

# COMMISSION

## COMMISSION DECISION

of 1 February 1995

concerning a German proposal to grant State aid to Georgsmarienhütte GmbH

(Only the German text is authentic)

(Text with EEA relevance)

(95/437/ECSC)

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Coal and Steel Community, and in particular Article 4 (c) thereof,

Having regard to Commission Decision No 3855/91/ECSC of 27 November 1991 establishing Community rules for aid to the steel industry<sup>(1)</sup>, and in particular Article 2 thereof,

Having, in accordance with Article 6 (4) of the abovementioned Decision, given notice to interested parties to submit their comments,

Whereas :

### I

By letter dated 6 July 1993 the German authorities notified the Commission pursuant to Articles 2 and 6 of Decision No 3855/91/ECSC the 'steel aids code' (SAC) of State aid to Georgsmarienhütte GmbH to enable it to carry out investments for research and development purposes. The aid amounted to DM 32,5 million and represented 30 % of the eligible costs.

By letter of 7 September 1993 the German authorities answered several questions put to them by letter of 29 July 1993.

In November 1993 the Commission decided to open the procedure provided for in Article 6 (4) of the steel aids code in respect of the proposed State aid.

The German Government was informed of this decision by letter of 31 December 1993 (SG(93) D/21737). The same letter asked the German authorities to give their

comments on the points raised in the Commission's decision.

The letter to the German authorities was published in the Official Journal<sup>(2)</sup>, and other Member States and interested parties were requested to send their observations to the Commission within one month of the date of the publication.

The observations of the German Government were sent by telefax on 31 January 1994, registered on the following day.

Furthermore, the Commission received letters from the following parties :

- The British Iron and Steel Producers Association (BISPA) (letter of 28 March 1994, registered on 6 April 1994),
- European Independent Steel Works Associations (EISA) (letter of 6 April 1994, registered on 11 April 1994),
- Mefos Metallurgical and Metal Working Research Plant (letter of 7 April 1994, registered on 8 April 1994),
- Usinor Sacilor (letter of 8 April 1994, registered on 11 April 1994),
- The United Kingdom Permanent Representation to the European Communities (letter of 8 April 1994, registered on 18 April 1994).

By letter of 21 June 1994, those letters and their translated versions plus Annexes were sent to the German Permanent Representation.

The German Government replied by letter of 24 June 1994, registered the same day. An informal meeting between representatives of the Commission and the German Government took place in Brussels on 30 June 1994.

<sup>(1)</sup> OJ No L 362, 31. 12. 1991, p. 57.

<sup>(2)</sup> OJ No C 71, 9. 3. 1994, p. 5.

By letters of 11 July and 26 October 1994, the German authorities brought fresh information to the attention of the Commission.

## II

The investment project includes the construction of a direct-current electric arc furnace to replace the existing blast furnace and converter. The aim of the investment is — according to the German Government — the environmentally-friendly use of iron-bearing waste materials (in particular 'iron dusts' and non-shredded car scrap), with the object of reducing production costs.

The German Government claims that this will be the first time that this type of furnace is used for large-scale production of quality and special steels.

In particular, the new furnace provides the introduction of a (single) hollow electrode, through which iron-bearing dusts resulting from iron and steel production together with carbon can be injected into the steel production process.

Further, a post-combustion of CO gases within the furnace and a corresponding anode-regulation will ensure that non-shredded car scrap can be economically recycled in an environmentally-friendly manner and in a one-step process.

Investment cost considered eligible by the German Government for State aid amounted to DM 108,2 million (ECU 57,1 million) and comprised the following items :

Items	DM million	ECU million
Electric arc furnace and de-dusting installation	41,715	22,0
R & D specific software	6,000	3,2
Construction works	8,985	4,7
<i>Subtotal</i>	56,700	29,9
Contribution to costs of construction of current-supply facility	12,000	6,3
Personnel costs	7,506	4,0
Other operating costs :		
— utilization of iron-bearing dust through a hollow electrode	15,135	8
— post-combustion of primary gases from the reactions	2,075	1,1
— the charge of unshredded car scrap in a single-step process	2,250	1,2
— fractional separation of filtration dust	3,475	1,8
— development of high-tension regulation by using dry anodes	4,337	2,3
— elevation of the electric arc voltage	0,270	0,1
<i>Subtotal</i>	27,542	14,5
Research institute	2,200	1,2
Additional general expenses (30 % of personnel costs of DM 7,506 million (see above))	2,252	1,2
<b>Total costs</b>	108,2	57,1

