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COMMISSION DECISION

of 6 December 2000

on the compatibility of a concentration with the common market and with the EEA Agreement

(Case COMP/M.1940 — Framatome/Siemens/Cogéma/JV)

(notified under document number C(2000) 3691)

(Only the English text is authentic)

(Text with EEA relevance)

(2001/769/EC)

(OJ L 289, 6.11.2001, p. 8)

Corrected by:

►C1 Corrigendum, OJ L 300, 16.11.2001, p. 47 (2001/769/EC)

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(2001/769/EC)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to the Agreement on the European Economic Area, and in particular Article 57(2)(a) thereof,

Having regard to Council Regulation (EEC) No 4064/89 of 21 December 1989 on the control of concentrations between undertakings [1], as last amended by Regulation (EC) No 1310/97 [2], and in particular Article 8(2) thereof,

Having regard to the Commission decision of 11 August 2000 to initiate proceedings in this case,

Having given the undertakings concerned the opportunity to make known their views on the objections raised by the Commission,

Having regard to the opinion of the Advisory Committee on Concentrations [3],

Whereas:

(1) On 10 July 2000, the Commission received a notification of a proposed concentration by which Framatome SA ('Framatome'), France, Siemens AG ('Siemens'), Germany, and Cogéma SA ('Cogéma'), France, will establish a full-function joint venture ('NewJV').

(2) On 11 August 2000 the Commission decided, pursuant to Article 6(1)(c) of Regulation (EEC) No 4064/89 ('the Merger Regulation') and Article 57 of the EEA Agreement, to initiate proceedings in this case.

I. THE PARTIES AND THE OPERATION

(3) Framatome is a designer and manufacturer of nuclear power plants ('NPP') and manufactures the main equipment of the primary systems, i.e. the core part, of a NPP. Furthermore, Framatome designs, produces and markets fuel assemblies for NPPs. Framatome, moreover, is active in the production of connectors for electrical and electronic applications. The French State directly or indirectly (in particular through Cogéma) owns approximately 85 % of Framatome's shares.

(4) Siemens, a publicly listed company, is active in electrical engineering and electronics, which cover the areas of energy, industry, automation, transportation, medical engineering, information and communication and semiconductor. In the nuclear sector, Siemens is active in the design and supply of different types of NPPs, including its related necessary components and materials, such as fuel assemblies. Siemens manufactures equipment for NPPs, for example instrumentation and control systems, various replacement pieces, etc.

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[1] OJ L 395, 30.12.1989, p. 1: corrected version (OJ L 257, 21.9.1990, p. 13).
[2] OJ L 180, 9.7.1997, p. 1.
[3] ►C1 OJ C 308, 1.11.2001 ◄

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(5) Cogéma, a State-owned company through the Commissariat à l'Energie Atomique ('CEA'), is mainly active in the nuclear field. Its activities cover the whole nuclear fuel cycle required to be established for continuous operation of NPPs, i.e., *inter alia*, prospecting of uranium, chemical conversion and enrichment of uranium, reprocessing of spent fuel and related engineering activities. Furthermore, Cogéma manufactures fuel assemblies and offers mixed oxid uranium fuel ('MOX') ([1])

(6) Framatome and Siemens will contribute most of their nuclear activities to NewJV. The business activities of Cogéma will not be contributed to NewJV. However, Cogéma will have influence in NewJV as far as MOX fuel business and technology aspects are concerned through arrangements in the shareholders agreement. Framatome will hold 66 % and Siemens 34 % of the shares in NewJV. Cogéma will have one special share with particular rights attached.

II. **COMMUNITY DIMENSION**

(7) The undertakings concerned have a combined aggregate world-wide turnover of more than EUR 5 billion ([2]). Framatome, Cogéma and Siemens each have a Community-wide turnover in excess of EUR 250 million and they do not each achieve more than two thirds of their aggregate Community-wide turnover within one and the same Member State. The notified operation therefore has a Community dimension within the meaning of Article 1(2) of the Merger Regulation. The present operation also falls under the cooperation agreement with the EFTA countries.

III. **THE CONCENTRATION**

(8) NewJV will be jointly controlled by the three parent companies, according to the initial notification, as strategic business decisions require the unanimous approval of all board members.

(9) The new entity will be of full-function nature as Framatome and Siemens contribute their respective nuclear business into NewJV.

(10) The proposed operation, therefore, constitutes a concentration within the meaning of Article 3(1)(b) of the Merger Regulation.

IV. **COMPETITIVE ASSESSMENT**

Introduction

(11) All notifying parties have activities in the nuclear sector. The following concentrates on those sectors where the proposed operation would have substantial impact as a result of which effective competition in the common market or in a substantial part thereof would be severely restricted. Specifically, these are the sectors for A. fuel assemblies, B. instrumentation and control, and C. spent fuel racks.

(12) NPPs are used by electrical utilities for the commercial production of electricity. NPPs can be distinguished according to whether they use light water or heavy water isotopes as coolants and moderators. Approximately 80 % of the world's reactors are based on just two US light-water designs, and these contribute about 88 % of total world nuclear capacity. Light water reactors ('LWR') use nuclear fuel in the form of isotopically enriched uranium oxide that is moderated and cooled with highly

([1]) MOX is a blend of natural uranium or 'tails uranium' (a by-product of the enrichment process) mixed with a small amount of plutonium gathered through reprocessing.

([2]) Turnover calculated in accordance with Article 5(1) of the Merger Regulation and the Commission notice on the calculation of turnover (OJ C 66, 2.3.1998, p. 25). To the extent that figures include turnover for the period before 1 January 1999, they are calculated on the basis of average ECU exchange rates and translated into EUR on a one-for-one basis.

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purified water. There are two principal types of LWR: the pressurised water reactor ('PWR') and the boiling water reactor ('BWR'). Other types of NPPs include, *inter alia*, pressurised heavy water reactor (also called CANDU reactor), VVER (the Russian version of the PWR) or metal or gas cooled reactors.

(13) A complete NPP is composed of two principal parts: the nuclear island ('NI') and the conventional island ('CI'). The NI is the proper 'nuclear part' in a NPP and comprises the complete set of systems and equipment which are necessary to deliver the steam to the CI and to ensure the safety of the reactor. The NI is composed of the nuclear steam system supply ('NSSS') and the balance of the nuclear island ('BNI') (i.e. the complete set of auxiliary systems and equipment). The CI consists mainly of the turbo generator set and its auxiliary system housed in specific buildings completely apart from the NI building. The design of the CI is not particularly different from other power generation concepts, for example that of coal or gas-fired generation plants.

(14) The table in recital 15 sets out the most frequently built reactor types worldwide.

(15) *Table 1*: Reactor installations in the EEA and other major world regions

Country	Reactor type (NPPs)	Period	Suppliers
Belgium	PWR (7)	1975-1985	Westinghouse, Framatome
Finland	BWR (2) VVER (2)	1979-1982	ABB Russian supplier
France	PWR (58) Fast breeder reactor (1)	1977-1984 —	Framatome —
Germany	PWR (13) BWR (6)	1975-1989 1977-1984	Siemens Siemens
Spain	PWR (7) BWR (2)	1971-1985 1970-1986	General Electric 'GE' Siemens (1)
Sweden	PWR (3) BWR (8)	1975-1983 1975-1985	Westinghouse ABB
United Kingdom	PWR (1) AGR/GCR (34)	1995 —	Westinghouse —
Total by reactor type in the EEA	PWR (89) BWR (18) Other (37)	— — —	— — —
United States of America	PWR (69) BWR (34)	— —	— —
Asia	PWR (37) BWR (31)	— —	— —
Other world regions	PWR (61) BWR (6)	— —	— —
Total by reactor type worldwide	PWR (256) BWR (89) Other (49)	— — —	— — —

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A. *FUEL ASSEMBLIES*

1. RELEVANT PRODUCT MARKETS

(16) Fuel assemblies ('FAs') are used as the delivery device for the integration of nuclear fuel into the core of the nuclear reactor. An FA is composed of a metallic structure, the 'skeleton', and a certain number of fuel rods that contain the fuel pellets. Both Framatome and Siemens design and manufacture FAs for various reactor types, mainly for LWRs.

(17) According to the notifying parties, LWR FAs are in a separate market from FAs for other NPP types. Heavy water reactors ('HWRs') operate with a different moderator and cooling agent, namely D_2O instead of H_2O. The design and manufacturing of HWR-FAs, therefore, require specific expertise and production equipment. Furthermore, no FA designer, except KNFC (South Korea), is active both in the design and manufacture of LWRs and HWRs FAs. Gas-cooled reactors ('GCR') and advanced gas-cooled reactors ('AGRs'), which are exclusively used in the United Kingdom, operate with graphite as moderator and gas as cooling agent. FAs for these reactor types, therefore, have different technical requirements. Currently, only BNFL/Westinghouse/ABB supplies FAs for GCR/AGRs. Although switching of production from LWR-FAs to AGR-FAs appears technically possible, substantial investment in additional equipment would be required. However, the limited number of AGR-type NPPs would hardly justify substantial financial investments.

(18) In LWRs, two different fuel types are used, namely enriched uranium and mixed oxide fuel. Both fuel types are used in the form of small cylindrical pellets with a weight of 6-7 g, which are fissioned by a controlled chain reaction in an LWR. Enriched uranium (often referred to as uranium dioxide ('UO2') fuel, according to its chemical composition) is mainly used in LWRs. UO2 fuel can further be subdivided into enriched natural uranium ('ENU' ([1])) and enriched reprocessed uranium ('ERU' ([2])). MOX fabrication involves the recycling of plutonium that is recovered during the reprocessing of spent UO2 fuel. FAs have a packaging function, i.e. they are used as the mechanical device for integrating the fuel (UO2 or MOX) into the reactor core ([3]). The notifying parties submit that as far as supply-side substitutability of UO2 FAs and MOX FAs is concerned, it is probably sufficient to consider the two FA categories as sub-segments of an integrated market for LWR FAs. In particular, the notifying parties indicate that a designer and manufacturer of UO2 FAs can switch to the production of MOX FAs (and vice versa), as components are identical for UO2 FAs and MOX FAs.

