

CLIMATE CHANGE

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Interim Report

Information Paper on the analysis of the German Voluntary Offsetting market 2021

by:

Denis Machnik, Katrin Schambil, Dennis Tänzler
adelphi, Berlin

Markus Götz, Fanny Meierhofer
sustainable, Munich

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On behalf of the German Environment Agency

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Umweltbundesamt
Wörlitzer Platz 1
06844 Dessau-Roßlau
Tel: +49 340-2103-0
Fax: +49 340-2103-2285
buergerservice@uba.de
Internet: www.umweltbundesamt.de

 [umweltbundesamt.de](https://www.facebook.com/umweltbundesamt.de)

 [umweltbundesamt](https://twitter.com/umweltbundesamt)

Report performed by:

adelphi research gGmbH
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10559 Berlin
Germany

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Abstract: Information Paper on the analysis of the German Voluntary Offsetting market 2021

In 2010 and 2015, comprehensive analyses of the German market for voluntary offsetting of greenhouse gas (GHG) emissions commissioned by the German Environment Agency (dt. *Umweltbundesamt*, UBA) were published.¹ In 2017, UBA published a small survey as a continuation of the 2010 and 2015 analyses. In order to understand the development of the market in recent years, a renewed and more comprehensive analysis of the German market for voluntary offsetting of GHG emissions is provided for the years 2017 to 2020. This analysis focuses on domestic climate protection projects. The market survey and thus this Info Paper is also part of the research project "New perspectives for national climate protection projects for the offsetting of greenhouse gases" (FKZ 3720425050). The market survey serves as a foundation for the assessment, for a potential analysis of domestic climate protection projects in Germany and for the development of potential incentive structures and framework conditions.

Past market surveys on the German carbon offset market (Wolters et al., 2015², Nett and Wolters, 2017³; Allianz für Entwicklung und Klima, 2020⁴) show a continuously increasing interest in, and supply of, carbon offset services. The 2021 UBA market survey confirms this trend, provides an up-to-date picture of the supply and demand-side and offers extended insights, amongst others, on how to approach a double claim of emission reduction.

This Info Paper presents the results in a way that is appropriate for political decision makers, companies, journalists, private persons and other actors interested in the carbon offset market.

Kurzbeschreibung: Infopapier zur Marktanalyse Freiwillige Kompensation 2021

Im Jahr 2010 und 2015 erschienen die vom Umweltbundesamt (UBA) in Auftrag gegebenen, umfangreichen Analysen des deutschen Marktes zur freiwilligen Kompensation von Treibhausgas (THG)-Emissionen. 2017 veröffentlichte das UBA eine kleine Umfrage als Fortführung der Analysen von 2010 und 2015.⁵ Um die Entwicklung des Marktes in den letzten Jahren nachzuvollziehen, erfolgt eine erneute und umfangreichere Analyse des deutschen Marktes zur freiwilligen Kompensation von THG-Emissionen für die Jahre 2017 bis 2020. Diese Analyse legt den Schwerpunkt auf inländische Klimaschutzprojekte. Die Marktumfrage und somit dieses Infopapier sind Teil des Forschungsvorhabens „Neue Perspektiven für nationale Klimaschutzprojekte zur Kompensation von Treibhausgasen“ (FKZ 3720425050). Die Analyse des deutschen Marktes dient dazu, Grundlagen zur Einschätzung des Potentials und damit für das Entwickeln von Anreizstrukturen und Rahmenbedingungen für nationale Klimaschutzprojekte in Deutschland zu schaffen.

¹ UBA analyses from 2010 and 2015 as well as the 2017 survey can be viewed here: <http://www.dehst.de/DE/Klimaschutzprojekte-durchfuehren/Freiwillige-Kompensation/Ratgeber-und-Studien/ratgeber-und-studien-node.html>, last accessed 16.11.2021

² Wolters, S., Nett, K., Tänzler, D., Wilkening, K., Götz, M., Krebs, J., Vogel, D. (2015). Aktualisierte Analyse des deutschen Marktes zur freiwilligen Kompensation von Treibhausgasemissionen. Studie im Auftrag des Umweltbundesamts. Berlin.

³ Nett, K., Wolters, S. (2017). *Leveraging domestic offset projects for a climate-neutral world. Regulatory conditions and options*. Studie im Auftrag des Umweltbundesamts. Berlin.

⁴ Allianz für Entwicklung und Klima (AEK). (2020). Aktueller Stand des freiwilligen Treibhausgas- Kompensationsmarktes in Deutschland. Studie im Auftrag des Bundesministeriums für wirtschaftliche Zusammenarbeit und Entwicklung.

