



You may be interested.

PIRINC has prepared the enclosed report, *Once Again Iraq End Game? Mate?*

Once again Iraq is in the forefront of geopolitical and oil market concerns. The United States has made it clear that it wants a change in regime and is signaling that, if necessary, at some point in the not too distant future it would engage in military action to achieve it. Oil prices have been moving up, mainly due to a tightening of the market as a result of OPEC actions to restrict supply, but prices may also be incorporating an emerging but at this time small war risk premium. The prospect of military action, and uncertainties about the political fallout in the world's most important regional source of oil supplies are bound to be unsettling for oil markets, especially if what is still a prospect moves closer to an imminent reality.

This report considers current conditions and draws comparisons from the 1990-91 Gulf Crisis in an attempt to assess the nature of the risks to markets from potential military action and policies that could ameliorate them. The 1990-91 Gulf Crisis came as a surprise to world oil markets. This time, the possibility of military action has been made clear. Moreover, the timing of any action will be known to at least the world's most important oil consumer, the US. With that knowledge comes the responsibility to put in place policies designed to minimize both immediate and potentially sustained oil market disruption. In assessing such policies, it should be kept in mind that while the US may decide the timing of military action, the consequences for the region, and ultimate impact on oil remain unknown.

If you have any questions or comments, please call John Lichtblau, Larry Goldstein or Ron Gold.

September 2002

Petroleum Industry Research Foundation, Inc.

3 Park Avenue • 26th Floor • New York, NY 10016-5989
Tel.: (212) 686-6470 • Fax: (212) 686-6558

Once Again Iraq: End Game? Mate?

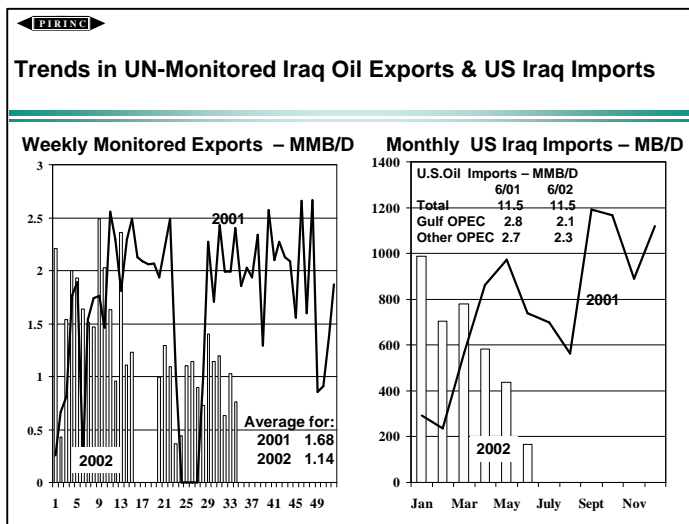
Once again Iraq is in the forefront of geopolitical and oil market concerns. The United States has made it clear that it wants a change in regime and is signaling that, if necessary, at some point in the not too distant future it would engage in military action to achieve it. Oil prices have been moving up, mainly due to a tightening of the market as a result of OPEC actions to restrict supply, but prices may also be incorporating an emerging but at this time small war risk premium. The prospect of military action, and uncertainties about the political fallout in the world's most important regional source of oil supplies are bound to be unsettling for oil markets, especially if what is still a prospect moves closer to an imminent reality. In such a case, the war risk premium would become an increasing, even principal source of oil price volatility. This report considers current conditions and draws comparisons from the 1990-91 Gulf Crisis in an attempt to assess the nature of the risks to markets from potential military action and policies that could reduce them.

If the issue were simply the likely loss of Iraqi exports, most experts would agree that the market impact of military action would be manageable and short-lived. Iraq's exports have been depressed by ongoing conflicts between the regime's insistence on collecting surcharges on its UN-authorized sales and UN attempts through pricing formula adjustments to prevent them. The current depression in Iraqi production has almost certainly contributed far more to the recent upward movement in oil prices than any war risk factor. There is enough spare capacity among the other oil producers to replace the current low level of Iraqi exports several times over---and indications from producers that they would move quickly to make up any losses in supply. However, as in the Gulf Crisis, most of the world's readily available spare capacity is held by Iraq's neighbors. While risks may not be high, there is always a possibility that spillovers from any military action, through Iraqi direct responses and/or political upheaval, could interfere with the deployment of spare capacity or worse threaten existing production. Unless, or until, it became clear that existing production was not threatened and spare capacity was deployed, markets would be vulnerable to price increases. The U.S has a backstop to manage such an eventuality, the SPR. During the Gulf Crisis, there was no release of SPR oil until the beginning of the war itself in January 1990, well after oil prices had peaked and too late to prevent the economic damage resulting from the initial price spikes. The US could exert a market-calming influence even without drawing on the SPR by at least announcing that it would be used promptly in the event that Iraqi production losses are not made up by other producers or in case of any impairment to existing production in Iraq's neighbors.

