign investors in the U.S. utility market is no different than those the U.S. utilities endured when they went to the UK and Australia in search of golden investment opportunities. The first of many obstacles, even assuming speedy regulatory approval, is merging two different management cultures and organizations.

Second, the challenge of understanding and mastering a foreign business environment that inevitably looks more promising from across the ocean. In the case of NGC and NEES, for example, these two issues are expected to prove problematic. Finally is the matter of price premium paid in the haste and excitement of getting the deal done. Both of the two recent British acquisitions carried a price premium believed to be excessive by many financial analysts. Despite, these misgivings, many more will undoubtedly try.

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