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***STOA** - Scientific and Technological Options Assessment*

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# The 2000 Oil Crisis and its Consequences in the EU Energy Sector

## 1.- INTRODUCTION

At the beginning of 1999 the oil price was $10 a barrel. In the **second half of 2000 it reached over $30 -** a record price since the Gulf War, and unexpected because there has not been any major geopolitical conflict or war. The main reason for the high price is related to production cuts by OPEC in the context of growing demand, and geopolitical and economic factors.

The tripling in the price of crude oil since March 1999 reveals the **EU's structural weakness** regarding energy supply and its **dependence on oil.** Measures need to be adopted in the energy sector to avoid the economic consequences.

## 2.- ROLE OF OIL IN THE GLOBAL ENERGY SECTOR

### 2.1.- Geopolitical facts of oil

The advantages of oil in terms of calorific value and ease of use readily explain its rapid breakthrough in the Western economies in the immediate post-war period.

- Its properties gave rise to **road transport 98% dependent on oil.** Oil provides around **36% of total world primary energy consumption** and generates about 9% of the total world's electricity.

- **World oil consumption is estimated to rise to about 115 MMBD in 2020 as compared with around 77 MMBD in 2000 -** an increase of 50%.

- More than **75% of the world's oil reserves are located in the OPEC** states and OPEC's share of the world oil market reached about 41% during end-2000. This situation is reflected by production costs that will remain extremely advantageous even in a scenario of low prices. The **average cost of OPEC production is currently around USD 2 a barrel.** The volume of non-OPEC production, at a current average cost of USD 5 a barrel, but with a marginal cost of more than USD 10, will be closely linked to price movements, since reserves will continue to be plentiful. It is thought that a crude oil price of about USD 20 should make it possible to guarantee investment in production in non-OPEC regions, which will be needed because of rising demand over the next twenty years.

- **North America** is the second largest producing area after the Middle East (and the world's largest importer). The United States, the second largest producing country in the world, accounts for almost 60% of the North American region's total.

- **North Sea production, of the United Kingdom and Norway**, began in the late 1970s. In contrast to predictions from the early 1980s of the imminent decline in the region's production, the North Sea has yet to see its peak. The region's success with new exploration and production technology, and hence its continuing volume growth, has been a central factor in world oil markets for a decade.

- Production in the **former Soviet Union** consistently averaged around 12 million barrels a day in the early 1980s, when it was the top world oil producer. The region's demand collapse, in combination with its aggressive production targets set to maintain foreign exchange, masked its rapid production decline in the late 1980s as the Soviet union broke up. The former Soviet Union is now the **third ranked producer after Saudi Arabia and the United States.** Production in this region could double over the next twenty years from 7.8 million barrels a day in 2000 to 14 million in 2020.

One of the most visible new production prospects is the **Caspian Sea**, in spite of the enormous logistical and political hurdles involved in getting the oil produced to world markets. The known reserves in the Caspian Sea basin (25 billion barrels) are roughly the same as in the North Sea and the USA. Potential reserves could exceed 200 billion barrels, i.e. 25% of known reserves in the Middle East. Some oil production areas in Russia and the Caspian Sea basin are extremely important for the

- EU.

**2.2.- OPEC and the world oil market**

The OPEC is a voluntary inter-governmental Organisation founded in Baghdad in 1960 to unify and co-ordinate members' petroleum policies. OPEC members' national oil ministers meet regularly to discuss prices and, since 1982, to **set crude oil production quotas**. Present OPEC members include **Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela** (they produce about 40% of the world's oil including crude oil, natural gas liquids, refinery gain, etc.). OPEC also contains most of the world's excess oil production capacity.

Originally OPEC was created to negotiate production and pricing matters with the major oil companies which had large controlling interests in those countries' supplies. OPEC has the potential to **influence oil prices world-wide** because its members possess such a high proportion of the world's oil supply.

Some member countries are in favour of maximising prices in the short term as they have low reserves, a large capacity for absorbing oil revenue and a high degree of production capacity utilisation (Algeria, Venezuela and Iran). Others, such as Saudi Arabia and other Gulf producers, which have abundant reserves prefer to vary prices over the longer term, so as to prevent the emergence of alternative energy sources and maintain oil's position on the world energy scene in the medium and long term, together with their market share.