The 1990-91 Gulf Crisis came as a surprise to world oil markets. This time, the possibility of military action has been made clear. Moreover, the timing of any action will be known to at least the world's most important oil consumer, the US. With that knowledge comes the responsibility to put in place policies designed to minimize both immediate and potentially sustained oil market disruption. In assessing such policies, it should be kept in mind that while the US may decide the timing of military action, the consequences for the region, and ultimate impact on oil remain unknown.

Recent Trends in Iraq Exports

In Iraq's last commercially normal year, 1989, the country produced nearly 3 MMB/D of oil and exported about 2.5, levels not reached since. From the onset of the Gulf Crisis in August 1990 when sanctions were first imposed, Iraqi oil production and exports have been determined primarily by the state of play between the Iraqi government and the UN Security Council. In August 1991, the Security Council first offered Iraq the opportunity to sell oil to support humanitarian imports within the context of the sanctions regime first imposed in August 1990. Iraq refused the offer and it took another 5 years, until August 1996, for Iraq formally to agree to terms of what became the "oil for food" program. The first UN-monitored production of oil for export began in December 1996. There have been numerous interruptions of exports over the years since then, tied primarily to Iraqi attempts to loosen the terms of the program. This year, while the formal renewal of the oil for food program passed without interruption, Iraqi (monitored) exports have been running well below year-earlier levels. The right panel of the chart below summarizes by week, trends in UN-monitored exports over the course of 2001 and 2002 through the week of August 17-23.¹



Iraqi official exports have tended to be erratic. Last year, they fell to zero from early June through early July when Iraq suspended exports as it rejected the terms latest extension of the oil for food program. Exports resumed when Iraq agreed to terms in July, reaching levels above 2 MMB/D for much of the balance of the year. This year, the profile looks very different. Once again there was a brief political suspension of exports, this time for 4 weeks from mid-April.² However, the most striking feature is their very low level, apart from the suspension since the spring. The low level is attributable to the ongoing problem of illegal surcharges demanded by the Iraqi government and retroactive pricing practices adopted by the UN overseers in an attempt to limit the scope for them. As stated in the May 29th briefing of the Security Council by the Executive Director of the Office of the Iraq Program:

¹ These figures ignore unauthorized exports that have been estimated at between about 300 to 500 thousand barrels/day. The estimate includes about 100 MB/D of technically illegal but tacitly accepted exports to Jordan. Issues related to Iraqi exports, including pricing issues are discussed in detail the PIRINC report, **Iraqi Oil: A Love-Hate Relationship**, released in June 2002. Recent PIRINC reports may be accessed at the PIRINC website www.pirinc.org.

² The Iraqi government announced it was suspending exports as a gesture of support for the Palestinians and called on other Gulf producers to follow suit. When none did, Iraq resumed its own official exports.

It is regrettable that an agreement regarding the setting of the price of Iraqi crude oil has remained elusive. Thus, the continuing practice of setting the price of Iraqi crude oil retroactively by the 661 Committee, which, combined with the continued excessive premia demanded by Iraqi crude oil contract-holders, has led to an average reduction in exports of some 500,000 barrels per day or \$1.2 billion in lost revenue since the beginning of phase XI on 1 December 2001.³

So far this year, exports are averaging 1.14 MMB/D, about 550 MB/D below 1.68 MMB/D average for all of 2001. However, since mid-July, the gap versus the same period last year has been much wider, averaging 1.1 MMB/D.⁴

The curtailment of Iraqi supplies, especially over the past several weeks has contributed to a tightening of the market and may indeed be a far larger influence on current price developments than any risk premium for military action that might be inevitable but does not seem imminent.

