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Outlook of the impact of Europe
1992 on the oil and gas equipment
and services industry sector

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EUROPE 1992
OIL AND GAS EQUIPMENT
AND
ENGINEERING SERVICES

**OUTLOOK OF THE IMPACT OF
EUROPE 1992 ON THE
OIL AND GAS EQUIPMENT AND SERVICES INDUSTRY SECTOR**

**Prepared for
The European Community Trade Policy Division
External Affairs**

**By
Stratam Inc.
Montreal, Canada**

1.0 INTRODUCTION

This document examines the impact of Europe 1992 on the Oil and Gas sector. Having done an impact study on industrial goods, we develop here, for the benefit of the oil and gas community, a brief analysis of one sub-sector namely the oil and gas equipment and services industry sector. European companies prepare themselves to be more competitive not specifically for Europe 1992 but for the globalization of markets. Europe 1992 is a catalyst and a major component of the world market globalization but, as far as oil and gas is concerned, the stake is not only Europe but the third countries. For example the French export market for oil and gas equipment is 15 times greater than their interior market. As there is a large competition in the third countries, European companies are organizing themselves to be more competitive. The new rules of Europe 1992 helps to accelerate the firm's rationalization through the elimination of non-tariff barriers.

The following document looks therefore more in detail at the situation in Europe and what is at stake for Canadian companies.

If we relate Europe 1992 to the industrial sector in general, the elimination of non-tariff barriers within twelve countries will bear a major impact in most sectors. Although companies will need to continue to adjust their production to meet local needs, the European Economic Community has adopted policies to standardize norms and conditions to facilitate product exchange within the twelve countries and reduce the local protectionism. This will necessarily increase the flexibility of manufacturers and facilitate market penetration. This will lead, for the industry sector in general, to the concentration of firms through mergers and acquisitions which will mean economies of scale, product performance and product competitive position.

Although the oil and gas industry is already internationalized and highly standardized internationally, there is at the moment a merging and acquisition process within the equipment and services in Europe. We therefore think very important for Canadian companies to be sensi-

ve to what is happening in Europe and what is going to happen within the next two years. Europe 1992 is certainly a target year but not a deadline. Changes will occur after 1992 although most players will be already in place. It is therefore time for companies to build up their own strategies to take the best advantages of the opening of frontiers through tariffs elimination in additional countries of the EC and non-tariff barriers of the twelve countries of the EC.

2.0 EUROPE 1992 AND THE INDUSTRIAL EQUIPMENT AND SERVICES INDUSTRY

Europe 1992 will have an impact on every sector of the Western Europe economy. However, it is not possible to determine yet the effects on every sector.

If we focus on the oil and gas industry, there are a number of directives that are or will be in place before 1993 that will bear an impact on the Canadian oil and gas equipment and services industry.

The Commission of the European Communities wants to standardize the manufacturing as well as the distributing process. The most important laws or directives set by the Commission that will have an implication on the industrial sector are the following:

- 1) Removal of technical barriers: There are two major concerns in this section:
 - a) The harmonization of Technical norms: The Commission will set essential requirements for health and safety in all the major sectors while two organizations: CEN and CENELEC will define the technical manufacturing standards for the Community. However, CEN and CENELEC are not trying to standardize everything, only a small number of aspects will be harmonized. For example, the standard EN-228 concerning lead-free petrol defines a number of joint specifications although other specifications are left to the discretion of the member states.
 - b) Opening up of public procurement: This is a major issue in the industrial sector since it will enable, in principle, companies from every European states to bid for any government offering inside the Community. More important is that companies outside the Community will be permitted to bid for these same offerings and their bidding will have to be considered as equal with a European

bidding if their offer is 3% less than the European ones. Although the public procurement would be opened to all countries, local content and proximity of services will still be an asset.

- 2) Removal of fiscal barriers: This means that the Commission is trying to harmonize the taxation process throughout the Community. The taxation level differs now considerably from one country to another.

The Commission is concerned by the valued added tax (VAT) aspect and by the harmonization of excise duty especially in what concerns products that are highly taxed. In some sector such as high-tech machinery, construction products and environmental products, this harmonization will not affect the structure of the industry. In fact, the impact will be quite minor. However, in a sector such as the oil sector where taxation represents more than 65% of the price in the Community, the final results of the Commission will greatly influence the demand of energy products.

The Commission made a simulation of the impact of such harmonization on the VAT rate and excise duties. They found that overall, the demand for oil products would increase by 0.1% while de gas product would increase of 1.5%. This would imply major modification of the industry and at the same time of the structure of the suppliers of equipment (more significantly the suppliers of distribution equipment), since the demand for certain types of energy will change.

In fact, demand for oil products could decrease in Germany as much as of 5.1% while increase in Italy could be of 6.7%. The Commission has been focusing its attention on taxation in the energy field because of the impact this will have on the structure of the industry. A number of simulations have been computed in order to determine the impact of taxation on the industry.

3) Free movement of goods and services: This means that the Commission is trying to eliminate any measures by the member states that constitute, either directly or indirectly, actually or potentially, a barrier to intra-Community Trade. From this general stipulation arise the following specific principle that:

Every product which is legally manufactured and commercialized in one member state may circulate freely within the Community.