**Differences of opinion in OPEC** were already apparent at the time of the Gulf War regarding the oil embargo on Iraq (Iraq remains under sanctions resulting from the 1990-1991 Gulf War and its oil exports are only authorised by the UNSCR under the "Food for Oil" programme). Uncertainty surrounding developments concerning Iran and Libya plus the common position of Arab countries on the Israeli-Palestinian conflict are all factors that affect the smooth functioning of the oil market.

There is no reason to fear a physical shortfall in the foreseeable future, nor is it possible to anticipate OPEC's behaviour as a "cartel" and the political concerns that may occasionally affect its attitude. In the long term, given the concentration of reserves in OPEC countries, it will be technological developments that pose the principal threat to OPEC, namely, new production techniques in difficult areas, using non-conventional oil, and the development of new fuel substitutes and associated technologies, chiefly in the transport sector.

**2.3.- EU's oil supply dependence**

Since the first oil crisis in 1973, Europe's economy has grown and its energy requirements have increased. As a result the Europe of 15 is using far more energy than it can produce and therefore external dependence for energy is increasing:

- The EU currently imports some 50% of its total energy requirements, a figure that will rise to about 70% in 2030, with an even greater dependence on oil and gas, if current trends persist.

- The EU accounts for 14 to 15% of world energy consumption, though it has only 6% of the world's population. In particular it represents **19% of world oil consumption.**

- Current **energy demand is supplied 41% by oil,** in comparison to 22% for gas, 16% for coal, 15% for nuclear and 6% for renewable.

- The most important sector, electricity generation, is supplied by the following sources: 35% nuclear, 27% solid fuel, 16% natural gas, 15% hydro and other renewable and 8% oil.

- Households account for approximately 18% of total oil use (1/4 of household demand). **Transport is entirely dependent upon oil** (98% of transport consumption) representing 67% of final oil demand (This figure will rise to 71% in 2020)

**The most acute case of EU dependence is oil, where 76% of demand is met from external sources**. 43% of oil imports come from OPEC countries. In 2020 OPEC will supply 50% of the Union's needs with production of the order of 55 million barrels a day, as against 32 million barrels a day in the year 2000. In the long term, geographic diversification will not be easily achieved since the world's remaining oil reserves will increasingly be concentrated in the Middle East. In the short term there is little prospect of increasing supply in a significant way, as most oil-exporting countries have no spare production capacity, with the exceptions of Saudi Arabia, Iraq and, to some extent, Russia.

The EU has very few oil reserves (only eight years of known reserves at current consumption rates assuming no changes in consumption patterns and/or related technologies) and in the applicant countries the situation is even worse. Thanks to the **North Sea,** whose reserves belong mainly to the **United Kingdom,** EU production represents scarcely **4.4% of world output**. Today the cost of extracting one barrel of oil in Europe ranges between **USD 7-11**, compared to a range of USD 1-3 in the Middle East.

The rate at which Community resources will be depleted depends not only on the extent of known reserves, but also on the price of oil on the world market, and on technological progress. The higher the price of oil, the more companies will invest in prospecting and production.

The EU's overall strategy should seek to reduce Europe's dependence on energy, and especially on oil imports. On 29 November 2000 the Commission adopted a **Green Paper "Towards a European strategy for the security of energy supply"** that seems to be a good basis for a common policy.

### 3.- POSSIBLE CAUSES OF THE RECENT OIL CRISIS

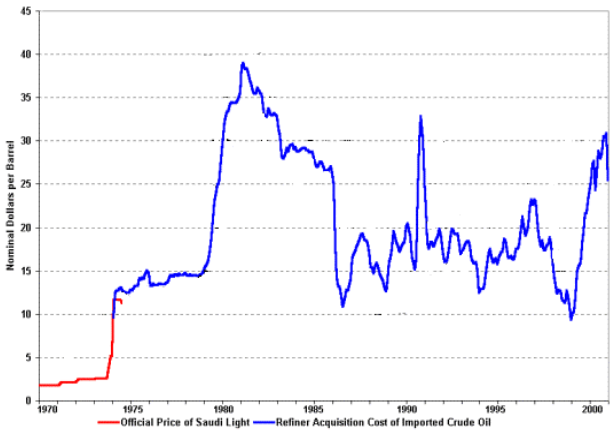
In order to understand better the recent oil price crisis one has to review first the world oil market and oil price chronology from 1970 to present.