The right panel of the chart shows monthly trends in imports of Iraqi oil by the US, until very recently, the largest customer of Iraq. Last year, monthly US imports of Iraqi oil ranged from a low of about 250 MB/D in February to a high of nearly 1.2 MMB/D in September-October. For the year, imports averaged nearly 800 MB/D. This year, imports started at nearly a 1 MMB/D level but have dropped off dramatically, with June imports down to only 167 MB/D, about 600 MB/D below the June 2001 level. As noted in the inset table, overall US oil imports in June were about the same as the year before although imports from both Persian Gulf (including Iraq) and other OPEC sources were down by a combined 1.1 MMB/D, or an additional 0.5 MMB/D beyond the decline in imports from Iraq.⁵ The reduced imports from OPEC were offset by increases from non-OPEC sources, especially the UK (+450 MB/D), Mexico (+260), and Norway (+250).⁶

³STATEMENT BY BENON V. SEVAN, EXECUTIVE DIRECTOR OF THE IRAQ PROGRAMME AT THE INFORMAL CONSULTATIONS OF THE SECURITY COUNCIL WEDNESDAY, 29 MAY 2002. The Statement is available at: <http://www.un.org/Depts/oip/background/latest/bvs020529.html>

⁴ The latest, August 9, IEA Monthly Oil Market Report estimates total July 2002 crude production for OPEC ex Iraq at 23.2 MMB/D, down about 2.1 MMB/D from July 2001. The Report's estimated increase in call on OPEC plus stock change for the fourth quarter is up 1.4 MMB/D versus the third quarter. Last year's 4th quarter OECD industry stock draw was 0.4 MMB/D. The 5 year average 4th quarter OECD industry stock draw is 0.7 MMB/D.

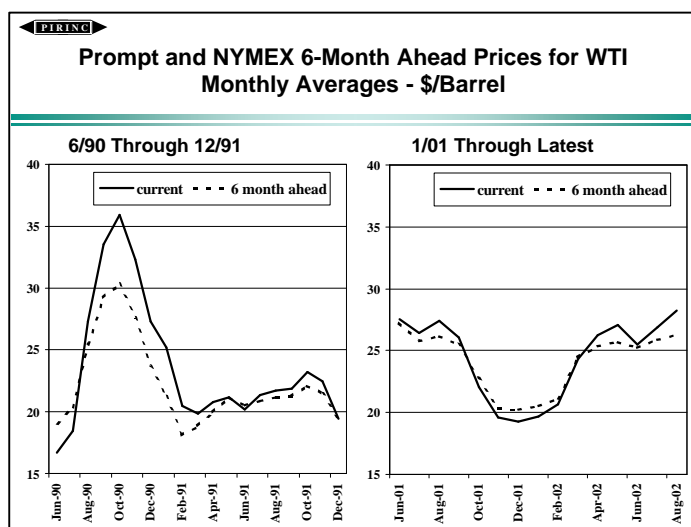
⁵ The production quotas agreed to by OPEC members ex Iraq called for a 2002 production level beginning in January that was 2.5 MMB/D lower than the level provided for in the March 2001 agreement that would have been in effect in June of that year. In June and July 2002, actual production for OPEC ex Iraq was about 2 MMB/D below the June and July 2001 levels.

⁶ The U.S. is able to draw on a growing pool of non-OPEC sources. Non-OPEC supplies in the 3rd quarter of this year are estimated by the IEA to be up by about 1 MMB/D versus a year earlier, led by production gains of 0.7 MMB/D from the FSU.

Price Developments During the Gulf Crisis and Today

The clearest, and most immediate signals of market stress come from prices. The chart below shows average monthly prices for WTI starting mid-1990 through 1991 and recent price trends. Two sets of price data are shown, spot prices and NYMEX 6-month ahead forward prices.

As shown in the left panel, current or spot WTI prices rose immediately upon the onset of the Gulf Crisis reaching a monthly peak of just over \$35/barrel in October 1990. Just prior to the crisis spot prices were above the 6 month ahead prices by about \$2/barrel but subsequently, the market moved into backwardation with the August current price exceeding the futures price by \$2, a gap that grew to about \$5.50 in the peak price month of October. The high October spot price and the substantial price backwardation were both a signal of the market's strong desire for immediate barrels and the source of a market-moderating commercial incentive to holders of oil inventories to release some to consumers rather than keep them, or even attempt to add to them, as a hedge against the future. After October, prices began to decline and backwardation narrowed, although it was not until February 1991 that average spot prices moved close to their pre-crisis level.⁷