There should not be anything stopping manufacturers from selling their products throughout the Community. This should increase the volumes of intra-community trade. It should permit the best companies in each sector to open up a new market and thus, be able to achieve economies of scale.

On the other hand, it will also make the European market attractive for a company outside the Community because of larger market possibilities although more competitive. In order to best penetrate the market, companies needed to have plants in many countries. This might still be important in some products segments to be near their prime market but some companies would now be able to concentrate their activities with less plants to permit economies of scale or justify an investment.

Now that Western Europe will be a big entity, more companies will try to have a share of this huge market, and as we noted in our industrial report, Canadian firms should not be an exception.

The European Community is opening its doors to the world, but not to everyone. It is clear that the community will not accept a company if its own firms cannot export or manufacture in the country of incoming company. This is what the Commission calls the Mutual Recognition process. It basically states that: "I'll treat your companies as one of mine if you treat my companies as one of yours". Fortunately, in Canada we have applied this basic principle for many years which entitled

our companies to go to Europe and take advantage of the opening of a major market representing over 320 million people.

4) Free movement of people

One of the present non-tariff barriers is the administrative procedure when one person needs to be transferred in an other country. With 1992, there will be easier travel and immigration, cross border recruiting and easier transfer possibilities.

3.0 OUTLOOK OF THE EUROPEAN OIL AND GAS SECTOR

Although this document puts the emphasis on equipment and services, it is worthwhile to have a broad outlook of the macro situation of oil and gas production in Europe so we can assess the potential for suppliers of goods and services. The forecast for natural gas up to 2010 is quite different from the one for oil products (see graphs 2 & 3). We can see that the natural gas demand is expected to have a constant increase through the years going from 219 Mtoe in 1987 to 291 Mtoe in 2010. On the other hand, the demand for oil products is expected to decrease after 1992. The forecast is that it will be as high as 541 Mtoe in 1995 but it should go down to 493 Mtoe by the year 2010.

- Some of the reasons why such a decrease is anticipated are:
 - That power station demand for oil is declining which reflects the move towards nuclear-based electricity generation.
 - Rationalization of European production, especially in the heavy industry, as a result of the recession in the early '80s.
 - The adoption of energy conserving technology.
 - And the European energy policy which clearly states that European states should be less dependant on the international sector (imports of oil in the Community). This will be achieved by promoting internal exploration and production as well as encouraging substitution from oil to other kinds of energy such as electricity or natural gas.

The oil consumption represents about 45% of all the primary energy consumption. The European Community is importing about 71% of its total consumption in oil. The Commission feels that the dependance of the Community towards the international market is too impor-

tant and that is why, it focuses its attention in changing the oil demand towards some other types of energy. The oil sector is a mature sector and we should not expect a large increase in demand within the short or long term.

- The natural gas sector will take advantage of the European energy policy. The Commission wants to keep the market share of natural gas to, at least 19%. In 1987, the natural gas market share was exactly 19% (199 Mtoe). The Community was importing 36% of this total. This type of energy is gaining more and more importance in the Community for two major reasons:

- 1- The capacity of the Community to produce as much as it needs through increased gas exploration mainly in the U.K. and the Netherlands.
- 2- The environmental groups are all favoring the natural gas which does not have bad effects on the environment. Since the environment consciousness is a rising movement, it would appear that natural gas will be the future energy source.

- On graphs 4 and 5, we can see the current countries producers of oil and gas in the Community. We can notice that the oil production is widely distributed over the Community Territory. Six countries have more than 10% of the total production: Germany (18%), U.K. (17%), Italy (16%), France (15%), Netherlands (11%), Spain (10%). In the natural gas sector however, the situation is quite different. There are two major producers: Netherlands (42%) and U.K. (31%), while countries such as Germany and Italy, with 10% each, are trying to increase their share in a market that is growing rapidly compared to the oil sector.

In this next graph (graph #6), we can notice the combined proportion of production of oil and gas, but here we only consider the crude oil for which the U.K. produce about 80% of the EC twelve countries production.

It is easy to realize that most of the equipment that will be needed for the exploration will be largely bought by the Netherlands and the U.K. companies.

We will now look at each one of the stages in the production of oil and natural gas in the European Community.

1st stage: Exploration and production of crude oil and natural gas

- In 1987, 93% of the total crude oil production and 49% of the natural gas output were covered by offshore activities. Currently, there is increasing competition for the awarding of exploration permits, with smaller surfaces being granted to more numerous entities, including minor independents. This has been especially marked for North Sea operations, for activities off Denmark and in the Paris Basin.
- On the average, crude oil proven reserves for the Community is down to a 6 year supply. Even proven and probable reserves are falling for the Community as a whole. In fact, only Norway has sizeable reserves in Western Europe.
- On the other hand, proven natural gas reserves are increasing slightly in the Community, even though there has been a decrease in the U.K. In fact, they went from 17 years in 1980 to 18.5 years in 1987. This also reflects the increase exploration efforts throughout the Community.
- Due to R and D programs and because of deep and severe conditions in the North Sea, European Oil companies as well as service and equipment industry have gained unique experience in offshore operations and continue to play a leading role worldwide in some advanced technologies or oilfield practices. Sectors in which European have a technological advantage are:

- Development of new systems for collecting, processing and interpreting geophysical data;
- Development of new platform concept;
- Deep-diving techniques and submarine vehicles for underwater works.