(19) As far as ERU-type FAs are concerned, third party manufacturers stated that production facilities have to be capable of dealing with low concentrations of residual fissile products. In addition to additional facilities, special handling procedures are required to protect employees. Both are costly and generally appear justifiable only when ERU-type FAs are demanded in sufficient numbers; the investigation has shown that most NPP operators do not use any ERU fuel ([4]), even when they are permitted to use

([1]) ENU fuel is produced from natural uranium that undergoes several chemical processes in order to make it useable as nuclear fuel. The main steps are 'conversion' (i.e., the mixture of purified uranium concentrates with hydrofluoric acid and fluorine in order to obtain suitable chemical compounds) and 'enrichment' (i.e. the increase of uranium 235 isotopes that split easily in the fission process). Once enriched, the uranium is chemically transformed into UO_2 powder, which is then granulated into UO_2 granulates and afterwards compressed into ENU pellets.

([2]) ERU fuel is produced from uranium that comes from reprocessed spent fuel and is later enriched or mixed with weapon-grade uranium. ERU fuel is therefore produced in much lower quantities than ENU fuel

([3]) Only one fuel type is loaded within one given FA.

([4]) NPP operators use approximately 1 % of ERU-type FAs in their LWRs.

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reprocessed fuel. Nevertheless, third party replies appear largely to confirm the notifying parties' view that production facilities of ERU FAs can be used for ENU FA production. It appears therefore that, for the purpose of this case, ERU FAs can be considered as part of the same market as ENU FAs.

(20) MOX fuel is very toxic and dedicated production equipment is required for the production of MOX pellets, the filling of the MOX pellets into cladding tubes, and FA assembling, in particular in view of the high level of radiation leading to special protection measures. The manufacturing costs involved in the production of MOX FAs are therefore significantly higher than for UO2 FAs. In view of the highly toxic nature of MOX fuel but also due to the small proportion to MOX fuel sales in comparison with ENU fuel, MOX FAs, which are either suitable for PWR or BWR, are therefore manufactured and handled within the same production facilities. Even if MOX fabrication can be located in the same place as ENU fuel production, MOX production facilities are separate facilities.

(21) From a demand-side perspective, FAs for PWR and BWR are no substitutes. An operator of a PWR reactor cannot use FAs designed for BWR reactors (or vice versa), as there are significant differences in the design between PWR FAs and BWR FAs. The geometrics, i.e. the arrays of FAs, are typically smaller for BWRs and larger for PWRs. Furthermore, the guide tubes of the FA are different between PWR and BWR. The former are used to guide control rods, whereas the latter tie rods or water channels.

(22) The notifying parties submit that because of the ability of suppliers of BWR FAs to readily switch on the supply side to making PWR FAs (and vice versa), they should be considered as being part of the same market. It was stressed that, while BWR FA and PWR FA designs are different, there has been a clear tendency in recent years to obtain access to designs for both FA categories. Furthermore, the notifying parties indicate that equipment and processes for the production of BWR and PWR FAs are similar and that switching of production from one FA category to the other is inexpensive and can be done quickly.

(23) Third parties who have replied to the Commission's inquiry stated however that, although the designs of BWR and PWR are similar, there are major differences in materials, composition of the FA features, core configuration, and operation support, resulting in significant differences between BWR and PWR FAs in terms of engineering analysis, manufacturing processes and prices to customers. For example, the pellets that are filled into FAs differ in size. The geometrics, i.e. the arrays of FAs, are typically smaller for BWRs and larger for PWRs. The latter have no wrapper. Moreover, the BWR FA has also an additional square metal structure. Finally, BWR FAs include more material composition arrangements due to differences in fuel enrichment and/or absorber configurations within the assembly. Switching production from BWR to PWR (or vice versa) was seen as being very costly and involving significant investment.

(24) Finally, prices differ significantly between PWR FAs and BWR FAs, on average by [15 % to 25 %] (*).

(25) It is also possible to distinguish between the different geometrics of the FAs, according to the notifying parties. PWR FAs and BWR FAs are offered with respectively seven and three standard geometrics. LWR FAs with different geometrics (and lengths) belong to the same market, as designs for different geometrics can be developed relatively easily once a basic FA design has been developed (the main differences being the dimensions of the spacer grids and the end fittings). An FA manufacturer, therefore, could easily switch production from one array to another, even on

(*) Parts of this text have been edited to ensure that confidential information is not disclosed; those parts are enclosed in brackets.

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the same production line. Moreover, the notifying parties claim that once a licence for one geometry has been obtained, it is considerably easier to obtain a licence for another geometry within the same FA family. Third party FA manufacturers have largely confirmed that different geometrics constitute no reason to distinguish between different geometrics for PWR and BWR FAs.

Conclusion

(26) It may accordingly be concluded that PWR FAs and BWR FAs belong to different product markets. Furthermore, it appears appropriate to consider MOX FAs as a separate market within the LWR FAs [1].

2. RELEVANT GEOGRAPHIC MARKETS

(27) According to the notifying parties' view, the market for the design and manufacturing of FAs is worldwide, but at the very least comprises the EEA. As far as the actual product and the production processes are concerned, LWR FAs are essentially the same throughout the world [2]. Transportation costs are usually [< 5 %] of the manufacture price of an LWR FA, i.e. the FA price without the fissile material. Safety regulations for the transportation and use of LWR FAs differ between world regions, but those differences do not usually represent a significant obstacle to trade. While licensing of FA designs usually takes place on a national level, in the Community, the grant of a licence in one Member State accelerates considerably the licensing procedures in other Member States. In addition, the main FA vendors have by now obtained licences in a variety of different countries worldwide. Customs duties for LWR FA imports into the Community currently amount to approximately 4 % of the price of the entire FA, i.e. including the enriched uranium, irrespective of where the imports come from. Customs duties for FA imports into the United States amount to approximately 4 % of the FA price. Under the GATT/WTO Framework, customs duties for imports into the Community will progressively decrease, down to 2,2 %.

(28) The notifying parties also submit that prices between different world regions appear to converge. Due to significant price decreases in Europe in recent years, the disparity between US and European prices for both BWR FAs and PWR FAs has closed to within [15 % to 25 %]. This difference is due to some extent to differing labour costs. The notifying parties further mention that the Euratom Treaty applies to all nuclear trade. In addition, Euratom cooperation agreements are applicable, in particular with the United States of America (USA) [3] and some other trading partners.

(29) However, the market investigation has indicated that the markets for PWR and BWR FAs are not wider than the EEA. In the first place, the proximity of the FA supplier is an important issue for NPPs. According to third parties' replies, Russian and Asian manufacturers of FAs, for example, are at a disadvantage as FAs would need to be transported safely over long distances, crossing many borders. Clearances are required in particular to move fuel from one country to another. The transportation cost increases further (and can therefore be significant) as different countries have different requirements for fuel containers which are needed to move fuel. Shipments across multiple country borders can also involve significant levels of risk due to the uncertainty in moving

[1] In view of the facts outlined above, it appears that, for the purpose of this case, no distinction has to be made between MOX fuel for PWRs and BWRs.

[2] For example, the notifying parties note that an FA design developed in the United States can be used in European NPPs, and vice versa. The same is true for the production processes.

[3] Agreement for cooperation in the peaceful uses of nuclear energy between the European Atomic Energy Community and the United States of America of 7 November 1995 (OJ L 120, 20.5.1996, p. 1).

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the product though different regulatory environments. Furthermore, lead times of new FA deliveries can be very long as they need to obtain qualified supplier status from NPP operators. A typical period can last between five and seven years. Proximity of the FA supplier, i.e. location at least within the same world region as the NPP operator, appears to be required in order to avoid significant costs. Furthermore, according to third parties, while a majority of the world regions follows US regulatory positions concerning safety requirements and safety regulations, regulatory bodies in the EEA, particularly in France and Germany, are applying different, and in part stricter, requirements and regulations, which lead to higher costs for special licensing of FA designs.

(30) As far as imports of FAs into the Community are concerned, third parties further emphasise that import duties are applicable, which amount to approximately 3,5 % of the total value of the FA [1]. Since FA fabrication consists of only [20 % to 30 %] of the bundle value, i.e. the FA without the nuclear fuel, the relative impact of this duty can be considered to be actually four times as high, i.e. 14 %. Therefore, few shipments have been made from other world regions into the Community or into the EEA [2]. Exceptionally, Switzerland, Slovenia and the Czech Republic have received shipments from an FA supplier located in the USA. According to one FA supplier, these particular trade movements (some exports to European countries, but hardly any into the Community) are indicative of the protective effect of the Community customs duties.

(31) Another indication is given by the fact that FA designers and manufacturers located in other world regions have achieved the majority of their sales in their domestic regions. In this respect, it is worth mentioning that at least one important Japanese FA vendor is prohibited by a government arrangement with the USA from exporting FAs to other world regions. Price levels in the world regions appear to differ between [25 % to 35 %] on average. Third parties have not confirmed that prices in the US and the EEA will converge within the next years. Although a decline in absolute price levels was experienced in the EEA and in the US over the past decade, the relative price difference between the EEA and the USA has remained relatively stable, i.e. on average [25 % to 35 %] [3].

(32) It may, therefore, be concluded that the relevant geographic market for both PWR FAs and BWR FAs is EEA-wide. This has been largely confirmed by third party competitors.

(33) As far as MOX FAs are concerned, reprocessed nuclear fuel is allowed only in a number of countries worldwide. In the EEA, some NPP operators in France, Germany and Belgium are allowed to use reprocessed nuclear fuel in combination with ENU fuel. Outside the EEA, only Switzerland and Japan have allowed some of their NPP operators to use reprocessed nuclear fuel; the use of MOX fuel is prohibited in the USA. For the purpose of the geographic market definition, it can be left open whether the geographic scope for MOX FAs is EEA-wide or comprises a larger area, since the proposed concentration would have significant impact applying either definition.

