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1st funding call for the bidding process for Carbon Contracts for Difference

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Table of contents

1. Objective of the funding	2
2 What is subsidised?	2
3 Who is being funded?	7
4 How is funding provided?	8
5 Procedure of the bidding process	20
6 Special information and legal basis.....	23
7 Contact persons and questions	24
Annex 1: Reference systems.....	26
Annex 2: Examples of other funding within the meaning of Number 2.2 FRL KSV	41
Annex 3: Checklist of documents and evidence to be submitted.....	43
Annex 4: Hedging prices for CO ₂ and the energy carriers i	44

1. Objective of the funding

The Carbon Contracts for Difference funding programme funds the construction and operation of climate-friendly production facilities. Carbon Contracts for Difference are intended to enable a rapid and continuous transformation of industry towards climate neutrality by 2045 in a cost-efficient manner by funding the construction and operation of transformative production processes, particularly large industrial plants in hard-to-abate sectors, which lead to high greenhouse gas savings and thus establish themselves on the market. The funding will indirectly build up the infrastructure, lead markets, knowledge and expertise required for decarbonisation as a whole. Only processes with a high level of value chain integration that fit in with the German government's industrial and energy strategy and are also climate-friendly from a global perspective are subsidised.

The purpose of the grant is to fund additional costs resulting from greenhouse gas emission reductions through low-emission production processes compared to a conventional reference system. In line with this, the federal government grants subsidies for additional costs of transformative production processes in hard-to-abate sectors.

This funding call refers to the "Directive on the funding of climate-neutral production processes in industry through Carbon Contracts for Difference" (Guidelines for Carbon Contracts for Difference – FRL KSV) of 11 March 2024. It supplements and specifies the provisions of the FRL KSV; in case of doubt, the provisions of the FRL KSV apply. The aim of the first funding call is to fund the most efficient projects across all sectors addressed by the funding programme. The criteria for evaluating the bids are the funding cost efficiency and the relative reduction in greenhouse gas emissions (Number 8.3(d) of the KSV guidelines).

The bidding process begins with the publication of this funding call. The **deadline for submitting** applications, including bids and all documents, is **11 July 2024**. Applications that are not submitted in the form specified by the funding body within this deadline (material cut-off deadline) or that do not contain the information and documents requested or – in the case of an additional request – subsequently requested, will be rejected (Number 8.3(c) FRL KSV). Please note that a strict standard applies in the bidding procedure due to the competitive nature of the procedure; deficient applications cannot be considered.

2. What is subsidised?

Transformative production processes

The Carbon Contracts for Difference (CO₂) subsidise the additional costs incurred by companies from hard-to-abate sectors as a result of the construction of more climate-friendly plants or the conversion of conventional plants into more climate-friendly plants (CAPEX) and their operation (OPEX) compared to plants with the best technology currently available (Number 4.1 FRL KSV).

Funding is provided for the production share of the plants and processes that is attributable to a transformative production process (Number 4.17 sentence 1 FRL KSV). Transformative production processes are production processes that are characterised by fundamental technological changes to conventional production processes, entail a considerable need for investment in new technologies that are not yet established on the market or set the market price and substitute fossil fuels or raw materials with climate-friendly energy carriers or raw materials (e.g. electricity, hydrogen, biomass). A production process that is not operated in an energy- and resource-efficient manner and does not contribute to the climate neutrality of the industry is not transformative (Number 2.21 FRL KSV).

No limited bidding procedure

The bidding procedure is not restricted to certain sectors or technologies, nor is it stipulated that the funding volume must benefit at least one or more projects from one or more sectors (Number 8.1(b) of the CSF Guidelines).

However, projects in the same sector can receive a maximum of one third of the funding volume in this bidding process (see Number 4 for more details).

Reference systems

The reference systems listed in Annex 1 are defined for this funding call. The reference systems comprise the specific greenhouse gas emissions in relation to the production volume and the specific energy carrier amounts in relation to the production volume (Number 7.1(c) FRL KSV). According to Number 4.4 FRL KSV, only additional costs for the manufacture of products for which a reference system has been defined are eligible for funding.

A project may involve the manufacture of several products that can be assigned to different reference systems if different products can be manufactured with one system or if there is a technological network on the basis of which several products are manufactured (Number 4.6 FRL KSV).

Location specifications

Production in plants that are not operated on the territory of the Federal Republic of Germany is not eligible for funding (Number 4.16(h) FRL KSV).

For electrolysis plants with a capacity of more than 10 MW, no further location requirements are specified in this funding call (cf. Number 4.9 sentence 2 FRL KSV).

Minimum level of absolute average annual greenhouse gas emissions

The project on which a bid for this funding call is based must have a minimum absolute average annual greenhouse gas emissions in the reference system of only 10 kt CO₂ equivalent per year (Number 4.15(a) FRL KSV).

Minimum total funding amount

Projects for which the maximum total funding amount is less than EUR 15 million are not eligible for funding. This threshold is therefore not set higher in this funding call than in Number 4.16(c) of the KSV guidelines.

Thresholds for greenhouse gas emission reductions

The project on which a bid for this funding call is based must be compatible with the climate protection goals of the Federal Republic of Germany and the EU. A project must therefore fulfil the following requirements:

- i. From the third full calendar year at the latest within the term of the climate protection contract, the relative greenhouse gas emission reduction compared to the reference system must be at least 60 % (Number 4.15(b)(i) FRL KSV).
- ii. A relative reduction in greenhouse gas emissions of at least 90 % compared to the reference system must be technically feasible with the technologies used, using appropriate energy carriers and raw materials, within the term of the climate protection contract and must be achieved in the last 12 months of the term of the climate protection contract (access criterion climate neutrality, Number 4.15(b)(ii) FRL KSV).

From the sixth full calendar year within the term of the climate protection contract, the planned relative greenhouse gas emission reduction from the fifth full calendar year may not be undercut (Number 4.15(c) FRL KSV).

The granting authority examines whether the projects are suitable for achieving these objectives in the specific case. The relevant point in time for the assessment is the expiry of the deadline for submitting the bids (Number 8.2(h) FRL KSV). Greenhouse gas emission reductions from the use of synthetic methane are not assessed with the emission factor zero or pro rata.

Material utilisation of biomass

The use of biomass as a material in a subsidised project is permitted without further requirements in accordance with Number 4.11 FRL KSV.

Energetic use of biomass

For projects that intend to utilise biomass for energetic purposes, Number 4.10 FRL KSV must be observed. According to this provision, the use of biomass for energetic purposes is only permitted if the applicant can prove that

a) direct electrification of the plant is technically unavailable
and

b) the utilisation of hydrogen or hydrogen derivatives that are not produced from biomass, biogas, landfill gas or sewage gas is technically or economically unavailable in the foreseeable future,

and

c) to the extent that the planned use of biomass is scalable in view of the limited biomass potential available on a sustainable basis.

In addition, the use of biomass for energy should be limited to residual and waste materials and to raw materials and energy carriers obtained from residual and waste materials. Proof must be provided as follows:

Re a) by submitting a corresponding confirmation from the grid operator or, if the provision of electrical energy by the grid operator is possible, by providing a sufficiently plausible technical justification at system level that rules out direct electrification.

Re b) by a confirmation from the infrastructure operator that grid access is not possible in the foreseeable future. If grid access or the use of hydrogen or hydrogen derivatives that are not produced from biomass, biogas, landfill gas or sewage gas is possible, the applicant must demonstrate on the basis of an economic viability analysis over the useful life of the plant that the use of hydrogen or hydrogen derivatives that are not produced from biomass, biogas, landfill gas or sewage gas is not likely to be economically viable. Economic viability is not given if the sum of investment and energy costs for the use of hydrogen or hydrogen derivatives that are not produced from biomass, biogas, landfill gas or sewage gas exceeds the sum of investment and energy costs for the use of biomass by at least 50 %.

The costs to be compared are to be determined as follows:

Hydrogen/hydrogen derivatives (H)₂		Biomass (B)	
$Costs_{H_2} \left[\frac{EUR}{MWh} \right] = \frac{IK_{H_2} + EK_{H_2}}{\Phi} \quad [1]$		$Costs_B \left[\frac{EUR}{MWh} \right] = \frac{IK_B + EK_B}{\Phi} \quad [2]$	
IK	One-off investment costs incurred for the procurement of the respective system [in EUR].		
EK	Sum of the costs incurred in years 1-15 for the respective energy carrier [in EUR]. The stated values must be verified by means of corresponding current offers.		
Φ	The total amount of heat in MWh to be provided by the respective system in years 1-15. For both systems, the same value is to be used for the parameter Φ parameter for both systems.		

Re c) by submitting a declaration from the applicant in which the applicant justifies that increasing (scaled) biomass requirements can probably also be covered during the term of the KSV contract, taking into account the sustainability requirements specified in Number 4.10 FRL KSV. The declaration should be accompanied by a confirmation from the biomass suppliers or a study on the necessary availability.

In addition, from the start of operations, recognised evidence in accordance with the Ordinance on Requirements for the Sustainable Production of Biofuels (Biokraft-NachV) or the Ordinance on Requirements for the Sustainable Production of Biomass for Electricity Generation (BioSt-NachV) regarding the origin and source of the biomass and compliance with the legal requirements specified in the FRL KSV must be submitted annually as part of the calculation procedure.

Compliance with the emission limit values in accordance with § 29 Para. 1 Sentence 1 Number 1 Letter a in conjunction with § 3 of the 13. § Number 3 of the 13th Ordinance on the Implementation of the Federal Immission Control Act (13th BImSchV) must be demonstrated as follows at the request of the granting authority:

If the plants are categorised as large combustion plants, by submitting emission reports in accordance with § 22 Para. 1 Number 5 in conjunction with § 19 Para. 2 of the 13th BImSchV. § 19 para. 2 of the 13th BImSchV; for other plants by submitting other suitable evidence (e.g. monitoring reports in accordance with § 15 para. 1 sentence 1 in conjunction with § 5 para. 1 in conjunction with § 25 of the 1st Ordinance on the Implementation of the Federal Immission Control Act (1st BImSchV)).

CCS/CCU

Plants in which the greenhouse gas emission reductions are primarily achieved through CCS or CCU are only eligible for funding under the conditions of Number 4.14 FRL KSV. These conditions do not currently exist. In particular, there is a lack of an adequate legal framework and a sufficiently secure connection to the necessary transport and storage infrastructures. Funding for such projects is therefore not possible in this first bidding process. The German government's carbon management strategy will be the guiding principle for funding.

Hydrogen

The hydrogen used must fulfil the requirements for green (Number 2.11 FRL KSV) or low-carbon hydrogen (number 2.6 FRL KSV) (Number 4.9 sentence 1 FRL KSV). During the term of the Carbon Contracts for Difference, the granting authority can request certificates from recognised independent bodies to verify compliance with the requirements for green or low-carbon hydrogen. If the granting authority requires the submission of a specific certificate, it will also accept equivalent certificates from other bodies, in particular those from other countries. The aid beneficiary must provide evidence of equivalence at the request of the granting authority (number 2.6.1 sentences 2-4 of the model Carbon Contract for Difference (model KSV)). Hydrogen produced from hydrogen derivatives (Number 2.27 FRL KSV) is treated as equivalent to green or low-carbon hydrogen if it is equivalent to green or low-carbon hydrogen, meets the sustainability requirements from binding legal acts applicable at the time of the funding call and serves to introduce or expand transformative production processes (number 4.9 sentence 3 FRL KSV).