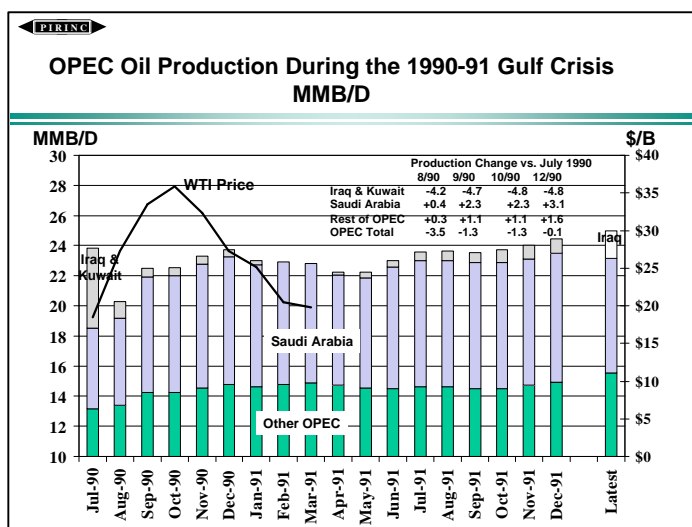
As shown in the right panel, current WTI prices have moved up from their low-points of November 2001-January 2002 when prices were below \$20/barrel. They appeared to show rough stabilization in the spring and early summer but moved up recently to an average above \$28/barrel with occasionally daily forays above \$30. Futures prices have tended to move more or less in line with current prices although in August to date, there has been a noticeable increase in backwardation with the gap between current and future prices reaching about \$2/barrel.

A great deal of caution is needed in assessing how much if any of the run-up in current prices and recent increase in backwardation reflects a war risk premium. After all, as discussed in the prior section, the recent further fall-off in Iraqi exports, the tightening of global stocks, and uncertainties about whether OPEC will agree on an increase in production quotas at their upcoming September meeting are themselves sources of upward pressure on prices, especially current prices. It is not really news that the US wants a regime change in Iraq and is considering

⁷ When daily spot prices are considered, a major price decline took place in mid-January once it became clear that initial air strikes against Iraq had achieved their objectives without encountering any effective Iraqi opposition. On January 16, the spot WTI price was just over \$32/barrel. On January 18, the price fell below \$20 and closed the month at about \$22.

military action if necessary to achieve it. In his recent (August 26th) speech to the Veterans of Foreign Wars, Vice President Cheney referred to Saddam Hussein as, “a sworn enemy of our country,” but nonetheless gave no sign that military action, or even a decision to undertake military action was imminent. Instead he stated that President Bush---“ will proceed cautiously and deliberately to consider all possible options to deal with the threat that an Iraq ruled by Saddam Hussein represents,” statements consistent with others made by Bush Administration officials since early this year.⁸ We will learn more from the President after he speaks later this week at the U.N.

While prices offer the best indicators of market stress, they are not necessarily an indicator of actual supply demand conditions. Instead, they reflect perceptions of current physical realities and worries about the future. At times, the perceptions and the realities can be very different---as was especially the case in the early stages of the Gulf Crisis. The chart below shows the monthly trends in OPEC production over the course of the 1990-91 Gulf Crisis divided between production by Iraq and Kuwait, Saudi Arabia, and the rest of OPEC. Also shown are the prices for WTI.



In July 1990, OPEC production averaged nearly 24 MMB/D with Iraq and Kuwait accounting for 5.3 MMB/D (of which Iraqi production was nearly 3.5 and Kuwait nearly 1.9) or 22% of the OPEC total. The price of WTI averaged just over \$18/barrel. On August 2nd, Iraqi forces invaded Kuwait. The same day the UN Security Council condemned the invasion and 4 days later adopted Resolution 661 imposing sanctions on both Iraq and occupied Kuwait. The oil markets were faced with the immediate loss of all oil exports from the two countries. August oil production in the two countries was down by 4.2 MMB/D versus July and down by 4.7 in September. Moreover, while there was spare capacity elsewhere, the amount of immediately available spare was not clear. What was clear was that most of any available spare was to be found among Iraq’s neighbors in the Gulf, especially Saudi Arabia, and thus vulnerable to further Iraqi military action.⁹

The known supply loss from Iraq and Kuwait plus uncertainties about the extent and security of supply from elsewhere led to price increases that persisted well after substantial increased

⁸The only change in position from earlier Administration statements is a clearer signal that even full acceptance by the Iraqi government of the return of arms inspectors would not deter the US from efforts to seek a change in regime.