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(1) The customs duties are higher for some of the components, e.g. cladding tubes, guiding tubes, instrumentation tubes: 9 %.

(2) One FA supplier notes that the main reason why a shipment from the USA to a particular customer in Germany took place was that this customer had an emergency need for fuel.

(3) This is also confirmed by documents produced by NAC, the organiser of the Nuclear Fuel Management Seminar.

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3. COMPETITIVE ASSESSMENT

3.1. ***The parties' activities***

(34) Framatome designs only PWR FAs but produces both PWR FAs and BWR FAs at its European manufacturing facilities. It started its activities in the PWR FA area under a licensing agreement with Westinghouse that was in place until 1981. Framatome sources all FA components internally, except for the purchase of MOX fuel rods and MOX FAs (from Cogéma and Melox SA ('Melox'), a 50/50 joint venture between Cogéma and Framatome) and, for its US subsidiary FCF, the purchase of UO_2 pellets from Siemens Power Cooperation ('SPC') [1]. Framatome has a number of subsidiaries for the production and marketing of FAs and FA components that all will be transferred to NewJV.

(35) Siemens' FA activities are combined in its subsidiary Power Generation Group (Kraftwerksunion, 'KWU'), which was created in 1969 when Siemens added AEG's BWR FA technology to its existing activities in the PWR FA area. Just like Framatome, Siemens started out in the PWR FA area as a Westinghouse licensee (the licensing agreement expired in 1970) but nowadays designs, manufactures, and sells Western-style PWR FAs with all standard geometrics. In the BWR FA area, Siemens gathered first experience under a licensing agreement with GE (which expired in 1990) but has in the meantime developed its own designs for the standard arrays of BWR FAs. Siemens' activities in the area of FA fabrication and marketing are carried out through a number of subsidiaries, all of which will be transferred to NewJV.

(36) Cogéma's activities in the FA area are confined to the manufacture of MOX FAs or individual components thereof. Cogéma operates one MOX manufacturing facility. In addition, Cogéma and Framatome, through Melox, operate a joint manufacturing facility. While both plants currently produce only MOX FAs (or components thereof) for PWRs, the latter will soon start to produce MOX fuel rods for BWRs. Products manufactured at the two plants are marketed either directly by Cogéma or through Commox SA ('Commox'), a 60/40 joint venture between Cogéma and Belgonucléaire, which also sells MOX fuel rods manufactured at the Belgonucléaire facility. According to a report made by the Euratom Supply Agency ('ESA') [2], a further MOX production facility will be operational at Melox soon. Cogéma's MOX business will not be transferred to NewJV.

3.2. ***Market shares***

(37) The market shares of the notifying parties' activities and those of their competitors are summarised in recitals 38, 39, 40 and 41. For reason of comparison with the market situation in the EEA, market share data of other world regions are also provided. The period covers the years 1998 to 2000. Separate tables provide market share data for PWR FAs and BWR FAs applying the same table layout. In 1999, the total sales of Framatome and Siemens in the area of LWR FAs represented more than EUR […] million in the EEA.

(38) *Table 2* [1]: Market shares for LWR FAs (PWR FAs + BWR FAs) [2]

	EEA	USA	Asia	Rest of world	World total
Framatome	[50 %-60 %]	[5 %-15 %]	[< 5 %]	[< 10 %]	[15 %-25 %]
Siemens	[20 %-30 %]	[10 %-20 %]	[< 10 %]	[< 10 %]	[10 %-20 %]

[1] SPC is a wholly owned Siemens' subsidiary in the USA.
[2] Annual report of ESA, issue 1999, p. 27.

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	EEA	USA	Asia	Rest of world	World total
Framatome + Siemens	[75 %-85 %]	[20 %-30 %]	[< 10 %]	[< 10 %]	[30 %-40 %]
BNFL/Westinghouse/ABB	[15 %-25 %]	[45 %-55 %]	[< 10 %]	[< 10 %]	[15 %-25 %]
GNF/GE-ENUSA ([3])	[< 5 %]	[20 %-30 %]	[30 %-40 %]	[< 10 %]	[10 %-20 %]
Others ([4])	[< 5 %]	[< 5 %]	[55 %-65 %]	[80 %-90 %]	[20 %-30 %]

([1]) *Source:* NAC Fuel-Trac, February 2000.
([2]) MOX FAs are not included, as this FA type will not be contributed to the new entity.
([3]) ENUSA, a Spanish company, manufactures BWRs FAs under licensing agreements with GE. In the framework of the GNF agreement, GE and ENUSA cooperate closely in the production and marketing of BWR FAs.
([4]) Mitsubishi Heavy Industries (MHI), NPI, JNF (all Japan); KNFC (South Korea); NPIC (China); INB (Brazil); Minatom (Russia).

(39) *Table 3*: Market shares for PWR FAs

	EEA	USA	Asia	Rest of world	World total
Framatome	[60 %-70 %]	[10 %-20 %]	[< 5 %]	[< 10 %]	[25 %-35 %]
Siemens	[15 %-25 %]	[5 %-15 %]	[< 5 %]	[< 5 %]	[5 %-15 %]
Framatome + Siemens	[80 %-90 %]	[20 %-30 %]	[< 5 %]	[< 10 %]	[35 %-45 %]
BNFL/Westinghouse/ABB + (ENUSA ([1])	[10 %-20 %]	[70 %-80 %]	[5 %-15 %]	[< 10 %]	[20 %-30 %]
Others ([2])	[< 5 %]	[< 5 %]	[85 %-90 %]	[85 %-95 %]	[30 %-40 %]

([1]) In the production and marketing of PWR FAs, BNFL/Westinghouse cooperate closely with ENUSA. In 1992, BNFL; Westinghouse and ENUSA founded the European Fuel Group ('EFG'), focusing on PWR FAs. Until recently, ENUSA did not have its own FA designs but only manufactured PWR FAs under licensing agreemens with BNFL/Westinghouse.
([2]) Mitsubishi Heavy Industries (MHI), NPI, JNF (all Japan); KNFC (South Korea); NPIC (China); INB (Brazil); Minatom (Russia).

(40) *Table 4*: Market share for BWR FAs

	EEA	USA	Asia	Rest of world	World total
Framatome ([1])	—	—	—	—	—
Siemens	[35 %-45 %]	[20 %-30 %]	[5 %-15 %]	[< 5 %]	[15 %-25 %]
Framatome + Siemens	[35 %-45 %]	[20 %-30 %]	[5 %-15 %]	[< 5 %]	[15 %-25 %]
BNFL/Westinghouse/ABB	[40 %-50 %]	[< 10 %]	[< 5 %]	[35 %-45 %]	[5 %-15 %]
GNF/GE-ENUSA	[10 %-20 %]	[55 %-65 %]	[70 %-80 %]	[55 %-65 %]	[55 %-65 %]
NFI	[< 5 %]	[< 5 %]	[10 %-20 %]	[< 5 %]	[< 10 %]

([1]) Framatome ist not active in the design of BWR FAs, but produces them in the framework of manufacturing contracts, mainly for Siemens and Toshiba.

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(41) *Table 5*: Market shares for LWR MOX Fas; approximate figures (1)

	EEA	USA	Asia	Rest of world	World total
Cogéma	[> 85 %]	—	—	—	[< 80 %]
Siemens (2)	[< 5 %]	—	—	—	[< 5 %]
BNFL/Westing-house/ABB	[< 10 %]	—	—	—	[< 10 %]
JNC, Japan	—	—	[< 10 %]	—	[< 5 %]
Others (3)	—	—	—	[…]	[…]

(1) Estimates, which were calculated on the basis by the given production capacity and capacity use. Moreover, due to temporary plant closure, only approximate figures can be provided for the period 1998 to 2000

(2) According to Nukem, a subsidiary of RWE (Germany), Siemens manufactures MOX fuel but has subcontracted pellet production and fuel assembling to Fragema and BNFL; REW is one of the largest electricity generators in Germany.

(3) The situation of available capacity for MOX FA production appears unclear for other world regions. In particular, in Russia and other NIS countries, the reprocessed uranium production still belongs to the former industrial-military complex, for which accurate data are difficult to obtain and estimates are hardly reliable due to the fact that these facilities give hardly any data to the public.

3.3. ***Assessment***

3.3.1. **Interpretation of the market shares — the actual situation in the EEA**

(42) Table 3 shows the market shares of the notifying parties and that of the competitors in the market for PWR FAs. For reason of comparison, other world regions in addition to the EEA are included.

(43) Framatome's high market share results from the fact that the French market, which represents [60 % to 70 %] of the entire PWR-FA demand in the EEA (1), is almost exclusively served by Framatome. In other words, the [60 % to 70 %] market share of Framatome in the EEA is the sum of approximately [55 % to 65 %] resulting from sales in France and approximately [5 % to 15 %] achieved through sales in Germany and, to a small extent, in other EEA countries.

(44) In France, Framatome constructed all nuclear power plants ('NPPs'), of which two basic PWR-types, i.e. 900 MW and 1 300 MW of generation power, were delivered to Electricité de France (EdF). It provides Framatome with a strong base of PWR FA demand, as outlined in the previous recital. Therefore, France can be considered as the 'home market' of Framatome. No other competitor was able to enter this 'home market' except for very few FA supply contracts limited to individual NPPs.

(45) EdF is the only operator of NPPs in France. It is normally typical for NPP operators to have at least two different sources of FA supplies for all of their NPPs (2). However, EdF has Framatome as the principal qualified PWR FA supplier and Siemens for only a few selected NPPs. EdF awarded only very few supply contracts to other FA vendors. In fact, EdF has rarely invited other FA vendors to submit bids. In this context, it should be noted that EdF holds a 9,3 % stake in Framatome. Both are controlled by the French State.