As an alternative to green or low-carbon hydrogen, hydrogen derivatives (Number 2.27 FRL KSV) can also be used if they are equivalent to green or low-carbon hydrogen in terms of their contribution to climate protection, meet the sustainability requirements from binding legal acts applicable at the time of this funding call and serve to introduce or expand transformative production processes (Number 4.9 sentence 4 FRL KSV).

Energetic use of natural gas

The use of natural gas for material and energetic purposes during the entire term of the climate protection contract in a subsidised project is only permitted if the planned use of natural gas is technically absolutely necessary. Applicants must demonstrate fulfilment of this requirement in the application by providing sufficiently detailed and plausible technical justification based on publicly available sources. Applicants must also submit a plan

showing when and how the energetic use of natural gas will be reduced during the term of the climate protection contract (Number 4.12 FRL KSV).

Energetic use of fossil fuels

The use of the most environmentally harmful fossil fuels as defined in the Guidelines on State Aid for Climate, Environmental Protection and Energy 2022¹, such as hard coal, diesel, lignite, oil, peat and oil shale, for energy purposes is only permitted in the first ten years, calculated from the operational start of the project, and only to the extent that this is technically necessary (Number 4.13 FRL KSV). Applicants must demonstrate fulfilment of these requirements in the application by providing a sufficiently detailed and plausible technical justification based on publicly accessible sources.

This does not affect the use of natural gas for energetic purposes (Number 4.12 FRL KSV).

3. Who is being funded?

Eligibility to apply

Companies within the meaning of Number 14 of the German Civil Code, including municipalities, municipally owned companies, municipal companies and municipal special-purpose associations, are eligible to apply if they are economically active (Number 5.1 FRL KSV) **and** the project has been approved for participation in the first bidding procedure by 7 August 2023 after participating in the first preparatory procedure (Number 8.6(b) FRL KSV).

In particular, the legal entities mentioned in Number 5.4 FRL KSV are **not eligible to apply**.

Several eligible applicants may form a consortium and submit a joint application for funding, provided that they intend to jointly manufacture one or more eligible products in Germany, that they reach the minimum size specified in Number 4.15(a) FRL KSV and that the manufacturing processes of the eligible product(s) are technologically linked within the meaning of Number 4.6 FRL KSV (Number 5.2 sentences 1-2 FRL KSV).

Within a consortium, one member of the consortium must be appointed to submit the application for funding and be authorised to serve and receive documents on behalf of the consortium ("consortium leader", Number 5.2 sentence 3 FRL KSV). Proof of the authorisation of the consortium leader must be submitted with the application.

The following also applies to consortia:

Consortia receive a joint grant notification, which is sent to the consortium leader. If the funding is approved, each member of the consortium will become an aid beneficiary and contractual partner of the climate protection contract. The members of the consortium are jointly and severally liable for the obligations arising from the grant notification and

¹ Communication from the Commission, Guidelines on State aid for climate action, environmental protection and energy 2022 (OJ C 80, 18.2.2022, p. 1).

the climate protection contract and for any surplus payments. Grants are paid to the consortium leader with discharging effect vis-à-vis the consortium (Number 5.2 sentences 4-6 FRL KSV).

For a consortium, scope 1 emissions of all participating members of the consortium are considered joint scope 1 emissions and the subsidised products of the entire value chain in the consortium are considered joint products. Insofar as intermediate products are re-used within the consortium, interim transfer to non-members of the consortium is also possible (Number 5.2 sentences 7-8 FRL KSV).

4. How is funding provided?

Type of funding

The funding is granted by way of project funding in the form of non-repayable grants (Number 6.1(a) FRL KSV).

There is no legal entitlement to the granting of funding. The granting authority decides on the granting of applications at its own discretion and within the framework of the available budget funds (Number 6.1(b) FRL KSV).

The granting authority will award the grant to successful applicants in the form of a grant notification ("Zuwendungsbescheid", which will be issued at the same time as the award is made in favour of the successful bid as part of the bidding process (Number 8.4 FRL KSV). Consortia receive a joint notification of award, which is sent to the consortium leader. The climate protection contract is concluded when the awarding authority awards the contract in favour of the applicant's bid and thus accepts the bid (Number 8.5(a) FRL KSV).

The climate protection contract under private law serves to specify and implement the legal relationship under grant law, which is based on the grant notification under public law (two-tier system) and arises between the aid beneficiary and the grant provider upon notification of the grant notification (Number 8.5(a) FRL KSV). Details on the scope of the grant and its payment can be found in Numbers 7 and 9 as well as Annex 1 FRL KSV and the model KSV.

Due to the design of the climate protection contracts as CO₂ contracts for difference, the aid beneficiaries may be obliged to make payments to the funding provider under the conditions specified in the FRL KSV (so-called surplus payments). The obligation to make surplus payments is regulated in Number 4 of the Model KSV. It is possible for the surplus payments to exceed the amount of funding received. According to Number 7.7 FRL KSV, aid beneficiaries can apply for termination of the mutual payment obligations (grant and surplus payments) for the remaining term of the climate protection contract if they have made a surplus payment to the grant provider in a calendar year. If the granting authority approves the application, the mutual payment obligations are terminated with effect from the end of three years from the end of the calendar year in which the application was submitted by the aid beneficiary. The application can be submitted in the calendar year following the surplus payment.

Term of the Carbon Contracts for Difference

The term of the Carbon Contracts for Difference is 15 years. The contract term begins with the operational start of the project, at the latest 36 months after the grant notice becomes final. The granting authority may extend the period in individual cases after the grant notice has become final if the aid beneficiary demonstrates that it cannot start the funded project within the original period for reasons for which it is not responsible. If the project begins during the year, the contract term extends over 16 calendar years. This means that the term of the climate protection contract covers the following periods in the event of a start during the year:

- firstly, the period from the actual operational start of the project up to and including 31 December of the calendar year in which the operational start occurs ("first partial year"),
- secondly, 14 complete calendar years following the first partial year and
- thirdly, the period beginning on 1 January of the calendar year following the end of the 14 full calendar years, which comprises the days remaining from the 15 years from the start of operations after deduction of the first partial year and the 14 full calendar years ("last partial year", (Number 4.2 FRL KSV)).

According to Number 2.12 FRL KSV, the operational start of the project is the day of the first intended use or partial use of the subsidised facilities after completion of any trial operation. Trial operation is the temporary operation of a facility to test its operational capability prior to the first intended use of the subsidised facility. The aid beneficiary must provide evidence of the operational start of the project without delay, in particular by submitting a commissioning report.

The term of a climate protection contract may end before the expiry of 15 years if the climate protection contract is terminated prematurely. The suspension of payment obligations in accordance with Number 7.7 FRL KSV does not lead to premature termination of the climate protection contract.

Funding volume

A funding volume of 4 billion euros is available for this funding call. The funding volume refers to the maximum funding available over the entire term of the Carbon Contracts for Difference concluded as a result of this funding call.

The funding volume applicable to this funding call may be slightly exceeded by awarding a grant to a bid up to a maximum of five per cent, provided this is possible under budgetary law and a bid could not otherwise be awarded a grant. The maximum total funding amount for the respective projects is used as the basis for calculating the funding volume required for the projects (Number 8.3(a) FRL KSV).

Maximum total funding amount per project

The maximum total funding amount per project is limited to 25% of the funding volume in the first bidding procedure (see Number 7.4(e) of the KSV guidelines). Projects whose

maximum total funding amount exceeds EUR 1 billion are therefore not eligible for funding (Number 4.16(p) of the KSV guidelines).

Maximum funding volume per sector

Projects that belong to the same sector can receive a maximum total of one third of the funding volume. If the maximum total funding amount of a project, taking into account the respective maximum total funding amount of the projects that precede this project in the same sector in the order specified in Number 8.3(a) sentence 2 of the Guideline, exceeds the specified threshold value, this project will not be taken into account in the assessment pursuant to Number 8.3(a) of the Guideline (Number 8.3(k) FRL KSV).

The allocation of the reference systems to the sectors is shown in the table at the end of Annex 1. Projects with main products that cannot be allocated to a sector are allocated to the Gypsum & others sector.

Other funding/cumulation

In principle, the applicant can also apply for and make use of other funding for the funded project in addition to the funding under the Carbon Contracts for Difference funding programme. There are three exceptions to this: A project cannot be funded under the Carbon Contracts for Difference funding programme,

- if the project to be funded has already been selected for the Important Projects of Common European Interest (IPCEI) in the field of hydrogen or if funding has already been applied for or approved for the project as part of the funding call of the EU Innovation Fund for Renewable Hydrogen (European Hydrogen Bank) with funds from the EU Innovation Fund or additional national funds
- if funding has already been approved for the project to be funded under the "Federal Funding for Industry and Climate Protection" funding programme and the granting of this funding is not subject to a condition subsequent in the event that a climate protection agreement is concluded (cf. Number 4.16(m) FRL KSV).

If a grant recipient receives other funding for its project (Number 2.2 FRL KSV) that does not preclude funding under the Carbon Contracts for Difference funding programme in accordance with Number 4.16(m) FRL KSV in conjunction with the above provisions, the following conditions apply:

a) When determining the base contract price, applicants should bear in mind that any other funding already approved will be taken into account when calculating the funding cost efficiency in accordance with Number 8.3(f) FRL KSV (Number 7.1(a)(i) FRL KSV).

b) Other funding that is approved after the application has been submitted will be deducted from the grant. If other funding already approved when the application is submitted is increased after this time, this rule applies accordingly to the amount by which the funding has increased compared to the time the application was submitted (Number 7.1(a)(vi), see Number 7.5(c) FRL KSV for more details).

Other funding may include funding granted as grants under other programmes. Annex 2 contains a non-exhaustive list of those grants that are considered other funding within the meaning of these funding guidelines as defined in Number 7.5(b) FRL KSV. When submitting an application, applicants are obliged to provide complete and truthful information about any other funding already approved or applied for the project. Applicants are therefore strongly advised to state all funding applied for or approved and to consult the granting authority in case of doubt.

Insofar as hydrogen is used in a project that is produced by electrolysis plants of an affiliated company of the aid beneficiary within the meaning of Numbers 15 et seq. AktG, the other funding disbursed or otherwise granted in respect of these electrolysis plants by the affiliated company of the Aid beneficiary within the meaning of Numbers 15 et seq. AktG will be deducted accordingly in accordance with Number 7.1(a)(vi) and Number 7.5(c) FRL KSV (Number 7.5(d) FRL KSV). Further details, in particular the amount of the deduction and the required evidence, are set out in Number 4.9.4(d) Model KSV.