⁵ UBA analyses from 2010 and 2015 as well as the 2017 survey can be viewed here: <http://www.dehst.de/DE/Klimaschutzprojekte-durchfuehren/Freiwillige-Kompensation/Ratgeber-und-Studien/ratgeber-und-studien-node.html>, last accessed 16.11.2021

Vergangene Marktumfragen zum deutschen Kompensationsmarkt (Wolters et al., 2015⁶; Nett und Wolters, 2017⁷; Allianz für Entwicklung und Klima, 2020⁸) zeigten ein kontinuierlich steigendes Interesse und Angebot an Kompensationsdienstleistungen. Die vorliegende Marktumfrage 2021 des UBA bestätigt diesen Trend, liefert ein aktuelles Bild der Angebots- und Nachfrageseite und bietet erweiterte Erkenntnisse, unter anderem zum Umgang mit einer doppelten Inanspruchnahme von Zertifikaten.

Mit diesem Infopapier werden die Ergebnisse für die Zielgruppe der politischen Entscheidungsträger*innen, Unternehmen, Journalistinnen*Journalisten, Privatpersonen und weiteren am Kompensationsmarkt interessierten Akteure aufbereitet.

⁶ Wolters, S., Nett, K., Tänzler, D., Wilkening, K., Götz, M., Krebs, J., Vogel, D. (2015). Aktualisierte Analyse des deutschen Marktes zur freiwilligen Kompensation von Treibhausgasemissionen. Studie im Auftrag des Umweltbundesamts. Berlin.

⁷ Nett, K., Wolters, S. (2017). *Leveraging domestic offset projects for a climate-neutral world. Regulatory conditions and options*. Studie im Auftrag des Umweltbundesamts. Berlin.

⁸ Allianz für Entwicklung und Klima (AEK). (2020). Aktueller Stand des freiwilligen Treibhausgas-Kompensationsmarktes in Deutschland. Studie im Auftrag des Bundesministeriums für wirtschaftliche Zusammenarbeit und Entwicklung.

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List of abbreviations

ACR	American Carbon Registry
CCB	Climate Community & Biodiversity
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CO₂	Carbon Dioxide
DEHSt	Deutsche Emissionshandelsstelle (German Emissions Trading Agency)
ETS	Emissions Trading System
EU	European Union
EUA	European Union Allowance
GS	Gold Standard
GS4GG	Gold Standard for the Global Goals
IPCC	International Panel on Climate Change
JI	Joint Implementation
LULUCF	Land Use, Land-Use Change and Forestry
REDD+	Reducing Emissions from Deforestation and Forest Degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks
SC	Social Carbon
SDGs	Sustainable Development Goals
tCO₂e	Tons of Carbon Dioxide equivalents
GHG	Greenhouse Gases
UBA	Umweltbundesamt (Federal Environment Agency)
UNFCCC	United Nations Framework Convention on Climate Change
PA	Paris Agreement
VCS	Verified Carbon Standard
VER	Voluntary Emission Reduction
VVI	Verification and Validation Institutions

1 Introduction and Methodology

Prerequisite research for the analysis of the Voluntary Carbon Market in Germany consisted of **data collection** by means of **two anonymous surveys**: One among the demand-side for offsetting services and another among the providers of such services. The results and findings of the supply-side questionnaire were also verified with selected market participants in **semi-structured interviews** and expanded by other qualitative aspects. The qualitative aspects included questions on the consulting approach used in offset requests, price developments, expectations of the World Climate Conference in Glasgow—especially on double counting and the instrument *Corresponding Adjustment*⁹. Invited to participate in the survey were a total of over **1,500 organizations**¹⁰ and **private persons**. Existing contact lists from the 2015 survey were updated and supplemented with publicly available and self-researched lists, e.g., sports clubs and companies. Detailed market research forms the basis for an updated contact list of the supply-side in order to include the numerous new providers in the survey. The survey was active and available online from 06/05/2021 to 06/11/2021. Additionally, public links for the supply and demand-side survey were created and placed on the website of the German Emissions Trading Authority (DEHSt) at the Federal Environment Agency (UBA), among others. This allowed uninvited participants to take part in the survey. The one-hour, semi-structured interviews were conducted between August and September 2021.

Table 1: Invitations and response to the current survey - demand and supply-side

	Contacted	Replied	Return Rate
Companies	962	165	17,2%
Non-Governmental Organisation/Foundation	108	24	22,2%
Association	112	16	14,3%
Public Sector/Municipality	291	90	30,9%
Private Person	n/a ¹¹	87	n/a
Religious Institution	49	15	30,6%
Research	43	7	16,2%
Other	-	4	n/a
Supply-side Online Survey	115	35	30,4%
Conducted Semi-Structured Interviews	10	9	90%
Total (Demand & Supply)	1681	443	26,4%

Source: adelphi/sustainable 2021

The **sample is not random and therefore not representative**, as the organizations were often identified precisely because of their activities in climate and environmental protection.