(1) In the EEA, 89 PWR nuclear power plants were built, of which 58 were installed in France.

(2) It is worth mentioning that the NPP constructor receives the first FA load contract.

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(46) In Germany, Siemens, a constructor of PWR-type and BWR-type NPPs, delivered most NPPs in Germany [1] and has also constructed a significant number of NPPs in other EEA countries. With reference to Table 3, the EEA market share of Siemens for PWR FAs of [15 % to 25 %] is the sum of approximately [5 % to 15 %] resulting from sales in Germany and approximately [5 % to 15 %] achieved through sales in other EEA countries. In order to provide a complete picture on Siemens, the company has a [35 % to 45 %] market share in the market for BWR-FAs on an EEA-wide basis, with at least half of sales being achieved in Germany. Therefore, Germany can be considered as the 'home market' of Siemens. However, the position of Siemens is contestable due to the fact that competitors were successful in entering the German market and in view of the phase-out of nuclear power generation in Germany.

(47) As far as the supply policy of NPP operators in Germany is concerned, most PWR NPP operators have qualified Siemens as their principal supplier and Framatome as second supplier. Other FA vendors are ranked in positions three and four. Moreover, German utilities have usually invited FA supply bids from a range of FA vendors.

(48) In the EEA, the market shares of Framatome and Siemens have traditionally been strong. Framatome and Siemens were constructors of the vast majority of NPPs in the EEA, 74 out of 89 PWR reactors currently installed in the EEA. Typically, after completion of the construction work, the NNP supplier has been awarded the first load contracts of nuclear fuel. The market shares have also been very stable. This appears to be related to the fact that each provider of FAs is required to receive qualified supplier status from NNP operators, which implies a State authorisation, before any load contract can be awarded. This is a lengthy and costly process, which can take up to five years of tests and procedures and may cost as much as EUR […] million [2]. As suppliers of the first FA load, Siemens have received qualified supplier status for all their NPP designs and are, hence, in a good position to compete for reloads. Furthermore, Framatome and Siemens have also received FA supplier status from NPP operators for designs of other NPP constructors, mainly due to their strong expertise in this area. The competitors have been less successful in obtaining qualified supplier status. According to information provided by the notifying parties, Framatome has obtained qualified supplier status in [75 % to 85 %] and Siemens in [55 % to 65 %] of the 89 PWR NPPs in operation in the EEA, whereas BNFL/Westinghouse/ABB has obtained this status in only [35 % to 45 %] of those NPPs. As a result, BNFL/Westinghouse/ABB (and ENUSA) have, in fact, never been able to supply FAs to a substantial number of reactors.

(49) Furthermore, even where competitors have obtained qualified supplier status from NPP operators, Framatome and Siemens have often been re-awarded new FA load contracts for many NPP sites in the EEA. Apart from the strength of Framatome's and Siemens' designs, there appears to be a certain advantage to being the 'home market' supplier of FAs.

(50) In completing the picture in the EEA, Framatome and Siemens compete with BNFL/Westinghouse/ABB and Siemens also with General Electric (GE) (for BWR FAs) in other EEA countries. There, no 'domestic' suppliers of NPPs are established with the exception of the United Kingdom, where BNFL delivered an entirely different type of NPP (gas-cooled reactors), which is not supported either by Framatome or Siemens nuclear technology. In

(1) In the EEA, 18 BWR were built, of which six were installed in Germany.

(2) Nonetheless, when FA vendors have obtained qualified supplier status for reactors with identical designs to a reactor for which it has not yet obtained qualified supplier status, it generally becomes somewhat easier to obtain this status.

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these other EEA countries, NPP operators have ranked Framatome and Siemens on their supply list on various different positions.

3.3.2. **Changes in the market due to the concentration — The new entity would achieve high market shares in the EEA**

(51) It can be seen from Table 3 that the new entity would have a combined market share in PWR FAs of [80 % to 90 %] in the EEA. Its next competitor, BNFL/Westinghouse/ABB (in combination with ENUSA) would have a market share of [10 % to 20 %]. Over the past years, no other competitors have had significant sales in the EEA.

(52) When considering the overall LWR FA market, it can be seen from Table 2 that the new entity would also have a high combined market share in the EEA. Over the past years, non competitors have had significant sales in the EEA, except BNFL/Westinghouse/ABB. When considering the proposed transaction on a global scale, the new entity would become also the largest player worldwide for LWR FAs. FA designers and manufacturers located in other world regions have achieved the majority of their sales in their domestic regions.

(53) As far as BWR FAs are concerned, there are no overlapping activities as only Siemens designs and produces FAs for BWR. However, Framatome manufactures FAs for BWRs, but these activities are carried out under subcontract for Siemens and Toshiba (included in GNF).

(54) In France, the concentration would lead to a situation in which EdF is faced with a monopoly for all of its FA supplies, i.e. EdF would lose its alternative source of supply, as currently filled by Siemens to some extent. It has the potential to affect the final electricity consumers by forcing the electricity generators to charge higher prices resulting from higher FA supply costs. In view of the long duration of the qualification process, typically five to seven years, EdF would depend on the monopoly of FA supplies for a long time. A quick change to alternative supply sources, therefore, appears impossible.

(55) In Germany, the result of the concentration would be similar to that in France, but for the fact that the German operators of NPPs have qualified other FA suppliers so that they are not entirely dependent on NewJV.

(56) As far as the situation in the EEA is concerned, the NewJV would mean the combination of the two ‘home markets’ of Framatome and Siemens resulting in the reinforcement of their overall position in the EEA. It provides NewJV with a substantial and reliable source of revenue. Secondly, NewJV would have a high retaliation force by using its significant overcapacity.

(57) For purposes of comparison, when considering the proposed transaction on a global scale, NewJV would become a large player worldwide, with [35 % to 45 %] market share. However, as indicated in recitals 27 to 33 on the geographic market definition, almost all FA manufacturers located in other world regions have achieved the majority of their sales in their domestic regions markets.

(58) MOX FAs, Cogéma, together with Belgonucléaire, have a market share of approximately [80 % to 90 %] in the EEA, but also similar on a worldwide basis. The result of the proposed operation will be assessed further when discussing the vertical integration.

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3.3.3. **Further aspects**

3.3.3.1. *Complete FA services as a result of vertical integration — Covering of the entire nuclear fuel cycle by NewJV*

(59) Cogéma has activities, forming together the nuclear fuel cycle ('NFC'), which are vertically linked with the design and manufacture of LWR FAs. These comprise activities that relate to the treatment of uranium before and after its use as nuclear fuel. The 'front end' of the NFC consists of mining and milling of natural uranium, conversion of uranium concentrates, enrichment of natural uranium and, finally, the fabrication of the FA. The 'back end' of the NFC comprises the reprocessing or storage of spent fuel resulting either in recycled fuel and/or final waste disposal.

Mining and milling of natural uranium

(60) According to the parties, Cogéma is active in mining and milling of natural uranium on a worldwide basis through a number of subsidiaries and joint mining ventures (minority or majority shareholdings). In consequence, Cogéma has received access to a number of uranium reserves located in most world regions, including Canada, Australia and Kazakhstan. These countries are known for their large uranium reserves, which amount to approximately 54 % of world uranium resources estimated in 1997.

(61) Cogéma's market share in mining and milling amounted to approximately [15 % to 20 %] in 1998 on a worldwide basis. Cameco, the other large competitor, together with UEM (Canada/USA), achieved a market share of [30 % to 35 %]. Other competitors have market shares of up to 10 % each, for example ERA (Australia) with approximately [5 % to 10 %], Rössing (Western Namibia), a subsidiary of Rio Tinto, with [5 % to 10 %] ([1]).

Conversion of uranium concentrates

(62) In the world, there are only a few large enterprises operating conversion facilities. Cogéma runs two conversion facilities, both located in the EEA. The market share of Cogéma amounted to [20 % to 25 %] on a worldwide basis. Other competitors are smaller, for example ConverDyn (USA) with a market share of [15 % to 20 %], Cameco (Canada) with [10 % to 15 %], BNFL/Westinghouse/ABB with [5 % to 10 %]. Minatom (Russia) achieved a market share of [15 % to 20 %], but, its conversion business is still integrated into the overall military-industrial complex inherited from the former USSR. Access to capacity, therefore, appears to be restricted and to depend largely on the political situation.

Enrichment of natural uranium

(63) As with the conversion of uranium, there are only a few large enterprises active in the enrichment of natural uranium. Cogéma carries out its enrichment activities through its subsidiary Eurodif, originally established as a consortium with the participation of, *inter alia*, ENEA (Italy), ENUSA (Spain) and Synatom (Belgium). The market share of Cogéma amounted to [20 % to 25 %] on a worldwide basis in 1999. There are two other competitors with higher market shares, USEC (USA) with [35 % to 40 %] and TENEX (Russia) with [25 % to 30 %]. Other

([1]) By decision of 1 August 2000, the Commission authorised the concentration between Rio Tinto (owner of Rössing) and North (majority shareholder of ERA); Case COMP/M.2062. When the concentration has been completed, the market share of the new combined entity would add up to some 15 % to 20 % on a worldwide basis.

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competitors achieved lower market shares, for example Urenco with [10 % to 15 %] (1).

The reprocessing or storage of spent fuel

(64) Only two enterprises operate on the market for reprocessing of spent fuel, namely Cogéma and BNFL/Westinghouse/ABB. For 1999, Cogéma had sales of reprocessing services of approximately [65 % to 75 %] and BNFL/Westinghouse/ABB of [25 % to 35 %] world wide. There are a few other operators of reprocessing services but they have very small capacity in comparison with the two leading firms. Minatom (Russia), although it operates reprocessing facilities for spent fuel, specialises in spent fuel out of VVER reactors. According to the notifying parties, additional reprocessing capacity build-up is planned. However, market entry appears to be expected in a long-term perspective. It may be noted in this context that reprocessing of certain types of spent fuel can be of military interest to produce weapon-grade plutonium.