#### 3.1. Background

The crude oil market was fairly stable from the late 1940s until 1973. Since then, crude oil prices have experienced changes because of different reasons (in the graph shown on the following page, the price data are in nominal terms, i.e. they are in "dollars-of-the-day" and have not been adjusted for inflation):

1. In **1973, the Arab oil embargo** presented the world with its first **major energy crisis**. Crude oil prices rose sharply as Arab producers cut world supply.
2. The **Iranian revolution in 1978** gave the world oil market its **second major shock.** The lack of exports cut world supplies and the price of oil again increased greatly. When the **Iran/Iraq war** started in **1980,** prices increased again.
3. In **1982, world crude oil prices began a downward trend** as demand slackened. Increasing production by non-OPEC countries, such as Egypt, Mexico, Norway, and the United Kingdom, combined with the effects of conservation in earlier periods created an oversupply of oil on the world market. When a resurgence in OPEC production began in 1986, crude oil prices plummeted.
4. On August 2, **1990, Iraq invaded Kuwait,** causing crude oil and product prices to rise suddenly and sharply for the third time in 17 years. After the United Nations approved an embargo on all crude oil and products originating from either country, uncertainty about future supplies caused rapid price escalation. The world price of crude oil reached about $36 per barrel. However, as production from other countries offset the loss of Iraqi and Kuwait oil in world markets, and fears of a world-wide shortage subsided, petroleum prices stabilised.
5. A few years later came the **price collapse in 1998 based on events that took place in 1997/98.** A major reason for it was the re-emergence of **Iraqi oil exports** since on December of 1996 UNSC (United Nations Security Council) approved Resolution 986 authorising Iraqi oil exports under the Programme "Oil for Food". At the same time as Iraqi oil exports were resuming and even increasing rapidly, Asian oil demand (the main region of growth in the early 1990s, including China and Japan) in the wake of a severe economic crisis diminished in 1997 and collapsed in 1998. The third factor was the warmer than normal winters in those years. This whole scenario put a severe downward pressure on prices.
6. For all these reasons, **by early 1998 prices had fallen so much** that 10 OPEC countries (the 11 members of OPEC minus Iraq, whose oil exports are under UN sanctions) got together and decided to **cut**

**production** from estimates of February 1998 levels by 1.25 MMBD, effective **April 1998**. When prices did not recover right away, the 10 OPEC countries decided to cut quotas by 1.35 MMBD, effective **July 1998**. Following a few months of that, prices started increasing, but not fast enough for OPEC, so the 10 OPEC countries initiated a




3rd round of production quota cuts (by 1.72 MMBD), effective **April 1999**. So the total targeted cuts in production from February 1998 levels amounted to over 4.3 MMBD. With peak OPEC compliance rates at 80% or higher, actual **production was cut by about 3.5 MMBD.**

7. But in **2000**, OPEC agreed to turn back the third cut and **increased quotas** (by 1.7 MMBD) effective **April 2000**. However, OPEC cohesion had started to decline prior to this and they were overproducing by about 1 MMBD, so production increases were closer to just a little under 1 MMBD as opposed to the target increase of 1.7 MMBD.
8. After initially declining to about $25 per barrel on a monthly basis in 2000 April, prices shot back up again, so OPEC decided to **increase production** quotas by another 0.7 MMBD effective **July 2000.** However, with decreased investment in some countries and increased production in others, much of OPEC is now producing very close to capacity. Only Saudi Arabia, Kuwait, and the UAE have a significant amount of spare production capacity, so any further increases will disproportionately favour these countries. **Another rise** in production quotas by 800.000 barrels per day was decided in an attempt to push crude oil prices back under $28 per barrel effective **October 2000**. OPEC's informal price band mechanism took effect as OPEC members agreed to **increase production** by 500,000 barrels beginning **in 2000 November**.
9. In January 2001, OPEC agreed to **cut production** quotas by 1.5 MMBD, effective **February 2001**. Finally in March 2001 OPEC decided to **decrease production** quotas by 1.5 MMBD per day effective **April 2001** (in real terms, 0.55 MMBD per day). The next meeting of OPEC will be held on 5th and 6th of June 2001.