2nd stage: Refining and distribution

A. Oil Products

- Since the second oil crisis, the Community has promoted the use of alternative energy sources in place of oil and has taken measures to increase energy conservation. This has led to a decrease in oil consumption and thus, affected negatively the European refining industry. In addition, there is an increase of imports since the beginning of the 80s. Most of the import oil has already been refined. This led to a stronger decline in crude oil refined than oil consumption reduction.
- All these factors put together led to a major disinvestment in the sector which brought the Community refining industry in a difficult financial situation over the period of 1980 to 1988. A substantial number of refineries were closed down (51 refineries since 1977), distillation units discontinued and a number of conversion installations were built.
- In the distribution level, the profit margins are under constant pressure from competition and the consequent rationalization in most countries. This has resulted in different situations depending on the countries and operators. Some independent companies, which have been able to obtain supplies under favourable conditions as well as able to avoid losses on stocks due to price fluctuations, have mana-

ged to cover their costs. Others have been placed in difficulty or even disappeared. The market competition between the major oil companies at the pump puts significant pressure on efficiency which, as a consequence, puts pressure on suppliers to have competitive products.

B. Natural Gas

- The transmission of natural gas throughout the Community is done through the European gas network. This network (see graph #7) is mainly present in Germany which is the "central point" of the network. The transmission systems have been developed and extended on an economic and commercial basis in accordance with supply and demand factors. Through the transmission network, the European Community is importing natural gas from Norway and USSR.

- The physical infrastructure of the gas industry consists of pipeline and of other equipment needed to regulate the passage of the gas through the pipeline as well as for storage and gas treatment. The total investments in the EC for the transmission activities have fallen by about 16% since 1982, while they have increased by 48% in the distribution activities.

- It is easy to see that, with the increase of natural gas consumption in the next years, the investments should also increase in order to permit for more and more consumers to use natural gas in all countries but mainly in countries where the environment concern is significant and in countries where there is major transmission deficiency such as Spain, Portugal, Greece and Denmark.

4.0 EUROPE 1992 AND THE CANADIAN OIL AND GAS EQUIPMENT AND SERVICES INDUSTRY

4.1 TRENDS WITH THE EC

Let us turn our attention now to the relation that Canada has with the European Community in the oil and gas equipment and services sector.

Canadian firms have had little relation with the European Community. The amount of exports in 1986 was 15 million dollars. On the other hand, the European firms only imported 8 million dollars of equipment. It is clear from these numbers that the relations between the two entities are quite small. The question that comes to mind when we look at these numbers is: Why is anyone of these entities not trying to take a market share of the other one?

- 1 - European technology is as good as the Canadian one and even better in some specific sector that we have mentioned earlier.
- 2 - The product standards are pretty much the same all over the world.
- 3 - Oil companies are not changing easily of suppliers that they have known for years (old boys network).
- 4 - Since the standards are basically the same and the technology is as good as in the first entity than in the second one, the competition between companies will be made through prices. Since transport is an important cost for a Canadian firm exporting its products in Europe, we can easily understand why there is not much trading between Canadian and European firms.

If we take a look at the Canada-U.S.A. trade relation, we would see that, because of the market proximity, the volume of trade is

quite high. In fact, the Canadian trade deficit in this specific sector in 1986 was about 150 million dollars. Of course, the proximity of the market is not the only reason for this. The fact that a lot of Canadian exploitation firms are subsidiaries of American firms is another explanation factor. Nevertheless, transport cost is still a factor.

4.2 IMPACT ON THE CANADIAN OIL AND GAS EQUIPMENT AND SERVICES SECTOR

Before analysing the impact on the Canadian sector, let us take a look at the most likely scenario to happen in the European sector due to Europe 1992.

After 1992, a firm in Europe will ultimately need one plant to produce for the entire Community. However, if we are projecting what is happening at this time, the best firms will merge or acquire the less competitive ones. By doing so, they will be able to achieve economies of scale and/or rationalize their operations (the firm will be able to offer more products to its clientele).

On the other hand, firms that have an office in almost every country might close some of them since they might no longer need a presence in every country. With this process, we will see firms achieving economies of scale (1 plant will produce the amount of 2 previous firms) and/or rationalization, i.e. instead of incurring a cost (ex: marketing) by country, the firm will be able to reduce its expenses by centralizing its operations.

The result of all this is that the average European firm will be bigger and more competitive. In reducing their production costs, they probably will be able to put more money in R and D. We already know that the Europeans are technologically ahead of the Canadian in some subsectors, especially offshore production and exploration techniques. By putting more money in R and D, they will again stretch their technological lead by this time, in more subsectors: production techniques, materials, etc...

In the medium term, it will bring the European sector more competitive not only on its market, where they already have a technology adapted to their needs, but also on the international market. They will compete with anyone in the world including their biggest competitor: the USA, for third market countries such as: USSR, China, Indonesia, Pakistan, India, etc.

