

Report on the activity of the Euratom Supply Agency for the year 1972

The report on the activity of the Supply Agency in the 1972 calendar year is as follows:

I. Natural Uranium Sector

The market conditions in the natural uranium sector underwent a sweeping change after the main producers, with the support of their governments, reached an agreement at the beginning of the year on the movement of prices. From the bids that have been notified since the spring and summer of 1972, the Agency was aware of a considerable price increase, which is obviously intended to ensure that the producers are able to further develop existing mines, open up new ore deposits and continue prospection.

The price of natural uranium reached its lowest point at the end of 1971. At that time contracts were concluded at a price of:

<u>Year of delivery</u>	1972	1973	1974	1975	1976	1977	1978
(*) <u>Price US\$/lb U308</u>	4,50/ 5,20	4,75/ 5,20	4,75/ 5,20	5,00/ 5,80	5,80/ 6,10	5,80/ 6,10	6,00/ 6,60

Since that time, a clear increase in price can be seen,

(*) The prices given are only approximate. All prices have been converted to \$US/lb U308 in order to submit comparison of the various contract and bid prices (lb U308, kg U308 and kg U in UF6), which in several cases were drawn up in the national currencies of the consumers and producers. The cost of the conversion of U308 to UF6 was taken as a standard \$US 2.80/kg for 1972, with an increase of \$US 0.10 for each subsequent year. Allowance should be made in the evaluation for the resultant inaccuracies.

as is unequivocally demonstrated by the bids submitted to the Agency in 1972. Prices were asked for of:

<u>Year of delivery</u>	1974	1975	1976	1977	1978
<u>Price US\$/lb U308 (*)</u>					
<u>Spring 1972</u>	--	6,30/ 6,50	6,30/ 6,70	6,75/ 7,00	7,00/ 7,20
<u>Summer 1972</u>	5,95/ 6,35	--	6,80/ 7,05	7,15/ 7,40	7,50/ 7,80

Fixed prices were only offered up to 1978, and in one case up to 1980. For the years after 1978 all bids contain a sliding-price clause.

The Agency noted that this concertation of bids is supported by the governments of the main producer countries (Canada, Australia), these governments making the grant of the necessary export licences subject to the fixing of "reasonable" prices which are also sufficient to cover the costs of further development work.

The consequence of the price rise described above was that in the second half of 1972 American producers were for the first time in a position to submit competitive bids to consumers in the Community. It is hence reasonable to assume that one way or another transactions will now be concluded on the basis of American bids.

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Faced with this changed situation, consumers in the Community first of all adopted a wait-and-see attitude. There seems to be a tendency only to make transactions at fixed prices for the period up to the years 1976/1978.

A total of 29 contracts were concluded in the natural uranium sector, of which 21 were based on the "simplified procedure", which expires on 31 December 1973, unless the Commission decides otherwise. These contracts can be divided up as follows:

21	contracts	for	9,505.- t	of	natural	uranium
5	"	"	33.5 "	of	depleted	uranium
2	"	"	66.- "	of	minerals	
1	"	"	15.3 "	of	thorium	nitrate

Origin of the natural uranium:

<u>Contracts</u>	<u>Quantity</u>	<u>Supplier</u>	<u>% of the total contracts</u>
4	4,605 t	South Africa	48
3	2,239 t	France (*)	24
13	2,632 t	Germany (*)	27.7
1	29 t	Belgium	0.3
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21	9,505 t		100.--

These contracts are based almost without exception on bids which were submitted in 1971 or at the beginning of 1972. No contracts have been concluded by the end of the year as a result of the higher bids submitted in the second half of 1972.

II. Enriched uranium sector

In this sector the 1972 reporting year was marked by the signing on 20 September 1972 of an Amendment to the Additional Euratom/US Agreement for Cooperation. In this Agreement the supply provisions were revised. For the supply of enriched uranium for nuclear power stations the emphasis is on toll enrichment.

(*) The natural uranium to be supplied by German and French sellers originates from different countries, for ex. Canada 1263 t, France and the associated African countries 2842 t. In the other cases, the country of origin could not yet be specified.

The new agreement also lays down that conversion and fabrication work can be carried out in the Community for American customers. An important new market is thereby opened up for Community manufacturers of fuel elements.

