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**French gas industry in transition :  
Breach in the public service model**

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France is generally viewed as the European country that most vigorously resists the pressure to liberalise its national gas markets. The moderate reform which has resulted from the transcription of the European gas directive was voted in 2002 after much delay. The main reason is the robustness of the French public service-model which has shaped the gas industry organisation in the same way as most of the network industries (Frost, 1991; Hayward, 1986; Stoffaas, 1995). This model is characterised by four elements :

- a state-owned monopoly that concentrates almost all the equipment and has a ministerial supervision influenced by the company,
- a highly legitimate principle of equality for the supply of essential goods or services,
- a strong interventionist economic culture aimed at national economic power and political independence, promoting national champions and seeking maximum industrial spin-offs,
- a social model of industrial relations which guarantees advantageous employment conditions and allows strong identification of trade unions with the public service and general interest.

This public service model has some flexibility and allows for adaptability and modernisation of public companies through autonomy of management, adoption of commercial culture and creation of incentives for productivity gains. In some technology-based sectors, public companies have had opportunities to demonstrate both their efficiency in long-term equipment programming and their ability to improve their productive efficiency and their commercial performances, as was the case in gas, electricity and telecommunications.

To explain the institutional stability of the French gas industry, this chapter analyses its institutional trajectory shaped by the public service model and its strong institutional path-dependency (in the sense given by North, 1990), marked by the resistance to change. The central hypothesis of the analysis is that, as long as this model demonstrates economic and social efficiency in the development of gas supply in relation to public services obligation and in the control of the import dependence risk in the gas sector, no reform can be brought about by endogenous factors. Moreover, institutions reinforce themselves by gaining in economic efficiency and legitimacy.

However, institutional stability is only possible in an insulated political and economic environment. The second hypothesis is that as the institutional environment has widened to include European Union regulations based on market-based principles aimed at integrating markets, there is a tendency to reduce institutional variety by coercion when it is a source of inequity in the trade (Di Maggio & Powell, 1991). In other words the European market integration process is slowly but constantly eroding the public service model in the gas sector. The reform process, begun in France with delays in 1998 and concluded by the belated Gas Directive transcription voted in 2002, is a forced submission to the European integration process run on market-based principles. Even if preserved by a minimalist reform, the public service model is still at odds with the general trend of institutional and industrial changes in European gas markets. Heterogeneity of market-rules and property regimes between the European countries will lead to the passing of new European rules in years to come.

Moreover, in Europe's increasingly competitive and integrated energy markets, traditional gas companies and especially public and semi-public ones must change rapidly to survive. New risky conditions in future, bulk purchases by producers, de-integration of the gas value chain with threat of entries on one hand, and the risk of take-over by oil companies or major electric utilities after privatisation on the other hand, necessitates strategic alterations in order to

survive. Consequently the French public gas company' adaptation by partial upstream integration in foreign gas production and by geographic diversification in its core business contributes to the destabilisation of the public service model focused on satisfying strictly national needs, which does not allow a competition-based and international corporate logic. Moreover, the competition paradigm and the learning with the new even moderate market-rules is spreading (Stern, 1998). The hybridisation of different types of institutional arrangements and contradictory concepts is leading, through progressive loss of consistency and change of dominant representation, to an institutional realignment.

The analysis of the French gas industry transition consists of four sections. After a survey of its historical development, we present its organisation and regulation under the public service model and its performances in terms of social and economic efficiency. In the third section, the minimalist reform for transcribing the European Directive in the French law is presented, in order to identify its potential effects in terms of competition development and public service erosion. Finally, in the fourth section, the industrial policy option to preserve the existence of a French mono-energy company and its consequences in terms of strategic adaptation are discussed.

## **1. Development of the French natural gas industry**

The integrated industrial organisation, established in France by the 1946 nationalisation law, allowed the fragmented system based on city gas networks to be transformed in just fifteen years into an interconnected system based on natural gas. The impulse for development of the French natural gas industry came from the beginning of operations, in 1956, on the Lacq deposit discovered in Aquitaine in 1951, from which production reached a peak of 11 billion m<sup>3</sup> in 1978. The centralisation allowed co-ordinated development of the high-pressure transport network that interconnected the regional networks with storage units and supplies of gas of differing qualities and origins (Beltran and Williot, 1992). Large underground storage capacity was also completed (13 ground aquifers, 2 saline cavities) with a total useful capacity of 116 TWh, corresponding to 25% of the annual consumption, in order to withstand interruptions in supply and manage seasonal variations in national demand. Given the uneven and relatively low density of population, this organisation also allowed the local distribution networks to develop steadily. The number of connected clients increased from 6.1 million in 1960 to 8.25 in 1980 and 10 million in 2000.

Since 1965 the French market has steadily increased its imports of LNG from Algeria (1965) and natural gas from the Netherlands (1967) and then Norway (1971) and the Soviet Union (1972). The increased need for gas imports led to a diversification in supply sources and entry points. Imports make up 95% of the offer, with French production being limited to 2.5 Gm<sup>3</sup> in 2000.

**Table 1 : Origins of French gas supplies between 1973 and 2000 (in TWh\*)**

	France	Algeria	Netherlands	Norway	Russia	Total
1973	81.3 (45.1%)	18.0 (10%)	80.7 (44.9%)			180
1980	81.3 (29.2%)	22.9 (8.2%)	108.9 (39.1%)	27.0 (9.7%)	38.4 (13.8%)	278.5
1990	32.5 (9.2%)	104.4 (29.7%)	42.3 (12%)	63.1 (17.9%)	108.9 (31%)	351.2
1999	22.1 (4.7%)	106 (22.8%)	62.6 (13.5%)	144.1 (31%)	130.0 (28%)	464.6

\* 1 Bcm = 10.8 TWh

However, between 1973 and 1990 restrictions were put on increases in sales, because of the priority given to the promotion of the uses of electricity in conjunction with the priority for development of nuclear power (Chevalier, 1993). Sales increased only by 11 Bcm/y during this period, compared with about 30 Bcm in Italy, Germany and the UK. Although the proportion of gas in primary energy supplies is small in comparison with other European companies, totalling 14% in 2000, the final market is relatively mature. Gas will not conquer those areas of the domestic heating market that have escaped it, because of the promotion of electrical heating until 1992. Finally, outlets for gas in electricity production are greatly restricted by the existence of recently constructed nuclear power stations. Official forecasts predict only a total of 18% of all consumption in 2020, with requirements totalling 57 Bcm (Commissariat General du Plan, 1998); this does not portend a radical development in the gas system.

**Table 2 : Comparison of gas market shares and dependency rates in 1997**

	France	Germany	Italy	Netherlands	United Kingdom
Consumption (Bcm)	38	85	55	44	85
Gas consumption per capita (cm/cap.)	575	1175	950	3120	1245
Share in primary balance (%)	14%	21%	28%	51%	35%
Dependence	93%	77%	64%	(exporter)	1%

Source IEA, *Natural Gas Information*, 1997

## **2. Organising and regulating the French gas industry: the efficiency of the public service model**

At a time when the gas industries of Europe are being liberalised, the French gas industry is the most heavily State-controlled and the most integrated both vertically and horizontally, at both transport and distribution levels. On the other hand it has one of the lowest levels of

integration between production and transport-distribution, and this was the case when there was significant natural gas production capable of supplying 65% of national gas requirements. The organisation was submitted to stringent governmental supervision and regulation, and was heavily constrained by energy policy goals. However, it demonstrated good economic and social efficiency with moderate prices, well-managed dependence risk and territorial extension of the distribution networks.

## **2.1. Legal framework and industrial organisation, up until 2002**

The legal regime is essentially built around the 1946 gas and electricity industry nationalisation law, which led to the creation of Gaz de France (GDF) and Electricité de France (EDF). Few alterations were made between then and the law transcribing Directive 98/30, voted in 2002. The law of 1946 did not lead to such heavy organisational centralisation in the gas industry as in the electricity industry, as the nationalisation of gas carried less credibility. In particular, it excluded the production of associated natural gas that had gone on before, this exclusion extending to the exploitation of all new natural gas deposits in 1949 (through the Armengaud law). The consequence was a relatively complex industrial structure, which reflected the balance of strength between GDF and the French oil companies between 1945 and 1965 (Beltran and Williot, 1992). This led to the setting up, under the aegis of GDF, of an industrial organisation that was partly integrated in bulk purchase, transportation, distribution, and supply but was very little integrated between production and downstream activity (see table).

