

Regional CO2 compensation Boddin project

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1. CO2 compensation today

The demand for voluntary CO2 offsetting has risen sharply, particularly in recent years. It is expected that this demand will continue to grow in the double-digit percentage range.

The possibilities of compensation are manifold. Reforestation still takes the largest share. But solar parks, wind turbines and technical innovations for CO2 avoidance or reduction are also financed by the compensation payments.

However, in the vast majority of cases, it is impossible for donors to verify whether the specified projects actually fulfill their stated purpose.

For example, the mineral oil company ENI promises to completely offset its CO2 emissions of 40 million tons through reforestation. In order to save this amount of CO2 in the short term, however, 6% of the current global forest area would have to be additionally planted. (DER STANDARD v. 22.03.2021) Since most providers of compensation measures also want to compensate for CO2 through reforestation, it is likely that the promised measures will be implemented to a significantly too small extent.

In addition, the planting of trees does not really make sense everywhere in the world. Many of the measures do not even develop their climate effects because the trees die again after a short time due to unfavorable site conditions. However, the payers of the measure usually do not find out about this.

Investing in future technologies can also be problematic because of the lack of transparency. Whether the funded projects are actually successful, one learns only in rare cases and only through appropriate research. Wind and solar parks undoubtedly contribute to CO2 reduction, but they have a considerable negative impact on nature and the environment.

2. Regional CO2 compensation through tree planting in Boddin i. Mecklenburg

The idea of the Boddin compensation project is to offer CO2 compensation on a small scale for a narrowly defined clientele. The measures involve the planting of trees and hedges, all of which are located on the company's own land and to whose care and maintenance the owner personally commits. The site is located in Mecklenburg and thus offers excellent growing conditions for large trees. Thus

the success of reforestation measures is maximum and the trees grow comparatively quickly. The sequestration of CO₂ from the air is correspondingly high. Since the measures are all implemented in one place and are small in scale, the results can be checked by anyone without much effort.

2.1 Compensation mfang

The area designated for the project has a total size of 2 ha. Thus, the possibilities of planting are limited. In total, measures are available to compensate for approx. 180 tons of CO₂. This corresponds to the CO₂ emissions of the production of approx. 380 thousand kWh of electricity (electricity mix Germany with 40% green electricity share) or of approx. 700 thousand kWh of electricity.

Flight kilometers.



Figure 1: Area for planting with large trees approx. 1.4 ha in Boddin.

2.2 Costs

The costs for the measures are higher than those of the usual suppliers and amount to 100 EUR / ton CO₂. The planting of a native woody plantation in Germany is understandably much more expensive than the plantation of tree plantations in South America. However, the reasons described above make this additional expenditure quite reasonable.

2.3 Measures

The woody plants indicated in Table 1 can be planted. The amount of CO₂ compensated by this is also given. These are approximate values from forestry science. Since our plantings are exclusively solitary trees, which generally form more wood mass, the actual values are likely to be even somewhat higher in many cases.

Table 1: CO₂ uptake of various woody plants (time horizon approx. 80 years)

	CO ₂ binding in kg*	Compensation in EUR
Beech, Linden, Chestnut, Oak, Ash	5.500	550,00
Fruit tree	1.000	100,00
Hedge 10m	1.740	174,00

* Own calculation based on leaflet No. 27 of the Bavarian State Institute for Forests and Forestry.



Figure 2: English oak approx. 10 years old



Figure 3: Red oak approx. 15 years



Figure 4: English oak approx. 80 years, StD 80cm, height 30m, crown 20m

After booking a compensation amount, the planting takes place in autumn. The CO2 compensation is confirmed and documented with the invoice. In the first 5 years, the development status is reported. The measure customer can visit the plantations at any time.

2.4 Examples of CO2 emissions from air travel

To illustrate the magnitude of CO2 offsets, Table 2 shows various flight routes and the resulting CO2 emissions. The quantities given are CO2 equivalents (CO2e). The effect of other gases that are also harmful to the climate (methane, nitrous oxide, etc.) is converted into CO2 equivalents and added to the actual CO2 emissions.

Table 2: Examples of CO2 offsetting for flights

Flights from Berlin	km There and back	Kg CO2e / pers. economy	Kg CO2e / pers. business
Paris	1.710	340	480
Palma de Mallorca	3.290	680	950
New York	12.700	3.270	4.580
Singapore	19.842	4.200	5.880

* according to UBA emissions calculator (https://uba.co2-rechner.de/de_DE/)

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