Deduction of the green surplus

Additional green revenue is not deducted from the funding in this bidding process. It is in the applicant's own interest to include the expected additional green revenue in the base contract price in order to achieve greater funding cost efficiency and to be awarded a contract in the bidding process.

Maximum prices (Number 8.1(f) FRL KSV)

The sector-specific maximum prices H_I are set at EUR 600.00/t CO₂ equivalent for all sectors. This threshold value is a calculated value for the bidding process for Carbon Contracts for Difference that is independent of the current abatement costs.

Bids with specific fund costs (Number 8.3(f), Annex 2, Number 1 FRL KSV) above the specified maximum prices are excluded from the bidding process (Number 8.1(f) FRL KSV).

Parameters for determining the subsidy cost efficiency

The highest maximum price to be used for calculating the funding cost efficiency pursuant to Annex 2 Number 1 Paragraph 2 FRL KSV is the uniform maximum price of H_{\max} is the standardised maximum price of EUR 600.00/t CO₂ equivalent. The interest rate to be applied ϵ in accordance with Annex 2 Number 1 Paragraph 1 FRL KSV is 5.12%. The weighting factor γ is 0.5 in accordance with Annex 2 Number 1 Paragraph 2 FRL KSV, but does not affect the result in this bidding procedure due to the setting of a uniform maximum price H_I .

Parameters for determining the relative reduction in greenhouse gas emissions

The weighting factor for the relative greenhouse gas emission reduction s is set at 0.8 and the comparative value for the relative greenhouse gas emission reduction μ_R is set at 0.75 (see Annex 2 Number 2 Paragraph 2 FRL KSV).

Effective CO₂ price (Number 7.1(b), Annex 1 Number 1 paragraph 2 FRL KSV)

For the annual determination of p_{EUA}^{real} the following index is used:

CO ₂ certificates	Index	Temporal resolution	Calculation method
CO ₂ price	EEX Environmentals Future annual contract prices for deliveries in December for the respective settlement period	Daily	Calculation of the unweighted annual average from daily data [EUR/t CO ₂ -eq.]

If no data is published for weekends, public holidays and days at the end of the respective year, these days are not included in the calculation of the annual average.

Dynamisation of energy carriers in the reference system

The energy carriers of the reference system listed in the following table are dynamised in accordance with Number 7.2(b) FRL KSV. The price indices specified in the table are used for the annual determination of the real indexed price p_i^{real} for each dynamised energy carrier i and the factor β_i^{Ref} (cf. Annex 1 Number 1 Paragraph 4 FRL KSV) is defined for each individual dynamised energy carriers.

Electricity:

In order to adequately secure investments in flexibility and incentivise their use, the electricity index contains two weighted components: Firstly, a baseload component, which is an unweighted average of the hourly energy prices for all hours of a year and reflects the costs of continuous electricity consumption. Secondly, a renewables component that reflects the electricity costs for flexible production. These are approximated by weighting the hourly prices based on the share of renewable energy in each hour of the year.

The calculation is made using the following method:²

$$p_{Strom}^{real} = 0,7 * \frac{\sum_{t=1}^{8760} p_t}{8760} + 0,3 * \frac{\sum_{t=1}^{8760} p_t * (E_{pv,t} + E_{Wof,t})}{\sum_{t=1}^{8760} (E_{pv,t} + E_{Wof,t})} \quad [3]$$

² For leap years, replace the number 8760 (all hours of a normal year) with 8784.

Energy carrier i	Price index for the annual determination of p_i^{real}	Unit of origin	Temporal resolution	Calculation method	Factor β_i^{Ref}
Electricity	SMARD.de: Hourly day-ahead electricity price	[EUR/MWh]	Hourly	p_t : Hourly day-ahead electricity price	0,9
	SMARD.de: Forecasted generation day-ahead of the respective RE technologies onshore wind, offshore wind, solar	[MWh]	Hourly	$E_{\text{won}}, E_{\text{wof}}, E_{\text{pv}}$: Forecasted generation day-ahead of the respective RE technologies onshore wind, offshore wind, solar.	
Natural gas	EEX: Gas Spot Market THE Day-Ahead (GND1)	[EUR/MWh]	Daily	Conversion of the data given in EUR/MWh calorific value into EUR/MWh calorific value by dividing by 0.9024. Calculation of the unweighted annual average from the daily data for the settlement price for delivery start on the following day [EUR/MWh]	0,9
Coking coal	<p>Argus Media: Coking Coal low volume fob Australia (PA0007768)</p> <p>Argus Media: Freight rates; Dry coal Hay Number to Rotterdam 160kt USD/t (PA0021398)</p> <p>Argus Media: Carbon cost dry coal Hay Number to Rotterdam 160kt USD/t (PA0037487)</p> <p>European Central Bank: Euro / US Dollar Exchange Rate (EXR.D.USD.EUR.SP00.A)</p>	<p>Argus Media: [USD/t]</p> <p>European Central Bank: [USD/EUR]</p>	<p>Argus Media: Monthly (freight rates); daily (coking coal, carbon cost)</p> <p>European Central Bank: Daily</p>	<p>Calculation of the total cost of coking coal in USD/t:</p> <ul style="list-style-type: none"> To calculate the total daily costs of coking coal [USD/t], the freight costs for the respective calendar month (PA0021398) and the daily costs for greenhouse gas emissions from ship transport (PA0037487) are added to the daily costs for coal (PLVHA00). <p>Conversion of the total cost of coking coal to EUR/t:</p> <ul style="list-style-type: none"> Division of the total cost of coking coal by the respective daily euro reference rate of the ECB (EXR.D.USD.EUR.SP00.A) 	0,9

Energy carrier i	Price index for the annual determination of p_i^{real}	Unit of origin	Temporal resolution	Calculation method	Factor β_i^{Ref}
				<p>Conversion to EUR/MWh:</p> <ul style="list-style-type: none"> Conversion of total costs per tonne [EUR/t] into total costs per MWh [EUR/MWh] by multiplying by a factor of 7.7921. <p>Calculation of the annual average:</p> <ul style="list-style-type: none"> Calculation of the unweighted annual average of daily data [EUR/MWh] 	
Steam coal	Argus Media: Coal (API 2) cif ARA daily index (PA000773)	[USD/t]	Daily	<p>Conversion of costs from steam coal to EUR:</p> <ul style="list-style-type: none"> Division of the daily cost of steam coal (USD/t) by the respective daily euro reference rate of the ECB (EXR.D.USD.EUR.SP00.A) <p>Conversion to EUR/MWh:</p> <ul style="list-style-type: none"> Conversion of costs per tonne (EUR/t) to costs per MWh (EUR/MWh) by multiplying the costs by the mass conversion (1 000 kg/t), the calorific value conversion (6 000 kcal/kg) and the energy conversion (0.000001163 MWh/kcal). <p>Calculation of the annual average:</p> <ul style="list-style-type: none"> Calculation of the unweighted annual average of daily data [EUR/MWh] 	0,9
All other energy carriers with liquid and solid aggregate state (at 0°C and 1.013 bar)	Like steam coal*	-	-	-	0,9

Energy carrier i	Price index for the annual determination of p_i^{real}	Unit of origin	Temporal resolution	Calculation method	Factor β_i^{Ref}
All other energy carriers with a gaseous aggregate state (at 0°C and 1.013 bar)	Like natural gas*	-	-	-	0,9

*Replacement index within the meaning of Number 7.2(d) FRL KSV.

Dynamisation basically refers to the calorific value of the energy carrier. The calorific value (formerly calorific value inferior, also referred to in the literature as H_i) is the energy that is released during complete combustion if the water vapour in the flue or exhaust gases does not condense. The water vapour resulting from combustion remains in gaseous form. In contrast, the calorific value (formerly superior calorific value, also referred to in the literature as H_s) is the energy that is released during complete combustion of an energy carrier. It includes energy that is contained in the exhaust gases in the form of warm water vapour and is released by cooling the combustion gases. The price data for natural gas, which is originally stated in the index used according to calorific value, is converted into EUR/MWh calorific value using the calculation method stated.

An unweighted annual average is calculated from the daily data of the aforementioned indices using the available data. If no data is published for weekends or public holidays, these days are not taken into account when calculating the average. The conversion of indices not denominated in euros is based on the daily data of the euro reference rates published by the European Central Bank.

The specific energy carrier amounts d_i^{Ref} and the specific greenhouse gas emissions e_{Ref} of the reference systems Ref are shown in the table in Annex 1.

The energy carrier amounts dynamised in the reference system, with the exception of electricity, are reduced in accordance with Number 7.2(b) sentences 3-4 FRL KSV if energy carriers are used in the project that are not dynamised in accordance with Number 7.2(c) FRL KSV in conjunction with the provisions of this funding call.

Dynamisation of energy carriers of the project

The energy carriers listed in the following table are dynamised in accordance with Number 7.2(c) FRL KSV if they are used in the project for the manufacture of products and intermediate products.

For the energy carriers listed in the table below, the price indices specified there are used to determine the annual real indexed price p_i^{real} for each dynamised energy carrier i of the project and the factor $\beta_i^{\text{Vorhaben}}$ (cf. Annex 1 Number 2 Paragraph 7 FRL KSV) for the individual dynamised energy carriers as specified as therein.

Dynamisation of electricity:

In order to adequately secure investments in flexibility and incentivise their use, the electricity index contains two weighted components: Firstly, a baseload component, which is an unweighted average of the hourly energy prices for all hours of a year and reflects the costs of continuous electricity consumption. Secondly, a renewables component that reflects the electricity costs for flexible production. These are approximated by weighting the hourly prices based on the proportion of renewable energy in each hour of the year.

The calculation is made using the following method:³

$$p_{\text{Strom}}^{\text{real}} = 0,7 * \frac{\sum_{t=1}^{8760} p_t}{8760} + 0,3 * \frac{\sum_{t=1}^{8760} p_t * (E_{\text{pv},t} + E_{\text{Wof},t})}{\sum_{t=1}^{8760} (E_{\text{pv},t} + E_{\text{Wof},t})} \quad [4]$$

³ For leap years, replace the number 8760 (all hours of a normal year) with 8784.

Energy carrier i	Price index for the annual determination of p_i^{real}	Unit of origin	Temporal resolution	Calculation method	Factor $\beta_i^{Vorhaben}$
Electricity	SMARD.de: Hourly day-ahead electricity price	[EUR/MWh]	Hourly	p_t Hourly day-ahead electricity price	0,9
	SMARD.de: Forecasted generation day-ahead of the respective RE technologies onshore wind, offshore wind, solar	[MWh]	Hourly	E_{won}, E_{wof}, E_{pv} Forecasted generation day-ahead of the respective RE technologies onshore wind, offshore wind, solar	
Green hydrogen	E-Bridge: HydexPlus Green Spot Time Series	[EUR/MWh]	Daily	Calculation of the unweighted annual average from daily data [EUR/MWh], multiplied by 1.03 in accordance with Number 7.2(e) FRL KSV	0,9
Green hydrogen derivatives	Like green hydrogen*	-	-	-	0,9
Low-carbon hydrogen and its derivatives	E-Bridge: HydexPlus Blue Spot Time Series*	[EUR/MWh]	Daily	Calculation of the unweighted annual average from daily data [EUR/MWh]	0,9

*Replacement index within the meaning of Number 7.2(d) FRL KSV.