As regards the special fissile materials which are produced in the Community from American material, the option granted up to now to the IAEA and the USAEC for the purchase of these products has now lapsed. Provided international safeguards are observed, the Community can export these materials freely.

With this new Agreement is linked an exchange of letters which ensures consumers in the Community the same and non-discriminatory treatment as is granted to all the other foreign customers of the AEC.

Whilst the Community for its part has already ratified the Agreement, the corresponding procedure on the American side could not be carried out due to the early adjournment of Congress for the residential election campaign. This ratification will take place immediately after the assembly of the newly elected Congress, so that the Agreement will probably come into force at the beginning of 1973.

The maximum ceiling-quantity of U235 which consumers in the Community can procure from the USA - 215 t - will soon be exhausted. The Agency therefore asked the USAEC in March 1972 to increase this ceiling-quantity. This application concerned long-term supplies for an additional 15,000 MWe due to be installed in the Community by 1976, and also a further increase of 25 t U-235 for research projects and fabrication work for third countries. A law has to be passed in the USA to implement the applied for increase. For the reasons that have already been mentioned, it was also impossible to carry this out in the year covered by the report. However, the resultant delay will not lead to a supply bottleneck.

A. Toll enrichment

In a press conference on 8 December 1972, the Chairman of the USAEC announced a change in American supply policy under the toll enrichment system. Previously two different types of contract were laid down, the "firm quantities contract" and the

"requirements contract" (*). Generally speaking, the requirements contract was preferred by consumers, because in it, unlike the firm quantities contract, the consumer was only obliged to take delivery when he needed supplies.

The AEC intends to abandon this type of contract and in future conclude only firm quantities contracts. The consumer is then obliged to take delivery of the annual deliveries laid down in the contract, even if, for example, there have been construction delays or it is necessary to shut down the reactor unexpectedly. Thus the consumer bears the commercial risk in full and must keep to the scheduled delivery dates - again in contrast to the requirements contract.

At the same time the USAEC intends to introduce a system of down payments to be made at the time the contract is signed, and also plans to tighten up the possibilities of terminating the contract prematurely.

As the new supply policy needs the agreement of the Joint Committee on Atomic Energy, it will be some months before the new regulations come into force.

In the 1972 report year a total of 12 toll enrichment contracts were concluded with the USAEC, with the following breakdown:

(*)

Under a requirements contract the consumer undertakes to cover his enriched uranium requirements for a fixed period through the toll enrichment services of the USAEC.

The firm quantities contract covers the supply of toll enrichment services which are defined exactly for the period of the contract, either by a fixed quantity of separative work units or by a fixed quantity of enriched uranium determined according to weight in kilograms and assay.

Belgian consumers	1 contract	with	37,852 kg/SWU
German consumers	6 "	"	4,606,930 kg/SWU
French consumers	(*) 2 "	"	51,737 kg/SWU
Italian consumers	1 "	"	320,660 kg/SWU
Netherlands consumers	2 "	"	1,005,141 kg/SWU

Thus contracts were passed with the USAEC for a total of

6,022,320 kg/SWU

At the price of US\$ 32.-- per kg/SWU, which remained unchanged in 1972, this represents a sum of US\$ 192,714,240.00.

In the year covered by the report the following import operations were carried out under toll enrichment contracts concluded in previous years and in 1972

0.7-5%

	kg U	kg U235	enrich. price US\$	kg of nat. U supplied
B	23,878,866	861,370	4,175,117.72	235,100.-
D	373,371,888	7,250,581	31,279,486.80	1,272,471.-
F	2,302,326	47,859	178,491.61	8,465.-
I	--	--	--	--
N	4,600,016	127,304	559,602.11	23,112.-
Total	404,153,096	8,287,114	36,192,698.24	1,539,148.-

5-94%

B	166,574	149,869	1,211,400.77	29,263.-
D	194,680	180,889	1,438,337.42	35,707.-
F	384,998 (**)	214,997	1,703,694.09	41,937.-
I	--	--	--	--
N	--	--	--	--
Total	746,252	545,755	4,353,432.28	106,907.-

(*) In both cases "in situ" toll enrichment contracts for the purchase of leased material which had been supplied at an earlier date.