## III

The investment cost of DM 108,2 million (ECU 57 million) considered eligible by the German Government and other costs related to the project totalling DM 16,3 million (ECU 8,6 million) were to be financed as follows :

Own resources (equity paid in by former owner Klöckner Werke AG) DM 25,7 million

Bank loans (secured) DM 45,0 million

Supplier credits	DM 21,3 million
R & D grant (30 % of DM 108,2 million)	DM 32,5 million
	DM 124,5 million
Total	(ECU 65,5 million)

The Commission had doubts, as expressed in the opening of the procedure pursuant to Article 6 (4) of the SAC, on the following points :

- the genuine R & D character of the project,
- the eligibility of the investment costs for R & D aid proposed,

- the inclusion of costs that are not eligible for R & D aid under any circumstances,
- the resulting aid intensity of 30 %. Owing to the high risk of the project, according to the reasoning set out in the notification, the intensity should be 30 % instead of 25 % which is the intensity normally acceptable to the Commission for applied R & D.

#### IV

The German Government, in its comments submitted by telefax of 31 January 1994, stated that the company had been created following the take over (by management buy-out) of the former 'Klöckner Edelstahl GmbH'. Its capacity amounted to 480 000 t/y of pig iron, 900 000 t/y of crude steel and 600 000 t/y of hot-rolled finished products. The new owners of the company are Mr J. Großmann (75 %), the former member of the Executive Board of Klöckner Werke AG, and 'Drueker & Co. GmbH' (25 %). The purchase contract was signed on 5 April 1993. The company had been acquired with a view to the restructuring of its production facilities in order to make the company competitive.

The company's restructuring plan consisted of the following measures :

- replacement of the existing blast-furnace and converter by an electric arc furnace, resulting in a reduction of crude steel capacity by 300 000 t/y to 600 000 t/y, as well as the entire dismantling of its pig iron capacity,
- closure of the adjustment line ('Adjustagelinie') linked to the light section steel mill after modernization of the hot-rolling mill.

It was reiterated that the whole concept had to be regarded as R & D and that due to high risks an aid-intensity of 30 % gross was appropriate. As far as the amount of additional overhead costs was concerned, following the Commission's request further information was provided in order to establish the accuracy of the notified amount of DM 2,2 million, representing 30 % of the personnel costs. Calculations on this subject were given and it was demonstrated that in 1992/93 the general overhead costs amounted to 28,3 % and for 1994 to 30,3 % of personnel costs.

Furthermore, it was declared that the duration of the R & D project would be extended by 15 months, leading to a total research period of 51 months instead of 36, for business reasons and because of the limited research capacity of the company. As a result, the costs rose by an extra DM 1,5 million to DM 109,7 million instead of DM 108,2 million.

#### V

The following observations were received under the procedure :

##### *BISPA*

Bispa stated that the project in its entirety was not a genuine R & D project and that a large part of it concerned existing technology. The costs of instruments and equipment were therefore not eligible for R & D aid because they would serve economic ends, on a full industrial scale.

##### *EISA*

EISA expressed doubts as to the R & D nature of parts of the project and of the feasibility of others, in particular as to the scope of the project. The processes of post combustion in arc furnaces have already been researched. The use of hollow electrodes has already been applied to other kinds of dust. EISA concludes that it regards the method described as problematic for mass-production purposes.

##### *MEFOS*

Mefos stated that the technology of feeding ferrous dust through a hollow electrode is already developed and known. Its objective has been to allow steel plant dust to be used economically. The project has come so far that discussions have started with a view to forming a production company in Norway together with a zinc producer. Regarding post-combustion in the electric arc furnace much development work had been performed. Mefos had nothing against the realization of the project.

##### *Usinor Sacilor*

Usinor Sacilor is of the opinion that the project is entirely based on already known technologies and that the aid is consequently only for investment purposes. It was especially worried that investment aid for the construction of a new arc furnace was being presented as aid for R & D purposes.