⁹ The term refers to a process in which a Party to the Paris Agreement voluntarily forgoes mitigation services from an offset project and therefore does not claim these mitigations for its own target achievement.

¹⁰ "Organizations" describes here and in the following the totality of all surveyed actors except private persons.

¹¹ Number of total contacts, including indirect contacts through referrals, is probably well over 500.

Moreover, private persons were reached via the social networks and websites of adelphi and DEHSt and are thus not representative of the German population as a whole.

In some instances, supplementary questions were asked depending on the answers previously given. For example, only participants who previously stated that they were private persons were asked about their age and gender, whereas companies were asked about their annual turnover and number of employees. Thus, the total number of questions asked per participant depends on the answers given and the willingness to answer additional questions. The number of questions ranges from 10 to 31. The demand-side survey contains a total of five different question types: Single-choice, multiple-choice, multiple-choice with comment, matrix, and ranking.

The responses collected were first analysed and visualised for each question individually. Subsequently, dependencies between question group 1 (background of participants) to question groups 2 - 6 (content questions on offsetting behaviour) were investigated. Finally, hypotheses were made about possible content-related correlations and their applicability was tested by analysing the responses received. An example of this last step, is the examination of the answers to the question of the desired project host country, depending on the place of business of the participating companies (Germany or worldwide)

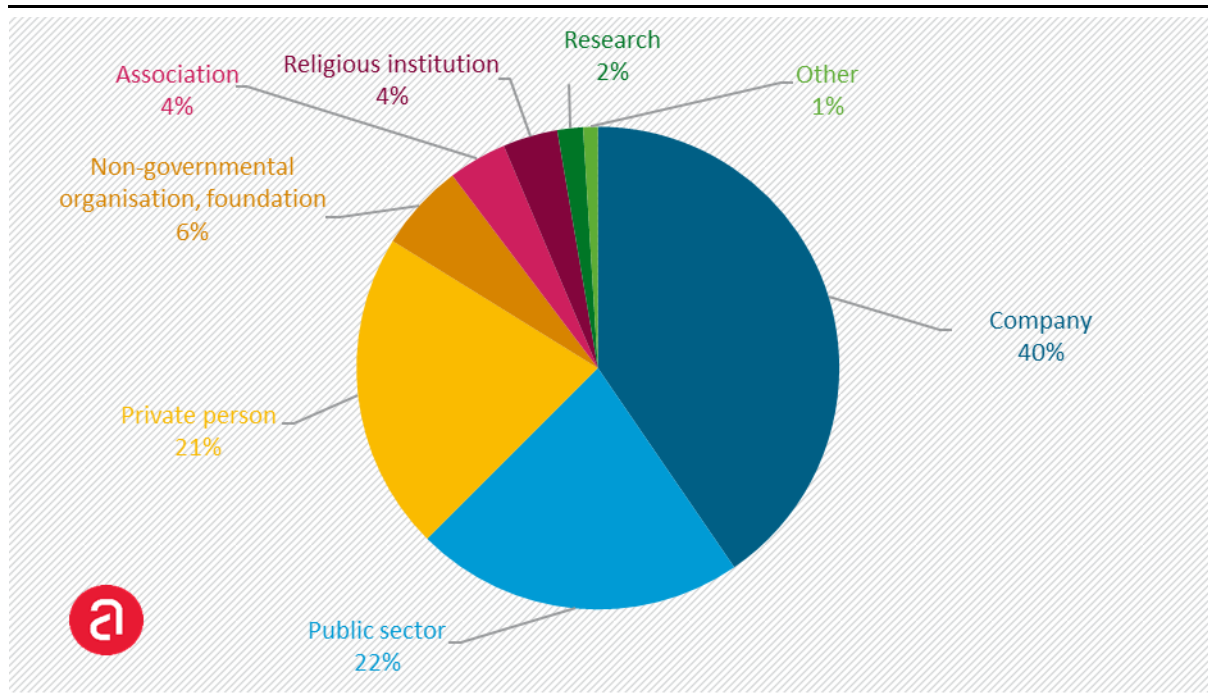
The survey for the supply-side consisted of 11 questions divided into 3 question blocks: The first block (questions 1a-2c) was to inquire about the organizational circumstances of the suppliers and providers. The second block (questions 3-7) was dedicated to the query of the sold, as well as sold and decommissioned, volumes of the suppliers per project technology, project country and quality standard for the years 2017-2020. Finally, the third block (questions 8-11) was dedicated to querying additional qualitative information—e.g., the criteria for pricing, the importance of additional sustainable development impacts within the projects as well as the influence of the Covid-19 pandemic on the development of companies and the market. The structure of the survey was such that participants first had to indicate in which years they were active in the German market for voluntary GHG offsetting. Depending on their answers, further detailed questions were posed, with reference to the criteria of the projects. The participants also had the option of specifying the price as an absolute value or in a range from minimum to maximum. With regard to the volumes, information was possible in percentages or absolute values.