### **Importation**

The law of 1946 grants a monopoly to Gaz de France, a monopoly that will be abolished by the 2002 Gas Law in order to free up supplies to eligible consumers.

### **Production and vertical integration**

In natural gas production, Gaz de France has been totally absent from France, but since 1998 has begun to have a presence abroad through share participations. Elf-Aquitaine (formerly SNPA), has provided almost all of French production through the exploitation of the Lacq deposit. The two French oil companies that merged at the end of 1999 were also active in gas production in the world (14.4 Bm<sup>3</sup> for Elf-Aquitaine and 16 Bm<sup>3</sup> for Total in 1996) and in Europe (10 Bm<sup>3</sup> and 5.4 Bm<sup>3</sup> respectively), but they had no direct outlets for their foreign production in France until the 2002 reform. Because of GDF's monopoly on imports, Elf-Aquitaine has had no chance to control the offer of gas imported to its regional distribution subsidiary Gaz du Sud-Ouest (GSO) to compensate for the decline in the Lacq deposit.

**Table 3 : The structure of the French Gas Industry in 2000**

Activity	Status	Company
Domestic production	No legal monopoly	TotalFinaElf
Imports	Legal monopoly	GDF
Transportation and storage	No legal national monopoly State concession for each pipe	GDF CFM (GDF 55%, TotalFinaElf 45%) GSO (TotalFinaElf 70%, GDF 30%)
Distribution	Legal monopoly of distribution concessions to GDF Exception of municipalities (5%)	GDF 16 régies or mixed capital companies*

### Transportation

Three companies are present, in three distinct areas: Gaz de France, which covers two-thirds of French territory; Gaz du Sud-Ouest, a 70% joint-stock company controlled by TotalFinaElf (before Elf-Aquitaine); and Compagnie Française du Méthane (CFM) which is present in central France and is 55% controlled by GDF<sup>1</sup>. Until the new Gas Act, however, the functions of these last two companies will be limited. In the first place, their market is limited to industrial sites consuming more than 0.5 million m<sup>3</sup> and the few non-nationalised local distributors in their area. They thus sell respectively 3% and 6% of gas consumed in France to about 500 industrial clients, that is, 25% of industrial sales. For the rest, they are providers, for GDF, of transportation services to GDF’s distribution units and to the small industrial consumers served directly by the transportation network. In the second place, CFM was essentially an “empty shell”. The Centre region’s network concession has been granted by the State to GDF, which is responsible for developing it and leases it out to CFM, and CFM is therefore only a seller of transportation services. Thus, taking account of its hold over CFM, Gaz de France controls 87.7% of the transport pipelines, 80% of storage capacity and 75% of industrial sales from the high-pressure networks.

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<sup>1</sup> In transportation, the law specified that the State was the owner of the transport pipelines, and would grant them by a concession to the company of its choice, which would be responsible for developing and exploiting them in the context of the terms of reference defined in 1952. For the concessionary company, however, it laid down a clause stating that at least 50% of the capital must be publicly owned “in order to apply the controls necessary to ensure safety of supplies”. (This minimum was reduced to 30% by an amendment voted in 1985).

**Table 4 : Allocation of transportation assets and final sales between the French companies in 1998**

	<b>Regions</b>	<b>Transmission Pipelines</b>	<b>Final sales</b>
GDF	2/3 of national territory	6.77% (21658 km)	88% (9.44 million customers)
Compagnie Française du Methane (CFM)	Centre	20% (6352 km)	6% (302 customers)
Gaz du Sud-Ouest (GSO)	South-West	12.2% (3930 km)	3% (176 customers)
Distributors	Bordeaux, Strasbourg, Grenoble, etc	-	3% (420 000 customers)

Source : Secretary of State for Industry. *White Paper on Gas Reform*, 1999

## **Distribution**

While the previous regime was one of concession granted by the local communities that owned the networks, the 1946 law granted a monopoly of local distribution concessions to GDF. The only exception was a few municipal companies who had the status of either "régies" or mixed economy companies with a public shareholding majority. The 16 non-nationalised distributors, some of whom are located in sizeable cities (Bordeaux, Strasbourg, Grenoble) hold only 4% of the low-pressure pipelines and make 3% of sales<sup>2</sup>. This structuring of gas distribution in France has one important distinctive feature: these activities belong to a gas and electricity distribution division that is common to EDF and GDF, with commercial units common to both public companies. This association has had significant effects on competition between gas and electricity, by inhibiting competition in commercial and domestic use, and this has allowed the commercial development of the gas industry to be controlled.

## **2.2. Regulation and governance of the French gas industry**

The State plays a major role in strategic choices and in the regulation of the gas industry. During the last fifty years, this role has changed as the State has become modernised, but it has never been questioned. Since 1991 it has been based on a contractual relationship between the government and GDF.

### **Submission of the gas industry to government policies: the general economic interest**

Since the 1920s energy policy has been taken care of by the State and treated as a priority for limiting energy dependency in order to protect energy supplies from short-term market effects and sovereignty risks. After the Second World War, the State intervened by means of public companies in the different energy industries and by the definition of energy policies. The main objectives were to develop secure supplies to the country at reasonable costs in the long

<sup>2</sup> In addition, GDF has shares in the stock of some of them (24,5% in Strasbourg, 16% in Bordeaux, 4% in Grenoble).

term, and to limit energy imports in the balance of trade (Finon, 1996). Gas imports could only contribute partially to these two goals through the development of diversified imports. It is in the framework of these principles that the development of natural gas has been restricted since 1973 because of the priority given to the nuclear program and the promotion of use of electricity for twenty years (Criqui, Finon, Marin, 1984). Moreover, for foreign policy reasons, long-term gas import contracts have to receive ministerial approval for signature in order to control the import risk from non-European countries.

The present policy adopts the same moderate line: interest in the attractiveness of gas as a clean fuel and as a means of diversifying supplies, but caution about the extension of its share in the energy supply for two reasons: the geostrategic effects of dependency on imports from unstable countries and the long-term limitation of global resources (Commissariat General du Plan, 1998; White Paper on Gas, 1999). In this general framework of energy policy, the general interest for gas supply through imports is formulated in order to secure gas supplies at low cost through diversification and, more recently, through overseas investment in gas resources and transportation.

The gas industry was used also for other political goals. For industrial policies, successive governments used import contracts for promoting French exports of industrial goods to Algeria, Norway and Russia (Estrada et al., 1988). Public procurements for GDF equipment were also considered as a way of promoting French LNG technology and other gas equipment. Downstream, the defence of industries using gas as a main resource justified special contracts for some chemical sites (fertilisers) in the 70s and 80s with negotiated prices based on internal preferential prices in the Netherlands. Foreign policies have on occasion interfered with gas imports. This was the case in 1981-82 when the new left-wing government desired to promote new North-South relations in the international arena; it compelled GDF to accept a generous price, 13.5% above the average European import price (\$5.12 per mBtu) for the new contract being negotiated with Algeria.

### **The incorporation of the public service standard into gas supplies**

The content of the public service standard has been adapted to the specific features of the gas sector. In its general sense, this standard, which is strongly rooted in the administrative law, requires customers to be provided with essential goods and services as inexpensively as possible, without discrimination and with constant adaptation to the changes in technology and demand for supplies. Generally speaking, non-discrimination implies equality of treatment and territorial equalisation of tariffs; but gas, unlike electricity, is not defined as essential goods. So the obligation of supply does not require the gas distribution networks to be developed extensively to cover the national territory. Consequently the national company might refer to its normal rate of return on investment of 12% when deciding to set up new local distribution networks. The obligation is limited to an obligation of connection in the area covered by the distribution network and to an obligation to serve connected consumers. However, there is an element of tension between the legal GDF's near-monopoly of supply legitimised by the public service norm, its profitability criteria when required to cope with the economic constraints of extension of the distribution networks, and the wish of municipalities to have a gas network to make their citizens benefit from the advantages of gas supplies<sup>3</sup>.