As an example of this, we can mention the French oil and gas equipment sector that is selling for 500 millions in its interior market and 7 billions in third countries. We can see that the European sector is, in general, already well aware of the third market and is putting a lot of efforts in order to get larger share of this huge market.

- Other reasons why they are orienting their efforts on third countries are:

1- The very slow growth of their market. We already have noticed that the European market is a mature one and that we should not expect a major increase even if we look at the long term (see graph 8 for world reserves).

2- The new events happening in Eastern Europe. With the falling of the barriers between Western and Eastern Europe, Western European companies are well positioned to gain a share of this potential market.

- What will be the impact of these modifications in the Community on the Canadian sector?

We already have shown that the trading between these two entities is very low. So, we can say that the direct impact will be quite minimal. Even though the European firms will be more competitive, it is unlikely that they would try to import in Canada since the transport costs are so high. One of the direct effect in the long run would be that Euro-

pean firms could come in Canada with their "new technology" and open a branch in the country. At that time, they could become dangerous for Canada's industry since they could take a share of the market that no Canadian firm could take because of a technological disadvantage.

The scenario presented above, even though realist, should not happen in the short or medium term since new technologies adapted to the Canadian market are not developed overnight. However, Europe 1992 might have an important impact in the short term in third countries. In order to present this, we have to analyse a bit more the Canadian industry.

The value of the Canadian exports in 1986 was 150 million dollars. Of these 150 millions, 15 went to the Community, 30 to the USA and 105 went to third countries (see graph #9). Furthermore, we can see that the percentage of Canadian exports to third countries has increased tremendously since 1982 going from 44% to 70%. This shows that third countries represent a very important market for Canadian firms. In fact, the more important trading partners with Canadian firms are: China, USSR, India, Pakistan and Latin America.

Canadian firms are presently enjoying considerable export success in these third countries. But, what will happen after 1992? We have shown that European firms will be more competitive internationally and that their prime target is the third countries. This will put a lot of pressure on the Canadian manufacturers who will have to face stronger competition. It could decrease considerably the Canadian exports to third countries.

This threat is of importance since it could mean the disappearing of some Canadian firm if nothing is done here to counteract the European movement. Even though, Europe 1992 will not have a major direct impact, it will affect the structure of the Canadian industry indirectly.

Facing this situation, a question remains: What can the Canadian industry do in order to prepare itself for Europe 1992 and its direct and indirect impacts on the sector?

4.3 FUTURE TRENDS - POSSIBLE SCENARIOS

RESULTS OF THE SURVEY

- As a result of a survey we conducted in Alberta to see the perspectives of Canadian firms towards Europe, 70% of the companies were aware of Europe 1992. However, it appears that the Canadian firms do not see this change in Europe as a significant opportunity to start doing business in the Community.

On all the companies that were not already exporting in the Community, none thought that Europe 1992 was a good opportunity for them to start doing business in the Community.

However, 30% of the companies surveyed thought that through a joint venture with a European Company, they would increase their chances to "open a market" or "have more visibility" in third countries such as Eastern Europe: Russia, East Germany and other countries such as: China, Indonesia.

- From the questionnaire, we have been able to identify two market segments where Canadian firms have a technological advantage on the European firms. These segments are:
 - Engineering and pipeline system design.
 - Equipments for drilling in difficult environments.
 - Quality control equipments.
 - Environmental control.
 - Energy conservation devices.
 - Acid oil technology.
- All the companies that are not aware of Europe 1992 are not exporting to Europe right now. The principal reason why they are not looking at the European market is the export capacity. Some of

these products are very difficult to move or the profit margin is so low that they cannot afford the transport cost.

Given that, we think Canadian companies should be more sensitive to what is happening in Europe as the changes could affect their competitiveness.

There are basically three possible scenarios that the Canadian firms will be able to focus on.

1 - Consolidation - Protection

This scenario applies to companies that are working in the Canadian territory only. They are most of the time quite small. These companies are very often specialized in a specific sector. In order to face the increasing competition from the European, these companies have to stay on top of their specific field of operation. This is becoming more difficult because of the very small growth of the industry and the competitiveness on this market.

For these companies, staying on top means to have high-tech products.

This means that efforts in R and D will have to be pursued. R and D means financing. The best way to solve this is by setting up a R and D group working for a number of companies or by merging two companies together. This way, the expenses are split in two and the results come faster.

Another way to stay on top is in acquiring technology. This is a good solution for firms with available capital. Since some European companies are ready to sell their technology, it appears that this solution is a very good way to protect Canadian company against European competition. There is in fact an ISTC division that support the exchange of oil and gas technology with European firms through information and foreign missions.

In every case however, it is shown that the smallest companies will have to rationalize their operations by focusing on a specific market segment. This should not be too hard to do since most of them are already specialized in a very small segment of the production process.

2 - Growth

For Canadian firms that want to expand their market, this means going overseas and trying to gain a share of the third countries market. We see two ways to do business with these countries:

- 1- Directly from the Canadian office.
- 2.- Opening a "new office" in the Community.

Let us look at the first option.

- A strong Canadian company could decide to do some representation in third countries on its own. This means that this firm is already very strong financially speaking, that its technology is ahead of the competition, that they are willing to incur the costs of foreign operations, promotion, R and D and travel. The key is to ensure a presence and in order to do that companies need a strong financial capacity.

