OSW Commentary

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Carbon contracts for difference: Germany's new instrument to decarbonise its industry

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Germany has launched the implementation of a new, innovative programme to support the decarbonisation of its energy-intensive industries. The use of the so-called carbon contracts for difference will, for the first time, make it possible to subsidise not only investments in new installations but also the current operational costs, as the state intends to cover the difference between the costs of conventional and low-carbon energy production until the latter becomes more profitable. In line with Berlin's concept, this decision is expected to bring a breakthrough in the decarbonisation of its industry, and also to enable German companies to gain competitive advantage, collect know-how, and improve & commercialise new technologies which are viewed as future-proof.

However, this brand-new instrument is linked with certain risks, especially as regards the high costs which the state needs to bear. This is because it is not yet clear how the market will develop over the next few years, or when the low-carbon production methods will become more cost-effective than the conventional ones based on fossil fuels.

Klimaschutzverträge: subsidies to protect the climate

On 12 March, the German Federal Ministry for Economic Affairs and Climate Action (BMWK) announced a call for applications to co-fund decarbonisation projects in the industrial sector under the new instrument, that is, the carbon contracts for difference. During a series of special auctions, companies interested in this form of support will compete for subsidies by indicating the amount of co-funding they would need per one non-emitted tonne of CO_2 in order to replace production based on conventional technologies (that is, those which rely on fossil fuels) with low-carbon technology.

Each carbon contract for difference will be valid for 15 years, and will cover both the co-funding of investments in new production facilities (capex) and the current operational cost (opex) up to a specific reference value. The levels of emission reduction are required to reach at least 60% after three years and at least 90% after 15 years. As long as the traditional methods are more profitable, the state will refund the difference in the cost borne by the producer. However, once the environmentally friendly production gets cheaper than the conventional method, the companies will be required to begin to pay back their surplus (the sum in excess of the set reference value).

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The programme is targeted at energy-intensive industries such as the chemical, steel, cement and lime, metallurgical, paper and glass production sectors. Companies which operate conventional installations emitting at least 10,000 tonnes of CO_2 are allowed to take part in the auction. Smaller companies are free to form consortia.

As part of the first of the four planned auctions, subsidies to the tune of €4 bn will be disbursed (for 15 years) and the limit of co-funding for one beneficiary will be €1 bn. The subsidies will be granted to those companies which present the lowest cost for the decarbonisation of their production. The state will sign contracts with companies selected in this way. These contracts are referred to as agreements to protect the climate (*Klimaschutzverträge*; this is also the official name of the programme).

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The period for submitting applications will last four months. The competition will be decided and the contracts signed in mid-September. The second auction will take place in autumn 2024. The maximum amount of funding which will be disbursed during this auction will be up to €19 bn. A further two auctions have been planned for 2025. According to Robert Habeck, Germany's vice chancellor and federal minister for economic affairs and climate action, the federal government intends to earmark a total of several tens of billions of euros for this purpose. This is expected to reduce greenhouse gas emissions in the German industrial sector by 350 mn tonnes of CO_2 by 2045 (an average of 18 mn tonnes annually).

Work on devising the contracts for difference for the industrial sector was launched back in 2021. In summer 2023, consultations were held with individual sectors interested in these contracts regarding their proposed form. On 16 February 2024, the European Commission approved the first tranche of the programme (€4 bn), having checked its compliance with EU legislation regarding public assistance.

An instrument of climate and industrial policy

Decarbonisation of energy-intensive sectors is important from the point of view of the implementation of Germany's climate policy. In 2023, the industrial sector accounted for 23% of Germany's greenhouse gas emissions and was the second biggest sector of the economy (after the energy sector) in terms of the level of greenhouse gas emissions. The biggest amounts of greenhouse gases are emitted by the steel (29%), petrochemical (21%), cement (17%) and chemical (13%) sectors. In line with the climate protection act, which sets annual limits for emissions generated by specific sectors until 2030, the level of emissions in the industrial sector should fall by almost a fourth by that year (from 155 mn tonnes of CO_2 equivalent in 2023 to 118 mn tonnes in 2030). This reduction will not be possible without far-reaching technological modifications, unless the level of energy-intensive domestic production is changed and some degree of deindustrialisation occurs.

The *Klimaschutzverträge* instrument may bring a breakthrough in the decarbonisation of energy-intensive industries. Thus far, companies have been reluctant to invest in technology which can significantly reduce emissions during the production processes because, in the present market situation and in the foreseeable future, low-carbon solutions are still unprofitable compared with conventional ones. The contracts for difference are the first instrument of support to offer co-funding, not only for the purchase of new installations but also to their subsequent ongoing operational costs, which equates to the financial gap between these two production methods being eliminated. In this way, the state relieves the companies involved in the programme of a portion of investment risk, and guarantees

them stable operating conditions based on new technologies. This is expected to boost comprehensive decarbonisation in energy-intensive sectors, including in particular the launch of the first large-scale investments in low-carbon solutions, the emergence of a new market of products with small carbon footprints, and a significant reduction in CO_2 emissions. Moreover, it is worth noting that aside from the above-mentioned programme Berlin is also implementing other instruments to support the decarbonisation of its industrial sector; this principally concerns the steel industry, where the subsidy for the reduction in emissions generated during steel production will stand at €7.1 bn, although the beneficiaries of this programme are not eligible for subsidies offered under the *Klimaschutzverträge* instrument. In addition, work is underway on a separate programme targeted at smaller companies which emit less than 10,000 tonnes of CO_2 annually.