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<sup>3</sup> At present, about 6,800 of the 36,500 local communities are equipped with gas distribution networks, representing 72.6% of the population. However, 26 rural departments with scattered populations have a rate of connectable population of less than 10%. Until 1999 it has been up to GDF to decide which areas it will supply

Concerning the geographic equalisation of tariffs, as is the case for electricity, the regional differences in transport and distribution costs resulting from French territorial diversity in demographic and industrial density have justified a certain difference in gas prices between regions. Moreover gas is under the pressure of competition from other energies, necessitating marketing practices and discrimination in industrial prices in opposition to the egalitarian principle, but this has been accepted as reflecting the necessities of competition.

### **The contractual regulation of the public monopoly**

The gas industry and the public company are under the supervision of the Ministry of Economy and Finances and the Ministry of Industry. This regulation originally governed tariffs, cross-subsidies, product quality, safety standards and investments. The ministries agree on the rules for defining the gas tariffs and issue a price increase authorisation twice a year. Since 1985 freedom has been given to GDF to determine industrial prices, provided they simply inform the ministries about the new price lists. On the other hand, residential and tertiary prices remained under control. Finally the ministries control the allocation of the monopoly rent to activities outside the core business and to international investments: the first ones are controlled by a special supervision committee established in 1995<sup>4</sup> and the second ones by an authorisation procedure, and a limitation is put on the self-financing of GDF's international investments and defined in the three-year "contrat d'entreprise".

The GDF's relation with the State has been organised within the framework of a contractual and incentive-based regulation since 1991, with three-year objective and performance contracts. The aim of these contracts was to limit the instrumentation of the public company by giving it greater managerial autonomy and real incentives to improve its performances. The dependency of GDF's overall expenses on outside factors (the import purchases weighted to a maximum of 63% in 1985) has outlasted the opportunity to organise such a contractual relation because of the wide range of uncertainties in the relation to imports. Within the framework of the general functions of public service, the contracts specify the economic performances to reach and the strategic industrial objectives of GDF; the company has almost free rein regarding the means to adopt for reaching the targets. The contracts have four main structural elements: economic and financial targets (under a price-cap incentive the contracts oblige GDF to pass-through half of its productivity progress on the corresponding portion of the tariffs), commercial targets (development in domestic heating and in co-generation),

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to. Normally it has [connected about 200 small towns](#) each year, subject to a profitability [criterion](#) of 12%. However, [the rate would have been greater](#) without the exclusivity of GDF, simply by reference to the public discount rate of 8%. Neighbouring local communities of areas equipped by a gas network claimed that they [wished](#) to develop gas distribution in new areas whereas they were prevented [from doing](#) it by GDF's exclusivity. After numerous controversies during the nineties a legal amendment [was](#) voted in 1998, [allowing](#) local communities excluded from the GDF's third-year extension program to contract with independent developers (Masson, 1991; Assemblée Nationale, 1998).

<sup>4</sup> This committee controls EDF's and GDF's diversification activities. The rules dictated in 1994 by a special commission, the Commission Guillet, [greatly limit](#) the activities outside the core business: TV cabling, urban waste, management and operation of heating appliances. [GDF must "unbundle" its accountability for each of these activities by subsidiarising them.](#) The supreme administrative court (Conseil d'Etat) refers to the so-called "speciality principle" for the public service monopolies, [forbidding or greatly limiting](#) their diversification. In fact their monopoly advantages and [public service function](#) are considered to be incompatible with diversification outside their core activities.

public service targets (development of new local distribution networks), and business development (internationalisation, upstream integration into production, etc.)<sup>5</sup>.

### 2.3. Efficiency of the public gas company

The French public organisation has proved efficient with regard to the targets set by the Government, showing itself capable of developing the gas supply and adapting in order to improve its productivity when managerial independence was granted to the public gas company after 1990. Price regulation has always limited the profits gained, and this has favoured French consumers with prices established below the average European price level.

Gaz de France has usually proved efficient both in the development of infrastructures (transportation, storage and distribution) and in the negotiation of import contracts with seller countries, and as a full member of the club of major European purchasers. It played an active part in the consortia that negotiated with Algeria, Iran, Nigeria and Norway (especially for the Ekofisk contract of 1975 and Troll-Sleipner contract of 1986-7) (Estrada and Sydnese, 1988). When the failure of the Algerian LNG chain in 1974 proved that a supply largely based on imports was vulnerable, GDF responded by rapidly increasing the integration of its system, installing underground storage reservoirs, and developing interruptible contracts. It looked to diversify its supplies by going to four suppliers. This policy has necessitated a high level of annual investment of around 0.9 billion euros (in real terms), which is significant compared to an cash flow of around 3.8 billion euros.

The aims of energy and macroeconomic policies have, however, had an adverse effect on the profitability of the French gas company. Since the first “oil shock” before 1990, GDF has been held back in its commercial development policy by the priority given to the nuclear power option and by differences in the tax treatment of various power industries<sup>6</sup>. Annual gas consumption increased only by 4.0 bcm between 1980 and 1990. GDF could not therefore benefit from the automatic increase in productivity that followed sustained increases in the geographic density of gas consumption, while the lower density of population in France was already restricting the average profitability of investments in gas transport and distribution. The aim of bringing inflation under control also led the government to drastically restrict increases in gas prices between 1980 and 1985, following the second “oil shock” and the new rise in the dollar in 1980, and this caused GDF to suffer very substantial losses because of the increase in the price of imported gas indexed on oil prices. Faced with these major financial burdens, GDF’s level of debt rose from 1.21 billion euros in 1980 to 5.45 billion euros in 1984, producing a very unfavourable debt/equity capital ratio (2.4 in 1984)<sup>7</sup>. In comparison Ruhrgas and SNAM have always enjoyed a larger share of gas profits than has GDF; this shows in the absence of debts and increased equity capital levels. This double restriction, which was a major handicap to return on capital, did not however prevent GDF from making

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<sup>5</sup> For instance, the 1997 contract [specifies the restrictions that](#) frame this strategy, particularly the amount of cash flow [that](#) can be used for the international development (FF5 billion between 1997 and 1999). Development [all along](#) the supply chain with partial vertical integration in production [in](#) up to 15% of its outlets, is assigned to GDF for corporate and economic [reasons](#) (see below).

<sup>6</sup> The level of the local tax on gas is 5.6% for industrial consumers while the heavy fuel oil does not support such a charge

<sup>7</sup> Without the accounting of the value of the transport and distribution assets belonging legally to the public powers, the equity capital was negative during this period.

the developments necessary for imports and for installing infrastructures aimed at following growing needs; it was however based on finance through debt.

Financial consolidation began when GDF emerged from the “squeeze” between the very high prices of imported gas indexed directly on official oil prices and the rigid anti-inflationary control of its prices. In 1985 and 1986 GDF re-negotiated its import contract indexation clauses: with the USSR and the Netherlands, an indexation on oil products (heavy oil and domestic fuel oil), based on the net-back principle, was adopted, with the costs of transporting the Soviet gas across Germany deducted<sup>8</sup>; the additional premium in the 1982 contract with Algeria was abolished, with the introduction of an indexation formula based on the real price and not the official price of crude<sup>9</sup>. The change in power balance between purchasers and sellers subsequently allowed GDF to negotiate all new contracts on the basis of the netback principle transferring the price risk on the producer. In the same way, the new flexibility clauses negotiated during this period allowed significant overcapacity in the import contracts to be avoided during the 1990s.

Ministerial regulator also allowed GDF to return to financial equilibrium, defining price changes that remained regulated but allowed GDF to produce a positive result for the rest of the decade. GDF began to reduce its level of debt when prices of oil products and imported gas fell.

**Table 5 : Changes in GDF’s financial characteristics  
(in current money and billion euros)**

	1980	1985	1990	1995	1997	1999
Turnover	3.28	8.48	6.33	7.82	8.36	8.82
Profit (after tax)	0.01	0.07	-0.01	0.28	0.22	0.37
Investments	0.51	0.63	0.67	0.93	1.02	1.4
Debt	1.60	4.67	3.03	2.20	1.93	2.0

Source: GDF Accounting reports

The contractualisation process led to real dynamism in GDF’s management during the three first contracts between 1992 and 2000, as witnesses the increase of its commercial strategy in space-heating, high-performance industrial use and co-generation and the definition of an internationalisation strategy (see below). The efforts aimed at productivity allowed costs (apart from gas costs) to fall from 1994 onwards when the capital costs decreased sufficiently as debt levels decreased. The business’s financial profile has improved steadily (see table).