### 3.2 How did we get to this point?

Looking at the present oil market situation, we must inevitably conclude that currently high oil prices are not only the result of the balance between crude oil demand and supply. Several other factors are also intervening and must be taken into account. But there are **different versions** about the possible causes of the tripling of the oil prices in the last two years.

*Reasons for the price rise*

The sharp rise in prices is essentially the result of the **OPEC cartel's restrictive production policy.** High growth in demand has also played an important role and, to a lesser extent, the weakness of the Euro in relation to the Dollar.

The **economic environment** has also been extremely favourable. With a price level of $10 per barrel at the end of 1998, oil companies saw their profits collapsing. The number of exploration and production projects in some non-OPEC regions where production costs are high, such as the USA, the North Sea and the Caspian Sea basin, fell sharply. The **financial crisis in Russia,** which was made worse by the collapse of its revenue from crude oil prospecting, and the **rising public finance deficit in Saudi Arabia** and some other major producer countries were also worrying factors which caused instability.

The tightening of production quotas by OPEC in a situation of lively demand reduced oil stocks to a particularly low level in early 2000 and was the physical factor behind the rise in prices.

In **geopolitical terms,** there have also been the recent difficulties in the peace process in the Middle East, the embargo on Iraq and the uncertainty in developments as regards Iran and Libya, although it is not possible to define exactly what influence they have had on the behaviour of the OPEC members.
Finally, one cannot ignore the financial impact of **speculation** brought about by the increase in

"paper" transactions in the future markets (International Petroleum Exchange in London and New York Mercantile Exchange in the USA).

Some of these factors are still extant, and for the next year or two will probably continue to enable OPEC to retain some control over the market and keep pressure on it by keeping stocks in the consumer countries at a low level.

*OPEC's version*

OPEC considers it **misleading to say that prices have trebled** over the past 2 years; it is a far more accurate reflection of the situation to say that prices have risen to their present levels from a decade-long average of almost $18 per barrel. They were at the oft-quoted low point of around $10 per barrel for only a brief period in December 1998, in exceptional market circumstances. On the other hand they were almost $25 per barrel in January 1997.

One factor has been **the steep fall in refining capacity** facing the world's main energy market, the **United States.** At the beginning of the year 2000, only 85% of present capacity was being used. This explains the fall in inventories of products and the corresponding rise in prices. Such a picture is a consequence of increasingly stringent **environmental protection measures**, which lead to higher costs and reduced profit margins.

Another important factor affecting market stability is **taxes** on final consumer prices. The high levels of taxation on petroleum products in most consuming countries are greatly amplifying the effects of rises in the price of crude, to the detriment of the consumer. The distortion that such taxes produce is so huge that they generate higher revenues for the governments of consuming countries, as compared to the full export income of oil producers. The high taxation is the more important issue in the European Union.

Market stability is additionally being affected by an insufficient tanker fleet to satisfy the industry's present transportation needs. There is one final factor affecting all markets: **speculation** through futures trading. Future markets, associated with the exchanges in New York (NYMEX), London (IPE) and Singapore (SE), make daily transactions equivalent to between 90 and 150 MMBD. And future traders act according to expectations, introducing significant price distortions.

**OECD inventories** are expected to remain at very low levels on a days supply basis (the number of days of future demand that can be covered by inventories). Thus, with inventories likely to provide several days less coverage than in the 4th quarter of 1996, for example, prices are expected to remain relatively high in comparison to historical averages.

## 4. REPERCUSSIONS OF THE TRIPLING OF OIL PRICES DURING THE 1999-2000 CRISIS.

The price of oil is very important to the world economy. Oil is the foundation for the plastics and petrochemical industries. It impacts on the price of transport, the cost of goods and services, and the availability of many products, including food, water and shelter. If oil prices are **too high,** then these goods and services become more expensive and economies experience **inflation**. Alternative forms of energy would also become more cost-competitive. If oil prices were **too low**, consumers would **waste** this non-renewable resource, investors would not be attracted to the industry and oil producers would suffer a severe crisis.