⁹ The historic data indicate that there was just under 5 MMB/D of spare OPEC capacity outside of Iraq and Kuwait. Nearly 4 MMB/D were in other Gulf states with about 3 in Saudi Arabia.

supplies were reaching the market. By October, when the average WTI price approached \$36/barrel, the rest of OPEC, led by Saudi Arabia, had made up all but 1.3 MMB/D of the lost Iraq and Kuwait production. By December, OPEC production was just about back to its July level, primarily due to a 3.1 MMB/D increase in Saudi supply. Even then, however, the WTI price averaged over \$27, still far above the pre-crisis price level. Only in January 1991, after the early US-led war actions convinced markets that Gulf supplies were secure, did oil prices fall decisively to within a few dollars of their pre-crisis level.¹⁰

The bar on the far right of the chart shows the July 2002 supply situation. Of the total 25 MMB/D of OPEC production in that month, Iraq accounted for 1.8, about 7% of the total and only about one-third of the combined Iraq and Kuwait production in July 1991. Iraqi production is certain to be even lower in August, given the recent fall-off in UN-monitored exports.

The amount of current oil production directly at risk in the event of military action against Iraq is thus modest compared to the immediate losses of August 1990. Moreover, the amount of spare production capacity outside Iraq is even larger than was the case in 1990, about 5.5-6 MMB/D among OPEC members plus some additional spare in non-OPEC countries such as Mexico. As in 1990, most of the spare, all but about 1-1.5 MMB/D is in the Gulf, with Saudi Arabia accounting for about 2.5-3 MMB/D. Key producers have already signaled their intent to make up any supply shortfall. The existence of ample spare capacity and signals that it would be used in case of hostilities are calming influences on the markets. However, there is still a possibility, even if the risk is low, that a military conflict with Iraq could have negative military and/or political spillover effects on not simply the spare capacity of other Gulf producers but on current levels of production as well. It is this possibility that sustains a war risk premium---a premium that would grow in importance the more imminent military conflict appears to be, and would dissipate the clearer it becomes that alternative supplies would be available and that current production from other Gulf producers was secure.

The Role of Stocks

While the reduced current role of Iraq in world oil supplies is a plus for oil market stability if we are in fact in a countdown to a new crisis, the countdown is taking place in the context of a higher price starting point. Daily prices for WTI since the beginning of August have been in the \$26-\$30/barrel range, well above the \$18 price of July 1990.¹¹ High current prices reflect in large part OPEC's restrictions on output, which have in turn impacted stocks, although the effects of the production restrictions on stock levels have been muted and delayed first by the negative demand fall-out from September 11th and lately by the fall-off in economic growth after an initial surge in the first quarter of the year. Overall, stock levels are significantly lower than on the eve of the Iraqi invasion of Kuwait, especially in the US.

¹⁰ As discussed in the next section, there was also a modest release of SPR oil in January.

¹¹ On a constant dollar basis, the difference would be much narrower. Allowing for inflation, the July 1990 price in today's dollars would be about \$25/barrel.

The top of the table on the right shows IEA data for OECD stocks as of the end of the second quarter of 1990 and as of the end of the second quarter of this year.

Data are shown in million barrels and days of forward demand. In terms of physical volume, total stocks are higher in mid-2002 with virtually all the increase coming in the government controlled component. On a days demand basis, total stocks are down slightly, from 88 days in mid-1990 to 82 at the end of the second quarter of

this year. Government controlled stocks are slightly higher on this basis 26 days versus 25 while industry commercial stocks are down from 63 to 56/days.

Oil Stocks Then and Now Million Barrels (MMB) and Days Forward Demand*				
OECD Stocks	end-Q2-1990		end-Q2 2002	
	MMB	Days	MMB	Days
	Total	3,666	88	3,891
Government Controlled	1,045	25	1,248	26
Industry	2,621	63	2,643	56
U.S. Stocks	end-July 1990		8/23/2002	
	MMB	Days	MMB	Days
	Total	1,710	101	1,594
SPR Crude	587	35	580	29
Ex SPR	1,123	66	1,013	51

*Based on actual and projected annual demand for the US.