Dynamisation basically refers to the calorific value of the energy carrier. The calorific value (formerly calorific value inferior, also referred to in the literature as H_i) is the energy that is released during complete combustion if the water vapour in the flue or exhaust gases does not condense. The water vapour resulting from combustion remains in gaseous form. In contrast, the calorific value (formerly superior calorific value, also referred to in the literature as H_s) is the energy that is released during complete combustion of an energy carrier. It includes energy that is contained in the exhaust gases in the form of warm water vapour and is released by cooling the combustion gases. The price data for natural gas, which is originally stated in the index used according to calorific value, is converted into EUR/MWh calorific value using the calculation method stated.

An unweighted annual average is calculated from the daily data of the aforementioned indices using the available data. If no data is published for weekends or public holidays, these days are not taken into account when calculating the average. The conversion of indices not denominated in euros is based on the daily data of the euro reference rates published by the European Central Bank.

If and to the extent that dynamisation is applied for secondary energy carriers, hydrogen and hydrogen derivatives in accordance with Number 7.2(c) sentence 1 of the FRL KSV and the requirements of this funding call, the base prices and price indices specified in this funding call will always be applied for these energy carriers, even if the secondary energy carrier, hydrogen or hydrogen derivatives are produced within the funded project. In this case, the quantity of energy carriers required to produce the secondary energy carrier, the hydrogen or the hydrogen derivatives is not dynamised (Number 7.2(c) sentences 2-3 FRL KSV). The following must be taken into account when specifying the energy carrier amounts in the application: The quantities of secondary energy carriers, hydrogen or hydrogen derivatives used must always be stated, regardless of whether they are produced in the project itself or procured from outside. The quantities of energy carriers required for the production of these secondary energy carriers and hydrogen are not to be taken into account. If hydrogen derivatives are produced in the project itself, the quantities of energy carriers required for the production of the hydrogen derivatives must be stated separately (see Number 8.2(d) sentences 13-15 FRL KSV).

Base prices

If energy carrier costs are dynamised, the following base prices apply p_i^{Basis} for the energy carriers i (in each case based on the calorific value of the energy carriers):

Energy carrier i	Base price p_i^{Basis}
Electricity	81.00 EUR/MWh
Green hydrogen and its derivatives	145.97 EUR/MWh
Low-carbon hydrogen and its derivatives	145.97 EUR/MWh
Natural gas	36.74 EUR/MWh
Coking coal	31.66 EUR/MWh
Coke	25.75 EUR/MWh
Steam coal	17.17 EUR/MWh
All other energy carriers with liquid and solid aggregate state (at 0°C and 1.013 bar)	17.17 EUR/MWh
All other energy carriers with a gaseous aggregate state (at 0°C and 1.013 bar)	36.74 EUR/MWh

Parameters for determining the maximum annual amount of funding

The hedging factor α for determining the maximum annual amount of funding (see Annex 1 Number 3 FRL KSV) is set at 0.5. The annual hedging prices for the energy carriers i $p_i^{\text{sicher,t}}$ and the CO₂ price $p_{\text{CO}_2}^{\text{sicher,t}}$, which are used to determine the maximum annual subsidy amount in accordance with Annex 1 Number 3 FRL KSV, are set out in Annex 4.

5. Procedure of the bidding process

Bidding procedure

The contracts for the funding and conclusion of Carbon Contracts for Difference are awarded in a competitive bidding process.

Submission deadline

The bidding process begins with the announcement of this funding call on the website of the funding programme (<https://www.klimaschutzvertraege.info>) on 12 March 2024. Eligible applicants have **four months** from this date to submit their applications. The **deadline for submitting applications**, including bids and all documents, **ends on 11 July 2024**. Applications **that are not submitted within this deadline (material cut-off deadline)** in the **form specified** by the funding provider or that do not contain the information and documents requested or – in the case of an additional request – subsequently requested, will be **rejected** (Number 8.3(c) FRL KSV).

Applications

Applications must be submitted via the "easy-Online" portal (https://foerderportal.bund.de/easyonline/reflink.jsf?m=KSV&b=KSV_BMWK_2023&t=AZK). Applications for participation in the bidding process must be submitted using the prescribed and fully completed forms (Number 8.2(a) FRL KSV). The documents to be completed will be made generally available at <https://www.klimaschutzvertraege.info/> at the start of the bidding process.

The checklist in Annex 3 contains an overview of the documents and evidence to be submitted with the application.

Please note the following when submitting your application:

- Withdrawal is possible via easy-Online until the submission deadline.
- Applications that are wholly or partially aimed at funding the same project are not admissible within one funding call. If several applications are aimed in whole or in part at funding the same project, only the last application submitted will be considered and evaluated. All other applications submitted earlier will be rejected. In the event of simultaneous receipt, the decision will be made by lot (Number 8.3(b) FRL KSV).
- The applications contain the offer to conclude the climate protection contract (Number 8.2(e)(xv) FRL KSV). If the bid is accepted, the climate protection contract is concluded with the content of the bid.
- Applications must include all information and documents required for the assessment and decision on the fulfilment of the minimum requirements and other mandatory conditions for funding as well as the evaluation of the bids (Number 8.2(c) FRL KSV). Applications must be submitted via the "easy-Online" portal in text form including a scanned handwritten signature or qualified electronic signature. For this purpose, a PDF must be generated after entering the details in the input mask.

The PDF must be provided with a qualified electronic signature or a handwritten signature and uploaded to "easy-Online". Alternatively, verification can be carried out using the TAN procedure. To meet the deadline, it is sufficient for all documents to be received on time via the "easy-Online" portal. (Only) the **proof of a security** in accordance with Number 8.2(e)(v) FRL KSV and the **completed and signed climate protection contract** (including all appendices) must be sent in writing to Projektträger Jülich, Fachbereich: Transformation der Industrie – Klimaschutzverträge (ESN 7), Postfach 61 02 47, 10923 Berlin in its capacity as administrative assistant to the funding authority, in addition to submitting a digital copy via the "easy-Online" portal, at the latest within one week of the expiry of the material exclusion period. **The address field must be labelled "Personal/Confidential"**. Alternatively, the documents can be submitted in person (visitor address: Projektträger Jülich, Lützowstr. 109, 10785 Berlin). In this case, the documents must be submitted in a sealed envelope labelled "Personal/Confidential". With regard to the written form, the requirements of Number 126 (1) BGB (handwritten or notarised signature) or Number 126 (4) BGB (notarisation) apply.

- Further details on submitting an application and submitting the climate protection agreement can be found in the "Handreichung Antragseinreichung und Einreichung KSV" ("Handout for submitting an application and submitting the KSV"), which is available on the website <https://www.klimaschutzvertraege.info>.

Special instructions for completing the climate protection contract

The authorising authority provides four samples of the climate protection contract:

- o *"Sample KSV_a grant recipient with conventional reference installation(s)"*,
- o *"Sample KSV_a grant recipient without conventional reference installation(s)"*,
- o *"Sample KSV_consortium with conventional reference installation(s)"*,
- o *"Sample KSV_consortium without conventional reference installation(s)"*.

- The sample climate protection contract suitable for the project to be funded must be selected by the applicants and must be completed in full by the applicants. The granting authority intends to provide instructions for this purpose. Please only use Microsoft Office to download and complete the sample climate protection contract.
- Adjustments to the model grant notice are only permitted at the points marked accordingly by the granting authority in the model grant notice.
- If the contract is awarded, the granting authority will make additions at the points marked accordingly in the specimen CSA, in particular adding the date on which the grant notice was issued to the preliminary remark (B) of the climate protection contract.

Applications that are not submitted in the form specified by the funding body or that do not contain the information and documents requested or – in the case of an additional request – subsequently requested will be rejected (Number 8.3(c) FRL KSV).

Applications subject to a condition, for example auxiliary applications, are not permitted and will be rejected (Number 8.2(b) FRL KSV).

The funding body reserves the right, at its discretion, to request further documents and evidence as well as the examination and confirmation of documents, for example by other designated auditors. The costs are to be borne by the applicant (Number 8.2(e) FRL KSV). Applicants must notify the awarding authority immediately and without being requested to do so of any changes in facts relevant to the decision on the grant that occur after the application has been submitted at any stage of the application process, during the grant period and until the final decision is issued (Number 10.2(b) FRL KSV).

Binding period

By submitting the application, applicants must declare that they will be bound by it, in particular by the offer contained in the application (Number 8.2(e)(xv) FRL KSV), for six months after the submission deadline.

Examination of applications and evaluation of bids

Applications will be opened by the granting authority after the submission deadline. Applicants are not admitted to the opening date. The granting authority will not inspect the application documents before the opening date. This does not affect the applicants' right to submit the sample KSV they have provisionally completed in accordance with Number 8.5(c) FRL KSV. However, the base contract price (entry field in number 4.9.1(a)(i) of the model consignment note) should not be specified when submitting the model consignment note for non-binding review.

After the opening date, applications will be reviewed by the granting authority in accordance with the provisions of the FRL KSV and this funding call.

Applicants may be excluded from participation in the bidding procedure if the information provided by the applicant in the application for participation in the bidding procedure is false or deviates significantly from the information provided by the applicant in the preparatory procedure for this bidding procedure in an unfounded manner (Number 8.2(g) FRL KSV).

If the information in the application deviates from the information provided by the applicant in the preparatory procedure for the project in question, a justification must be provided. Justified deviations exist in particular if the deviations are due to this funding call or to changes to the Carbon Contracts for Difference funding programme, in particular changes to the KSV guidelines and the model KSV after the announcement of the implementation of the preparatory procedure in the Federal Gazette. Other factual and project-related justifications may also be authorised in individual cases.

The bids will be awarded in the order in which they are evaluated within the scope of the funding volume of EUR 4 billion applicable to this funding call. In the event of a tie, the decision will be made by drawing lots, unless all applications with the same number of points can be awarded a contract (Number 8.3(a) FRL KSV).

Grant and rejection notices, award of contract

Successful applications will be approved by means of a grant notification issued at the same time as the award of the contract in favour of the successful bid (Number 8.4 FRL KSV). Applicants whose applications are rejected will receive a rejection notice.

When the contract is awarded in favour of the successful bid, the climate protection contract is also concluded on the basis of the bid of the applicant concerned (Number 8.5(a) FRL KSV).