<sup>8</sup> In international contracts from before this date, the formula for defining contractual prices was a function of the official oil price. After the re-negotiation, the formula of definition and indexation was a function of the pondered price of oil products, less the adjustments for taxes and transmission-distribution costs (along the method of « net back » calculation).

<sup>9</sup> These corresponded to 40% of sales (1,300 industrial clients) and to 25% of the turnover. GDF immediately increased its industrial tariff by 6%.

**Table 6 : Improvements in GDF's productivity**

	1985	1990	1994	1996	1998
Number of employees per TWh	94	83	71.7	59.5	49.4
Net expenses per TWh* in million euros	7.35	9.36	10.66	9.15	7.25

\* Expenses without gas cost and tax, and in real terms (1998 reference).

Source: GDF Accounting Reports

Gas consumers have been able to benefit from continued falls in prices, in real terms, since 1985; these falls are among the most substantial in Europe.

**Table 7 : Comparison of average gas price increase in industry and households in selected countries between 1985 and 1994 \***  
(in real terms)

	Industrial Prices	Domestic Prices
France	62 %	41 %
Germany	62 %	40 %
Italy	55 %	27 %
The Netherlands	67 %	41 %
UK	47 %	24 %

\*With non refundable taxesVAT

Source: Calculated from IEA, *Energy prices and taxes*, Paris , OECD, 1995

A comparison of gas prices for different types of use (based on IEA's data) shows that industrial prices in France have been amongst the most favourable in Europe, the only exception being the United Kingdom, since the increase in competition from 1994 onwards. On the other hand, domestic rates are relatively high, particularly for small subscribers, and reflect a distribution cost that remains high because of the lower average relative density.

## 2.4. The limits of the public organisation

Economic theory traditionally attributes lack of incentive to productive efficiency to the monopoly regulation. Public ownership was itself a source of inefficiency, especially because of the superimposition of public policy objectives and the rationale adopted by the bureaucracies (maximisation of budgets and technological performance, etc). These faults are evident, to a lesser extent, in the French gas industry.

There is no doubt that the public nature of the industry requires it to protect jobs and wages, leading to high labour costs and restricting progress in productivity<sup>10</sup>. The heavy public policy

<sup>10</sup> The average labour cost is reckoned to be 40% higher than the average for the manufacturing industries.

restriction imposed on GDF (limited potential outlets, controls against inflation, etc) weighed quite heavily on its commercial dynamism and the possibility of reducing its unit costs through increased sales until 1990. However GDF, compelled to remain in its core business and limited in the increase of its outlets because of the priority given to electronuclear power, could not allow itself to follow the bureaucratic logic of the other French public enterprises, which have had the opportunity to embark on a major national project, such as EDF or France-Télécom. In spite of all that it has not fully escaped the risk of technocratic change in its two most legitimate activities: the negotiation of international contracts and major equipment.

- The major contracts signed in the 1980s, which referred too optimistically to a hypothesis of 4% increased growth in the French market, tended to create overcapacity of about 1-2 billion m<sup>3</sup> per year between 1989 and 1995, in relation to the minimum take-off clauses<sup>11</sup>;
- Developments in storage capacity, which demands complex and high-level engineering and the application of specific skills, have been excessive as they were based on an overestimation of the vulnerability of external supplies.

To sum up, centralisation of the French gas industry in the GDF's hands has demonstrated good economic and social efficiency in spite of restrictions imposed on its development by the SNPA, then by Elf-Aquitaine's pressure to extract gas rent on the bulk supplies made to it, and finally by the nuclear policy priority. Given the paramount importance of the energy independence criteria in the French energy policy, the increased dependency of gas supply on imports strengthens the GDF's institutional position. It demonstrates its ability to diversify imports and manage dependency risk. In spite of some tension over the extension of gas distribution networks across financial and public service criteria, gas supply has been economically and socially efficient with good price-level performance. Moreover, since 1985, the public monopoly has demonstrated a good capacity to improve its productivity, reduce debt levels, and develop a dynamic industrial strategy after a long period of restrictive governmental regulation.

Therefore, gas reform in France has been brought about by the prescriptive European Union legislation. The French public authorities and economic agents were satisfied with the organisation of the gas industry, with its opportunity to control choices of imports and ensure at the same time that the public gas enterprise is managerially autonomous and develops an industrial strategy. Gaz de France was considered as an efficient public company with moderate prices and no deficit. Other institutional path-dependency elements, such as the attachment of identity to public service, the nationalist approach to energy dependency, the interventionist tradition of national champion promotion and the twinning of institutional arrangements in the gas and electricity industries, influenced the reluctance to reform and the conservatism of the gas reforms.

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<sup>11</sup> Average growth in the market has been only 3% since 1990. The surplus was used to increase the quantity of useful gas in stock by 66.6 TWh between 1987 and 1995.

### 3. The choice of a minimal liberalisation reform<sup>12</sup>

The process of reform in the French gas industry is far behind that of other countries (Germany, Spain, Holland, Italy, etc.) in which the new legislation was adopted in 1998 and 1999, to say nothing of the successive reforms made in Britain since 1986. The gas reform act was only voted in 2002, well past the deadline of August 2000 imposed by the European gas directive (European Commission, 1998), and following a further political postponement in April 2001<sup>13</sup>. During the transition period between August 2000 and the publication of the decrees implementing the future law, GDF is applying the rule of third party access (TPA) for eligible consumers in a discretionary way, but under the behalf of the supervising ministry. The reform voted in 2002 is minimal, with a limited network unbundling, minimal opening of the final market, and no change in the industrial structure, especially the concentration of contractual gas imports.

#### 3.1. Reluctance to adapt to the European instructions

There has been no coalition of economic and political actors demanding a radical change by showing up real or perceived faults in the industrial organisation. The potential entrants, such as the French oil companies and the diversified water distribution companies (Vivendi, Suez-Lyonnaise, SAUR-Bouygues) showed little interest in the gas supply business in France. The industrial gas consumers, especially the major ones, which benefit from favourable buying conditions by GDF did not campaign actively. Instead, there was a vast coalition of actors generally opposed to the questioning of the public service model in the network industries: trade unions, State engineers in the Ministry of Industry and in the Boards of Directors of public companies and left-wing as major right-wing political parties. Concerning the liberalisation of the gas market, this coalition is divided into two currents.

The “liberalising” current, influenced by rapid changes in other European countries. Less readily impressed by the ideal public service image of the gas business than by that of the public electricity business, it is interested in integrating “market-oriented” rules in the reform

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<sup>12</sup> Advertisement this paper will be published in 2002 in a forthcoming collective book about the institutional and industrial changes in the gas industries in Europe (W. Künneke, M. Arensten eds, (European Gas Markets in Transition, Elsevier Publisher, 2002). In this respect the analysis of the French gas reform is projected as if this reform would have been already been voted although since April 2001 the discussion in the Parliament of the Gas Directive transcription law has been postponed in 2002 after the presidential election in Spring 2002. The content of the future law should not be dramatically different of the draft of the law which is ready since April, at the possible exception of the GDF status which could be changed in another political situation that the present one (Autumn 2001).