*Prices Fluctuations affecting EU economies*

While industrialised countries were at breaking point following the two oil crises (1973 and 1979), this is no longer the case in recent years (threefold rise in the price of oil). Energy diversification, the almost general exclusion of oil products from the production of electricity and structural changes in Europe's economy**,** which has changed from being an industrial society to a services society, have lessened the impact of erratic fluctuations in the price of oil. Thought should be given to methods of payment, in particular the possibility of billing the Union's energy purchases in Euro, thereby reducing the impact of exchange rate fluctuations (adding the Euro depreciation). Also, the high level of taxation on oil products in Western Europe considerably reduces the impact of price increases on inflation.

For all non-producing developing countries, the cost is still higher and this can prevent them from breaking out of the vicious circle of poverty. More particularly, the increase in oil prices affects those populations already on the threshold of poverty and threatens them with even greater levels of economic and social exclusion.

While the EU economies are now better able to deal with price volatility, they are still unable to control all the relevant geopolitical and speculative factors, and have little power to determine the future direction of world markets. On the financial level, the impact of speculative capital flows generated by the growing number of **transactions in the future markets** can cause sudden price movements and is also highly worrying.

Pronounced price fluctuations present a major problem for oil supply. Sudden fluctuations entail significant economic and social risks for our society. Both politics and the economy have much interest in a stable and predictable oil price.

**5.- ENERGY POLICY FOR THE EU**

The recent increase in oil prices highlights the danger of too great a dependence on a form of energy whose production is concentrated in a limited number of countries. Moreover, the volatility of the market has revealed that it lacks transparency and pricing mechanisms. There are a number of possible strategies to consider for reducing Europe's increasing energy import dependency (mainly oil). These are a raft of measures intended to support domestic production that would not otherwise be competitive, a deliberate policy of stockpiling, and programmes to promote energy efficiency and technological development.

**5.1- Short term solutions:**

- Reduction of taxes on oil.

The final price of oil products (to the consumer) includes a large proportion of taxes. These taxes are of two kinds: **excise taxes** that are specific (fixed) duties, and a **Value Added Tax (VAT)** that is proportional to the selling price of the product.

According to OPEC sources, there is excessive domestic taxation on petroleum products in the EU, and only 16% of the revenue from a barrel of refined oil in Europe goes to oil exporters, the remaining **84% is taxation and the take of refiners and marketers.** It is estimated that the total amount of tax on fuels accounts for **50-60% of the consumer price in the countries with lowest taxes (Greece, Luxembourg, Portugal, Spain) and up to 75% in the United Kingdom**. Given the massive proportion of tax in the price paid by consumers, a fairly widespread idea taken up by OPEC is to offset the price of oil products by lowering taxes.

In autumn 2000 some EU member states were going their own way on taxation in reaction to strong public pressure. But **tax reductions would mean a transfer of the tax revenue to the member countries of OPEC** and this would encourage them to keep the oil price artificially high. Such an approach would also be incompatible with the orientations of economic policy and with the commitments of the Member States in terms of budgetary consolidation.

The Commission was considering the request of several member states of **reductions in taxes on diesel fuel for road haulage** (since transport is the largest consumer of oil products, more than 80% of which are consumed by road haulage), but these social measures can only be justified for very **short-term periods (a few months).** Furthermore they are not consistent with the European Union's objectives in terms of environmental, energy and transport policy (especially the rail sector).

More precisely, a genuine harmonisation of excise duties on fuel between member states is needed. A harmonised energy tax could be a flexible instrument acting as a buffer to serious price fluctuations. The only conceivable adjustment mechanism relates to VAT so a decision could be taken to stabilise VAT revenue in the event of significant fluctuations in oil prices.

- Oil strategic stocks into the market

World physical supply of oil can be disrupted at any moment by events like political instability, conflicts or war in producer regions or transit areas. **Emergency reserves and crisis measures,** such as those set up by the International Energy Agency (IEA) and by Community legislation, provide a partial response to this threat.

The EU has issued three Directives that together with measures taken by the IEA govern the Organisation of Member States national reserves. Two Directives **(Directive 68/414/EEC** and **Directive 98/93/EEC)** impose an obligation on Member States to maintain stocks equal to 90 days' consumption for each of three main categories of petroleum-based energy products. When reserves fall below this level, the Commission must organise consultation with the Member States.