6. Special information and legal basis

Legal basis for the granting of subsidies

The awarding of grants under the Carbon Contracts for Difference funding programme is based in particular on the KSV guidelines, the Federal Administrative Procedure Act (VwVfG), the German Civil Code (BGB), Numbers 23 and 44 of the Federal Budget Code (BHO) and the General Administrative Provisions (VV BHO) issued for this purpose, as well as the relevant Commission Communication, Guidelines on State aid for climate, environmental protection and energy 2022 (OJ C 80, 18.2.2022, p. 1) and the European Commission Decision of 16 February 2024 to this FRL KSV. The grant is awarded in the form of a two-stage legal grant relationship by issuing the grant notice and concluding the private-law climate protection contract based on the grant notice (Number 3.1 FRL KSV).

Manual and FAQ

Further information and explanations on the funding programme can be found in the manual for the Climate Protection Contracts funding programme and the FAQs published at <https://www.klimaschutzvertraege.info/>. The FAQs are regularly supplemented and updated during the bidding process.

As a precaution, we would like to clarify out that the information contained in the FAQs and the handbook is not legally binding. In case of doubt, the provisions of the FRL KSV, the climate protection contract, the grant notification and this funding call take precedence.

Tax treatment of the subsidy

Information on the tax treatment of the grant can be found in the handbook.

DARP – Financing of the funding programme

The Climate Protection Contracts funding programme is expected to be partially financed by the German Recovery and Resilience Plan (DARP) with EU funding from the Recovery and Resilience Facility (ARF) of the Next Generation EU programme. If an applicant's project is funded on the basis of these funds, the associated regulations regarding the use of funds must be observed.

Monitoring concept

The aid beneficiaries must submit a monitoring concept for the determination and reporting of greenhouse gas emissions, energy consumption data and the key production parameters of the funded project at the start of the project (Number 9.1 FRL KSV).

If the subsidised plant falls within the scope of the German Greenhouse Emissions Trading Act (TEHG), the monitoring concept must be based on the monitoring plan approved by the German Emissions Trading Authority (DEHSt) (Number 6 TEHG) and the monitoring methodology plan in accordance with Article 8 of Commission Delegated Regulation (EU) 2019/331 or corresponding requirements under EU law. If further information on greenhouse gas emissions, energy consumption and production parameters is to be submitted for the annual calculation procedure pursuant to Number 9.2(b) FRL KSV in addition to the data to be reported under the TEHG (e.g. additional data or data during the year), the monitoring plan must be supplemented by methods for determining and reporting this additional data. If the subsidised plant is not covered by the scope of the TEHG or if further information is to be submitted in addition to the data to be reported under the TEHG, the requirements set out in Number 6 (2) sentence 1 TEHG and Commission Delegated Regulation (EU) 2019/331 or corresponding requirements under Union law must be applied accordingly when drawing up the monitoring plan (Number 3.1 Model KSV).

The manual contains more detailed explanations on the monitoring concept and on the determination and verification of the calculation data to be submitted annually.

Annual calculation method

For licensing reasons, the granting authority is prevented from making the price index data available to the aid beneficiaries as part of the calculation procedure under Number 9.2 FRL KSV. The aid beneficiaries are therefore requested to obtain the price index data themselves if they wish to use it.

7. Contact persons and questions

Forschungszentrum Jülich GmbH – Projektträger Jülich, Wilhelm-Johnen-Straße, 52428 Jülich was commissioned to implement the funding programme as an administrative assistant to the Federal Ministry for Economic Affairs and Climate Action (BMWK).

If you have any questions, please contact the project organiser at fragen@klimaschutzvertraege.info. For procedural reasons, questions can only be answered in writing. Questions and answers will be published on the website <https://www.klimaschutzvertraege.info> after anonymisation.

The granting authority aims to **answer all questions received by 20 June 2024 by 4 July 2024**. It may not be possible to answer questions received after 20 June 2024 within the bidding phase.

Applicants can also **submit** their completed and, if necessary, adapted **sample climate protection contract for a non-binding review via the aforementioned email address up to four weeks before the expiry of the material deadline for bids**, i.e. by 13 June

2024. In this case, feedback will be provided up to one week before the expiry of the material exclusion period for bids. The base contract price (entry field in number 4.9.1(a)(i) of the model consignment note) should **not** yet be specified when submitting the model consignment note for non-binding review.

Annex 1: Reference systems

Each project must be assigned to a reference system (Number 2.14 FRL KSV) in order to submit a bid. The reference systems are based on efficient and low-emission conventional plant constellations. They specify specific greenhouse gas emissions as well as specific fuel and electricity requirements per product quantity. If a project comprises the manufacture of several products that can be assigned to different reference systems, the project is assessed as the sum of its components in the bidding process. The amount of the annual grant or the surplus payment is to be determined from the sum of the components of the project. Further details are set out in Annex 3 of the FRL KSV (Number 4.6 FRL KSV).

Information on the allocation of the individual projects to the reference systems was provided in the grant notices for this bidding procedure.

The reference systems are orientated towards the system boundaries of the respective activities regulated in the EU ETS and are based – as far as possible – on the product benchmarks defined there.⁴ The fallback benchmarks for heat supply and fuel use, as well as upstream reference systems for the upstream products hydrogen and synthesis gas, are also used.

The energy carrier amounts of the reference system are also determined. This is relevant for the dynamisation of energy carrier prices. The dynamisation takes into account the energy carrier amounts of the reference systems. The energy carrier amounts of the respective reference systems are based on efficient and low-emission conventional production processes for the respective product.

The following reference systems are used, whereby the table at the end of this annex lists the energy carrier amounts and greenhouse gas emissions.

1 Refinery products

Product: Mixture of refinery products with over 40% light products expressed as CO₂ - weighted tonne (CWT)

Included are all refinery processes that meet the definition of one of the process units included in the calculation of the CWT, as well as non-process-related auxiliary facilities within the refinery site such as tank farms, blending plants, wastewater treatment plants, etc. Technical units for the production of lubricants and bitumen in mainstream refineries are included in the refinery CWT and the GHG emission amount. Technical units in other industries such as petrochemicals are often physically integrated into mainstream refineries. Such technical units and their greenhouse gas emissions are excluded from the CWT model. The production of secondary energy carriers is not eligible (Number 4.16(b) FRL KSV).

⁴ See Commission Delegated Regulation (EU) 2019/331 of 19 December 2018 laying down EU-wide transitional provisions for the harmonisation of the free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council (OJ L059, 27.2.2019, p. 8), as corrected by Corrigendum to Commission Delegated Regulation (EU) 2019/331 of 19 December 2018 laying down EU-wide transitional provisions for the harmonisation of free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council (OJ L 180, 4.7.2019, p. 31).

2-4 Primary steel

Product in the reference system: carbon-saturated molten iron expressed in tonnes of liquid pig iron

All processes that are directly or indirectly related to the following process units are included: Coke ovens, H₂ S or NH₃ combustion plant, coal preheating (defrosting), coke gas extraction, desulphurisation plant, distillation plant, steam generator, pressure control in the (coke) batteries, biological water treatment, heating of by-products and hydrogen separator, sintering belt, ignition, equipment for sinter preparation, hot screen, sinter cooler, cold screen, blast furnace, equipment for pig iron treatment, blast furnace blower, blast furnace hot blast stove, oxygen converter, secondary metallurgy, vacuum systems, casting (and cutting), slag preparation, burden preparation, blast furnace gas scrubbing, dust removal, scrap preheating, coal drying for the injection of fine coal dust, container preheating, preheating systems for cast ingots, compressed air generation, dust processing (briquetting), sludge processing (briquetting), steam injection in the blast furnace and converter gas cooling.

The values for emissions and energy carrier amounts in the reference system are based on the assumption of a 20 % share of scrap.

Conveyed product in the project: This reference system is used for two products, pig iron and crude steel. The following provisions are defined for these products.

1) Operation of a direct reduction plant for the production of pig iron without downstream facilities for the production of crude steel in the project

If only one direct reduction plant is operated, the product extracted is the quantity of pig iron after the direct reduction plant, expressed in tonnes. In this case, this quantity is identical to the quantity Q^{real} used to determine the amount of the subsidy or surplus payment.

2) Operation of a direct reduction plant with downstream facilities for the production of crude steel in the project

If downstream of the direct reduction plant, as part of the subsidised project, plants are operated that produce crude steel from the pig iron, the subsidised product is the quantity of crude steel, expressed in tonnes. The following provisions also apply:

Only the proportion of pig iron that is also processed in the subsidised project is eligible for funding. All variables relating to the direct reduction plant are scaled accordingly. This applies in particular to greenhouse gas emissions and energy carrier amounts.

The following applies to the scaling factor:

$$f_{\text{DRI}} = \frac{Q_{\text{DRI}}^{\text{weiterverarbeitet}}}{Q_{\text{DRI}}^{\text{gesamt}}} \quad [5]$$

It then applies to the emissions of the direct reduction plant:

$$E_{\text{DRI}}^{\text{angerechnet}} = E_{\text{DRI}}^{\text{gesamt}} f_{\text{DRI}} \quad [6]$$

The following applies to energy carrier amounts:

$$D_{i,\text{DRI}}^{\text{angerechnet}} = D_{i,\text{DRI}}^{\text{gesamt}} f_{\text{DRI}} \quad [7]$$

Of the quantity of crude steel produced in the plant, only the portion that originates from the pig iron produced in the subsidised project itself is recognised as a subsidised product.

All variables relating to the plant for further processing into crude steel are scaled accordingly. This applies in particular to greenhouse gas emissions, energy requirements and production volumes.

The following applies to the scaling factor:

$$f_{AF} = \frac{\zeta Q_{DRI}^{weiterverarbeitet}}{Q_{AF}^{gesamt}} \quad [8]$$

The conversion factor ζ has the value one.

It then applies to the emissions of the downstream plant:

$$E_{AF}^{angerechnet} = E_{AF}^{gesamt} f_{AF} \quad [9]$$

The following applies to energy carrier amounts:

$$D_{i,AF}^{angerechnet} = D_{i,AF}^{gesamt} f_{AF} \quad [10]$$

The production volume used to determine the amount of the allowance or surplus payment under the climate protection contracts is defined as follows:

$$Q^{real} = Q_{AF}^{gesamt} f_{AF} \quad [11]$$

Element	Description of the	Temporal variability
Q_{DRI}^{gesamt}	Total production volume of the direct reduction plant [tonnes of pig iron]	Determined annually
$Q_{DRI}^{weiterverarbeitet}$	Production volume of the direct reduction plant, which is further processed into crude steel in the downstream plants of the project [tonnes of pig iron]	Determined annually
Q_{AF}^{gesamt}	Total production volume of crude steel [tonnes of crude steel]	Determined annually
Q^{real}	Production volume of crude steel recognised [tonnes of crude steel]	Determined annually
Z	Conversion factor from pig iron to crude steel [tonnes of crude steel/t of pig iron]	Constant over time
f_{DRI}	Scaling factor for determining the calculated data of the downstream systems	Determined annually
f_{AF}	Scaling factor for determining the calculated data of the direct reduction system	Determined annually
E_{DRI}^{gesamt}	Total emissions from the direct reduction plant [t CO ₂ -eq.]	Determined annually
$E_{DRI}^{angerechnet}$	Emissions from the direct reduction plant included in the settlement [t CO ₂ -eq.]	Determined annually

Element	Description of the	Temporal variability
E_{AF}^{gesamt}	Total emissions from downstream facilities for the production of crude steel [t CO ₂ -eq.]	Determined annually
$E_{AF}^{angerechnet}$	Emissions from downstream facilities for the production of crude steel included in the calculation [t CO ₂ -eq.]	Determined annually
$D_{i,DRI}^{gesamt}$	Total demand for energy carrier k of the direct reduction plant [MWh]	Determined annually
$D_{i,DRI}^{angerechnet}$	Demand for energy carrier k of the direct reduction system taken into account in billing [MWh]	Determined annually
$D_{i,AF}^{gesamt}$	Total demand for energy carrier k of the downstream plants for the production of crude steel [MWh]	Determined annually
$D_{i,AF}^{angerechnet}$	Demand for energy carrier k of the downstream plants for the production of crude steel recognised in the invoice [MWh]	Determined annually

5 Carbon steel produced using the electric arc process (EAF carbon steel)

Product: secondary crude steel castings (less than 8 % metallic alloying elements) expressed in tonnes

Included are all processes that are directly or indirectly related to the following process plants or processes: Electric arc furnace, secondary metallurgy, casting and cutting, post-combustion chamber, dedusting plant, container heating, preheating facilities for cast ingots, scrap drying and scrap preheating. Processes subsequent to casting are not included.