(**) Toll enrichment contracts "in situ"

In its report on the year 1971 the Agency referred to the Soviet **Techsnabexport** as a possible supplier of enrichment services. In 1972 the Agency made efforts to open up this new supply source for consumers in all the Member States of the Community. Initial contacts were established with an agency of the organization in question in the Community, but these do not permit us to make any judgment on supply possibilities. The Agency will continue its efforts in this direction in 1973.

B. Deferred-payment contracts

For the three nuclear power plants in the Community which have concluded deferred-payment contracts under the Joint Nuclear Power Program, the following imports were made in the year covered by the report:

	kg. enriched U			
	<u>Import. 1972</u>	<u>Inventory</u>	<u>US\$ value</u>	<u>Paid interests</u>
1) Garigliano	13,798,000	89,447,000	10,236,593,-	362,680,67
2) Trino Verc.	27,185,029	65,803,809	20,060,422,48	1,231,965,53
3) SENA	9,084,960	66,391,259	21,331,484,62	784,976,64

The following was returned to the USAEC from these plants:

1) Trino Vercellese	kg enriched U	3,468,000
2) SENA	" " "	12,571,776

C. Purchase contracts

In the year covered by the report 15 purchase contracts were concluded under the existing master sales agreement with the USAEC and in individual transactions between the Agency and the USAEC. These contracts break down as follows:

	<u>07-20%</u>			
	<u>Contracts</u>	<u>kg. U</u>	<u>KgU-235</u>	<u>US\$ value</u>
B	-	-	-	-
D	4	377,358	16,092	208,912,-
F	-	-	-	-
I	1	0,025	-	-
N	-	-	-	-

	<u>20-93%</u>			
	Contracts	kg U	kg U-235	US\$ value
B	2	0,021	0,0180	1,282.-
D	8	12,286	10,960	140,180.-
F	3	—	0,010001	26.-
I	1	0,025	—	1,100.-
N	--	--	--	--

Total value of the enriched uranium purchased: 351,500.- US\$

D. Lease-contracts

In 1972 10 contracts were concluded by the USAEC under the existing multilease contract. Under this contract the material inventory in the Community as of December 31, 1972, was as follows:

	kg U	kg U235	US\$ value	lease -charges	burn-up and losses in US\$
B	983,773	151,152	1,807,809,51	220,117,16	230,254,20
D	5,394,882	321,091	3,428,925,62	280,938,05	109,105,95
F	542,712	30,842	326,159,07	220,389,67	2,425,77
I	214,159	184,131	2,327,829,44	205,622,98	32,225,95
N	464,711	146,778	1,816,187,89	149,425,69	174,378,85
	7,600,237	833,994	9,706,911,53	1,076,493,55	548,390,72

The lease charges remained unchanged in the year covered by the report at $7\frac{1}{2}\%$ of the value of the leased material.

The above inventory does not take into account the quantities of enriched uranium on lease in the reprocessing plants of Eurochemic and Eurex. Separate lease accounts were kept for these two plants, as Eurochemic and Eurex are responsible for lease payments on the enriched uranium processed there, part of which comes from non-member countries and remains in the Community only until the reprocessing work is finished. The figures for the separate Eurochemic and Eurex accounts are as follows as of December 31, 1972:

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<u>EUROCHEMIC</u>	<u>U kg</u>	<u>U-235 kg</u>
Inventory on 1.1.72	760.696	83.676
supplied	121,776	84.700
returned to USAEC	<u>- 519.000</u>	<u>- 12.664</u>
Inventory on 31.12.72	363,472	155,712
 <u>EUREX</u>		
Stock on 31.12.72	83,890	49,150

The existing multilease contract with the USAEC expires on June 30, 1973. In spite of the repeated inquiries addressed to the USAEC during the year covered by the report, the Agency received no firm answer as to whether the lease contract will be extended or not. Unofficial reports suggest that after June 30, 1973, the USAEC will conclude no new lease contracts. The reports further suggest, however, that a period of grace of one or possibly two years will be granted to consumers in the Community who already hold leased material. Thus they will be able to return the leased material at a later date or else will have to acquire it by purchase or by "in situ" toll enrichment.