The US stock comparison shows much sharper differences. In this case the comparison is between end-July 1990 and August 23, 2002, the latest date available. Overall oil inventories are down significantly, both in physical volume and particularly in terms of days demand coverage where the decline is from 101 to 81 days. The decline is least for the SPR where holdings are down by only 7 million barrels or from 35 to 29 days of demand.¹² Nearly all of the difference in physical stocks is outside the SPR. Oil stocks other than the SPR, that is to say, primary crude and product inventories held by industry are down by about 100 million barrels from end-July 1990, or in terms of days demand, down 15 days from 66 to 51.

While much of the decline is due to ongoing industry efforts to reduce costs in the face of chronically poor downstream profitability (with most of the savings passed on to consumers), nonetheless the fact remains that the industrial world, and especially the US, is currently in a less favorable position in terms of stocks than it was at the onset of 1990-91 Iraq crisis. The OECD US statistics show that government owned or controlled stocks have become a much more important component of total stocks than they were in 1990. As such government policy with respect to use of these stocks in the event of a new crisis with Iraq will be even more important than it was in 1990-91.

The Gulf Crisis of 1990-91 saw the first and so far only Presidentially authorized emergency release of SPR oil.¹³ The release was authorized on January 16, 1991, the same day the first air strikes were launched against Iraq and following a 2.5 MMB/D contingency plan primarily regarding the use of stocks agreed to by member countries of the International Energy Agency.¹⁴

¹² The SPR is up substantially from its year ago level of about 544 million barrels, reflecting the resumption of royalty-in-kind-payments and an Administration decision to fill the SPR to its ultimate capacity of about 750 million barrels. The SPR also holds a 2 million barrels of distillate in the Northeast Heating Oil Reserve which are not included in the stock figures.

¹³ There have been crude oil "exchanges" since then and, in 1996, sales required by Congress to reduce the budget deficit.

¹⁴ The US did suspend purchases of oil for the SPR at the onset of the Crisis and at the end of September the Secretary of Energy ordered a 5 million barrel "test" sale. The first delivery took place in mid-October.

However, this action came when oil prices were already well below their peak levels reached nearly 3 months earlier and after most of the initial losses of Iraq and Kuwaiti oil had been offset by increased production elsewhere. Oil prices fell sharply the following day, due overwhelmingly to the success of the air strikes, and consequent reduction in the perceived threat to oil production in neighboring countries. The first physical delivery of SPR crude oil occurred on February 5th after supply concerns had largely dissipated.

The question of when to draw on strategic reserves is not an easy one. The law authorizing the establishment of the SPR, the Energy Policy Conservation Act, was passed in December 1975, barely two years after Arab Oil Embargo that began in early October 1973 and persisted until mid-March 1974. For the general public and policy-makers alike, the most searing experience of that period was the gasoline shortages, and the resulting long, often fruitless, lines at the pumps. With this experience in mind, the Act defined the circumstances in which the SPR would be used as “a severe supply interruption” where the term “---means a national energy supply shortage---”. The Administration in August 1990 indicated its readiness to use the SPR in just such circumstances. But the gasoline lines of 1973-74 (and again in 1979-80) occurred at a time when domestic price and allocation controls suppressed the ability of market forces to balance demand with available supply. Moreover, this was also a time when most international movements of oil were through long-term supply arrangements with minimal volumes of freely traded, and transparently priced, oil available to markets.¹⁵

By the time of the Gulf Crisis oil market conditions were very different. Most international oil was moving at prices tied to readily available benchmarks such as Brent, WTI and Dubai and domestic price controls had been dismantled and discredited. In such an environment, the loss of oil from Iraq and Kuwait would trigger price increases that could be painful for consumers and disruptive to economic growth, but not the outright shortages and gasoline lines experienced earlier. In such a case, holding off use of the SPR until shortages materialize effectively means not to use it all. Later amendments to the original Act have attempted to address this problem. Thus under the law as it stands today a severe energy supply interruption also includes “---a severe increase in the price of petroleum products---.” The current law also provides for a release if the President finds that a situation exists that is likely to become a domestic or international supply shortage and that action taken would help prevent or reduce the impact of such a shortage.¹⁶ These modifications have not eliminated controversy regarding just when the SPR should be used. In particular, there is no agreement as to what constitutes a “severe” increase in oil prices. In September 2000, with WTI averaging nearly \$34/barrel, the Clinton Administration announced a “swap” of 30 million barrels from the SPR. While prices softened somewhat thereafter, there were strong arguments about whether such a release was in fact justified, especially in light of growing OPEC supplies. The issue arose again in setting the

¹⁵ During the embargo, the major international oil companies took on the role of allocating available supplies in what historians generally agree was a roughly equitable manner. In particular, the direct targets of the embargo, the U.S. and the Netherlands, did not suffer disproportionately in the loss of world supply. While the result may have been as acceptable as any free-market allocation, indeed given political sensitivities perhaps more so, the absence of free transparent markets encouraged the reliance on price and allocation controls in the US and elsewhere.