6 High-alloy steel produced using the electric arc process (EAF high alloy steel)

Product: secondary crude steel castings (over 8 % metallic alloying elements) expressed in tonnes

Included are all processes that are directly or indirectly related to the following process plants or processes: Electric arc furnace, secondary metallurgy, casting and cutting, post-combustion chamber, dedusting system, container heating, preheating system for cast ingots, pit for slow cooling, scrap drying and scrap preheating. The process units ferro-chrome converter and cryogenic storage for industrial gases are not included. Processes subsequent to casting are not included.

7 Iron casting

Product: Cast iron expressed in tonnes of remelted and ready-to-cast liquid iron

All processes that are directly or indirectly related to the melting furnace, casting plant, core shop and finishing process steps are included. The process step "finishing" refers to steps such as fettling and not to steps such as general machining, heat treatment or painting, which do not fall within the system boundaries of this reference system.

10 Grey cement clinker

Product: Grey cement clinker expressed in tonnes of clinker

All processes that are directly or indirectly related to the production of grey cement clinker are included.

12 Lime (Lime)

Product: Calcium oxide obtained by burning limestone, expressed in tonnes of lime

All processes that are directly or indirectly related to the production of lime are included.

15 Float glass (Float glass)

Product: Float or frosted glass expressed in tonnes of glass from the annealing lehr

This includes all processes that are directly or indirectly related to the production steps of material handling, melting, moulding, further processing, packaging and other activities.

16 Bottles and jars of colourless glass (Bottles and jars of colourless glass)

Product: Bottles of uncoloured glass expressed in tonnes of packaged product

All processes that are directly or indirectly related to the production steps of material handling, melting, moulding, further processing, packaging and other activities are included. The reference system includes bottles with a nominal capacity of less than 2.5 litres for food and beverages. Baby bottles and bottles with a (reconstructed) leather cover are not included.

17 Bottles and jars of coloured glass (Bottles and jars of coloured glass)

Product: Coloured glass bottles expressed in tonnes of packaged product

All processes that are directly or indirectly related to the production steps of material handling, melting, moulding, further processing, packaging and other activities are included. The reference system includes bottles with a nominal capacity of less than 2.5 litres for food and beverages. Baby bottles and bottles with a (reconstructed) leather cover are not included.

19 Facing bricks

Product: facing bricks for masonry according to EN 771-1 expressed in tonnes of bricks

Included are all processes that are directly or indirectly related to the production processes of preparing and mixing the raw materials, moulding, drying the blanks, firing the bricks, finishing the product and washing the exhaust gas.

20 Paving bricks (Pavers)

Product: Clay tiles for floor coverings according to EN 1344 expressed in tonnes of marketable tiles

Included are all processes that are directly or indirectly related to the production processes of preparing and mixing the raw materials, moulding, drying the blanks, firing the bricks, finishing the product and washing the exhaust gas.

21 Roof tiles

Product: Clay roof tiles according to EN 1304:2005 expressed in tonnes of marketable tiles

Included are all processes that are directly or indirectly related to the production processes of preparing and mixing the raw materials, moulding, drying the blanks, firing the bricks, finishing the product and washing the exhaust gas.

23 Mineral wool

Product: Insulation materials made from glass, stone or slag expressed in tonnes of mineral wool

This includes all processes that are directly or indirectly related to the production steps of melting, defibration and spraying of binders, hardening and moulding.

24 Plaster (Plasterer)

Product: Gypsum from burnt gypsum stone or calcium sulphate expressed in tonnes of stucco plaster

All processes that are directly or indirectly related to the production steps of grinding, drying and burning are included. Alpha gypsum, gypsum that is further processed into plasterboard and the production of the intermediate product "dried secondary gypsum" are not covered by this reference system.

25 Dried secondary gypsum

Product: Dried secondary gypsum expressed in tonnes of product

All processes that are directly or indirectly related to the drying of secondary gypsum are included.

26 Plasterboard

Product: boards, tiles and the like made of gypsum or of mixtures based on gypsum, (not) covered with paper or cardboard or reinforced in tonnes of stucco plaster

All processes that are directly or indirectly related to the production steps of grinding, drying, firing and drying the boards are included. The production of the intermediate product "dried secondary gypsum" is not covered by this reference system. Gypsum-bonded, decorated goods and high-density gypsum fibreboards are also not covered by this reference system.

30 Pulp from recycled paper (Recovered paper pulp)

Product: Pulp from recycled paper or cardboard expressed as net marketable production in Adt (tonnes, air-dry), measured at the end of the manufacturing process. One Adt of pulp means 90 % dry, solid components.

Includes all processes that are part of pulp production from recycled paper, as well as associated energy conversion equipment (boiler/CHP). Other activities at the plant site that are not part of this process, such as sawmilling, wood processing, production of chemicals for sale, waste treatment (internal rather than external waste treatment such as drying, pelletising, incineration or landfill), production of synthetic calcium carbonate (PCC), treatment of malodorous gases and district heating are not included.

31 Newsprint

Product: newsprint paper expressed as tonnes of net marketable production

Includes all processes that are part of paper production (in particular paper or board machine and associated energy conversion equipment (boiler/CHP) and fuel used directly in the production process). Other activities at the plant site that are not part of this process, such as sawmilling, wood processing, production of chemicals for sale, waste treatment (internal rather than external waste treatment such as drying, pelletising, incineration or landfill), production of synthetic calcium carbonate (PCC), treatment of malodorous gases and district heating are not included.

32 Uncoated fine paper

Product: Uncoated fine paper expressed as net marketable production in Adt defined as paper with a moisture content of 6%.

Includes all processes that are part of paper production (in particular paper or board machine and associated energy conversion equipment (boiler/CHP) and fuel used directly in the production process). Other activities at the plant site that are not part of this process, such as sawmilling, wood processing, production of chemicals for sale, waste treatment (internal rather than external waste treatment such as drying, pelletising, incineration or landfill), production of synthetic calcium carbonate (PCC), treatment of malodorous gases and district heating are not included.

33 Coated fine paper

Product: Coated fine paper expressed as net marketable production in Adt defined as paper with a moisture content of 6%.

Includes all processes that are part of paper production (in particular paper or board machine and associated energy conversion equipment (boiler/CHP) and fuel used directly in the production process). Other activities at the plant site that are not part of this process, such as sawmilling, wood processing, production of chemicals for sale, waste treatment (internal rather than external waste treatment such as drying, pelletising, incineration or landfill), production of synthetic calcium carbonate (PCC), treatment of malodorous gases and district heating are not included.

34 Tissue paper (tissue)

Product: Tissue paper expressed as net marketable production parent rolls in Adt defined as paper with a moisture content of 6%

The reference system includes a wide range of tissue and other tissue papers for household, commercial or industrial use (toilet paper, facial tissues, kitchen wipes, paper towels

and industrial wipes). Sanitary paper that has been dried using the through-flow process (TAD tissue) does not belong to this group.

Includes all processes that are part of paper production (in particular paper or board machine and associated energy conversion equipment (boiler/CHP) and fuel used directly in the production process). Other activities at the plant site that are not part of this process, such as sawmilling, wood processing, production of chemicals for sale, waste treatment (internal rather than external waste treatment such as drying, pelletising, incineration or landfill), production of synthetic calcium carbonate (PCC), treatment of malodorous gases and district heating are not included. The conversion of mother roll weight into end product is not part of this reference system.

35 Testliner and fluting

Product: Testliner and fluting, expressed as net marketable production in Adt defined as paper with a moisture content of 6%.

Includes all processes that are part of paper production (in particular paper or board machine and associated energy conversion equipment (boiler/CHP) and fuel used directly in the production process). Other activities at the plant site that are not part of this process, such as sawmilling, wood processing, production of chemicals for sale, waste treatment (internal rather than external waste treatment such as drying, pelletising, incineration or landfilling), production of synthetic calcium carbonate (PCC), treatment of malodorous gases and district heating are not included. Kraftliner is not included in this reference system.

36 Uncoated carton board

Product: Uncoated board expressed as net marketable production in Adt defined as paper with a moisture content of 6%

Includes all processes that are part of paper production (in particular paper or board machine and associated energy conversion equipment (boiler/CHP) and fuel used directly in the production process). Other activities at the plant site that are not part of this process, such as sawmilling, wood processing, production of chemicals for sale, waste treatment (internal rather than external waste treatment such as drying, pelletising, incineration or landfill), production of synthetic calcium carbonate (PCC), treatment of malodorous gases and district heating are not included. Alternative product names are solid board, folding boxboard, cartonboard, packaging board, wrapping board or winding board.

38 Carbon black

Product: Furnace carbon black converted into tonnes of marketable production

All processes that are directly or indirectly related to the production of furnace carbon black as well as finishing, packaging and flaring are included. Gas and flame soot are not covered by this reference system.

41 Ammonia

Product: Ammonia (100 % purity) expressed in tonnes

All processes directly or indirectly related to the production of ammonia and the intermediate product hydrogen are included. The production of ammonia from other intermediate products is not included.

42 Steam cracking

Product: Mixture of valuable chemical products (at least 50 % by mass of gaseous or liquid hydrocarbons, of which at least 30 % by mass of ethene) expressed in tonnes

Includes all processes directly or indirectly related to the production of valuable chemical products as a purified product or as an intermediate with a concentrated content of the relevant valuable chemical product in the lowest marketable form (crude C4, non-hydrogenated pyrolysis petrol), excluding C4 separation (butadiene plant), C4 hydrogenation, hydrotreating of pyrolysis petrol and aromatics extraction as well as logistics and inventories for ongoing operations.

50 Hydrogen

Product: Eligible industrial product, the quantity of hydrogen is invoiced in tonnes.