Under another Directive **(Directive 73/238/EC)** Member States must be ready to act, i.e. they must establish contingency plans, together with

appropriate bodies and mandates, in particular for releasing reserves onto the market, limiting consumption, ensuring supply to priority customers and regulating prices. The same Directive stipulates that, should a crisis break out, the Commission must organise consultation with the Member States to ensure their actions are co-ordinated through an **Oil Supply Group.** The Commission must also ensure that the different national systems do not give rise to distortions of competition or obstacles to inter-Community trade. In its recent Communication on the EU oil supplies, the Commission declared that it intended to look into how it might be possible to **increase** the quantities held in **strategic petroleum reserves** by reorganising them on a **Community basis.**

To verify the effect on the oil market of a measure like this, we have to look back the example of the **USA's Strategic Petroleum Reserve (SPR)**. The reserve was drawn on in 1991 during the Gulf War and again a second time a few months ago. The impact of their decision to release 30 million barrels from its crude oil reserves in September 2000, in order to make up for an excessively low level of product stocks which might lead to a shortage of heating oil during the coming winter, serves to illustrate the fact that the mechanisms which exist at the international level to deal with crises are severely limited, especially since such crises often have more to do with market economics than with physical disruption of supply.

But sometimes these USA interventions have a more marked influence on the psychology of the market. We should take into account that such measures should only be put into action in case of a severe oil crisis or disruption of supply.

### 5.2.- Long term solutions

- Reduction of EU´s oil dependency

The new context of high oil prices increases the need to develop a new strategy for demand geared to the gradual substitution of oil by other sources of energy, promotion of **renewable and alternative energy sources**, demand management, greater energy efficiency and energy saving, particularly in buildings. These measures should help both to protect the environment (in particular in respect of the problem of greenhouse gases) and to lessen the vulnerability of the European economy to energy supplies from outside.

The Commission has proposed **regulations on energy saving** in building to replace the simple, relatively ineffectual incentive measures so far taken at Community level.

There is a high degree of penetration of natural gas, considered as a potential substitute for oil, in the European Market that should be an incentive for the EU to co-operate more closely with the two main natural gas suppliers (Russia and Algeria) by providing support for gas extraction and transmission.

In the key sector of transport, managing fuel demand also implies redressing the balance between modes of transport, particularly for freight, in favour **of rail and short sea shipping** as well as more rational use of private cars in city centres and the promotion of "clean" urban transport (**White Paper on Transport Policy by the Commission)**. On the vehicle front, technical developments will help to improve the **fuel efficiency** of conventional vehicles and to progress towards more efficient electric and hybrid vehicles as well as battery-driven vehicles. In terms of fuel, on the other hand, measures have to be stepped up in favour of **fuel substitutes** to make for greater use of natural gas in vehicles and, in the longer term, hydrogen and biofuels which the proposed directive on energy products plans to free from excise duties.

- Diversity of oil supply

It needs to be guaranteed through imports from different regions, including the Middle East, but also the Mediterranean, West Africa, the Russian Federation and new areas such as the Caspian Sea. Greater co-operation is needed to rehabilitate production and transport installations in **Russia** and to capitalise on the prospects opened up by oil and gas from the **Caspian Sea Basin,** in particular under the **INOGATE (Interstate Oil and Gas Transport to Europe) Programme.** Rehabilitation and optimisation of the oil and gas networks of the former USSR, so as to free the resources of Russia and the Caspian Sea basin, should help in the long term to improve the oil supply of an enlarged European Union. The interest in this programme is mutual since the Russian Federation also stands to gain from this programme.

- Oil market stability and transparency.