##### *Government of the United Kingdom*

The United Kingdom authorities are convinced that the plant will be a full-scale commercial operation from the outset, since it replaces the existing iron and steelmaking facilities on the site and there is no evidence of any valid R & D activities associated with the construction of the DC furnace. They therefore consider that any State finance provided would constitute illegal aid pursuant to Article 4 of the ECSC Treaty and under secondary legislation.

The German authorities gave their reaction to those observations by letter of 24 June 1994. They discuss the observations by the other parties in detail and they repeat their opinion that the whole project constitutes research and development. To answer the criticisms, it is conceded that neither a DC arc furnace nor a hollow electrode is new. However, the dust injection is not performed during the production of steel but outside the time when steel is

produced. Furthermore, a separation of Zn and Pb from the dust is not the objective of the process, as it is for existing technologies, but the dust is converted to a raw material than can be used instead of scrap in future steel production. Another aspect of the R & D is to render harmless certain gases that result from the extra energy fed into the smelting bath. Car bodies contain lacquers and oils and fats. When melted these sub-products produce extra energy and dioxin and furan, both toxic gases. Through the post-combustion phase these gases will be broken down. An optimal use of all the energy carriers with the appearance of a minimum of toxic gases should therefore become possible. With the cooperation

of L'Air Liquide a tangential injection of oxygenous gases will be demonstrated which allows a good blending and a high degree of burning of the gases. It is expected that this will lead to energy-saving as well.

By letter of 11 July 1994, the German authorities informed the Commission of a modification of the costs connected to the R & D project. Because of the erosion and consumption of certain materials and equipment in the R & D project, which will be carried out on two days a week over 51 months, extra costs have to be incurred. These costs arise when blowing iron-bearing dust through the hollow electrode, and they break down as follows:

	Costs per campaign (DM)	Costs per 48 campaigns in 12 months (1 000 DM)	Total costs of the campaigns in 51 months (1 000 DM)
Erosion of cooling elements	1 452	69,7	296
Erosion of the cover of the furnace	2 626	126	536
Wear and tear on the anode	3 549	170,4	724
Consumption of de-dusting filters	10 368	497,7	2 115
Performance by third parties for the slag disposal	2 525	121,2	515
Treatment costs for the ladle	4 500	216	918
Consumption costs to keep the ladle furnace warm	3 500	168	714
Costs to return the ladle	3 000	144	612
De-dusting of the process dust from the filters including the assembled zinc	11 150	535	2 274
Special analysis of several campaigns	—	—	1 658
Maintenance costs	16 960	814	3 460
<b>Total</b>			13 822 (ECU 7,18 million)

The German authorities considered these costs to be eligible for R & D aid of DM 3,45 million (ECU 1,79 million). This represents an aid intensity of 25 %.

## VI

Article 2 of the SAC allows aid to be granted to defray expenditures by steel undertakings on research and development projects if it is in compliance with the rules laid down in the 'Community framework for State aid for research and development' (1).

In the notification of State aid reference was made to costs, described as non R & D costs, but nevertheless declared eligible for R & D State aid. These costs will amount to 10 % of the eligible costs of DM 108,2 million, i.e. DM 10,82 million. The Commission commented that it could not accept such costs as eligible for R & D aid. By letter of 26 October 1994 this misunderstanding was cleared up. The non-R & D costs were never part of the costs considered eligible by the German authorities for State aid. They were therefore included in the total investment costs of DM 124,5 million, but not in the notified costs of DM 108,2 million, considered at the time by the German authorities to be eligible for State aid.

The abovementioned 'Community framework' lays down principles governing the intensity of proposed aid, which have to be assessed by the Commission on a case-by-case basis. The assessment has to take into consideration the nature of the project, the technical and financial risk involved, overall policy considerations relating to the competitiveness of European industry, and also the risks of distortion of competition and effects on trade between Member States.

(1) OJ No C 83, 11. 4. 1986, p. 2.

This points to the principle that basic industrial research may qualify for higher levels of aid than applied research and development; the latter are more closely related to the market application of R & D results and could therefore, if aided, lead more readily to distortions of competition and trade.