Hydrogen refers to pure hydrogen and hydrogen-carbon monoxide mixtures with a hydrogen content of at least 60 % by volume, expressed in tonnes of 100 % pure hydrogen as marketable net production.

Included are all process elements that are directly or indirectly related to the production of hydrogen and the separation of hydrogen and carbon monoxide. These elements are located between (a) the entry points of hydrocarbon feedstock and, if separate, fuel(s), (b) the exit points of all product streams containing hydrogen or carbon monoxide and (c) the entry or exit points of imported or exported heat.

This reference system only applies if hydrogen is used as a material in the system boundaries of the plant for the production of a product and the hydrogen production is not already included in another reference system. The specific hydrogen requirement per end product must be stated with the application. Any greenhouse gas emissions in the process between hydrogen and the product to be produced must also be reduced and are added to the reference system. The hydrogen reference system is therefore used as an upstream reference system. See the provisions listed below.

51 Synthesis gas

Product: Eligible industrial product, the quantity of synthesis gas is invoiced in tonnes

Synthesis gas refers to hydrogen-carbon monoxide mixtures with a hydrogen content of less than 60% by volume of the total quantity of hydrogen and carbon monoxide expressed in tonnes of synthesis gas based on 47% hydrogen by volume as net marketable production.

Included are all process components that are directly or indirectly related to the production of synthesis gas and the separation of hydrogen and carbon monoxide. These elements are located between (a) the entry points of hydrocarbon feedstock and, if separate, fuel(s), (b) the exit points of all product streams containing hydrogen or carbon monoxide and (c) the entry or exit points of imported or exported heat.

This reference system only applies if synthesis gas is used as a material in the system boundaries of the plant for the production of a product. The specific synthesis gas requirement per end product must be stated with the application. Any greenhouse gas emissions in the process between synthesis gas and the product to be promoted must also be reduced and are added to the reference system. The synthesis gas reference system is therefore used as an upstream reference system. See the provisions listed below.

Heat production

Product: Eligible industrial product, the measurable heat used is billed in accordance with Directive CELEX 2011 278 in MWh

Measurable heat refers to a net heat flow transported via a heat transfer medium (such as steam, hot air, water, oil, liquid metals and salts in particular) through recognisable pipes or lines for which a heat meter has been or could be installed.

Included are all processes that are directly or indirectly related to the manufacture of eligible products that are not subject to any of the aforementioned reference systems that refer to product benchmarks. The specific heat requirement per tonne of product must be quantified with the submission and documented with publicly available sources. Any process-related greenhouse gas emissions must also be reduced and added to the reference system. The reference system for heat provision is therefore used as an upstream reference system. See the provisions listed below.

Fuel usage

Product: Eligible industrial product, the fuel used is billed in MWh

All processes that are directly or indirectly related to the manufacture of eligible products that are not subject to any of the above reference systems are included. If the heat input of the production pathway can be determined, the reference system heat supply is applied. The required fuel input per tonne of product must be quantified with the submission and documented with publicly available sources. Any process-related greenhouse gas emissions must also be reduced and added to the reference system. The fuel input reference system is therefore used as an upstream reference system. See the provisions listed below.

Provisions for upstream reference systems

The reference systems hydrogen (50), synthesis gas (51), heat supply and fuel utilisation are treated as upstream reference systems. The upstream products (hydrogen or synthesis gas), the upstream heat supply or fuel utilisation are collectively referred to here as **intermediate products**. These are to be distinguished from the extracted products and intermediate products. Both production quantities are recorded and stated separately; this applies both to the information provided when submitting bids and for invoicing.

In the case of upstream reference systems, when calculating the payment amount (Annex 1 FRL KSV), instead of Q^{real} the quantity of the upstream product V^{real} must be used. For the calculation of the maximum annual and maximum total funding amount (Annex 1 FRL KSV), the following applies $V^{\text{Plan,t}}$ is used instead of $Q^{\text{Plan,t}}$.

The specific input quantity of the primary product is defined as follows:

in the plan

$$\eta^{\text{Plan},t} = \frac{v^{\text{Plan},t}}{Q^{\text{Plan},t}} \quad [12]$$

in the calculation of the annual funding

$$\eta^{\text{real}} = \frac{v^{\text{real}}}{Q^{\text{real}}} \quad [13]$$

On the one hand, the **greenhouse gas emissions of the reference system** take into account the greenhouse gas emissions of the upstream product (hydrogen or synthesis gas) for the upstream reference systems. To these greenhouse gas emissions are added the greenhouse gas emissions that are additionally produced during the manufacture of the extracted product, downstream of those of the reference system for the upstream product. These additional greenhouse gas emissions are generally referred to here as process emissions.

The greenhouse gas emissions of the reference system of a subsidised product are then defined as follows:

In the plan and therefore in the bidding phase

$$e_{\text{Ref}}^{\text{Plant},t} = e_V^{\text{Ref}} + \frac{e_Q^{\text{Ref}}}{\eta^{\text{Plan},t}} \quad [14]$$

and accordingly for the greenhouse gas emissions of the reference system in the implementation phase

$$e_{\text{Ref}} = e_V^{\text{Ref}} + \frac{e_Q^{\text{Ref}}}{\eta^{\text{Real}}} \quad [15]$$

The process emissions of the reference system within the meaning of Number 7.1(d) sentences 3-5 FRL KSV will be communicated separately to eligible applicants with the publication of this funding call, insofar as an upstream reference system applies to their project.

The greenhouse gas emissions of the project are determined from the emissions of the entire process, which includes both the manufacture of the primary product and the subsidised product.

In the case of the upstream reference system hydrogen, the following must be taken into account when determining the greenhouse gas emissions of the project: Greenhouse gas emissions from hydrogen production are based on the greenhouse gas emissions that are verified as part of the certification provided to demonstrate compliance with the requirements of Number 4.9 of the RED. If the greenhouse gas emissions are not reported, no greenhouse gas emission reduction for the upstream product hydrogen can be taken into account.

When calculating the disbursement amount, only the **free allocation** for the production of the preliminary product is taken into account. This applies to the reference system and to the project. In the case of the hydrogen reference system, the free allocation to the reference system is equated with the free allocation to the project.

When submitting an application, the following requirements must be observed with regard to the information under 8.2(d): The specific greenhouse gas emissions and the specific energy carrier amounts must be stated in relation to the preliminary product. The information on the absolute greenhouse gas emissions and the absolute energy carrier amounts must be provided for the entire project. Even if the upstream reference system hydrogen is used and the hydrogen is produced in the project itself, the quantities of energy carriers required to produce this hydrogen are not to be taken into account when specifying the energy carrier requirements in the application.

The other provisions follow the FRL KSV.

Element	Description of the	Temporal variability
$V^{\text{Plan},t}$	Planned utilisation quantity of the preliminary product of the project in year t [ME preliminary product]	Defined for each year
V^{real}	Real input quantity of the preliminary product of the project [ME preliminary product]	Determined annually
$Q^{\text{Plan},t}$	Planned production quantity of the project of the subsidised product in year t [ME product]	Defined for each year
Q^{real}	Realised production quantity of the project of the subsidised product [ME product]	Determined annually
$\eta^{\text{Plan},t}$	Planned specific input quantity of the preliminary product in relation to the conveyed product in tonnes per year [ME preliminary product/ME product]	Defined for each year
η^{real}	Specific input quantity of the preliminary product in relation to the conveyed product in the billing [ME preliminary product/ME product].	Determined annually
$e_{\text{Ref}}^{\text{Plant},t}$	Specific greenhouse gas emissions of the reference system in the plan [t CO ₂ -eq./ME primary product]	Defined for each year
e_{Ref}	Greenhouse gas emissions of the reference system during implementation [t CO ₂ -eq./ME primary product]	Determined annually
e_Q^{Ref}	Process emissions of the project that are added to the reference system, expressed specifically in relation to the production volume of the subsidised product [t CO ₂ -eq./ME product]	Constant over time
e_V^{Ref}	Greenhouse gas emissions of the reference system of the primary product [t CO ₂ -eq./ME primary product]	Constant over time

Reference system	Activity in the EU ETS	Greenhouse gas emissions t CO ₂ -eq./ME Product ⁶	Energy carrier amounts (by calorific value) in MWh/ME Product ⁵						Sector
			Electricity	Natural gas	Coking coal	Steam coal	Biomass	Other	
1 Refinery products	21	0,0228	-	0,11	-	-	-	-	Chemistry
2-4 Primary steel	22-24	1,321	0,10	0,67	2,83	0,86	-	-	Primary steel
5 EAF carbon steel	24	0,050	0,44	0,04	-	-	-	-	Other metal
6 EAF high-alloy steel	24	0,103	0,44	0,04	-	-	-	-	Other metal
7 Iron casting	25	0,073	0,56	0,04	-	-	-	-	Other metal
10 Grey cement clinker	29	0,693	0,04	-	-	0,23	-	0,54	Cement and lime
12 Lime	30	0,725	0,02	-	-	-	0,89	-	Cement and lime
15 Float glass	31	0,399	-	1,54	-	-	-	-	Glass and ceramics
16 Bottles and containers made of non-coloured glass	31	0,290	0,17	1,36	-	-	-	-	Glass and ceramics
17 Bottles and containers made of coloured glass	31	0,237	0,17	1,09	-	-	-	-	Glass and ceramics
19 Facing bricks	32	0,106	0,08	0,40	-	-	-	-	Glass and ceramics
20 paving bricks	32	0,146	0,08	0,60	-	-	-	-	Glass and ceramics
21 Roof tiles	32	0,120	0,06	0,47	-	-	-	-	Glass and ceramics

⁵ Heat supply and fuel use: Information on energy carrier requirements per MWh_{heat} or MWh_{fuel} instead of ME product.

⁶ The relevant units of measure for the individual reference systems can be found in the description of the reference systems above.

Reference system	Activity in the EU ETS	Greenhouse gas emissions	Energy carrier amounts (by calorific value) in MWh/ME Product ⁵						Sector
			Code according to RegVO	t CO ₂ -eq./ME Product ⁶	Electricity	Natural gas	Coking coal	Steam coal	
23 Mineral wool	33	0,222	0,84	0,95	-	-	-	-	Glass and ceramics
24 Plaster	34	0,047	-	0,23	-	-	-	-	Plaster & others
25 Dried secondary plaster	34	0,013	-	0,06	-	-	-	-	Plaster & others
26 Plasterboard	34	0,110	-	0,55	-	-	-	-	Plaster & others
30 Pulp from recycled paper	35	0,030	0,26	0,08	-	-	0,17	-	Pulp and paper
31 Newsprint	36	0,226	0,80	0,49	-	-	0,99	-	Pulp and paper
32 Uncoated fine paper	36	0,242	0,65	0,26	-	-	0,52	-	Pulp and paper
33 Coated fine paper	36	0,242	0,54	0,84	-	-	1,71	-	Pulp and paper
34 Tissue paper	36	0,254	0,93	0,55	-	-	1,12	-	Pulp and paper
35 Testliner and fluting	36	0,188	0,26	0,50	-	-	1,02	-	Pulp and paper
36 Uncoated cardboard	36	0,180	0,27	0,45	-	-	0,91	-	Pulp and paper
38 Carbon black	37	1,323	0,43	3,60	-	-	-	11,33	Chemistry
41 Ammonia	41	1,570		8,77	-	-	-	-	Chemistry
42 Steam cracking	42	0,681	-	3,37	-	-	-	-	Chemistry
50 Hydrogen	43	6,840	-	38,06	-	-	-	-	Chemistry
51 Synthesis gas	43	0,187		7,41	-	-	-	-	Chemistry
Heat supply	-	0,170	-	0,84	-	-	0,27	-	X*
Fuel utilisation	-	0,150	-	0,76	-	-	0,24	-	X*

The reference systems are defined as fuel switch benchmarks in accordance with Commission Delegated Regulation (EU) 2019/331 of 19 December 2018. Based on the defined energy carrier amounts, the greenhouse gas emissions specified therein were reduced by the secondary emissions for electricity not applicable in this funding programme.