The responses were analysed at question level, visualised and then compared with each other. The results of the survey served as the basis for the semi-structured interviews. In particular, the data on annual volumes sold, and sold and decommissioned, were subsequently checked for plausibility by various sources.

2 Participants in the Market Survey

The demand-side is divided into several groups (Fig. 1). **Companies** represent the **largest group** at 40%, followed by the public sector (22%) and private persons (21%). Associations (4%) and research institutions (2%) are less represented, which is due to a smaller sample size with low response rates.

Figure 1: You are conducting this survey as [select participant group]. (n¹² =408)



Source: adelphi 2021, Data: Demand-side survey; question type: single choice

Demand-side: Classification of participating private persons

Among the private persons, the proportion of male (55%) and female (44%) participants is relatively balanced.¹³ 40% of the participants belong to the 40-59 age group, closely followed by the 25-39 age group (37%). The youngest group of under-25s constituted 22% participants, while few over-60s took part (1%). The demographic distribution is probably related to how the survey was shared, via social media, which tends to reach younger age groups. The majority of participants have a monthly net income of between €1,000 and €2,500 (46%), 31% report earning between €2,501 and €4,000 per month. Less represented are participants with an income of less than 1,000€ (10%) or more than 4,000€ (13%). The average income of all employees in Germany in 2020 was €2,084 net per month, so the respondents here are slightly above the German average.¹⁴ A trend can also be seen in the respondents' place of residence—here, 59% state that they live in a large city (>100,000 inhabitants). Significantly fewer people from medium-sized towns (20,000 - 100,000 inhabitants; 17%), villages or municipalities (<5,000 inhabitants; 16%) or small towns (5,000 - 20,000 inhabitants; 8%) took part.

Demand-side: Classification of participating organisations

¹² "n" here and in the following stands for the number of people who answered a question in total.

¹³ 1% of the participants assigned themselves to the category "diverse"

¹⁴ <https://de.statista.com/themen/293/durchschnittseinkommen/>; last accessed on 01.11.2021

22% of the participating organisations belong to the industry sector, while participants from the education and social sector (including public sector consulting¹⁵) represent the second largest sector at 11%. The other sectors (energy, nature and environmental protection, tourism, food production and trade, media industry including printing, finance and insurance, sports, transport, offset providers, agriculture) are represented at less than 10% each. This means that the distribution of participants by sector is much more even than in the 2015 survey (according to the question: "In which sector are you or were you active?" n=174). Furthermore, under "Other" (9% of the organisations), information technologies, consulting services for the private sector and retail are named as additional sectors.

Demand-side: The way to offsetting emissions

All participants on the demand-side were asked how the offset services were obtained.¹⁶ Whereas in the 2015 market survey, the demand side most frequently used offset services through the purchase of a product (around 43% of private persons and 21% of large companies), the **majority of the demand side** in the 2021 survey chose to **purchase credits directly from the offset provider** (61%). In contrast, only 13% (29% of private persons and 8% of companies) chose to buy credits in conjunction with the purchase of a product. 11% of participants bought their credits directly from project-developing institutions (5% of private persons and 14% of companies). Other ways of offsetting and procuring credits are: Ownership of a company or national forests (4%; 8% within the public sector), use of framework agreements (4%), purchase of offsets on trading platforms (3%) or by public tender (1%, of which 10% are religious institutions). However, these channels are infrequently used by participants.

Supply-side: Classification of participating organisations

The number of providers on the voluntary market has changed steadily in recent years. 23 respondents (n=34) state that they were already active on the German market before 2017. According to information given by the providers, numerous new players entered the market, particularly in 2020 and 2021.

Of companies on the supply-side (n=35), **30%** state that they engage in **non-profit work**, while 54% self-classify as for-profit and 16% do not give any information. **70%** of the participants **describe their form of ownership as private**, 5% classify themselves as public, 5% characterize themselves as both and 20% make no statement.

A majority of the participants on the supply-side (59%) are internationally active (i.e., are located outside of Germany), while around 12 companies are active exclusively in Germany (35%) and 5% did not give any information. In terms of number of employees, 8 companies employ less than 10 employees, 11 companies have 10-49 employees and around 7 respondents have 50-249 employees. 8 providers on the German market have more than 250 employees. Just under half of the providers (17) have an annual turnover of up to 10 million euros, 10 companies have a turnover of more than 10 million euros and 8 providers did not give any information on this question.