(65) Related to the reprocessing is the production of MOX fuel. In France, Germany and Belgium, approximately 50 % of the NPPs in operation have been authorised to load MOX fuel. However, MOX fuel is always used in mix with other nuclear fuel types, mainly ENU fuel. For comparison, the use of MOX fuel is prohibited in the USA, whereas MOX fuel is permitted to be used in some NPPs located in other world regions.

(66) Reprocessing is a service provided to NPP operators who remain owners of all the components of their fuels. After the reprocessing work, the reprocessed fuel is used for producing new FAs and the conditioned waste, after interim storage on the reprocessing plant site, is returned to the NPP operator.

(67) Through the concentration, Cogéma would strengthen its influence in NewJV. While Framatome is the supplier of nuclear technology, Cogéma covers the entire nuclear fuel cycle, which is necessary to ensure the continuous operation of NPPs. Cogéma would have one share in NewJV with special rights attached. It would guarantee Cogéma, *inter alia*, that the MOX fuel and its appropriate FAs, the production of which is not transferred to NewJV, are always compatible with the FAs designed and manufactured by NewJV. Furthermore, it would enable NewJV and Cogéma to actively promote fuel and service packages to NPP operators, which other FA vendors are unable to do due to their lack of presence on some of Cogéma's business activities. This crosssharing of technology would result in the strengthening of Cogéma's MOX fuel business position, which is already dominant with a market share of [65 % to 75 %] on a worldwide basis and approximately [85 % to 95 %] in the EEA.

3.3.3.2. *Competitors depend on some vertically related activities*

(68) It is, therefore, clear that Cogéma has activities in all relevant nuclear areas vertically related with the FA business. On a worldwide basis, only Cogéma and the Russian nuclear complex under State authority cover the entire nuclear fuel cycle, i.e. mining, conversion, enrichment and reprocessing. All other competitors have activities in some, but not all, of those areas. For example, BNFL/Westinghouse/ABB, the main European competitor of the notifying parties, operates facilities for conversion and reprocessing in the EEA and in the USA to a limited extent, and participates in the enrichment via its one-third share in Urenco. Although BNFL/Westinghouse/ABB has no

(1) BNFL has a one-third share in Urenco. The other Dutch and German shareholders in Urenco have plans to sell their participation. Only very few enterprises, namely those which have activities in enrichment of natural uranium, could possibly have an interest in acquiring these shares, *inter alia*, Cogéma, BNFL and USEC.

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mining activities, it can have access to uranium via purchasing contracts of its subsidiary UAM. Cameco, a Canadian company, has activities in mining and conversion only.

(69) The shareholder's agreement foresees cross-licences between Framatome, Siemens, Cogéma and NewJV. [Details concerning the agreement]. That would give NewJV a technological advantage in respect of NPPs operating a combination with ERU and MOX FAs, as Cogéma is the leading vendor of MOX fuel worldwide.

3.3.3.3. *Entry of potential competitors appears very unlikely in the EEA*

3.3.3.3.1. **High barriers avoid entry into the EEA**

(70) The design and manufacture of FAs require significant resources and investment in R & D, technical expertise in nuclear technology and production facilities. Because of the high proportion of fixed costs, economies of scale play an important role in the FA fabrication area. The notifying parties estimate that a production capacity of at least […] MTU would be necessary for a successful (economically viable) market entry on a global level. Furthermore, NPP operators expect high quality services for FA deliveries implying relative proximity of the service provider to the nuclear utility.

(71) Moreover, most reactors installed in the EEA were supplied by four large enterprises, namely Framatome, Siemens, Westinghouse and GE. For any of their reactor designs, other FA vendors are required to obtain licences to fabricate compatible FAs before being potentially able to enter the market. In particular, any new FA vendor would also need to receive qualified FA supplier status from NPP operators, which require lead test periods between five and seven years.

(72) It therefore appears that market entry would be possible only for FA vendors from other world regions with significant financial resources. They can afford to spend resources over long periods without expecting a quick return of their investments. However, in view of the contractual supply structure and in combination with the slow return on investments, even companies with significant financial resources would hesitate to enter the EEA market. This will be all the more the case when, as a result of the proposed operation, the two strong and well established market players, Framatome and Siemens, are able to combine their forces.

3.3.3.3.2. **Few FA suppliers operate in the EEA**

(73) Over the past two decades, an intense consolidation has taken place in the nuclear industry. For example, in 1992 the European Fuel Group ('EFG') was founded between BNFL, Westinghouse and ENUSA, focusing on PWR FAs. BNFL acquired the nuclear business of Westinghouse in 1999, and ABB Atom in 2000. In 1999, Cogéma took a stake in Framatome and transferred its FA business to Framatome excluding the MOX business. Furthermore, GE has a joint venture with ENUSA called GE-ENUSA focusing on the manufacture of BWR FAs. As a result, there are only a few players left in the EEA, namely Framatome, Siemens, BNFL/Westinghouse/ABB and GE through ENUSA. The proposed operation would further reduce the number of players to three.

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3.3.3.3.3. **Entry of competitors from other world regions appears unlikely — Numerous cooperations and licence agreements strengthen the position of the new entity through share of technology expertise**

(74) The notifying parties argue that entry of competitors can be expected in the EEA within the next years, mainly from Russia or the Asian region. However, that appears to be very unlikely.

(75) Firstly, NPP operators require that any FA vendor go through a lengthy qualification process in order to be granted qualified FA supplier status. Secondly, it appears that, even if qualified FA supplier status has been granted, the new vendor will still have to prove that its particular FA design is applicable for the relevant NPP type. Currently, none of the FA vendors located in Russia and the Asian region have received qualified FA supplier status. According to NPP operators, most would hesitate granting supplier status to vendors located outside the EEA. Moreover, supply of FAs from eastern European countries would face enormous political difficulties in Member States of the Community where nuclear activities are already the subject of intense political debate, for example in Germany. At least one Japanese FA vendor is prevented from exporting FAs into other world regions.

(76) Entry of Russian or Asian FA vendors could be potentially possible through cooperation with or partnership in an FA designer and manufacturer having manufacturing facilities in the EEA. However, there would be only three large players left on the EEA market, namely Framatome/Siemens, BNFL/Westinghouse/ABB and GE through ENUSA, who each have already their own product range. Furthermore, as far as Russian FA vendors are concerned, their role in the international nuclear market will largely depend on internal political developments, the internal economic situation, market developments, the price structure and international agreements. In particular the first two elements are difficult to judge and to predict.

(77) It is also important to note that a consolidation process has been taking place in other world regions as well, with the notifying parties as very important players. In the USA, for example, Siemens took over the worldwide fuel business of Exxon Nuclear (1987). Framatome, Cogéma and Pechiney took a participation in the B & W fuel business (1987). Framatome created the service company BWNS together with B & W (1989). Framatome acquired 100 % of BWNS (1995). GE, Hitachi and Toshiba created Global Nuclear Fuel (2000). BNFL/Westinghouse acquired ABB nuclear businesses (2000). As far as licensing of FA manufacturing is concerned […].

(78) In view of the widespread consolidation process and the widespread conclusion of cooperation agreements, it is very unlikely that any of the entities located in other regions will ever enter the EEA.

3.3.3.3.4. **Large overcapacities prevent market entry in the EEA.**

(79) Table 6 shows the production capacities which are installed in the EEA, together with their current rates of utilisation and free capacity.

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(80) *Table 6*: Production capacities and utilisation for LWR-FAs in the EEA

	Company	Production capacity (MTU)	Utilisation (%)	Free capacity (MTU)
EEA	Framatome	[…]	[85 %-95 %]	[…]
	Siemens	[…]	[65 %-75 %]	[…]
	Framatome + Siemens	[…]		[…]
	Melox (JV between Framatome and Cogéma); MOX FAs	[…]	[> 50 %]	[…]
	Cogéma (MOX)	[…]	[> 50 %]	[…]
	BNFL/Westinghouse/ABB	[…]	[40 %-60 %]	[…]
	Enusa	[…]	[40 %-60 %]	[…]
	Belgonucleaire	[…]	[> 50 %]	[…]
USA	(Estimates; all suppliers)	[…]	55 %	[…]
Asia	(Estimates; all suppliers)	[…]	[65 %-75 %]	[…]

(81) As can be seen from Table 6, there are overcapacities [1] in the EEA for LWR-FA manufacturing, on average approximately [25 % to 35 %] at the two major FA vendors. According to the notifying parties, it appears possible that their competitors could enlarge capacity by acquiring more modern equipment. In comparison with the EEA, FA vendors located in other world regions face an even higher overcapacity situation in the range of 30 % to 45 %.

(82) It therefore appears unlikely that potential entrants located in other world regions would find it attractive to penetrate the EEA market. Through the existing overcapacities, any attempt to enter the market with lower priced FAs, assuming qualified FA supplier status has been granted by the NPP operator, could be easily counteracted by further capacity utilisation by the existing FA vendors.

(83) Furthermore, the existing overcapacity appears likely to continue for a long time. According to the notifying parties, closure of FA production facilities is extremely costly for the operator due the required decommissioning process, which is a particularly long-lasting operation. Moreover, decontaminated material needs to be stored safely and in accordance with environmental law. FA manufacturers, therefore, would rather react to price pressure by cutting back on discretionary spending.

(84) In view of the fact that reduction of capacity appears to be very costly, overcapacity is likely to remain unchanged for a long period, and, therefore, it would be a continuous threat to new market entrants, in particular, if they have no substantial production capacity in the EEA.

3.3.4. **Future developments**

(85) The competition concerns raised by the proposed operation result from the fact that Framatome and Siemens have a strong presence in their respective 'home markets'. For Framatome, all of its 'home market' sales are realised towards EdF. Whilst the German market can be considered to be open, access for EdF is particulary

[1] Nuclear fuel management seminar, in which Siemens participated in June 2000; the seminar was organised by NAC.