III. Plutonium sector

Only a few transactions were carried out in the plutonium sector in 1972. A number of nuclear power plants have, however, already started work on recycling the plutonium produced by them. New difficulties have arisen here for the reactor operators involved. The frequent delays in the completion of the reprocessing campaign for the irradiated fuel elements, from which the plutonium produced has to be extracted mean that manufacture of the plutonium-containing fuel elements can not begin on time. Reactor operators faced with this problem have to try to make up for the delays by using the other plutonium available or by leasing. In one case the Agency was able to arrange, on behalf of one reactor operator, an ~~exchange~~ contract for 60 kg of plutonium

The Agency was also able to find buyers in the Community for two other reactor operators who do not wish to carry out plutonium recycling. Supply contracts were concluded for 63.6 kg of fissile plutonium. Another contract for a further 30 kg of fissile plutonium will soon be concluded. In the year covered by the report the price settled down at around \$ 5-6 per g/Pu fissile.

From the USA and in particular from the USAEC the only plutonium procured was that intended for research purposes involving particularly stringent specifications. Apart from a contract for the supply of 1 kg the transactions in this sector only involved gram or milligram quantities.

Details of the transactions carried out are as follows (*):

Consumer	transaction - 50 gr. fiss.	transaction + 50 gr. fiss.		Origin
B	4	6	24,418.-	F
D	10	3	75,252.-	UK/F
F	4	1	46,000.-	F
I	-	1	1,073.-	US
N	-	-	-	
Community	I8	11	146,743	

IV. Transfers from and to third countries

In the reporting year 1972 a total of 162 transfers of special fissile materials of American origin were carried out from and to non-member countries. Details of these are as follows:

(*) In two cases negotiations have been concluded, but the corresponding contracts are not yet signed.

	<u>Export. to</u>	<u>Import. from</u>
UK	34	48
Norway	4	2
Sweden	34	8
Austria	11	-
Switzerland	4	1
Mexico	1	-
Israël	2	-
Yugo-Slavia	1	-
Denmark	1	-
US	9	12
Canada	-	2
Spain	-	1
Argentine	-	1
Japan	1	-

Industrial exportations

D	1	3,594 kg U	≈	90%
	16	75,811,185 kg U	≈	2%
F	2	11,006 kg U	≈	93%

Negotiations with the USAEC went part of the way towards achieving the administrative simplification of the existing procedure for such transfers which the Agency has been striving for, as mentioned in the 1971 report. For the main countries - Austria, Norway, Sweden, Switzerland and the UK - the Agency was given overall authority, enabling transfer to be made without the prior approval of the USAEC in each individual case. As a result of the entry of the United Kingdom into the Community on January 1, 1973, moreover, there will no longer be any need to obtain approval for transfers to Britain.

V. Transfers within the Community

The growing activity of the nuclear industry in the Community, in particular in the field of fuel element fabrication, has led to a situation where, to an increasing extent, transfers of nuclear fuels, especially of enriched uranium, are taking place within the Community as well. Where these involve treatment or processing operations covered by Article 75 of the Euratom Treaty, the Agency is not directly concerned in these transactions. However, a fairly large number of cases were

recorded where a reactor operator had disposed of stocks belonging to him, left over from the manufacture of fuel elements, to a fuel element manufacturer who then, using a blending process, produces from the total quantity of leftover materials a quantity of enriched uranium which matches his needs for a particular order; or else fuel element manufacturer transfer remaining stocks of this kind, which are suitable for further use, amongst themselves. The Agency has been involved in all transfer operations of this kind which have come to its notice and has cooperated in the conclusion of the corresponding contracts.

In the reporting year 1972 a total of 31 such contracts were concluded by the Agency.

	B	D	F	I	N	C.ty
Contracts						
natural U	1	17	-	1	2	21
other fertiles materials	2	5	-	-	1	8
toll enrichment	1	6	2	1	2	12
purchases	2	12	3	1	-	18
lease	-	6	3	-	1	10
Pu	10	13	5	1	-	29
NBS	2	12	1	1	1	17
Transfer agreements						
Import	13	40	8	4	9	74
Export	20	62	17	2	1	102
within the Community	9	20	-	2	-	31

EURATOM SUPPLY AGENCY

F. OBOUSSIER

Director General