On the other hand, these companies are keeping their independence. They still can do business whenever they want with whoever they want. However, we do not expect many Canadian firms to do so since it requires a very strong financial capacity and a technological edge on the competition such as drilling in difficult environment. It is clear that not every large company has a technological edge on the rest of the world.

If the company is not interested in taking all these risks alone, another scenario is possible in acquiring or merging with European firm. This implies however that:

- 1- In the case of the acquisition, the firm has a solid capital base.
- 2- In the case of the merger: The firm has something to offer to the European companies. It needs to have either some distinctive products or advanced technology. This is understandable since no firm will want to merge if a firm is not offering something in return.

If a company evolving in these sector is profitable in Canada, there appears to be a possibility for this company to be able to gain access to the world market.

- By merging with a European firm, companies will be able to increase its visibility in Canada, because of the new products and new technology the firm will have acquired through the European company.
- By merging with a European company, the firm will be able to sell its product in the Community. Even though this is a mature market, there is always room for specialized products in the development of natural gas, system design, environmental control.

More importantly, the firm will be allowed to take part in the European R and D program. They will keep their technology up to date with the European technology. This is a major advantage since Canadian firms are doing very little R & D.

- The Canadian firms merging with a European firm will increase their chance to be part of the third countries market, and especially the USSR.

These two countries have shown interest in the European products, the Community is much closer to this market than Canada, so it is easier for these countries to do business with the Community. This is especially true since contracts are very often offered on a bid-

ding process and that only companies that are known from the firm offering are invited.

Another aspect of the merger is that Canadian firms would be able to get some financing through the European company in order to sell their products to third countries. This is quite different from Canada where the financing is very limited.

It is clear that we are not recommending a merger with a European firm specifically to increase sales within in the Community. We are recommending a merger because it will enable Canadian firm to have a greater visibility in order to get contracts from third countries government or companies.

However, the company must be aware that such a merger will limit its independence and that it will not be able to bid alone on contracts that seem interesting if the other company wants to be part of the project also.

In the service industry, an acquisition is the best way to be part of the European market since it enables the firm to have any partner it wants. Since most of the contracts are awarded by governments or public companies (especially in the Eastern block), the firm must be politically attractive in every bidding and therefore have the choice of suppliers and sub-contracting engineering firms.

The firm must try to have joint ventures that are punctual on a project by project basis. It must try to minimize the lasting responsibility of obliging the relationship with its partners.

Conclusion

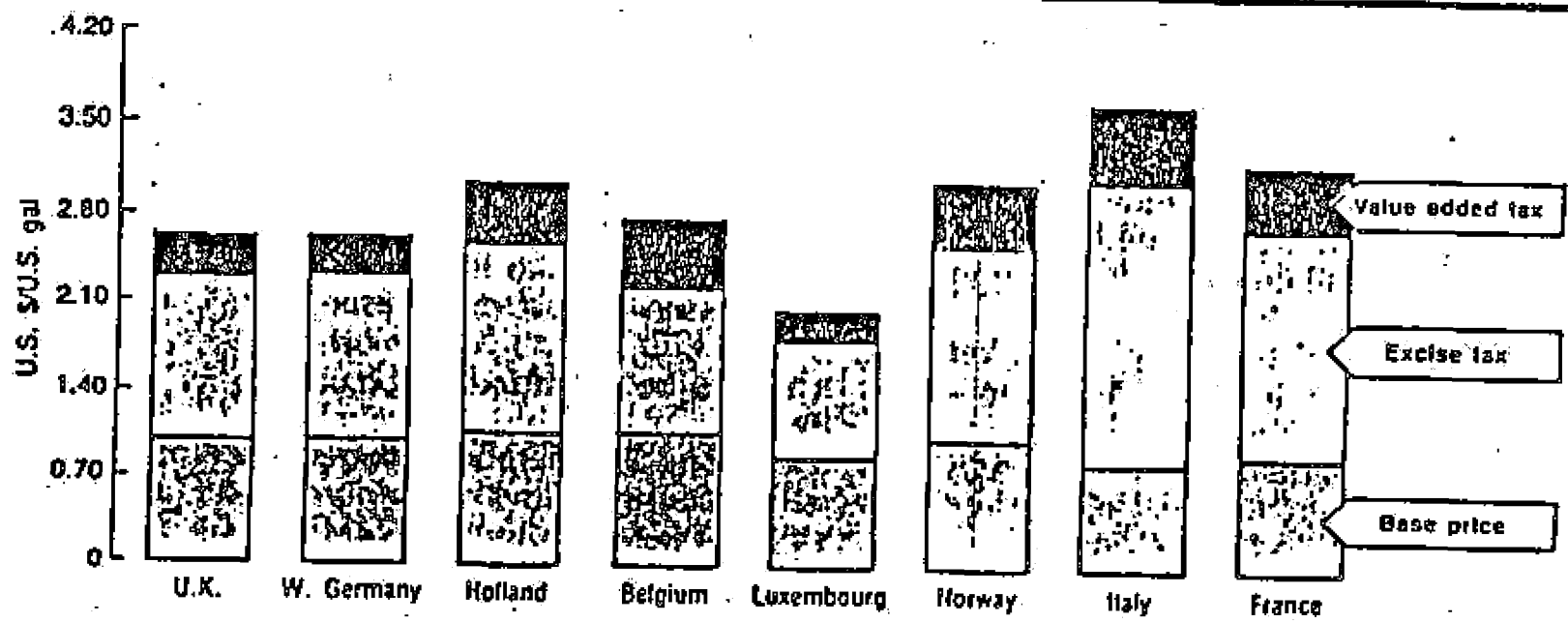
In conclusion the European strategy for Canadian oil and gas equipment manufacturers can vary from firm to firm depending of their product, their capitalization and their attitude. In any case, Western Europe should represent an interest if not for Western Europe per se for third markets such as Eastern Europe, China, South-East Asia and the African coast. For firms that do not have the potential to assure a presence in Europe they will need to adjust their home structure to be more competitive as European companies will be more competitive which will also put a pressure on U.S. firms. Since Canadian firms export up to 40% of their products, they should expect therefore more competition in third markets. In order to be more competitive, the Canadian firms will also need to find out competitive financing other than the EDC because of the reduction of concessional financing.