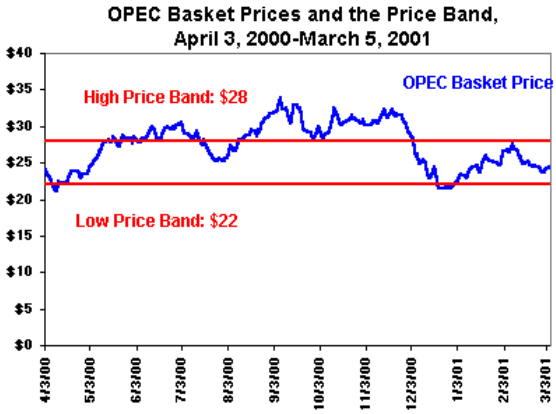
While it is in the interest of both producer and consumer countries to see where prices are heading, these prices have to find their level in a competitive market. At political level it is important for the EU to set up an **ongoing dialogue with producer countries, especially OPEC** and its principal member countries, to make for maximum market transparency and help long-term price stabilisation. As the second-largest world consumer of oil, the EU has enough strength to speak with a single voice. The decisive question is whether the EU is prepared to appoint an individual to speak on its behalf. A first step has been made in this direction, when the Commissioner responsible for energy represented the EU at the **7th International Energy Forum in Riyadh on 16 and 17 November 2000.** It is also conceivable that OPEC might negotiate with the IEA, with the EU appearing as part of this Organisation.

Another important question is the need to create a **genuine internal market for refinery products.** This would make it possible to carry out a systematic comparison of the prices for oil products in the member states. Inequalities within the Community could be more easily identified and any exploitation of a dominant market position could be punished or even prevented.

The Commission will maintain its contacts with national competition authorities in order to exchange experiences and views in this area. It is sure that the competition authorities (at national and Community levels) are ready to intervene immediately when the market operators appear to wish to exploit the situation by anti-competitive behaviour. The Commission will also continue to be vigilant in applying the merger control rules in this sector, as in the cases of BP-Amoco and TotalFinal-Elf, in order to avoid any abuse of a dominant position.

OPEC Reaction*: The Price Band Mechanism*
During its March 2000 meetings, OPEC adopted an informal **price band mechanism** (formally ratified on January 17, 2001) **whereby OPEC basket prices higher than $28 per barrel or lower than $22 per barrel would trigger automatic production adjustments**. Prices sustained above the target range for 20 trading days are to result in an automatic production increase of 500,000 bbl, while prices below the target range for 10 trading days are to result in cuts of 500,000 bbl. OPEC has specified that supply adjustments are not automatic but require approval by an OPEC conference. Although the average OPEC basket price stayed above the $28 level for 81 consecutive trading days between August 14 and December 4, 2000, the informal price band mechanism **was activated only once in October 31, 2000**.

In January 2001, OPEC Secretary General Ali Rodriguez of Venezuela confirmed the group's commitment to the $22-$28 price band, but added that the group still could adjust production at any time. Rodriguez stated confidence that the group had achieved




source: EIA/OPEC New Agency (official OPEC news source)

"complete consensus" regarding the band. Furthermore, he maintained that producing and consuming nations had agreed that **a $25-per-barrel price** would translate to a stable world oil market and benefit both exporters and importers (see graph).

## 6.- CONCLUSIONS

In terms of risk to security supply, oil remains the most important source of energy. EU dependence on imported oil continues to grow despite recent falls. The cost of producing oil in the Middle East is low and supplies in this area are relatively abundant. However, uncertainty surrounds future investment levels and physical availability of Middle East reserves. North Sea oil is expensive to exploit and reserves are limited, at best an estimated 25 years' supply at current production levels. In the past, reductions in energy intensity and the replacement of oil in heat and power applications transformed the market for oil. Nonetheless, demand continues to rise. Unless a breakthrough is reached which removes the almost complete dependence of the expanding transport sector on oil, Europe's reliance on Middle East and OPEC oil is likely to be virtually complete in the long term, providing that supplies are technically and geopolitically

available. Decisive elements for future oil requirements are the dependence of the growing transportation sector on oil, the risk of price fluctuations, and the development of alternative transport fuels.

Unless specific measures are taken to disengage the oil sector, especially in transport, oil dependence could reach 90% by 2020. Intensive efforts are needed to replace oil with other alternative sources of energy and to curb consumption, especially in the road transport sector. The current absence of any real oil substitute (biofuels, natural gas), principally in the transport sector, would make any prolonged crisis critical.

Europe's economy should learn to live with oil prices above USD 20.

## GLOSSARY

**Barrel:** A volumetric unit of measure for crude oil and petroleum products equivalent to 42 U.S. gallons. This measure is used in most statistical reports.