<sup>13</sup> An initial official ministerial paper, the Mandil Report, published in late 1993, dealt with the gas and electricity industries jointly when specifying France’s official position in the discussion of the two electricity and gas directives, a position based on the “single buyer” principle (Ministère de l’Industrie, 1993). The second stage in the process did not begin until the autumn of 1998, after the Gas Directive had been passed. The definition of the major directions to be taken by the reform was preceded by a consultation phase aimed at bringing about a level of legitimacy capable of reconciling competition and public service. An official report was published in June 1999 by the Ministry for [Industry](#), specifying the various elements in the debate. After a parliamentary report drawn up during the autumn of 1999 (Bricq, 1999) and a debate with the interest groups involved, the draft law was ready in May 2000 to be voted by the Parliament. But in April 2001, after local elections with results unfavourable for the left-wing coalition, the vote of the law [was postponed until](#) the end of 2002 after the presidential and parliamentary elections for the sake of the governmental coalition against the wishes of the ministerial administrations involved and [GDF’s](#) management for the delay. In May 2001 the European Commission has [commenced a lawsuit in the European Court at The Hague](#) for non-application of an European directive

and in GDF's corporatisation and partial privatisation, while preserving vertical integration. Ministerial administration is found in this current, which was joined in late 1999 by GDF's management who were willing to follow the European movement and in 2001 by part of the left coalition government and some of the trade unions.

The egalitarian and centralising trend, which is hostile in principle to the concept of the "market" and wields national interest, public service and in the last resort French identity in order to preserve the old organisation as far as possible; this trend attracted all the trade unions and left-wing parties, with the communist party making the defence of EDF and GDF a particular stake in the common program of the governmental coalition between 1997 and 2002.

The energy networks are the subject of greater political resistance than the networks open to international markets (airways, telecoms) for two reasons. They are not by nature a field for globalised markets for their outputs, although their supplies consist of resources that are deemed strategic; they are the subject of a nationalist reaction, and they are seen to be efficiently managed by the public enterprises GDF and EDF, unlike other public companies such as the railway company SNCF. Defending general economic interest and public service is subsequently given first priority in order to justify the preservation of integration, altering it only on the edges by introducing a limited TPA rule with minimal eligibility for consumers.

#### *General economic interest*

Under the influence of representations from the dominant operator, the opposition by the French public authorities to the principle of liberalising access to the network had its roots in the planning principle for developing a gas system, this principle consisting of anticipating growth in demand by making long-term capital-intensive import commitments. The existence downstream of a supply monopoly able to guarantee outlets and income is essential for setting up the long-term contractual arrangements based on TOP clauses, which are the only ones that even allow large-scale pipe-line import operations such as Troll (\$16 billion), Yamal or the new LNG chains. The complete import dependency of the French market is the second reason for reluctance to open, because of the geostrategic risk associated with imports originating from unstable countries outside Europe (Ministère de l'industrie, 1999).

#### *The public service*

Even though the supply of gas is not fully defined as a public service, the public authorities are still in favour of the principle of a single distribution operator. The preservation of horizontal integration within GDF also shows this advantage. It allows it to have sufficient capacity to mobilise capital for extending distribution networks in the direction of the general interest, without having to resort to raising finance through a "general interest charge" (White Paper, 1999).

### **3.2. The choice of the minimalist option in the Gas Directive menu**

The Gas Act defines precisely the general economic interest content and the public service obligations for justifying the retention of the pillars of the former organisation and regulation. The preservation of vertical and horizontal integration implies defence of GDF's exclusivity in distribution licensing, and the absence of provision aimed at subsidiarising transmission and storage to help non-discrimination in access to the network. However it establishes the two

regional pipeline companies (GSO, CFM) as operators equivalent to GDF in systems operation in high-pressure and mean-pressure transportation.

### **Market opening rules**

The Law strictly follows the minimum level of eligibility of 25 Mcm/y in 2000, 15 Mcm/y in 2003 and 5 Mcm/y in 2008, defined by the Gas directive. Multi-site aggregation is not allowed. As far as eligibility in electricity production is concerned, the flexibility allowed by the directive (Art. 18.2) limits it to co-generation up to the current normal threshold. The eligibility of the 16 municipal distributors is fully recognised. Because of the eligibility limits and the reduced potential for development of gas power production by IPPs or EDF (because of nuclear dominance), the competitive share of the French gas market will stay at the minimal level laid down by the Directive: 20% in 2000, 28% in 2003 and about 33% in 2008<sup>14</sup>.

### **Conditions for access to the gas system**

As Gas Directive only required accounting unbundling for the vertical gas companies between transmission, storage, distribution, and other activities only, the French government is not seeking legal unbundling of the networks within the three gas system operators nominated by the law (GDF, CFM and GSO). The law defines some rules of confidentiality within them for the protection of bilateral transactions between third parties, and GDF chose to clearly separate its transportation activities from its supply and marketing activities for non-discrimination guarantees. Moreover, transparency is sought with the choice of a quasi-regulated third party access, but with limitations in access to the storage capacities.

#### *An hybrid third party access*

The law defines a negotiated TPA to the high pressure gas system and a regulated TPA to the regional mean-pressure lines. It requires the tariff lists to be published and defines some principles of price calculation: cost-reflectiveness, which involves integration of development expenses (Art. 10)<sup>15</sup>. TPA is negotiable only for very large contracts; specific conditions on TPA rules can be negotiated when they are justified under the control of the regulator who could require them to be published<sup>16</sup>. The law also includes an obligation to publish a grid code, which specifies the technical conditions of access. Rules of priority are specified for the supply of non-eligible consumers. (Other priorities will be based on the normal capacity reservation procedures).

#### *No access to storage capacities*

Taking into account the GDF's reluctance to open access to its storage capacity in order to preserve competitive advantage, the government has only included in the law some allowance for virtual access to storage capacities with the offer of balancing services, within the limit of

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<sup>14</sup> The number of industrial sites [affected by](#) eligibility will increase from 150 in the first step until 2003 to 300 between 2003 and 200, [and finally](#) to 720.

<sup>15</sup> The tariffs include an important fixed part.

<sup>16</sup> Anticipating on the law, a zonal tariff has been defined in 2000 by GDF which differs from its former principles of tariff calculation where the high-pressure system costs were not geographically differentiated in the pricing method.

capacities available after their use for public service missions and the overall system balancing (Art. 30)<sup>17</sup>.

### **Creation of an autonomous regulatory body**

The requirement to distance gas sector regulation from the supervising ministries was included in order to guarantee impartiality and non-discriminatory access under permanent European political scrutiny. Gas industry will be regulated by increasing the powers of the electricity regulation authority created in 2000 (which in 2002 will become the “Commission de Régulation de l’Electricité et du Gaz” or CREG). Its autonomy should guarantee the openness of the French gas market to competition, in particular through its capacity for recommending tariffs and conditions of access to the transport and storage system; this is almost equivalent to a decisional power.

### **General interest and public service**

The general interest and public service rules have been adapted to reflect the introduction of competition.

#### *Long-term programming and protection of TOP contracts*

The law introduces two provisions to allow the government to maintain its capacity to monitor the long-term development of the supply. This is achieved mostly by establishing a programmatic survey of future imported supplies, which is allowed by the Directive. The law (Art. 7) outlines the method of each supplier’s foreign purchases by requiring them to inform the ministry of import contracts of a certain volume and to submit its annual import programme each year. In order to guarantee a certain diversity in the overall French supply, the Ministry is in a position to require major suppliers to re-diversify their purchase program if concentration becomes too great. Secondly, following the logic of the defensive French position during negotiations of the Directive, the law (Art. 9) includes a provision allowing limitation of access for supplying eligible consumers when long-term contracts encounter difficulties, in order to ensure supply security. This provision could eventually help to protect the existing TOP contracts in the framework of the restrictions laid down by the Directive (Arts. 15 and 25).

#### *Revised public service obligations*

The law revises the public service obligations: as well as the duty of the historical operator to extend the distribution networks, the law reduces the traditional obligations (equality of treatment, obligation of supply) to include ineligible consumers only. It maintains the social requirement to supply low-income customers imposed on the public company. GDF’s overcost of developing new local gas networks under its normal rate of profitability (8% instead of 12%) must be supported by the national company (Gas White Paper, 1999, p. 21).

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<sup>17</sup> Abandoning the operational view of the storage capacities limited to seasonal management and supply security, the government admitted its importance for trading activities, with the possibility to create value (Gas White Paper, 1999). But, following GDF then, the government considers that the entrants would not have to rely excessively on the existing storage capacity and should have to install their own devices. Balancing services are proposed by the three system operators.