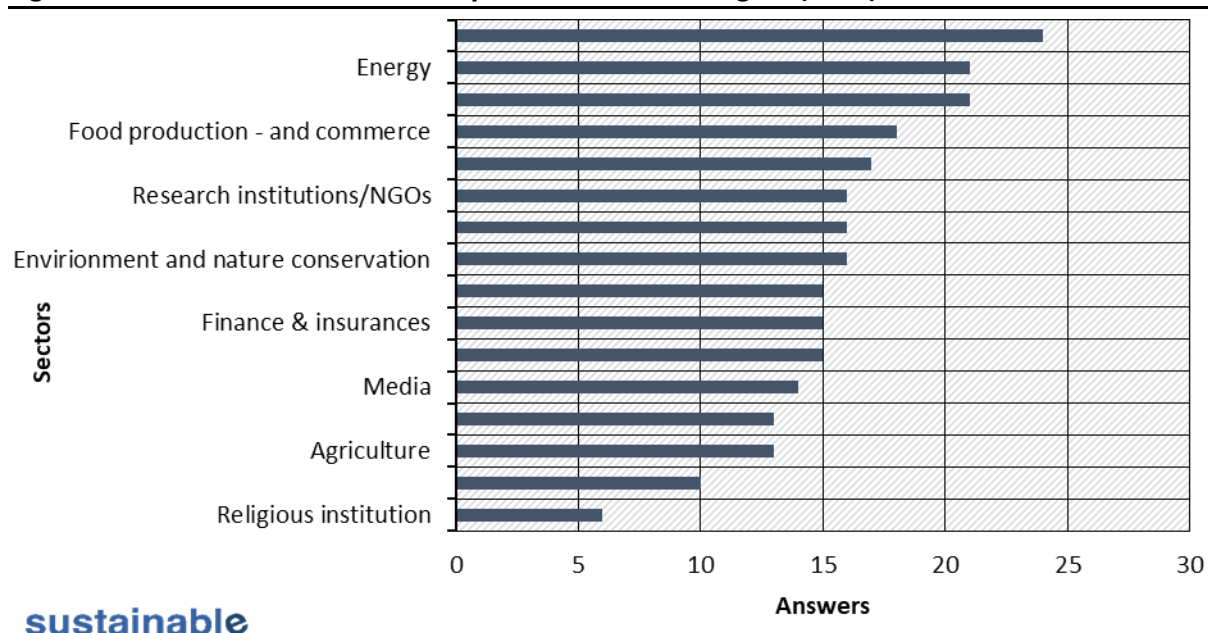
The business models on the supply-side are not easy to differentiate. The reason for this is the scope of the service, which increasingly goes beyond the mere offer of offset credits and

¹⁵ *Public Sector Consulting* means research and consulting on behalf of public institutions, this was specified by some survey participants in the comment function.

¹⁶ 180 participants from the demand side replied to this question in the market survey 2021. The information is evaluated per mention and is not volume-weighted.

includes, for example, the development of projects, advice on suitable strategies (sustainability, climate and offset strategies) or trading credits with other providers. The respondents were therefore asked to divide the business activities of their company into the areas of project development, retail (purchase and sale of offset credits), management consultancy and other. The groups Project Development and Retail most frequently state that they do not offer any additional services, such as consultancy. Only a few actors are active as pure management consultants. This service tends to occur in the offset market as a complement to trading in credits. The interviewees are also active in the field of research as well as mediation and information. During the semi-structured interviews, this tendency towards an expansion of the service portfolio was confirmed. The number of providers who have successively expanded their offer into a comprehensive service portfolio has risen sharply in recent years.

Figure 2: Question: Which sectors do your customers belong to? (n=34)



Source: sustainable 2021, Data: Survey of the supply-side; question type: multiple choice.

The sectors of the target groups to which the supply side offers their services proved to be diverse, as shown in Figure 2. The most frequently mentioned sectors are services (70%), industry and energy (62% each). The discussions in the semi-structured interviews also reveal that some actors have focused on certain sectors as their client base and, consequently, sometimes generate more than 80% of their turnover within one sector. Examples of this are energy supply companies and the paper and pulp industry.

3 Use of voluntary carbon credits

The voluntary market for GHG offsetting in Germany has experienced strong growth over the past four years. As part of the survey of the supply side, the number of traded credits, as well as traded and retired credits, were queried for the years 2017-2020. The differentiation between these two categories is necessary to provide a clear picture of trading trends and to avoid double counting. This convention is applicable, for example, if allowances were traded among various suppliers but not sold to end consumers. A final closure of the emission savings in the registry, on the other hand, only takes place once for each verified and issued credit.