*X The sector of projects for heat supply and fuel is defined according to their main product. Projects with main products that cannot be assigned to a sector are assigned to the Gypsum & others sector.

Annex 2: Examples of other funding within the meaning of Number 2.2 FRL KSV

Examples of other funding within the meaning of Number 2.2 FRL KSV are

- Research programme of the Research Fund for Coal and Steel (RFCS)
- EU Innovation Fund: Energy Efficiency & Renewable Energies, Research & Innovation (CINEA)
- EU-LIFE – Programme for the environment and climate policy (2021-2027)
- Federal funding for energy and resource efficiency in the economy: corporate financing, energy efficiency & renewable energies (BMWK)
- Funding guideline for international hydrogen projects (BMWK/ BMBF)
- Environmental Innovation Programme (BMUV)
- "Decarbonisation in industry" funding programme (in future: "Federal funding for industry and climate protection")
- Funding of individual company investments and supplementary CO₂ savings measures ("Niedersachsen Invest GRW")
- State Programme Economy 2021-2027 – Funding of energy-saving and energy efficiency technologies and energy innovations (Schleswig-Holstein)
- Energie.IN.NRW – Innovative project ideas for the energy system of the future, a climate-neutral industry and climate- and resource-friendly construction in NRW
- Hamburg Renewable Energies Funding Guideline
- NRW resource efficiency and sustainability funding guideline
- Joint task "Improvement of the regional economic structure" (GRW) (RIGA) – Commercial sector (SMWA)
- Climate protection funding guideline for companies in Mecklenburg-Vorpommern
- Economical and rational use and conversion of energy in industry and commerce (REN Directive) Bremen
- Company for resource conservation (IFB Hamburg)
- Funding the local energy transition by promoting regional model projects in Saarland (EVO)
- STARK – Strengthening the transformation momentum and new beginnings in the mining areas and at the coal-fired power plant sites
- Ordinance on the allocation of other energy production areas in the exclusive economic zone
- Funding for system-beneficial electrolysis plants for the production of green hydrogen (cf. Number 96 Number 6 WindSeeG)

The procurement of hydrogen in the auctions of H₂ -Global is not considered as other funding within the meaning of Number 2.2 FRL KSV.

Notes:

1. This list is not an exhaustive list of examples. This assistance does not release you from the obligation to carry out an independent examination.
2. When submitting an application, applicants are obliged to provide complete and truthful information about other funding already approved or applied for the project (Number 8.2(e)(vii) FRL KSV). This obligation also extends to funding that is not included in this list.
3. If there is any doubt as to whether a grant already approved before the application was submitted constitutes other funding within the meaning of Number 2.2 of the KSV Funding Guidelines and should therefore be taken into account in determining the base contract price in accordance with Number 7.1(a)(i) of the KSV Funding Guidelines, the applicant may consult with the granting authority within the first month of publication of this funding call.
4. We would like to point out that once a climate protection contract has been concluded, it will probably no longer be possible to apply for funding under the "Federal Funding for Industry and Climate Protection" programme.

Annex 3: Checklist of documents and evidence to be submitted

The following documents and evidence must be submitted for participation in the first bidding procedure of the Carbon Contracts for Difference funding programme:

Documents submitted as PDF files via easy-Online:

- Completed form application (signed⁷ or provided with a QES⁸); alternatively, verification can be carried out using the TAN procedure
- Completed project description (project description form),
- Completed quantitative enquiry document incl. financing plan (PDF);
- Proof of creditworthiness,
- (Company) agreement or equivalent declaration (i. S. v. Number 8.2(e)(vi) FRL KSV),
- Digital copy of the completed and signed climate protection contract(including its annexes, with the exception of Annex 2 of the Climate Change Treaty⁹)
- digital copy of the proof of collateral,
- only if required for the project:
 - Evidence regarding the energetic utilisation of biomass,
 - Proof of the utilisation of natural gas,
 - Evidence regarding the use of the most environmentally harmful fossil fuels,
 - Proof of authorisation of the lead manager.

Documents to be submitted by post:

- Completed and signed Carbon Contract for Difference(including all annexes¹⁰)
- Proof of security in accordance with Number 8.2(e)(v) FRL KSV.

In addition to submitting a digital copy via the "easy-Online" portal, the originals of both documents must be sent in writing to the Project Management Organisation Jülich, Department: Transformation of Industry – Climate Protection Contracts (ESN 7), P.O. Box 61 02 47, 10923 Berlin in its capacity as administrative assistant to the granting authority, no later than one week after the expiry of the material exclusion period. **The address field must be labelled "Personal/Confidential"**. Alternatively, the documents can be submitted in person (visitor address: Projektträger Jülich, Lützowstr. 109, 10785 Berlin). In this case, the documents must be submitted in a sealed envelope labelled "Personal/Confidential". With regard to the written form, the requirements of Number 126 (1) BGB (handwritten or notarised signature) or Number 126 (4) BGB (notarial authentication) apply. For clarification: Number 350 HGB does not apply.

⁷ The application must be signed by hand and scanned in.

⁸ Qualified electronic signature.

⁹ Annex 2 of the climate protection contract includes the documents submitted to easy-Online. These do not need to be uploaded again to easy-Online as Annex 2 of the climate protection contract.

¹⁰ Annex 2 of the climate protection contract must also be submitted when sending by post. Appendix 2 includes all documents submitted to easy-Online (application and all attachments), with the exception of the climate protection contract submitted to easy-Online.

Further details on the submission of applications and the submission of the climate protection contract can be found in the "Handreichung Antragseinreichung und Einreichung KSV" ("Application submission and submission of the KSV"), which is published on the website <https://www.klimaschutzvertraege.info>.

Annex 4: Hedging prices for CO₂ and the energy carriers i

The **annual hedging price for the CO price** $p_{CO_2}^{sicher,t}$ for determining the maximum annual subsidy amount (see Annex 1 Number 3 FRL KSV) is determined as follows:

Year	EUR/t CO-equivalent ₂
2024	40,00
2025	40,00
2026	45,00
2027	50,00
2028	60,00
2029	80,00
2030	90,00
2031	100,00
2032	110,00
2033	130,00
2034	140,00
2035	150,00
2036	160,00
2037	170,00
2038	175,00
2039	180,00
2040	180,00
2041	180,00
2042	180,00
2043	180,00
2044	180,00

Year	EUR/t CO-equivalent ₂
2045	180,00
2046	180,00
2047	180,00
2048	180,00
2049	180,00
2050	180,00

The **annual hedging prices for the energy carriers** $p_i^{\text{sicher,t}}$ for determining the maximum annual subsidy amount (see Annex 1 Number 3 FRL KSV) are determined as follows:

Year	Electricity [EUR/MWh]	Green hydrogen and its derivatives [EUR/MWh]	Low-carbon hydrogen and its derivatives [EUR/MWh]	Natural gas [EUR/MWh]	Coking coal [EUR/MWh]	Steam coal [EUR/MWh]	All other energy carriers with liquid and solid aggregate state (at 0°C and 1.013 bar) [EUR/MWh]	All other energy carriers with gaseous aggregate state (at 0°C and 1.013 bar) [EUR/MWh]
2024	160,00	300,00	300,00	60,00	73,76	40,00	40,00	60,00
2025	160,00	300,00	300,00	60,00	64,54	35,00	35,00	60,00
2026	125,00	285,00	285,00	55,00	59,01	32,00	32,00	55,00
2027	120,00	270,00	270,00	52,00	55,32	30,00	30,00	52,00
2028	110,00	240,00	240,00	49,00	51,63	28,00	28,00	49,00
2029	100,00	210,00	210,00	45,00	47,94	26,00	26,00	45,00
2030	86,00	195,00	195,00	40,00	46,10	25,00	25,00	40,00
2031	78,00	186,90	186,90	37,00	44,26	24,00	24,00	37,00
2032	76,00	179,10	179,10	36,00	42,41	23,00	23,00	36,00
2033	74,00	171,00	171,00	34,50	40,57	22,00	22,00	34,50
2034	72,00	162,90	162,90	33,00	38,72	21,00	21,00	33,00
2035	70,00	155,10	155,10	31,00	36,88	20,00	20,00	31,00
2036	67,00	147,00	147,00	30,00	35,04	19,00	19,00	30,00

Year	Electricity [EUR/MWh]	Green hydro- gen and its de- rivatives [EUR/MWh]	Low-carbon hy- drogen and its derivatives [EUR/MWh]	Natu- ral gas [EUR/ MWh]	Coking coal [EUR/ MWh]	Steam coal [EUR/ MWh]	All other energy carriers with liquid and solid aggregate state (at 0°C and 1.013 bar) [EUR/MWh]	All other energy carri- ers with gaseous aggre- gate state (at 0°C and 1.013 bar) [EUR/MWh]
2037	64,00	138,90	138,90	28,50	33,19	18,00	18,00	28,50
2038	61,00	131,10	131,10	27,00	31,35	17,00	17,00	27,00
2039	55,00	123,00	123,00	26,00	29,50	16,00	16,00	26,00
2040	51,00	114,90	114,90	25,00	27,66	15,00	15,00	25,00
2041	48,00	107,10	107,10	25,00	23,97	13,00	13,00	25,00
2042	45,00	99,00	99,00	25,00	23,97	13,00	13,00	25,00
2043	45,00	90,90	90,90	25,00	23,97	13,00	13,00	25,00
2044	45,00	83,10	83,10	25,00	23,97	13,00	13,00	25,00
2045	45,00	75,00	75,00	25,00	23,97	13,00	13,00	25,00
2046	45,00	75,00	75,00	25,00	23,97	13,00	13,00	25,00
2047	45,00	75,00	75,00	25,00	23,97	13,00	13,00	25,00
2048	45,00	75,00	75,00	25,00	23,97	13,00	13,00	25,00
2049	45,00	75,00	75,00	25,00	23,97	13,00	13,00	25,00
2050	45,00	75,00	75,00	25,00	23,97	13,00	13,00	25,00