### 3.3. Potential effects of the reform

As a result of the transitory application of the TPA provision by GDF, CFM and GSO in anticipation of the vote of the law, the competitive situation in 2001 clearly shows the weakness of the competition. In the context of high gas prices in 2000 many of the 150 eligible consumers, notably the major ones (Péchiney, Rhodia, Solvay, Saint-Gobain), shopped around by approaching or being approached by foreign suppliers or traders. However, only 5% of the eligible consumers' total demand has switched towards entrants<sup>18</sup>.

The opening of access for eligible consumers to GDF's, CFM's and GSO's networks is encouraging operators to alter their commercial practices towards these clients<sup>19</sup>. GDF now offers new types of contract such as fixed price offers for a fixed period of 6-12 months and price offers indexed on the price of products sold by their clients. It makes also price indexed on the spot market, with a cap limiting the volatility risk. In consequence, GDF's industrial prices are being reduced in order to preserve its market shares. Therefore, although there are positive effects for eligible consumers, competition appears first of all to be limited by industrial organisation and disincentive to entry because of GDF's dominant position.

#### The weakness of competitive forces

Even with non-discriminatory access to the gas network, a centralised industrial organisation limits *de facto* competitive forces in the various market sectors.

Upstream, the absence of national production means that wholesale competition only occurs in the field of supplies based on gas imports. However, the absence of a gas release program such as was imposed on the incumbent in Italy (40% of SNAM's long-term contracts to be released to entrants) limits *de facto* the possibility of entries. In this context the real competitive pressure will come upstream from foreign suppliers (Centrica, SNAM, Ruhrgas), North Sea gas producers (among which TotalFinaElf), and traders (mainly ENRON).

The presence of the two regional transporters other GDF does not appear to be conducive to competition in the supply. It mainly allows foreign producers or suppliers to make some direct bulk purchases. Being controlled by GDF, CFM has little interest in competing against it. There is more potential competition from GSO, which is controlled by TotalFinaElf. (For instance, in 2001 GSO signed a one-year contract with TotalFinaElf's gas subsidiary for a supply totalling 13% of their gas supply to the industrial consumers in their area, the first import contract indicating the end of GDF's import monopoly). However, GSO is tied for several years by an import agreement signed between GDF and Elf-Aquitaine in 1997 (Elf-Aquitaine, 1998).

The concentration of distribution in the hands of the historical operator, with the exception of the few municipal distributions, reduces opportunities for competition in the wholesale supply, especially in the second-tier supply where distributors would resell in the supply area of GDF or other distributors.

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<sup>18</sup> *Revue de l'Energie*, No. 253, January 2001

<sup>19</sup> In 1999 GDF altered the structure of its commercial activities. It created a special large customers department, 8 "industry" agencies in the regions, 33 "commercial clients" agencies and a trading operations centre.

Downstream, the structure of demand reduces opportunities for competition for three reasons :

- The eligibility threshold is defined minimally, and the competition sector will not include medium-size industrial and commercial customers (under 15 Mm<sup>3</sup> per year) before 2008, unless a new directive accelerates the opening process.
- The limits laid down by the law for eligibility of co-generators reduce this sector to the major co-generators (over 15 MW for the 15-Mm<sup>3</sup> threshold between 2003 and 2008).
- Independent electricity producers with gas turbines, who could be active direct buyers to new suppliers, are deterred from entering because of the maintenance of the integrated organisation of the electricity industry and by the presence of a fleet of low-variable-cost electrical equipment (nuclear reactors and hydro plants).

Therefore, potential competition mainly exerts its influence in retail supply through multi-energy offers in the major industrial clients sector.

### **The dominant position of the historical operator**

The conditions of access to the gas network, together with the advantages enjoyed by the historical operator, create a particularly strong dominant position which may deter entries.

Firstly, in every network industry, even those with a guarantee of non-discriminatory practice, the incumbent will benefit from advantages that could discourage entries: the advantage of holding information on eligible clients (knowledge of demand in each segment of the market, hold over the commercial network and client files); the advantage of a confidential relationship with the client (reputation effect and aversion to risk); the advantage of transactional simplicity with eligible clients compared to a competing seller who has to buy the transportation (and “back-up”) service; and the monopoly on the offer of balancing, back-up and metering.

Secondly, the incumbent may increase the barriers to entry by various strategic actions, in particular by improving contractual offers to industrial clients as GDF has done.

Thirdly, the absence of organic separation of transport networks and supply is not conducive to the establishment of an atmosphere of confidence in the confidentiality of independent transactions or the impartiality of the incumbent company when carrying out transportation for third parties. As an example, GDF’s temporary transport tariff between August 2000 and the moment at which a regulatory tariff is defined after the future law vote is considered quite high by large clients because it deters trade if the distance to the border exceeds 200 km. Moreover, the absence of TPA provision for access to storage capacities will limit the possibility of supply from agents without storage capacities in France.

### **3.4. Signs of new development**

The main potential for competition comes from European entrants and from the French oil company. In the mid-term, the competition will evolve under two driving forces: the requirement to reduce the difference of market-rules with the other European Union state-members, and the business strategy of the entrants, especially TotalFinaElf.

## European harmonisation rules process

The French gas market is physically and co-operatively integrated with other European gas markets. It is currently linked to the networks of other European countries by five connections, for importing gas and more recently for transporting to and swapping with neighbouring countries. In the spirit of integration of the 1992 Transit Directive, GDF is developing significant transit activity for Spanish, Italian and Swiss partners (Gas Natural, SNAM and Gaz Naturel)<sup>20</sup>. In 1997 it signed a swap contract with an Italian partner (ENEL) on Nigerian LNG imports. The current issue is therefore the evolution of this integration towards a market-based integration.

European internal market integration is an institutional and political fact that affects national distinctions in every country. In a regional area governed by common principles, there is a trend to reduce institutional variety by coercion when this is a source of imbalance in exchanges (Di Maggio & Powell, 1991). The European Commission is therefore likely to impose sanctions and require changes in regulations in instances of non-compliance with European rules, especially the competition law and the Gas Directive. More importantly, on behalf of the European Union, it looks for harmonisation of rules between countries in order to facilitate exchanges.

The European Commission (EC), in which Directive 98/30 confided the task of harmonisation necessary “in order for the internal market to function properly” (Articles 27 and 28)<sup>21</sup>, will bring about certain changes in rules. The so-called Madrid harmonisation process, organised in 2000 by the EC between national regulators and transport operators is having some effect on homogenising the national rules (network and storage access, interconnection rules, etc). The new planned directive on gas and electricity markets, issued in 2001 for a possible vote in 2002, should bring forward the opening of the final market to 2005 and require the network to be legally unbundled (European Commission, 2001). If this were to happen, the French gas market would have to be fully opened in the near future instead of staying partially open at around 30% before and after 2008. Gaz de France may have to dissociate its supply and gas network activities into different subsidiaries, leading to real transparency of network access.

## TotalFinaElf's business strategy

This French oil company has significant gas production activity in Europe (18 Bcm/y in 1999) and in the world (34 Bcm/y), and is already present downstream in the supply in the UK<sup>22</sup>. With its share in the UK-Continent Interconnector and with the possibility of access to the

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<sup>20</sup> The first transit contract concerns Norwegian gas for Spain and [relates to](#) 2 Bcm (signed in 1987). The second concerns a transit for Norwegian gas to SNAM and [relates to](#) 6 Bcm (signed in 1998). The third concerns Norwegian gas for Switzerland with 0.5 Bcm (signed in 1999). The swap contract signed in 1998 with ENEL exchanges 3.5 bcm/y of Nigerian LNG with 2bcm/y of Russian gas and 1.5 bcm/y of Algerian gas.

<sup>21</sup> A first report on the harmonisation measures necessary for the market to function properly should be issued in 2001. In the same way, after 10 years, a new Directive should be issued “in order to improve the internal natural gas market further”. [In fact, however](#), this new directive [has already been](#) in the process of definition since 2000 and should be voted at the end of 2003.

<sup>22</sup> [In the light of Elf Aquitaine's history](#) on the British gas market TotalFinaElf is actively involved in that market. Its subsidiaries, AGAS and Elf Gas & Power, are involved in all sectors of the market (9% of the industrial and commercial market, 75,000 residential clients in 1999 and trading activity in gas and electricity). It is also present in electricity production, having a 40% shareholding in Humber Power company with Centrica.