While the Commission considers that the level of aid for basic industrial research should not be more than 50 % of the gross costs of the project, it will look in principle for progressively lower levels of aid in cases as the activity being aided gets nearer to the market place, by extending into the areas of applied research and development. The Commission has adopted the practice of allowing an aid intensity of 25 % gross for applied R & D.

Moreover, the Commission will admit higher aid levels in cases where particular projects imply a very high specific risk.

The project itself consists of six sub-projects :

- utilization of iron-bearing dust through the use of a hollow electrode,
- post combustion of primary gases resulting from the reactions,
- the charge of unshredded car scrap in a single-step process (diminution of dioxin and furan emissions),
- fractional separation of filtration dust,
- development of high-tension regulation by using dry anodes,
- raising of the electric arc voltage.

One of the sub-projects (the utilization of iron-bearing dust through a hollow electrode) will only be carried out during two days of the week. Since Georgsmarienhütte will only produce 600 kt of steel a year, it is not necessary to produce for seven days a week, five days being sufficient. The other live sub-projects will be carried out throughout the production process since the pilot character has to be demonstrated under real circumstances.

Those projects together represent the R & D project and they have not previously been performed on a large scale in a combination like this. The outcome in terms of a new development resulting from the combination of the different technical processes is therefore unclear, but if success is achieved, it will have been demonstrated that the total blend of techniques can function under real circumstances.

The demonstrative character of this project consists of two parts. The first one is the blowing into the electric arc furnace (EAF) of iron-bearing dust (waste product of the steel-making process containing 50 % of iron) through a hollow electrode. In fact this amounts to a recycling of

waste material, because it becomes possible to win back iron from the dust and to use other elements such as chromium.

The second part is to charge the furnace in a one-step process with non-shredded motor vehicle scrap. This way of charging the EAF is made being possible through an extreme post-combustion of Co-gas and a corresponding adjustment of the voltage between an anode and cathode.

Motor vehicle scrap contains approximately 25 % plastic and other material. This (in a way polluted) scrap can be used in a two-step process (smelting and converting) but here the aim is to use the non-shredded derelict cars as a whole and smelt them right away without creating dioxin-containing gases.

During the smelting of the scrap, CO-containing gasses are created. Normally the post-combustion of these gases take place outside the furnace. In order to use the heat caused by this burning, it has to take place inside the furnace. The problem is the just-in-time delivery of the necessary oxygen. The solution proposed was to inject oxygen at two levels, as a result of which a current would be established which allowed a better mixing of the gases. Very accurate measuring has to take place in order to establish the right moment for these injections of oxygen. Furthermore, the attempt will be made to let the post-combustion also take place in the foamed slag.

The fractional separation of dust is carried out to filter metals such as zinc. These metal dusts originate during the smelting phase and they will be filtered out before the superheating takes place. Zinc and other metals in concentrated form can be used elsewhere.

The aim of the high-tension regulation is to control the current between the anode and the cathode. Metal lying against the edge of the furnace (so-called 'cold spots') is not sufficiently heated. This is caused by the fact that only one electrode, instead of three, is used. By using dry anodes instead of watercooled ones, it is expected that the current can be controlled better.

The raising of electric arc voltage is in principle possible in a direct-current EAF. This leads to a higher electrical and thermal efficiency with less consumption of the electrode.

It has, however, to be demonstrated that this principle can be applied in practical operation.

The R & D project can be considered as development within the meaning of Annex I to the Community framework for State aids for research and development<sup>(1)</sup>: '... work based on applied research aimed at establishing new

<sup>(1)</sup> OJ No C 83, 11. 4. 1986, p. 5.

or substantially improved products, production processes or services up to but not including industrial application and commercial exploitation. This stage would normally include pilot and demonstration projects ...'.

The Commission answers the received comments and observations as follows :

*BISPA :*

The Commission agrees that the direct-current arc technology itself is established, and consequently it does not consider the electric arc furnace to be eligible for State aid (see below). One of the aims of the project is the recycling of iron and not of zinc, as stated in the observation. Bispa remarks that it is not clear how the post-combustion relates to the use of non-shredded car scrap. In order to find this out, the demonstration project has to be undertaken.