**Crude Oil (Including Lease Condensate)**: A mixture of hydrocarbons that exists in liquid phase in underground reservoirs and remains liquid at atmospheric pressure after passing through surface-separating facilities. Included are lease condensate and liquid hydrocarbons produced from tar sands, gilsonite, and oil shale. Drip gases are also included, but topped crude oil (residual oil) and other unfinished oils are excluded. Liquids produced at natural gas processing plants and mixed with crude oil are likewise excluded where identifiable.

**Crude Oil Production**: The volume of crude oil produced from oil reservoirs during given periods of time. The amount of such production for a given period is measured as volumes delivered from lease storage tanks (i.e., the point of custody transfer) to pipelines, trucks, or other media for transport to refineries or terminals with adjustments for (1) net differences between opening and closing lease inventories, and (2) basic sediment and water (BS&W).

**Oil Price:** It is the total amount formed by the crude oil price more the refining and distribution margins and the taxation.

**Oil Strategic Stocks**: One of the IEA Member States principal commitments is to maintain reserves of oil and/or petroleum products at a level equivalent to 90 days of net imports, for use in case supply should be cut. Most Member States actually maintain their strategic reserves at a somewhat higher level.

**OPEC:** The acronym for the Organisation of Petroleum Exporting Countries, that have organised for the purpose of negotiating with oil companies on matters of oil production, prices and future concession rights. Current members are Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela. The Neutral Zone between Kuwait and Saudi Arabia is considered part of OPEC.

**OPEC Pricing:** OPEC collects pricing data on a "basket" of seven crude oils (Algeria's Saharan Blend, Indonesia's Minas, Nigeria's Bonny Light, Saudi Arabia's Arab Light, Dubai's Fateh (or Dubai), Venezuela's Tia Juana Light, and Mexico's Isthmus (a non-OPEC crude oil) to monitor world oil market conditions. Other major world crude oils important for oil pricing, called "benchmark" crude, include U.S. West Texas Intermediate (WTI) and North Sea Brent crude. WTI is traded on the New York Mercantile Exchange, and Brent is traded on the International Petroleum Exchange in London, and both crude oils also are traded on spot markets. Because WTI is a very light, sweet (low sulphur content) crude, it is more expensive than the average OPEC basket, which is an average of light sweet crude oils such as Algeria's Saharan Blend and heavier sour (high sulphur content) crudes such as Dubai's Fateh. Brent is also lighter, sweeter, and more expensive than the OPEC basket, although less so than WTI. The average price for imported oil paid by U.S. refiners is referred to as the Imported Refiners' Acquisition Cost (IRAC). This is used as a proxy for the average world oil price, and is the world oil price used in EIA's Short-Term Energy Outlook. The IRAC price and OPEC basket price have tracked closely during the past few years.

**Petroleum Products:** Petroleum products are obtained from the processing of crude oil (including lease condensate), natural gas, and other hydrocarbon compounds. Petroleum products include unfinished oils, liquefied petroleum gases, pentanes plus, aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, petrochemical feedstocks, special naphthas, lubricants, waxes, petroleum

coke, asphalt, road oil, still gas, and miscellaneous products.

**SAVE**: The European Community Programme for encouraging energy efficiency, with as one of its goals to stabilise anthropogenic $CO_2$ emissions in the year 2000 at 1990 levels.

**Strategic Petroleum Reserve (SPR):** Petroleum stocks maintained by the Federal Government for use during periods of major supply interruption. The US established the SPR in 1975, after joining IEA, and two years after the first oil crisis. American law lays down that there should be a strategic reserve equal to 1 billion barrels of oil, for use in case of war or other serious conflict leading to the physical disruption of supply.

**ABBREVIATIONS AND UNITS**

**bbl:** barrels (of oil), approximately 159 litres
**DOE**: Department of Energy (US)
**EIA:** Energy Information Agency (part of DOE)
**EU:** European Union
**IEA:** International Energy Agency
**MMBD:** Million barrels per day
**OECD:** Organisation for Economic Co-operation and Development
**OPEC**: Organisation of Petroleum Exporting Countries
**UAE:** United Arab Emirates
**USD:** United States Dollar
**UNSCR:** United Nations Security Council Resolution
**WEC**: World Energy Council

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