Norwegian pipelines to the continent in the near future (2003) it is able to reach the French gas system for its own gas. It aims to develop an active strategy in wholesale trading and in gas supply on the basis of its regional transportation assets, such as those held by GSO in South-Western France. It is therefore planning to build a LNG terminal near Bordeaux, to connect the GSO system with CEPSA's gas system in Catalunya, and to create a hub market place in this region. This hub, located in Lacq would be linked to its two GSO storage units and placed at the connection between GSO's system, GDF's gas system linked to Northern Europe, CEPSA's and Gas Natural's system in Spain and connections to the two existing LNG terminals in Fos (France) and Barcelona (Spain) and the two planned terminals, one in Bilbao (Spain) and the TotalFinaElf terminal in Bordeaux.

TotalFinaElf's vision of the commercial and trading opportunities is mainly European, but it expresses clearly a wish to be present downstream in the value chain. If the infrastructure and the hub project are realised in the next five years, this project will introduce more effective competition in the wholesale market in France and in Spain at a time when some of GDF's present long-term import contracts will expire and allow more scope for entries.

#### **4. Industrial policy : the future position of the national gas company**

At the confluence of diverse interest groups, the successive governments since 1995 have had their own views on the future of GDF as a gas company, an industrial firm and a public utility. Three options have been examined by the successive right-wing governments (Balladur, Juppé) and the left-wing government (Jospin) :

- To place GDF under the thumb of one or the other French oil company (now a single company) that produces gas, as a major element of their downstream integration strategy.
- To merge EDF and GDF in order to create a powerful multi-energy group (this would in fact mean that the first company takes over the second).
- To favour GDF's autonomous industrial strategy by changing its status and allowing it to adapt in anticipation of the future competitive environment, by encouraging it to become internationalised in its core business.

In the field of political forces, the public company has avoided being taken over by either of the French energy companies and has succeeded in developing a convincing industrial strategy. Indeed, part of the answer comes from the company itself, which refused the first two futures. It successfully adapts itself in order to resist future competition on its home market, to manage new risks in gas business and to expand in its core business with three main solutions: improvements in supply, upstream integration and internationalisation. From now on, its privatisation is a political issue and should be included in the gas reform act in 2002. However, it will be organising a shareholding between the two other French energy companies, a foreign oil and gas partner and the State. This solution is seen as the best compromise for GDF's strategic autonomy in the future.

## 4.1. Options in industrial policy

On the eve of the opening-up of the gas market, GDF has two distinctive features in relation to the other European gas companies. Firstly it is neither a subsidiary of an oil company as SNAM in Italy or Gas Natural in Spain, nor is it a company whose capital stock is partly controlled by oil companies, like Gasunie, Ruhrgas or Distrigaz more or less are. This difference, which made it independent from the French oil companies' interests, made it vulnerable in the political game for its institutional future as it would have legitimised purchase by one of the companies either as a means of controlling price risk for the national bulk gas supply or for consolidating a national oil company by offering it a downstream basis in the gas markets.

Secondly, GDF is legally bound to EDF in distribution and supply to average and small consumers, which allows political resistance to total separation from public service model defenders and thus may suggest a merger as an efficient industrial solution. In the political game, moreover, GDF as a public company is less legitimate institutionally than EDF. GDF imports gas; it does not benefit from the legitimacy associated with preserving energy independence and with national pride through technological power. It does not allow the base of public procurement to be offered in order to bear a major industrial project and ensure the development of an equipment industry.

### The option of acquisition by oil companies

The first particularity explains why the idea of a privatised French gas industry controlled by one or both French oil and gas companies (Total, Elf-Aquitaine) could for a time have been seriously considered during 1995-96 under the right-wing Balladur government. However, the government hesitated for three reasons: the difficulty in giving preference to one of the two French oil companies, the fear that the concentration of the French energy sector would increase, and more importantly, the political barrier to privatising the gas company at a time when the oil companies were wholly privatised. GDF has been backed by the coalition that defended the public service model. It also resists this option by demonstrating its managerial efficiency and its ability to enlarge its strategy, relying on the performance of its management and demonstrating its ability to internationalise. Instead of gaining the option of controlling GDF in the future the French oil companies were invited to support GDF's upstream integration strategy in exchange for increased symbolic participation in downstream regional or local distribution. After agreements signed in 1996 and 1997 the companies sold it some shares in North Sea offshore production assets and in the UK-Continent Interconnector (5%)<sup>23</sup>. This strategy led to an increase in ministerial support, with GDF winning an implicit “national champion” status that should be supported in both European and world competition.

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<sup>23</sup>In exchange for transferring to GDF some of their shares in their North Sea deposits and envisaging subsequent co-operation in production in other areas, the two agreements signed at end 1996 and end 1997 allowed the two companies to develop a stronger presence downstream, making CFM into a corporate body in order to grant it a level of managerial independence, increasing Total's share in CFM from 5 to 10 %, authorising CFM and GSO to contract directly with Elf-Aquitaine Gaz, transfer by GDF of 25% of the capital of Gaz de Strasbourg to Total.

### **The option of an EDF/GDF merger**

The new competitive environment has not introduced legal changes for separating EDF and GDF completely because of the resilience of the public service model: their gas and electricity supply units have been administratively separate since 1998, but the customer reception centres remain common. Backed by the part of the coalition that defends this model, EDF sees itself as a major multi-energy business and aims to purchase GDF for that, particularly for its international expansion. Some trade unions are advocating a capitalist-type alliance between EDF and GDF, as “the enterprises who are succeeding are multi-energy and multi-field”<sup>24</sup>. These ambitions were expressed in autumn 1998 by the President of EDF<sup>25</sup>. As for its resistance to oil companies' ambitions GDF's board benefited from the context in which advantage is not given to the defenders of such a solution. First, the high level of centralisation of France's energy industry would have been reinforced by the merger of the two public companies, thus arousing suspicion from foreign competitors and the European Commission. Second, from the ministries' viewpoint, the merger would not help to give a clear competitive advantage in France on the domestic market where the two companies benefit from a clear incumbent's advantage over other competitors. The multi-energy competition would definitely have been weakened, given that GDF is one of EDF's main competitors in the multi-energy supply. Abroad, the new group would have some advantages in new trading activities, supply and greenfield power production projects. The size advantage offered by the merger in terms of international strategies would have been clearer had the gas and electricity companies been about to be privatised, but this was not the case.

### **The option of a mono-energy scheme**

Ultimately, the public authorities favour the option of preserving a public gas enterprise, subjected in France to a level of competition-related pressure in order to improve commercially and invited to move upstream in the gas production in order to manage risks along the value chain and to set itself up in other countries. It should not however be allowed to diversify into other business fields, so that the principle of speciality can be respected. Since 1999, unofficial consideration favours a triple alliance of GDF with the new French oil company, a foreign public oil company (Statoil) and EDF, by selling stock shares to them at a total of 40% (15% for TotalFinaElf, 8-10% for Statoil and 15% for EDF) after the corporatisation and partial privatisation of GDF. Some government and public authorities admitted in 2000 that there was a need to change GDF's status to allow this option<sup>26</sup>. The version of the Gas Law draft prepared for parliament in 2001, before the postponement to 2002, therefore included a provision for change in the GDF's status.

## **4.2. GDF's active industrial strategy**

With the opening of competition in Europe, the official reports (General Planning Board 1998, White Paper 1999) reinforced the pressure on GDF to adapt itself commercially to the competition threat and diversify its geographical locations. Official analyses show the competitive threat to GDF by comparing its size with those of gas and oil companies (Leban,

<sup>24</sup> See the position taken by the CFDT in *La Tribune*, September 1997, 22.

<sup>25</sup> See *Le Monde*, October 1998, 10.

<sup>26</sup> See *Le Monde*, April 2001, 14. In the first step the GDF's stock will be sold bilaterally and the government will retain more than half of it.

1998) or by focusing on the supposed danger of being reduced to a simple transport company, whereupon it will be legally obliged to separate the supply and the transport functions<sup>27</sup>. They emphasise the threat posed by the large oil companies' strategy of downstream integration into gas supply and the choice of downstream alliance made by the major gas producers (Gazprom, Statoil).