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difficult. Post merger, the position formally held by Framatome with respect to EdF will be held by the new entity.

(86) In this context, it has to be taken into consideration that EdF, as by far the major customer of Framatome, has a stake in Framatome and is represented on the board of directors of Framatome.

(87) The qualification period for new FAs lasts typically between five and seven years. The safety and security body accompanies the testing period and gives its permission to the NPP operator to qualify a new FA vendor after the successful test. In view of the lengthy and complex procedure, the qualification process, therefore, can constitute another obstacle to prevent quick entry into the markets.

(88) A further competition concern is related to the fact that through the intended controlling interest held by Cogéma in NewJV, the existing vertical links between Cogéma and the nuclear activities of Framatome would be significantly strengthened and extended to the nuclear activities contributed by Siemens to NewJV.

3.3.4.1. *The opening of the French market*

(89) In the course of the procedure, new elements were brought to the attention of the Commission, which lead to the conclusion that the French market would open up to a significant extent in the future.

3.3.4.1.1. **Procurement policy of EdF**

(90) In the past, EdF qualified Framatome as principal FA supplier for all of its NPPs and Siemens as second source supplier for only some NPPs. Few other FA vendors were qualified for only two reactors.

(91) Following the liberalisation of the European electricity markets, the NPP operators are now under increasing price and cost pressure. Consequently, EdF has every interest in keeping the cost of its FA supply as low as possible and, therefore, to continue with the 'double sourcing' policy. The French State fully supports this policy of EdF. Since EdF is not able to intervene in the qualification process, it appears necessary for the French State to support any measure to be taken by the safety and security authority in order to help in improving the conditions of the qualification process.

(92) In the light of these new circumstances, EdF has taken concrete measures with a view to having at least one other FA vendor qualified as second source for its 900 MW and 1 300 MW generation utilities. It is seeking to obtain a significantly quicker authorisation to introduce FAs of the other FA vendor after a shortened qualification process. Furthermore, the qualification given for one reactor is intended to be applicable for all reactors of the same type.

(93) It follows that EdF has already carried out concrete steps to qualify another FA vendor, namely the group BNFL/Westinghouse/ABB, as second source supplier.

(94) However, in order to realise its aim, EdF needs the support of the French State. In this respect, the French Government has signed a declaration […]

(95) In that declaration, the French State indicates that it fully supports the strategy of EdF concerning its opening of procurement towards an alternative supplier of PWR-FAs, namely the group BNFL/Westinghouse/ABB. It is in the interest of the French State that the procurement policy serves to guarantee both cost reduction and competition at the same time. More specifically, the French State requests EdF to launch a call for tenders for all their FA supplies. Furthermore, the French State provides any possible help to shorten the qualification process for new FAs. It requests EdF to fully support the group BNFL/Westinghouse/

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ABB with all necessary documentation, which could contribute to shortening the qualification process. Morever, it supports the extension of qualification of FAs obtained on individual reactors to reactors of the same type.

3.3.4.1.2. **Withdrawal of EdF from Framatome**

(96) As a further element to eliminate the existing link between EdF and Framatome, EdF exits as a shareholder from Framatome. This withdrawal contributes to ensuring that EdF implements its new procurement policy independently from Framatome's business decisions concerning PWR FA supplies. The French State supports the withdrawal of EdF from Framatome in the declaration referred to in recital 94.

3.3.4.2. *Preliminary conclusion*

(97) On this basis the Commission concludes that the French market situation will improve, i.e. the French market will be open to potential FA vendors in the future.

3.3.4.3. *Withdrawal of Cogéma from NewJV*

(98) Concerning the impact of the vertical relationships between Cogéma and NewJV, the transaction notified on Form CO on 10 July 2000 is modified by submissions made by the parties on 17 November 2000 […] to the effect that only Framatome and Siemens will have joint control in NewJV. Furthermore, all cooperation agreements between Cogéma and NewJV are modified in a way to eliminate any direct influence on NewJV businesses by Cogéma. In summary, Cogéma gives up its shareholding participation in NewJV. Cogéma also gives up any rights that confer influence on the decisions of NewJV or otherwise confer joint control of NewJV within the meaning of the Merger Regulation. In particular, Cogéma gives up its rights attached to the specific share it planned to hold in the JV, e.g. the voting rights. Furthermore, all provisions in the Convention sur la Societé Nucléaire between Framatome and Cogéma are annulled. The same applies to provisions in all concerned existing agreements or other arrangements. Therefore, the parties modify accordingly the respective provisions in the agreements related to the shareholding and to the governance of NewJV. As a consequence, NewJV and Cogéma do not sign the notified Cooperation Agreement for Nuclear Fuel Activities.

(99) The modification of the notified transaction has the full support of the French State as set out in the declaration referred to in recital 94.

3.3.4.5. *Conclusion*

(100) It may therefore be concluded that the modified operation would not lead to the creation or strengthening of a dominant position.

(101) The change in the procurement policy of EdF, as referred to in recitals 90 to 95, and the declared support by the French State for the implementation of this change as well as the removal of the structural link between EdF and Framatome justifies the forecast that the French market will in the future be opened up to a significant extent.

(102) This removes one of the main competition concerns resulting from the proposed operation.

(103) The modification of the proposed operation, which is now limited to the acquisition of joint control by only Framatome and Siemens removes the second competition concern because after the withdrawal of Cogéma from NewJV, there is no longer an increase or extension of vertical integration.

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B. *INSTRUMENTATION AND CONTROL*

(104) Both Framatome and Siemens are active in the supply of instrumentation and control (I & C) systems which comprise a range of complex hardware and software systems and products that mainly relate to safety, operation and control systems in a nuclear power plant, including checks on radioactivity, temperature and pressure levels. [Details concerning the agreement].

1. RELEVANT PRODUCT MARKET

(105) A nuclear power plant contains a wide range of complex I & C equipment that controls the nuclear process, the steam generation, the water circulation and the generation of electricity, ensures that these processes operate safely and efficiently, and provides for emergency control mechanisms. For this purpose, I & C systems carry out various functions within the nuclear power plant, such as taking data from sensors in the field and displaying trends and ongoing system data, providing alarms when sensors indicate that abnormal conditions occur, taking data from field sensors and calculating the actual nuclear power level on a continual basis and tracking the work status (e.g. testing and maintenance). I & C systems also provide control of non-safety systems and certain limited safety-related applications at the plant.

(106) This equipment is supplied as an integral part of new nuclear power plants, for modernisation works on existing plants, and for the replacement of certain I & C spare parts. The notifying parties submit that there is a market for I & C comprising at the very least systems supplied for all LWRs, as the basic I & C equipment for all levels is essentially identical for BWR and PWR. This has been confirmed by the results of the market investigation.

(107) A distinction considered relevant for the market definition purpose is that between safety-related I & C and operational I & C. Safety-related I & C concerns the NI/NSSS and is primarily designed to perform automation tasks requiring extremely high reliability and special nuclear qualification. These comprise, in particular, automatic functions for accident prevention and control. Typical applications are reactor protection and the activation of engineered safety features (e.g. emergency core cooling and residual heat removal, as well as conditioning and processing of neutron flux monitoring signals). Operational I & C concerns mainly the CI (conventional island) and related operations that do not require specific nuclear qualification. It encompasses all equipment needed for operation, surveillance, automation, monitoring and archiving of the CI. Plant processes are monitored and controlled via screen displays in the control room.

(108) The notifying parties submit that no distinction should be made between safety and operational I & C for purposes of market definition. They indicate that while there may be some basis for distinguishing operational and safety I & C from a supply-side perspective, demand-side considerations are such that these are not viewed as separate systems by customers as the latter tend not to purchase operational I & C and safety I & C separately or from different suppliers.

(109) The notifying parties note that in regard to new nuclear power plants, customers have invariably purchased safety-related and operational I & C together. Concerning modernisation and upgrading, the notifying parties recognise that there are many instances where customers have replaced specific parts of their safety-related or operational I & C system only. However, the notifying parties estimate that the proportion of purchases of both safety-related and operational I & C systems for modernisation purposes amounts to more than half of the total sales in this segment as it is necessary to ensure that the specific I & C part replaced is consistent with and can be adapted to the system as a whole.

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(110) The Commission considers that these arguments are not sufficient to show that safety-related and operational I & C belong to the same market. The fact that, for new plants, customers have invariably purchased safety-related and operational I & C together, does not imply that there is no distinct market for safety-related I & C. In this respect one can refer to the reasoning underlying the following test: would a hypothetical monopoly supplier of safety-related I & C systems find it in its interest to increase prices by 5 % to 10 % on a lasting basis? The answer is most probably 'yes', as the customers cannot do without safety-related I & C systems and supply-side substitution is very limited. In this respect, it has to be noted that for safety-related I & C, specific qualification and licensing requirements have to be fulfilled due to the high reliability and special nuclear qualification requirements needed. For the non-safety I & C, a less demanding qualification and licensing process applies. As a result, for nuclear plants, the market for safety systems is a much more limited one and fewer vendors are willing to invest the time and effort necessary to qualify new systems for the limited replacement market. In comparison, for conventional I & C, the field of competition is broader and this part of the equipment tends to be the same across plant types (nuclear, fossil, etc.). No special nuclear qualification or fabrication expertise is needed and many more I & C vendors participate in this product sector.

(111) It may therefore be concluded that a distinction needs to be made between the market for safety-related I & C and the market for operational I & C.

(112) It should also be noted that the notifying parties have argued that maintenance should be excluded from the total market as that activity does not require detailed I & C-specific know-how and is usually commissioned on the basis of separate maintenance contracts. However, most competitors and customers have indicated that it does not generally appear reasonable to have two different suppliers, one for the supply of equipment and one for the supply of maintenance. But in any case, whether maintenance is supplied together with the equipment or as stand-alone services will depend on the customers' requirement. The question whether maintenance for safety-related I & C has to be distinguished from the overall market can be left open, as the operation will not give rise to competitive concerns whatever product market definition is chosen.