*EISA :*

The Commission agrees that electric arc furnaces are used for the manufacture of special steels. This, however, is not the object of the R & D. Post-combustion itself is known, but here it has to be demonstrated that this can lead to lower emission of dioxin. To achieve this, the functioning of a combination of techniques developed by Klöckner and L'Air Liquide has to be demonstrated.

As far as the blowing of the iron dust through hollow electrodes is concerned, Eisa remarks that so far this technique has been unable to deal with large quantities. It is the aim of the R & D to establish whether this is true.

*MEFOS :*

The Commission takes note of the fact that this research institute has nothing against the realization of the project.

It emphasizes however that Georgsmarienhütte is already half-way to demonstrating the actual functioning of the technology of blowing ferrous dust through a hollow electrode and that the project in Norway is still under discussion.

*Usinor Sacilor :*

The Commission agrees that the technology of the electric arc furnace is established. The blowing of iron dust through a hollow electrode presents no industrial risk according to Usinor Sacilor, since the conversion to a normal type of electric arc furnace is very easy, if the technology proves unsatisfactory. This means, however, that it still has to be investigated whether the technology is satisfactory. Furthermore, Usinor Sacilor acknowledges that the use of non-shredded car scrap in a single-step process could be innovative. It has to be remarked that the aim of this part of the R & D is to combine several techniques in order to reduce the emission of dioxin and furan. The Commission agrees that the manufacture of special steels by a direct current arc furnace does take place ; but this is not the object of the R & D.

*Government of the United Kingdom :*

No arguments have been given that endorse the view that there is no original research. However, the Commission considers on the basis of the arguments put forward that there is evidence of R & D.

Costs that are incurred directly as a result of the R & D project are eligible for State aid for R & D.

In the context of this case, this means that certain costs cannot be considered eligible for R & D State aid.

Costs	DM million	ECU million
The electric arc furnace and de-dusting installation	41,715	22,0
Construction works	8,985	4,7
Contribution to cost of constructing the current-supply facility	12,000	6,3
<b>Total</b>	<b>62,700</b>	<b>32,6</b>

These costs are not incurred as a result of the R & D project and bear no direct relation to the R & D project as a whole or with any of the sub-projects. These costs are in fact industrial investment costs and they have to be made by the company in order to produce the products for the market.

On the other hand, the direct costs arising from the R & D projects are eligible for R & D State aid. These projects are :

Costs	DM million	ECU million
The injection of iron-bearing dust	16,135	8,0
The post combustion	2,075	1,1
The use of unshredded car scrap	2,250	1,2
Fractional separation of filtration dust	3,475	1,8
Anode regulation	4,337	2,3
Electric arc voltage	0,270	0,1
<b>Total</b>	<b>28,542</b>	<b>14,84</b>

The costs of the injection of iron-bearing dust was raised by DM 1 million over the figure given in the notification because of the longer duration of the project.

Apart from these costs, that cover equipment and materials necessary for the projects, the following costs are also incurred directly by the R & D work :

Costs	DM million	ECU million
Personnel costs	8,006	4,0
Scientific work contracted out to the TU Clausthal and the University of Patras	2,2	1,2
General expenses	2,4	1,2
R & D specific software	6,0	3,2
<b>Total</b>	<b>18,606</b>	<b>9,6</b>

As far as the general expenses are concerned, they are calculated as 30 % of the personnel costs. Georgsmarienhütte has demonstrated that over the past years such a percentage is reasonable and in conformity with its normal ratio between personnel costs and general expenses.

DM 108,2 million was originally notified as eligible for R & D aid. On the basis of the extension of the duration of the R & D project from 36 months to 51 months, DM 1,65 million (including 30 % of extra personnel costs for general expenses) was added to this amount, giving DM 109,85 million.

However, certain costs are not incurred directly as a result of the R & D project and they have to be deducted from the amount :

— notified as eligible for State aid for R & D	DM 109,85 million
— costs that are not considered to be R & D	— DM 62,7 million
— leaves as R & D costs and eligible for State aid	DM 47,15 million (ECU 24,52 million)

For certain of these costs the German authorities proposed to grant aid with an intensity of 30 % and for

one, the scientific cooperation with the TU Clausthal and the University of Patras, of 50 %.