3.1 Traded volumes 2017-2020

Past surveys commissioned by the Federal Environment Agency showed that the volume of traded and retired allowances in Germany increased from 4.4 to 6.6 million tonnes CO_{2e} between 2012 and 2015 (Wolters et al. 2015¹⁷). As shown in Figure 3, the 2021 market survey reveals that the **volume of allowances sold and set aside has increased from 22.1 million tonnes CO_{2e} in 2017 to 43.6 million tonnes CO_{2e} in 2020**. The set-aside volume has increased six-fold since 2016. A forecast for 2021 suggests that the trend will continue. In the semi-structured interviews, all 9 respondents indicate that the **volume of allowances sold has already exceeded the previous year's figures in July 2021**.

Figure 3: Voluntary carbon credits sold, and sold and retired, in Germany from 2012 to 2020



Source: sustainable 2021, Data: survey of the supply-side; Matrix with multiple numerical input

Consolidated data for the German market on voluntary offsetting obtained from the survey was checked for plausibility in separate stakeholder interviews with the supply side. In additional individual interviews, the largest providers confirm the validity of sales allocations as well as

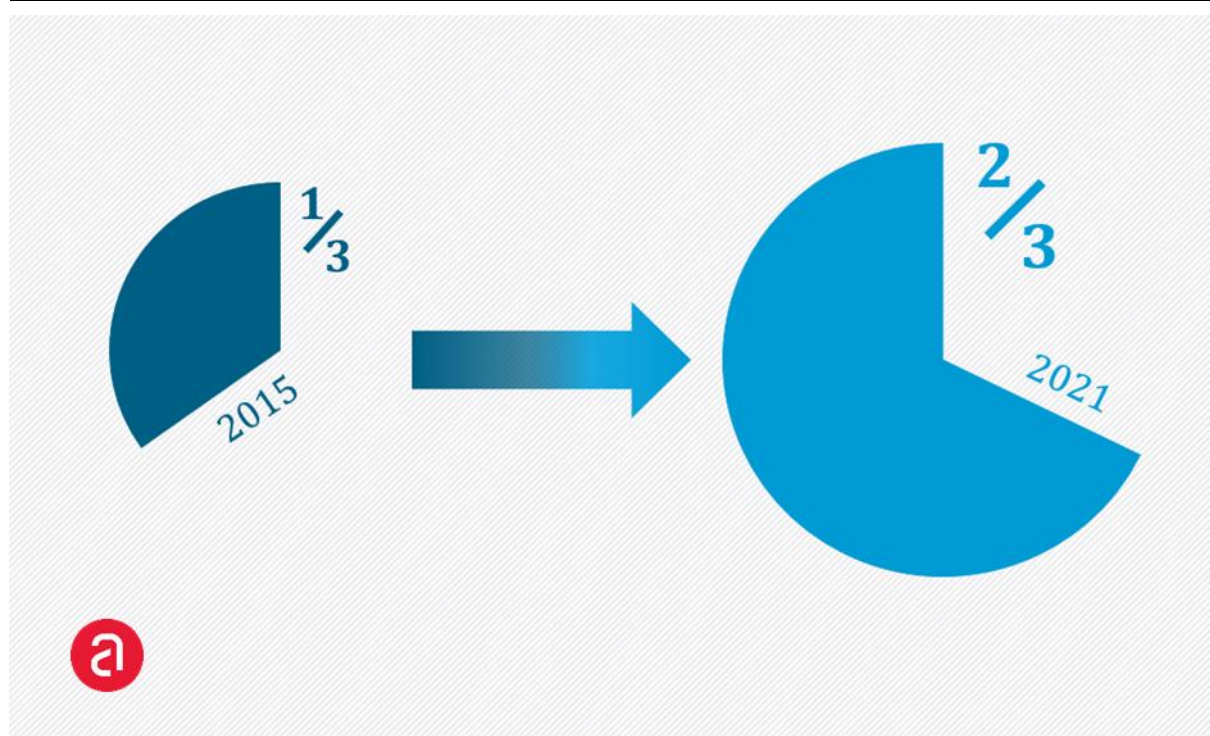
¹⁷ Supra 1

sold and retired credit volumes. A comparison with publications by *Ecosystem Marketplace*¹⁸ and *The World Economic Forum*¹⁹ shows a higher figure for the German market's share of the global volume. Both publications draw on publicly accessible register data. However, these only represent a part of the total sales. It can therefore be assumed that the data on trading volumes obtained in the Federal Environment Agency's 2021 market survey, which was also checked for plausibility by the providers, more accurately reflects the current market situation in Germany.