2. RELEVANT GEOGRAPHIC MARKETS

(113) The notifying parties submit that the relevant geographic market for I & C is larger than the EEA and may be possibly worldwide in scope. This submission is based on the fact that in respect of new nuclear power plants, I & C equipment is generally supplied together with the supply of the NI (nuclear island) and CI (conventional island), which the notifying parties consider as a worldwide market served almost overwhelmingly by multi-national NPP vendors active in all regions of the world. Furthermore, the notifying parties indicate that I & C contracts, both for new nuclear power plants and for modernisation, are subject to international competition and often mandatory tendering. Moreover, the notifying parties note that: (i) I & C suppliers typically offer a relatively homogeneous, technically equivalent set of I & C equipment worldwide based on a single global price; (ii) worldwide, technical requirements for I & C are based mainly on US standards (and to a lesser extent on European standards); (iii) transport costs for I & C systems or parts thereof do not exceed [5 % to 15 %] between global regions, and (iv) export restrictions do not apply to the supply of I & C hardware and software, except for certain US embargo-listed equipment.

(114) It should be noted that the mere fact that a supplier has the ability to provide certain goods worldwide is not in itself sufficient to demonstrate that the market is global in scope. In a market in which big contracts are often put to tender, the assessment should

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also concentrate on whether suppliers do really compete for such contracts in the same geographic area, and whether suppliers compete under homogeneous conditions in such an area.

(115) The Commission's investigation indicated that a distinct group of I & C suppliers, which are established in the EEA [1], are competing for contracts within the EEA on a regular basis, namely Siemens, Framatome, BNFL/Westinghouse/ABB and GE, and, to a limited extent, smaller companies in the nuclear field such as Schneider, Sema or Syseca. It appears that a number of companies established in other regions of the world are not very active in the EEA. For example, Mitsubishi does not compete for contracts in the EEA although it can be argued that technological and regulatory barriers would not, in theory, prevent non-European companies from becoming active in Europe.

(116) The investigation has shown that I & C companies generally compete for contracts on the basis of their established presence in the EEA and several suppliers have indicated that they compete for contracts in a given region only if they have established a local presence in that region. In particular, maintenance and repair are in general carried out by European infrastructures.

(117) However, the precise geographic market definition can be left open as the operation does not lead to any competitive concerns, whatever definition is chosen (worldwide or EEA-wide).

3. COMPETITIVE ASSESSMENT

(118) The notifying parties' activities only overlap on safety-related I & C. The assessment will thus focus on this market.

(119) As a general remark, the notifying parties stressed that in the face of declining demand for new NPP construction and current overcapacity in the NPP sector in general, future I & C contract opportunities will be scarce and subject to substantial competitive pressures, in particular in the EEA. Competitors and customers also view the industry as being relatively flat in this area over the next years.

(120) Tables 7 and 8 summarise the parties' market shares (by value) on the worldwide and EEA market for safety-related I & C.

(121) *Table 7*: Worldwide sales (million EUR) in 1997, 1998 and 1999

	1997		1998		1999	
Framatome	[…]	[5 %-15 %]	[…]	[5 %-15 %]	[…]	[15 %-25 %]
Siemens	[…]	[< 10 %]	[…]	[5 %-15 %]	[…]	[< 10 %]
Framatome + Siemens	[…]	[10 %-20 %]	[…]	[15 %-25 %]	[…]	[20 %-30 %]
BNFL/Westinghouse/ABB	—	[< 30 %]	—	[< 30 %]	—	[< 30 %]
General Electric	—	[< 10 %]	—	[< 10 %]	—	[< 10 %]
Others	—	[< 20 %]	—	[< 20 %]	—	[< 20 %]
Total	540	100 %	546	100 %	581,5	100 %

[1] And Switzerland.

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(122) *Table 8*: EEA sales (million EUR) in 1997, 1998 and 1999

	1997		1998		1999	
Framatome	[…]	[20 %-30 %]	[…]	[25 %-35 %]	[…]	[15 %-25 %]
Siemens	[…]	[10 %-20 %]	[…]	[15 %-25 %]	[…]	[15 %-25 %]
Framatome + Siemens	[…]	[35 %-45 %]	[…]	[45 %-55 %]	[…]	[35 %-45 %]
BNFL/Westinghouse/ABB	—	[25 %-35 %]	—	[25 %-35 %]	—	[25 %-35 %]
General Electric	—	[5 %-15 %]	—	[5 %-15 %]	—	[5 %-15 %]
Others	—	[5 %-15 %]	—	[5 %-15 %]	—	[5 %-15 %]
Total	169,3	100 %	172,6	100 %	170	100 %

(123) In the market for safety-related I & C, two general categories of suppliers can be distinguished: on the one hand, a group (composed of the notifying parties, BNFL/Westinghouse/ABB, General Electric or Mitsubishi) having the broad capabilities needed to bid for major contracts (such as the supply of a complete I & C system or a major modernisation programme) and, on the other hand, a second group which includes suppliers that serve only a specific product market segment. These companies comprise, for example, suppliers of specific software or hardware products (e.g. the US company Eaton or the French companies Schneider and Sema Group).

(124) It can be seen from Tables 7 and 8 that the new entity would have a combined market share in the market for safety-related I & C of less than [20 % to 30 %] on a worldwide basis (1999) and of around [35 % to 45 %] on an EEA basis.

(125) Siemens is one of the leading I & C suppliers worldwide and in Europe, with strengths in nearly all relevant areas. Framatome is not directly active in the manufacture of I & C products but rather acts as a leading company ensuring the design and the integration of the I & C systems. Contracts are then concluded with companies like Schneider and Sema for the supply of the I & C hardware and software necessary in order to reply to the customers' requests under the general contracts. It should also be noted that Framatome's role in safety-related I & C is mainly restricted to engineering activities carried out on its own PWR designs. It has not bid for projects involving the supply of separate I & C systems for nuclear power plants supplied by its competitors.

(126) In view of the combined market shares achieved by the notifying parties on a worldwide basis, the operation does not give rise to any competitive concerns since at least two particularly strong competitors, BNFL and GE, will remain on the market.

(127) On the EEA market, it is true that, as the incumbent supplier of many I & C systems in France and Germany, NewJV would have a potential customer base representing around two-thirds of the total NPP base in the EEA. However, the new entity will still face competition from strong suppliers established in this area such as BNFL and GE.

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(128) In particular, BNFL/Westinghouse/ABB, the leading safety-related I & C supplier worldwide with a market share of around 40 %, holds in the EEA a market share of more than 30 %. It should also be noted that, in this area, BNFL recently won some important contracts for the replacement of complete I & C systems.

(129) It is true that for some modernisation works, 'first-tier' suppliers seem nearly impossible to circumvent. However, these modernisation programmes only concern a limited part of the total safety-related I & C market, i.e. 1E-systems that necessitate very high safety requirement and are generally provided by the NSSS supplier itself. For other modernisation programmes (for example the replacement of components or subsystems), smaller competitors, such as Schneider, are able to secure direct contracts with customers.

(130) It has also to be stressed that the utilities have substantial buying power. Such customers, who are in general powerful and well-resourced utilities, can leverage their position through the bidding procedure or parallel negotiation process for new contracts to obtain the most favourable terms. With the current liberalisation process of the energy markets, the majority of the NPP operators are required to lower their costs. Moreover, the demand side in the EEA seems to be progressively concentrating (see, for example, the recent operations between Veba and Viag or between RWE and VEW).

(131) Finally, it should be noted that if the maintenance part of the activities is taken out of the market, the Parties' combined market share would be reduced to around [10 % to 20 %] on a worldwide and [25 % to 35 %] on an EEA level respectively (1999). As far as maintenance alone is concerned, it is noteworthy that some customers stated during the hearing that they are able to take care of the necessary maintenance for I & C systems themselves. Competitive pressures have forced electricity producers to look to non-OEM alternatives as a means of reducing operating costs. As a result, NPP operators have also acquired expertise and knowledge in maintenance activities. One competitor even stressed during the investigation that 'the plant's existing technical staff is fully capable of maintaining the equipment with a minimum of effort'.

Conclusion

(132) The Commission accordingly concludes that the proposed concentration is not likely to create a dominant position on the market for safety-related I & C.

C. *SPENT-FUEL RACKS*

1. RELEVANT PRODUCT MARKETS

(133) All nuclear power plants have storage facilities for fuel assemblies that have been used in the nuclear reactors. Spent fuel assemblies, after having been in the nuclear reactor for three to six years, are stored underwater in storage racks at the bottom of a pool. The water serves two purposes. First, it cools down the fuel assemblies that continue to produce heat for some time after removal. Second, it has the function of absorbing free neutrons so that the irradiated nuclear fuel remains in a subcritical configuration. Once the fuel has cooled down (after one, three or ten years, depending on the bum-up rate), there are different options: spent fuel can be removed from the storage pool for reprocessing or it can continue to be stored ('intermediate storage'). At this time, wet storage is no longer mandatory: it can then be stored in both wet storage facilities (spent-fuel racks) and dry storage facilities (such as casks).

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(134) The notifying parties submitted in their notification that there is a relevant product market for the supply of spent-fuel racks. In a later submission, however, the parties indicate that the relevant product market may, in fact, be wider than the market for spent-fuel racks, in view of the competitive pressure of dry storage casks. While it is true that both wet storage and dry storage facilities can be used for intermediate storage of spent fuel, the fact remains that the supply of spent-fuel racks (wet storage) constitutes a distinct relevant product market, given that spent-fuel racks are indispensable for the immediate storage of spent fuel assemblies. Supply-side substitution (between wet storage and dry storage facilities) or arbitrage considerations (between the segment of spent-fuel racks for immediate storage and the segment for intermediate storage) are not such as to change this characterisation of the relevant product market. In view of supply-side substitution there is no need to make a distinction between spent-fuel racks for PWR FAs and BWR FAs.