¹⁶ See Section 161 of the Act for the specific language of these provisions.

conditions under which the newly created Northeast Heating Oil Reserve would be used. The key concern was that too liberal a price trigger for release would discourage the corrective actions taken by market participants---higher local production and aggressive shopping for imports that had brought previous price spikes to an end in fairly short order.

Government policy regarding SPR use in the event of a new crisis should take account of, and benefit from, the experience of the Gulf War and the debates since then. First and foremost, the government should make it clear that the SPR would be used early in case of outright loss of significant world oil supplies, or threat of such a loss, preferably in coordination with the IEA. However, OPEC should go first and the US should engage in discussions with key producers to encourage such a response. In this regard, the key producers, and OPEC as an organization, have signaled their intention to make good any supply shortfall and it would be best if they were given the chance to do so. The SPR, and the government-controlled stocks of other countries can then serve as a backstop to OPEC's own efforts. No one knows how long a threat to neighboring country production will last should military action against Iraq take place and premature use of the SPR could weaken its stabilizing potential against worst-case scenarios.

Over the next several months, the SPR is scheduled to receive royalty-in-kind and repayments of previous exchanged oil that together amount to an average of about 150 MB/D. Given a relatively tight, and potentially tighter market over the next few months, a relatively low visibility option would be to negotiate postponements of these deliveries with the companies involved. Here again, OPEC should be encouraged, and given the opportunity, to go first by easing its own current production restrictions. But suspension of SPR deliveries should remain an option for effectively adding prompt barrels to the market should market conditions become volatile in the face of growing perceptions of imminent war risk.

Effects on Products and Regions

So far, the discussion has focused on oil in general without considering particular products and/or locations. But the 1990-91 Gulf Crisis did have important regional and product market effects that should be considered in formulating policy to manage a new Gulf Crisis. In particular, the earlier Gulf Crisis impacted the Far East product market, especially the market for jet fuel, more severely than elsewhere. The Far East is the shortest haul market for Gulf crude and products. Apart from the loss of crude supplies, the loss of the Kuwait refinery at the beginning of the crisis removed a major source of jet fuel supplies from the region and the world just as military requirements for the same cut of the barrel soared.

The chart below summarizes price trends over the course of the 1990-91 crisis for WTI, New York Harbor and Rotterdam jet fuel, and Singapore kerosene. In July 1990, the WTI price measured in cents/gallon stood at 44 cents while the New York and Rotterdam jet fuel prices stood at 55 and 54 cents respectively. The Singapore kerosene price was slightly lower at 52 cents/gallon. With the onset of the crisis, New York and Rotterdam jet fuel prices moved up far more than the crude price and the Singapore kerosene price moved higher still. In the peak month of October 1990, the New York and Rotterdam jet prices averaged 34 and 51 cents/gallon

respectively above the WTI price, far above the 11-12 cent/gallon differentials prevailing in July. The October Singapore kerosene price was higher still, with the differential versus WTI reaching 63 cents/gallon.

Differentials narrowed in November-December then widened again as military jet fuel requirements surged with the beginning of Desert Storm in January, and then moved back toward pre-crisis levels.

While the differentials that developed with the onset of the Gulf Crisis were especially painful for the Far East, the same differentials helped equilibrate the market. Higher prices in the Far East attracted supply from elsewhere that in normal circumstances would face uncompetitive logistics costs.

A new crisis is also likely to have a differential impact on the Far East and, given likely military requirements, especially on jet fuel, although the effects would be far less if only Iraqi crude is curtailed. Since these possibilities are known, there are precautionary measures that could reduce their potential impact, including advance purchases of critical products such as jet fuel to insure adequate stocks in advance of a new crisis. For more information see PIRINC's note *A Window For Precautionary Action On Oil* on our web.