As a recommendation, firms should inform themselves on European equipment manufacturers through missions in Europe and try to target companies that could offer a complementarity for either technology exchange or joint venture to penetrate some emerging segment (gas, environmental control, automation devices, safety devices) in the EC and third countries. Also firms must develop a European attitude compatible with the European ways of doing business and develop a network because business deals cannot be made overnight.

In what concerns the services industry, we have here in Canada good assets and attractive know-how for the European. It is therefore important to have a presence in Europe either through acquisition or adhoc joint venture to penetrate the Western European market and more significantly the Eastern Europe.

GRAPHS

How European pump prices compare*



*Premium loaded as of Apr. 7.
Source: Esso U.K. plc

Impact of V.A.T. rates and excise duties harmonisation among member states of the E.C. on final energy demand (% of difference from Case 1)

		Case 2	Case 3
Germany	Solids	1.3 %	0.2 %
	Oil products	-5.1 %	-7.4 %
	Gas	1.7 %	0.5 %
	Electricity	0.5 %	0.4 %
	Total	-1.9 %	-3.4 %
France	Solids	0.0 %	-1.6 %
	Oil products	2.6 %	-2.5 %
	Gas	0.8 %	0.4 %
	Electricity	0.0 %	0.0 %
	Total	1.4 %	-1.2 %
U.K.	Solids	0.0 %	-2.2 %
	Oil products	-0.7 %	-3.8 %
	Gas	0.8 %	-1.0 %
	Electricity	0.6 %	0.5 %
	Total	0.1 %	-2.0 %
Italy	Solids	-0.7 %	-1.6 %
	Oil products	6.7 %	2.7 %
	Gas	3.1 %	1.6 %
	Electricity	0.5 %	0.2 %
	Total	4.4 %	1.9 %
Average	Solids	0.4 %	-1.1 %
	Oil products	0.1 %	-3.4 %
	Gas	1.5 %	0.2 %
	Electricity	0.4 %	0.3 %
	Total	0.6 %	-1.5 %