The development of GDF's active industrial strategy (Dauger, 1998) has been efficient even if it is set within the rules governing the public service model :

- The so-called principle of speciality as a legal provision of the public service model limits its diversification into fields outside its core business.
- GDF's financial capacity for diversifying or developing its assets abroad is limited by its reduced capacity for generating cash flow from sales of gas in France, because of the regulation of prices.
- State control of investments made abroad limited them to a total fixed for three years by the "contrat d'entreprise". However, the new "contrat d'entreprise" signed in 2001 by GDF and its supervisory ministers allows GDF greater room for manoeuvre by making the restrictions on using its surplus more flexible in order to finance investment and the completion of major transactions abroad (company or asset purchases, etc) with a financial resource level set at 1-1.5 billion euros .
- GDF's status as a public establishment also limits its room for international manoeuvre by preventing alliances through exchanges of shares, arousing suspicion from potential private partners and leading some foreign governments to refuse purchases by GDF<sup>28</sup>.

### Upstream integration

The development of GDF's presence in gas exploration and production is considered to be necessary for two reasons. First, risk sharing and value extraction along the gas chain is changed when competition is introduced on the wholesale and retail markets. Given gas price indexation on the oil price in the bulk sale contracts, gas to gas competition creates a potential squeeze between purchase price and retail price to eligible consumers for gas companies, while integrated oil and gas companies are not affected by this risk. Secondly the gas producers, being closer to their resources, have greater capacity for attracting and keeping important clients downstream.

As for some other gas companies such as Ruhrgas, GDF's objective is to reach a production capacity of 15% of the gas marketed by it in 2005, i.e. 6 Bcm, which corresponds to half of the eligible consumers' demand<sup>29</sup>. Beyond this date a level of 25% will be sought. For this reason GDF purchased shares in the British North Sea deposits (Elgin Franklin, Murdoch) from Elf and Total in 1998, and then purchased from other oil companies (Lasma and Ranger Oil) in 1999 (Boulton, Caister, McAdam) and from Statoil in Norwegian off-shore and TransCanada Pipe-Line in Dutch offshore in 2000. In 2001 GDF with the Malaysian Petronas

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<sup>27</sup> This risk was pointed out by a trade unionist in the financial newspaper *Les Echos*, April 30, 2001. In this context the scenario will involve [giving the transport to TotalFinaElf and the distribution networks to EDF](#).

<sup>28</sup> For instance, in May 1999 the Norwegian Government opposed the planned transfer of shares in the Visund deposit from Saga to GDF for this reason.

<sup>29</sup> Its production reached 2.5 bcm in 2001, [that is](#), about 6% of its supply in France.

signs a partnership agreement with the Algerian company Sonatrach for developing a gas field in the next five years.

### **Diversification in energy services**

Anticipation of future competition encourages GDF, together with every other incumbent, to alter its commercial practices towards these clients by enriching its supply through services. At the same time it develops activities in energy services, especially in the field of on-site co-generation, which are important elements of new outlets to its gas supply. It has created a special subsidiary Cofatech for this purpose, but failed to acquire Dalkia, the energy service division of the Vivendi Group, in 2000. Outside France, it took over control of Agip Service, the principal energy service group in Italy, in 1997, and Heat Service, the third largest service company in the UK, in 1999.

### **Internationalisation**

GDF is internationalising through purchasing assets, mainly in the industry's core activities (transportation, storage, and distribution) and in the energy services, without looking to move downstream into electricity production projects (ATG, 1998). The aim is for 50% of turnover to originate from international activity, having reached 20% in 2000<sup>30</sup>. GDF has seized opportunities created by the privatisation of gas enterprises to acquire major shares in their capital and play a significant industrial role. As such, it is present in several countries in Europe (Austria, Germany, Hungary, Portugal) and in Canada, Latin America and Asia (see table 8). It had 2 million clients outside France in 2000. In Italy it is becoming one of the key figures in supply activity: because of SNAM's gas release program imposed by the local regulator, GDF bought in 2001 a SNAM long-term contract of 4 bcm/y with Libya, thus becoming in the future the fourth major suppliers. In the same way, GDF prepares to trade in different European countries through a joint venture with Société Générale.

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<sup>30</sup> Until 1990, international activity was limited to sales of gas engineering services in LNG, storage, transport network management and general distribution management, through its subsidiaries Sofregaz and Technigaz.

**Table 8 : GDF's internationalisation in core activities**

Activities	Country	Name	Share holding	Date of acquisition
LNG imports	India	Consortium with Petronet (Dahej and Cochin terminals)	10%	2001
Supply	United Kingdom Italy	Volunteers Energy GDF (future retail supply from ex-SNAM/Libya contract of bcm/y)	100%	1999 2000
Distribution	Austria	ESTAG	25%	1998
	Germany	GASAG	50%	1997
	Hungary	DEGAZ	50%	1995
		EGAZ	50%	1995
	Portugal	Portgas		1996
	Canada	GasMetropolitan (Montreal)	19%	1998
	Mexico	Tamanligas	51%	1998
		Consorsio Mexigas	75%	1998
	Argentina	GASEBA (North-East)	60%	1999
Uruguay	GASENA (Montevideo)	46%	1997	
Storage	Slovakia	Pozagaz	30%	
Transmission	UK	Interconnector	5%	1999
	Mexico	TCPL's Mexican pipes		2000
Thermal Services	Italy	Agip Servizi	90%	1997
	UK	Heatsave	32%	1999

To conclude, Gaz de France's future is clearly restricted by the residual force of the public service model when it comes to changing its corporate status and possibly being privatised. At the same time, however, it will do well to resist the French oil companies' ambitions. Meanwhile, the new competitive environment and the scrutiny of France's particular situation by the European players limits the feasibility of a merger between EDF and GDF. The efficiency of its industrial strategy, with its upstream integration and internationalisation, will give some scope to its future as a semi-private mono-energy company.

## 5. Conclusion

This historical analysis demonstrates that French institutional conservatism in reforming the gas industry is based on the legitimacy of the public monopolist status and the vertical organisation maintained by its good social and economic performances. In the past, Gaz de France, the public gas company has efficiently developed its natural gas system from a national resource base and then from an increasing imported gas base, integrating into the developing European gas exchange system in order to import from diversified resources. It has also allowed the control of the monopoly rent of the public gas company to the benefit of consumers. Even though weaker than in the electricity industry, this model contains the

extension of French oil companies in the gas system and allows efficient development of it despite its market shares being restricted by the nuclear policy priority. After internal reform, performance has also been able to improve.

At present, the French gas system is technically and economically mature and could handle a competitive regime. Introduction of the competition that questions the basis of the public service model in the gas supply, i. e. long-term security of supply and equality in supply, is slowed down by strong elements of institutional path-dependency. Moreover, the stakes of introducing competition are limited by the near-exhaustion of gas resources, the quasi-vertical and horizontal integration and therefore the limitation of potential candidates to entries that do not involve an industrial shake-up. It will therefore still be somewhat affected by the new European regulation based on competition principles. The transcription reform has been postponed to 2002; it is minimalist, preserves vertical and horizontal integration with adoption of minimal eligibility threshold, and has no legal unbundling or contract divestiture. Reform could not need to change the public company status.

An unravelling process, however, is occurring. The public-service model institutions could only survive if France would be politically and economically insulated. The analysis shows that the European economic integration movement is eroding the basis of the model. Limiting the institutional differences between Member States of the European Union as the cultural adaptation to competition, and increasing public company's managerial priority of internationalisation, is the seed of new change in the future. Even though it is risky to speculate on a scenario of institutional and industrial change, in the medium term the French gas industry will probably not be immediately de-integrated with GDF's assets divested into distribution, some of its long-term contracts transferred to entrants and transport and supply separated, as the Italian reform is doing in a once monopolistic structure. The change in France will most probably lead to GDF's de jure monopoly being transformed into a de facto duopoly for GDF and TotalFinaElf with a competitive fringe of some foreign entrants in industrial supply: oil or gas companies disposing of gas surpluses, foreign traders (ENRON, Eastern, etc) and multi-energy suppliers. Some public service elements will remain in the development of distribution network, the protection of domestic consumers and the control of political dependence risk.

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