3.2 Demand for carbon credits

Two-thirds of the demand-side respondents already voluntarily offset GHG emissions (question: "Do you already voluntarily offset greenhouse gas emissions?" n=352). The selection of participants favours a high proportion of positive feedback because the group of recipients has an above-average affinity to climate and environmental issues. In addition, it can be assumed that organisations that already voluntarily offset greenhouse gas emissions also have market knowledge and are therefore more inclined to participate in the survey.

Figure 4: Development of share of participants who voluntarily offset emissions



Source: adelphi 2021, Data: survey of the demand-side; question type: single choice

In comparison, only one-third of the participants in the 2015 market survey stated that they had already offset once (Wolters et al., 2015²⁰), although there are great similarities in the invitation lists of both anonymised surveys.

The proportion of those who state that they voluntarily request credits for offsetting is highest among research and religious institutions (>80%; Figure 5). According to the survey, NGOs and

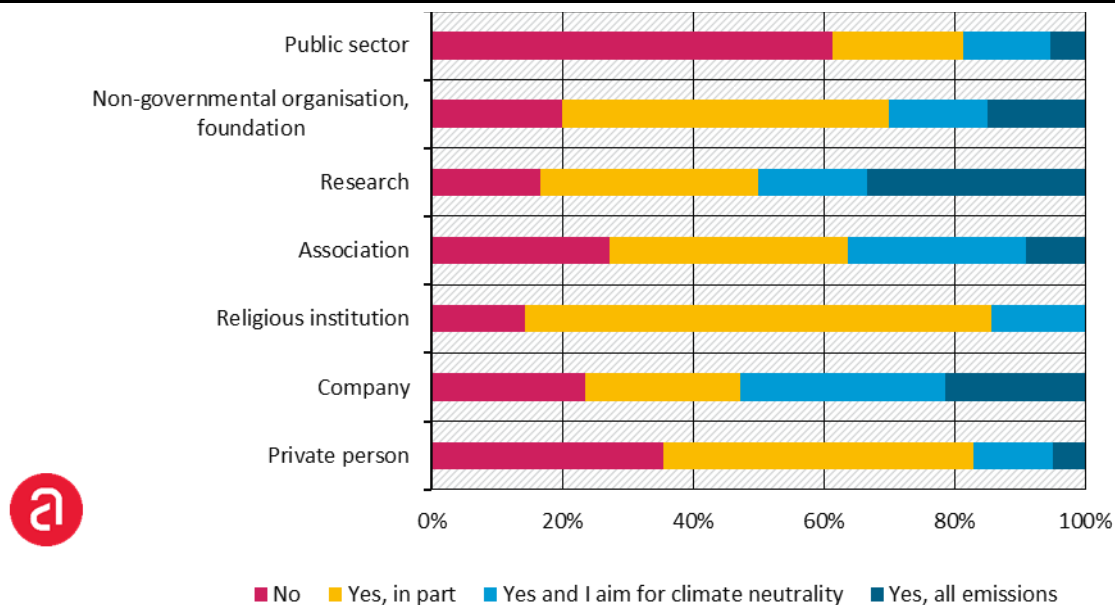
¹⁸ <https://www.ecosystemmarketplace.com/publications/state-of-the-voluntary-carbon-markets-2021/>

¹⁹ https://www3.weforum.org/docs/WEF_Consultation_Nature_and_Net_Zero_2021.pdf

²⁰ Supra 1

foundations are the third most active demand group (80%), closely followed by companies (77%), associations (72%) and private persons (64%). Overall, the share of actors who offset emissions amongst the participants is not only higher, but the different groups are also significantly closer together than in the 2015 marketsurvey.

Figure 5: Question: Do you voluntarily offset your emissions? (n=352)



Source: adelphi 2021, Data: survey of the demand-side; Question type: single choice

The share of participants who acquires carbon credits to voluntarily offset their emissions is significantly lower among public institutions, municipalities and administrations (38%) than among other demand groups. According to their own statements²¹, the main reason for this is financial and legal (see reasons for not offsetting emissions below). However, in this demand group, the share of offsetting participants has increased significantly compared to that of the last market survey in 2015, where it was still at 8.7%.