(135) Different stages can be identified in the supply projects for spent-fuel racks: the design of spent-fuel racks, the licensing of the racks with the regulatory authorities, the production stage and the installation at the storage sites. In their notification, the parties submit that the respective stages of the supply of spent-fuel racks (design, licensing, manufacturing and installation of spent-fuel racks) can be viewed as comprising a single relevant product market. This view appears to be appropriate. While the different elements can be (and are, to some degree) outsourced, the supply of spent-fuel racks usually involves a single contract comprising all four elements. This is done because the nuclear power plants want to see the responsibility for the whole project in the hands of a single entity, usually the 'lead company' of a consortium.

(136) It follows that the design, licensing, production and installation of spent-fuel racks (wet storage) are to be considered as a single relevant product market. In the remainder of this section, this market will be referred to as the market for the supply of spent-fuel racks.

2. RELEVANT GEOGRAPHIC MARKETS

(137) According to the notifying parties, the market for the supply of spent-fuel racks is worldwide in scope for the following reasons. First, the parties note that, for the supply of NPP components in general, there are substantial flows of trade between different world regions. Products are uniform worldwide: components are not differentiated according to global region but are only adapted to the requirements of each power plant. Furthermore, new supply contracts are typically subject to worldwide competitive tendering on a single, global price level. Finally, worldwide import duties do not hinder trade flows.

(138) It appears from the market investigation, however, that the relevant geographic market is not larger than the EEA. As with the other product markets, each provider of spent-fuel racks is required to receive qualified supplier status from NPP operators and licences from the national authorities. Because of their familiarity with the design of the power plants, the relevant national procedures and the languages used, incumbent players like Siemens, Framatome and CCI/Sulzer have a certain advantage. In addition, as indicated by Holtec (USA) and Skoda (Czech Republic), there exists a strong preference among western European nuclear power plants for European products. By way of illustration, it can be noted that out of the 22 projects for spent-fuel racks commissioned in the EEA in the last decade, only one was taken up by a non-European company (Holtec, in 1995), the other 21 were taken up by European players. Similarly, both Holtec and the Japanese companies (Mitsubishi, Hitachi/Toshiba) have concentrated their operations on their domestic markets.

(139) Equally important, it follows from the market investigation that also the product characteristics in the respective world regions (in

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particular, the EEA and the USA) are such as to differentiate these regions. Holtec, the only supplier of spent-fuel racks in the USA, has standardised its spent-fuel rack design with borated aluminum (Boral). In the EEA, however, the materials that are predominantly used are borated stainless steel and Cadminox. A number of European nuclear power plants (in France, Belgium, the Netherlands) do not wish to purchase aluminium spent-fuel racks, in view of technical problems that have occurred with this type of rack in the past ([1]). While Holtec is able to adapt its design to borated stainless steel, it is not able to make the same kind of competitive offers as it can make in the USA and elsewhere on the basis of aluminium racks (borated stainless steel racks are more expensive than racks based on borated aluminium). The combination of the general difficulty of entering the European market and the difference in material that can be used has meant that Holtec has decided to turn away from the EEA market. As a result, although Holtec's scope of activities extends to areas outside the USA, its competitive pressure is not felt in the EEA.

(140) It therefore appears that the relevant geographic market is to be considered to be EEA-wide.

3. COMPETITIVE ASSESSMENT

3.1. ***The parties' market position***

(141) Siemens prepares detailed and basic designs for spent-fuel racks and then cooperates closely with subcontractors, in particular ENSA (Spain), for their manufacture. Framatome designs, manufactures, and sells spent-fuel racks based on Cadminox. Cogéma does not design, manufacture or sell spent-fuel racks.

(142) Market opportunities for the supply of spent-fuel racks are relatively infrequent. There has been a total of only 22 spent-fuel racks replacements performed in the EEA over the last decade, with an aggregate value of about […]. On the basis of this period — a shorter period may not be reflective of the true market position given the relatively small number of contracts annually (two to three) — the parties would obtain a combined market share of [60 % to 70 %] in value (Framatome [15 % to 25 %], Siemens [40 % to 50 %]). As for the competitors, Holtec had a market share of [10 % to 20 %], MPE (Mécanique de Précision pour Équipements) [5 % to 15 %], CCI Sulzer [5 % to 15 %] and NIS/Skoda [5 %]. As to the calculation of market shares, the parties indicated during the hearing that the value added by subcontractors in the respective consortia should not be attributed to the 'lead company' of the consortium ([2]). As a result, the parties would hold a market share of only [30 % to 40 %]. In the opinion of the Commission, however, such attribution is appropriate, since it better reflects the role and market position of the 'lead company' in the market of the supply of spent-fuel racks.

(143) In any event, in the market under consideration, historical market shares should be treated with caution since the market is a bidding market in which contracts are commissioned very rarely. As such, a high combined market share is not necessarily a good indication of the market power that NewJV will obtain as a result of the merger. In particular, it should be recalled that the utilities have

([1]) At this point, it must be noted that Holtec is of the opinion that it is not the use of Boral as such that is to blame for the shortcomings experienced but, rather, the poor quality of the Boral that has been procured by the suppliers in question. Further, borated stainless steel is also said to have a history of problems: as a result, the US regulatory authorities do not recommend its use.

([2]) The parties maintain that also the value of the contracts for SKB, the central storage facility for the Swedish nuclear power plants, must be included in the calculation of market shares. The position of SKB is, however, rather special as it has its own rack design for wet storage (using canisters in larger racks) and just subcontracts the construction of these racks. In addition, the compact canisters of SKB are used for interim storage only.

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substantial buying power. Furthermore, while the market shares of CCI Sulzer (Switzerland) and MPE (Belgium) are limited, it is noteworthy that these companies have recently been able to secure contracts: MPE received one of its two contracts in 1998 (for a capacity extension at the Belgian Tihange plant), and CCI/ Sulzer obtained its second contract only this year (for a capacity extension at the Borssele plant in the Netherlands).

(144) In terms of production capacity, NewJV would be able to handle about […] spent-fuel rack projects of 'average size' in a given year (most respondents consider a project of 'average size' to involve about 1 400 to 1 500 storage cells). However, in view of the small number of contracts granted each year (two to three), it would not derive much market power from it. For example, CCI Sulzer would already be able to deal with this number of projects by itself. NIS/Skoda and MPE can each cope with about one to two projects a year.

(145) Finally, as indicated by the vast majority of respondents, there is not much demand left for spent-fuel racks in the EEA. As there are no plans for new power plant construction in the EEA, future demand for spent-fuel racks can only depend on projects to increase capacity in existing pools or the construction of additional intermediate storage capacity. Most of the NPPs have by now finalised their programmes to expand the capacity of their existing storage pools. As for intermediate storage specifically, one of the few countries that will need more intermediate storage capacity in the future is Germany. Up to now, Germany has relied upon central intermediate storage facilities to store the spent fuel assemblies that were not reprocessed in Sellafield or The Hague. In view of problems encountered in the transportation of these spent fuel assemblies from the reactors to the storage facilities, the German government and the utilities concluded an agreement in June 2000 to turn to decentralised intermediate storage at the power plants themselves. It is unlikely, however, that this will lead to an upswing in demand for spent-fuel racks as the German utilities will most probably use the same storage concept as the one that is currently used in the central facilities, namely the Castor dry storage casks made by GNB (a subsidiary of Nukem and the German utilities). Thirteen German NPPs have applied for approval to use dry storage casks for intermediate storage. It appears therefore, that future demand for spent-fuel racks in the EEA is both limited and decreasing. In these circumstances, it appears difficult for any market player to offer spent-fuel racks at less than competitive conditions.

(146) Accordingly, it is unlikely that the proposed operation will lead to the creation of a dominant position on the EEA market for the supply of spent fuel racks.

D. *ANCILLARY RESTRAINTS*

(147) As a result of the modification made to the notification, the only ancillary clause which remains to be examined is a specific non-competition clause. According to the shareholders agreement, Framatome and Siemens will not be authorised to compete within NewJV's exclusive scope of activities ([1]). The duration of the non-competition clause does not extend beyond the duration of NewJV, which is […].

(148) It is necessary for the successful operation of the new joint venture that it can assimilate the nuclear know-how which is brought into the joint venture by both parent companies. This ability would be seriously hindered in the absence of a clause prohibiting the parent companies from competing in the markets concerned. In a similar fashion, the non-competition clause also acts as a safeguard to the parent companies, in that the considerable value of the investments made in the joint venture

([1]) […].

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will not be exposed to any free-riding behaviour from the part of the other parent company on the know-how and goodwill generated by the joint venture. It is, however, not appropriate to consider the non-competition clause as ancillary for its whole duration. Nonetheless, given that the nuclear industry is an industry with unusually long economic life cycles, a duration of 30 years does appear both necessary and appropriate. Finally, the clause is strictly limited to the products and services falling within the scope of activities of the joint venture. The non-competition clause, therefore, can be considered as ancillary to the concentration for a duration of 30 years.

V. **CONCLUSION**

(149) It may therefore be concluded that the proposed merger in its modified form would not lead to a creation or strengthening of a dominant position on the markets as referred to in recitals 16 to 146.

VI. **SUMMARY**

(150) It may therefore be concluded that the proposed merger in its modified form as referred to in recital 98 would not lead to the creation or strengthening of dominant positions, as a result of which effective competition would be impeded in a substantial part of the Community, and that, accordingly, the merger is compatible with the common market and with the EEA Agreement, pursuant to Article 8(2) of the Merger Regulation,

HAS ADOPTED THIS DECISION:

Article 1

The proposed operation, as modified by the parties on 17 November 2000, between Framatome SA and Siemens AG is hereby declared compatible with the common market and the EEA Agreement.

Article 2

This Decision is addressed to: The notifying parties.