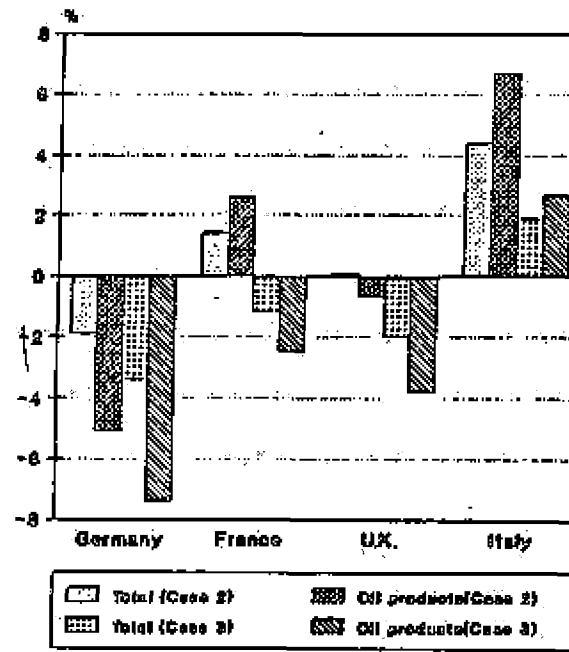


Figure 9 : Tax Harmonisation impact on final energy demand

Figure 6
Total oil demand
Europe12: Scenario 1

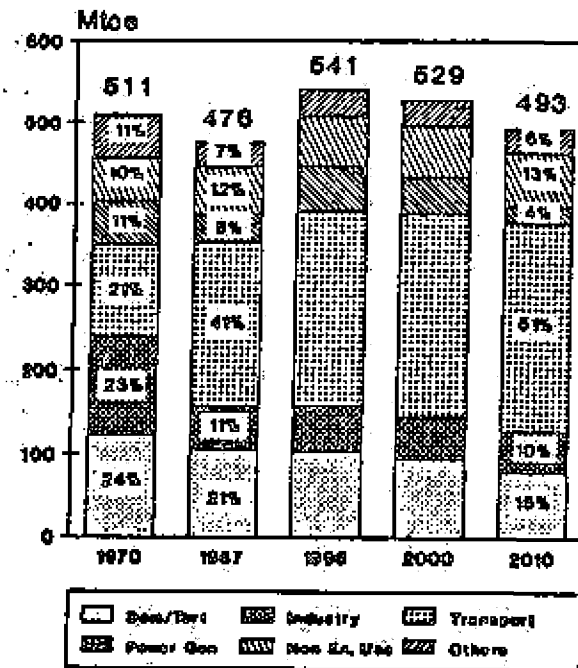


Figure 7
Natural gas demand
Europe12: Scenario 1

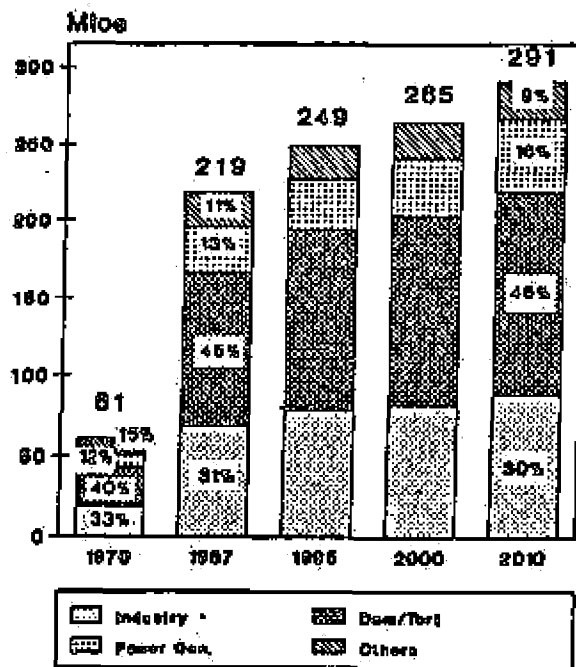
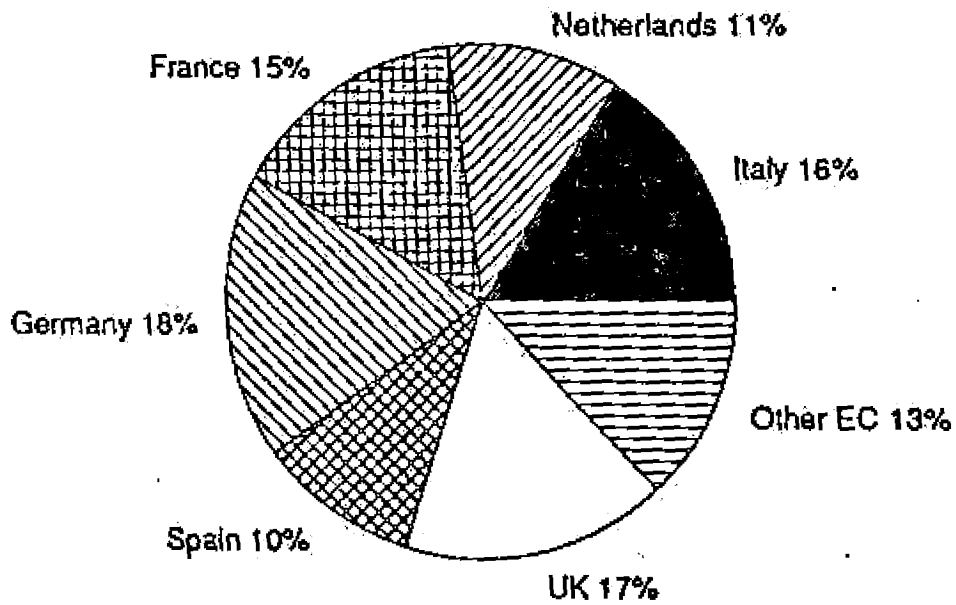
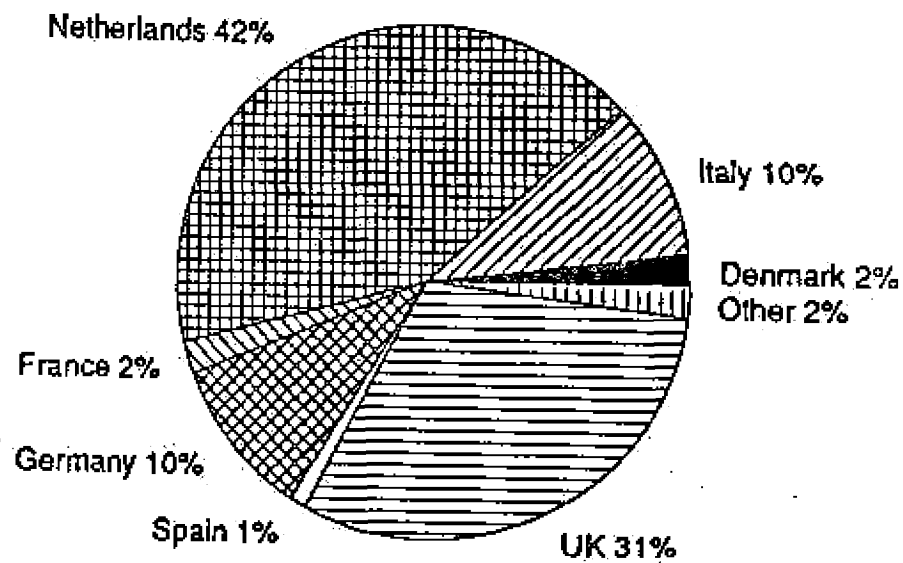


FIGURE 1: EC 12 PRODUCTION OF PETROLEUM PRODUCTS IN 1988 (million tonnes)



Source: Eurostat.