Germany is the first country to use contracts for difference in energy-intensive industries, which is of major importance from the point of view of Berlin's industrial policy. A significant portion of the German political and business elite argues that achieving the status of a leader in industry decarbonisation will enable German companies to gain competitive advantage and know-how, and to improve and commercialise new future-proof technologies. The debate frequently mentions the fact that the regulatory environment currently operating in the EU, including in particular the emissions trading system (ETS), will put increasing pressure on curbing emissions. After some time, profound decarbonisation carried out on a large scale may significantly improve the competitiveness of German companies with those from other EU member states. The most important German industrial associations (such as the BDI, DIHK, VCI, VDMA and VDZ) and trade unions (DGB, IG BCE, IG Metall, IG BAU) are among the most ardent proponents of contracts for difference, and have been involved in lobbying activities in favour of introducing them and in consultations regarding their scope.

" Although contracts for difference have previously been applied in other sectors of the economy, they have not as yet been present in the industrial sector, which generates certain risks from the state's point of view.

Risks linked with the contracts for difference

Although the contracts-for-difference instrument has previously been applied in other sectors of the economy (such as the energy sector), it has not as yet been present in the industrial sector. This generates certain risks and doubts from the state's point of view. Firstly, it is unclear how the market situation of both conventional and low-carbon technologies will develop in the coming years, and this will have a major impact on the value of the subsidies. For example, it is impossible to precisely forecast the prices of emission rights under the ETS, or the prices of electricity and low-emission hydrogen. It is also unclear whether the plans for developing hydrogen transport infrastructure will be fully implemented, or what this fuel's market availability will be. It is also an open question whether other regions of the world will seek to decarbonise their industries, and if so, at what pace. Critics of the carbon contracts for difference frequently mention the high cost of the programme, which the German federal budget will need to bear, as well as the significant uncertainty as regards the expected returns. The BMWK estimates that low-carbon technologies will become more profitable than the conventional ones at the beginning of the 2030s, which is when the companies involved in the programme should begin to repay their financial surpluses (which are estimated at several billion euros) to the state budget. At the same time, however, the contracts are expected to contain a provision enabling the companies to terminate them three years after having paid the first return payment. This solution, which is clearly beneficial to the industrial sector, may additionally reduce the future payments to the state budget.

It is precisely due to these doubts that numerous experts, including the BMWK's research council, have issued recommendations to reduce the carbon-contracts-for-difference programme to the minimum (for example, to pilot projects only) and to focus on the so-called green leading markets (*grüne Leitmärkte*) in the first place. This would involve introducing regulations to commit the companies which are involved in the implementation of public investment projects and the producers of certain types of goods to rely on low-carbon products (such as the steel used in the construction industry and in automotive production). The BMWK has taken account of this proposal in only some aspects. A relevant government concept regarding these issues is expected to be devised by the end of 2024, and will supplement the programme of contracts for difference.

Decarbonisation with no deindustrialisation?

The Greens are the biggest proponents of introducing the contracts for difference. After all, the concept of decarbonisation with no deindustrialisation was among their main electoral promises in the economic sphere. It was due to this party's efforts that provisions on the *Klimaschutzverträge* were included in the SPD–Greens–FDP coalition agreement, and this instrument later became the most important element of Vice Chancellor Habeck's industrial policy. Although the concept was devised during Chancellor Angela Merkel's final term, a team of experts linked with the Greens, in particular the Agora Energiewende think-tank, contributed greatly to its development. The FDP was less enthusiastic about this programme, especially due to its high cost and the expected restrictions on the use of the available technologies. Ultimately, the Liberals managed to limit the financial scope of this instrument and to push through a more technologically neutral approach. For example, companies were permitted to use all the types of hydrogen authorised in the EU legislation, rather than so-called green hydrogen only, and to use CCUS solutions (this involves carbon capture, utilisation and storage).

The EU's perspective: Berlin is in favour of holding to the green course

Investing huge funds in the *Klimaschutzverträge* instrument will boost Germany's resolve to maintain its current course in climate policy, both domestically and at the EU level. It is likely that after some time the German government will seek to transfer the German domestic model to the EU level, most preferably using EU funds. Government documents suggest that Berlin was considering whether to lobby in favour of EU-wide contracts for difference, but due to the excessive amount of time which would have been needed to launch such a programme, it decided to implement this solution domestically.

Moreover, some participants in the German debate have occasionally called for a reform of the ETS system which would reduce the downward fluctuation of the price of emission rights (for example, by introducing a lower price limit), and thus to ensure more stable investment conditions for those companies which switch to low-carbon electricity generation. However, these proposals have so far only been voiced by representatives of certain expert communities, in particular those linked with the Greens; they have not been included in the government's agenda or in any of the platform documents of specific parties.