However for applied research and development, the Commission has adopted the practice of allowing only 25 % gross. In cases of high specific risk a higher aid level may be considered by the Commission.

It has to be noted that this is an exception to the rule, since all R & D projects invoke risks. Such a high specific risk has not been adequately demonstrated. The R & D project at stake is a demonstration project showing the functioning of a blend of techniques in real-life conditions. This means that it is already very close to the market-place ; consequently, the technical risks are within acceptable limits. Furthermore, if the project demonstrates that the combination of the techniques does not deliver the desired outcome, Georgsmarienhütte will still have a direct-current electric arc furnace that can be adapted to normal standards with a minimum of extra costs. A risk premium of five percentage points is therefore not justified, and the aid intensity should not be higher than 25 %.

Originally, the German authorities sought approval for an aid for R & D of DM 32,46 million on the basis of DM 108,2 million eligible costs and an intensity of 30 %. Owing to the extension of the duration of the project from 36 months to 51 months, these costs were set at DM 109,85 million.

By letter of 11 July 1994 the German authorities informed the Commission of additional wear and tear and consumption costs of DM 13,822 million caused by the utilization of the iron-bearing dusts through the hollow electrode. Since these costs are directly caused by the R & D activity they are eligible for R & D State aid pursuant to Annex II to the Community framework for State aids for research and development. The aid intensity is 25 %.

Since there was no doubt as to the R & D nature of the costs, an extension of the procedure pursuant to Article 6 (4) of the steel aids code was not necessary. The same applies to the costs resulting from the extended duration of the R & D project from 36 to 51 months.

This brings the total costs as notified to DM 123,672 million and the aid to DM 35,9155 million.

Point 8.2 of the Community framework for State aids for research and development requires that the aid for R & D shall lead to additional efforts in the field of R & D. For the beneficiary of the aid it was perfectly possible not to carry out this R & D project and to use the electric arc furnace only for production. The fact that it has chosen to perform this R & D is in itself a proof of additional efforts in this field.

Since DM 62,7 million is not to be regarded as costs incurred by the R & D project, the basis of the eligible costs is narrowed to DM 60,972 million. Of this, 25 % can be granted as R & D State aid, namely DM 15,243 million.

The difference between DM 35,9155 million and DM 15,243 million — DM 20,6725 million — cannot be justified by one of the other categories that allow for State aid to the steel industry as stated in the steel aids code. The granting of such State aid, amounting to DM 20,6725 million, is consequently prohibited by Article 4 (c) of the ECSC Treaty.

## VII

In conclusion, the State aids proposed by the German authorities can only partially be accepted as State aid for R & D within the meaning of Article 2 of the steel aids code. The rest of the aid is prohibited by point (c) of Article 4 of the ECSC Treaty.

Of the total notified R & D costs of DM 123,672 million (DM 109,85 million + DM 13,822 million), only DM 60,972 million is eligible as State aid for R & D. Of the proposed State aid of DM 35,9155 million only DM 15,243 million is compatible with the common market

for steel whilst an amount of DM 20,6725 million is prohibited by point (c) of Article 4 of the ECSC Treaty,

HAS ADOPTED THIS DECISION :

### *Article 1*

1. The Commission has established that the investment costs for the electric arc furnace and the de-dusting installation, the construction works and the contribution to costs for the construction of the current-supply facility, amounting to DM 62,7 million, are not to be considered research and development (R & D) costs.

2. The Commission has established that State aid amounting to DM 20,675 million is not compatible with the common market for steel and prohibited by point (c) of Article 4 of the ECSC Treaty.

### *Article 2*

1. The Commission has acknowledged a total of DM 60,972 million as being R & D costs within the meaning of Article 2 of Decision No 3855/91/ECSC of 27 November 1991 establishing Community rules for aid to the steel industry, and it considers that an aid intensity of 25 % gross is compatible with the common market for steel.

2. The Commission concludes that State aid amounting to DM 15,243 million is compatible with the common market for steel.

### *Article 3*

Germany shall inform the Commission, within two months of the notification of this Decision, of the measures taken to comply with it.

### *Article 4*

This Decision is addressed to the Federal Republic of Germany.

Done at Brussels, 1 February 1995.

*For the Commission*

Karel VAN MIERT

*Member of the Commission*