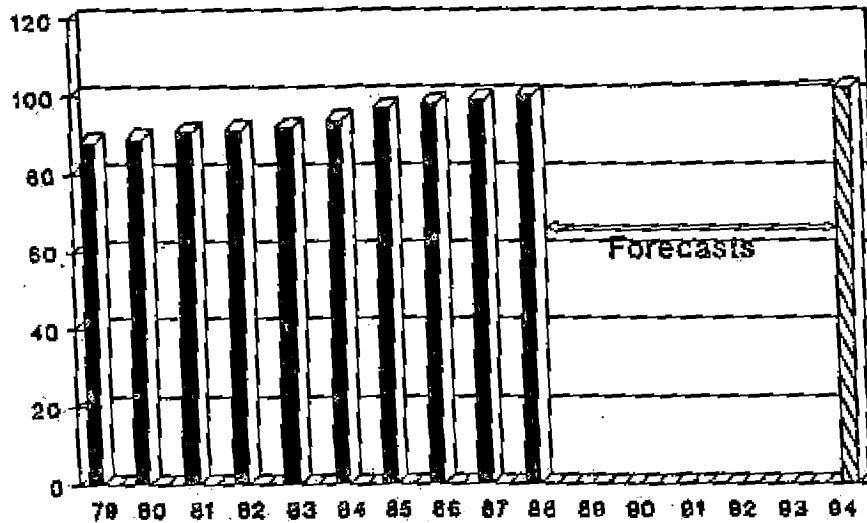
FIGURE 2: EC 12 PRODUCTION OF NATURAL GAS IN 1988 (million tonnes)



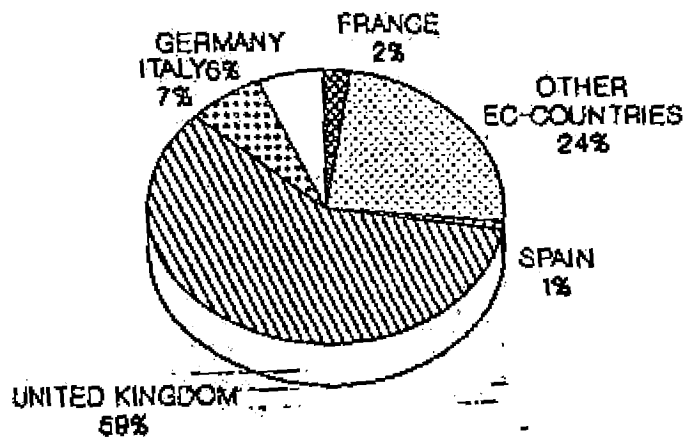
Source: Eurostat.

OIL AND GAS

Index of EC-Production *



Shares of EC-Production 1988 *



* 1000 tonnes

Source : National Statistics.

Forecasts by BIPE, CAMBRIDGE ECONOMETRICS, IFO and PROMETEIA

Table III
(Pipeline Lengths) In 1984-1985

(Kilometres)	Transmission	Distribution	Total
Belgium	3 377	29 973	33 350
Danmark	931	9 328	10 259
Germany	49 777	124 851	174 628
Spain	1 028	448	1 476
France	25 764	102 066	127 830
Ireland	500	3 200	3 700
Italy	18 000	77 000	95 000
Netherlands	5 391	83 762	89 153
UK	17 725	215 712	233 437
Total	122 493	646 340	768 833

Source: Industry sources.

Table II
Crude Petroleum and Natural Gas:
Comparison between EC, USA, World

	EC	EC	USA	USA	World	World
	1980	1987	1980	1987	1980	1987
Production						
Crude and other liquids (Million tonnes)	92.6	146.8	475.6	460.7	3 081	2 918
%	3%	5%	15.5%	16%	100%	100%
Natural gas (Marketed) (Billion cubic metres)	167.6	165.3	549.1	462.6	1 531	1 890
%	11%	9%	36%	24%	100%	100%
Reserves: Proven remaining year-end						
Crude and other liquids (Million tonnes)	1 330	910	3 602	3 447	90 920	121 550
%	1.5%	0.8%	4%	3%	100%	100%
R/P years	14.5	6.2	7.5	7.5	29.5	41.5
Natural gas (Billion cubic metres)	2 930	3 120	5 405	5 290	74 670	107 660
%	4%	3%	7%	6%	100%	100%
R/P years	17	18.5	10	11	40	57

Sources: World oil and official and statistics EC countries.

Destination of exports
(% of total value)

	U.S.	E.C.	Asia	Others
1982	50	6	15	29
1983	39	7	17	37
1984	42	10	15	33
1985	25	10	20	45
1986	20	10	25	45

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