3.3 Motivation to offset emissions

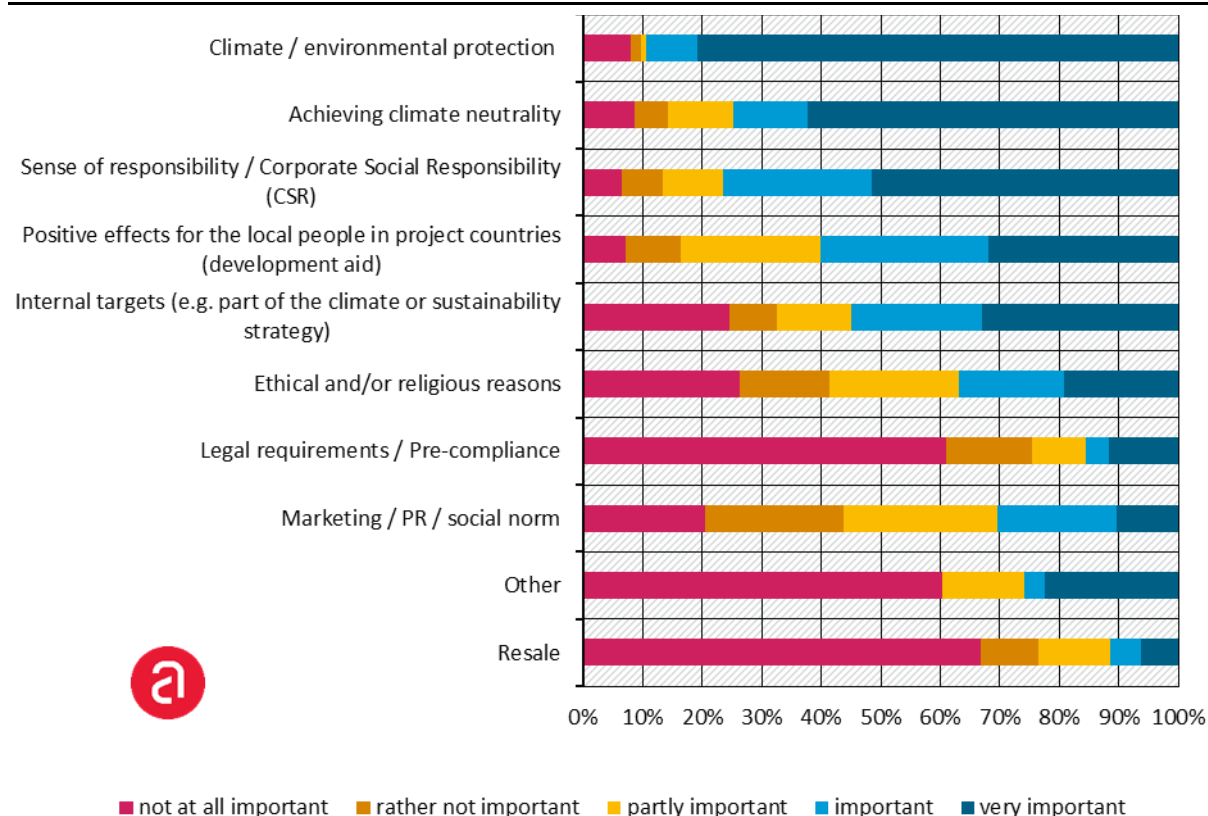
Survey participants who already offset were asked to rate the influence of different factors on their decisions on a scale from 1 (unimportant) to 5 (very important) (Figure 6).

Climate and environmental protection is the most important motivation for the purchase decision in the eyes of the demand side. This is closely followed by the reasons "goal of climate neutrality" and "sense of responsibility". The argument "economic benefit/resale"²² is of only minor importance to most respondents of the demand side. For private persons, this point plays no role at all.

The results from the semi-structured interviews amongst the supply side confirm that the goal of **climate neutrality** is often mentioned as an **offsetting motivation**. Additionally, elevated pressure from various interest groups and the increase in extreme weather events in Germany favour the corporate shift in focus towards sustainability.

²¹ Specification under "Other" when asking for reasons for not offsetting emissions

²² This refers to the resale of credits, e.g. via an intermediary.

Figure 6: Question: Why do you offset emissions? (n=228)

Source: adelphi 2021, Data: survey of the demand-side; Question type: 5-Point-Matrix

In the 2015 market survey, the **cost argument** was still the most frequently cited reason for not offsetting, and respondents gave this argument the highest priority on average (indicated both by level of importance and frequency mentioned). In the current 2021 market survey, however, the cost of offsetting is the biggest hurdle for only 3% of the participants who do not offset. Participants mainly state that they do not offset because they first try to **avoid and reduce their greenhouse gas (GHG) emissions** (42%) and have not yet reached the step of offsetting. **Confusion about the market for offset services** is rated second at 15%. **Rejection of the principle of offsetting** and the problem of **double use** are still mentioned with relevant frequency (7% each). Participation in the commitment market, which was given as the most important reason by approximately 20% of the respondents in 2015, dropped significantly in importance this year, now at only 4%.

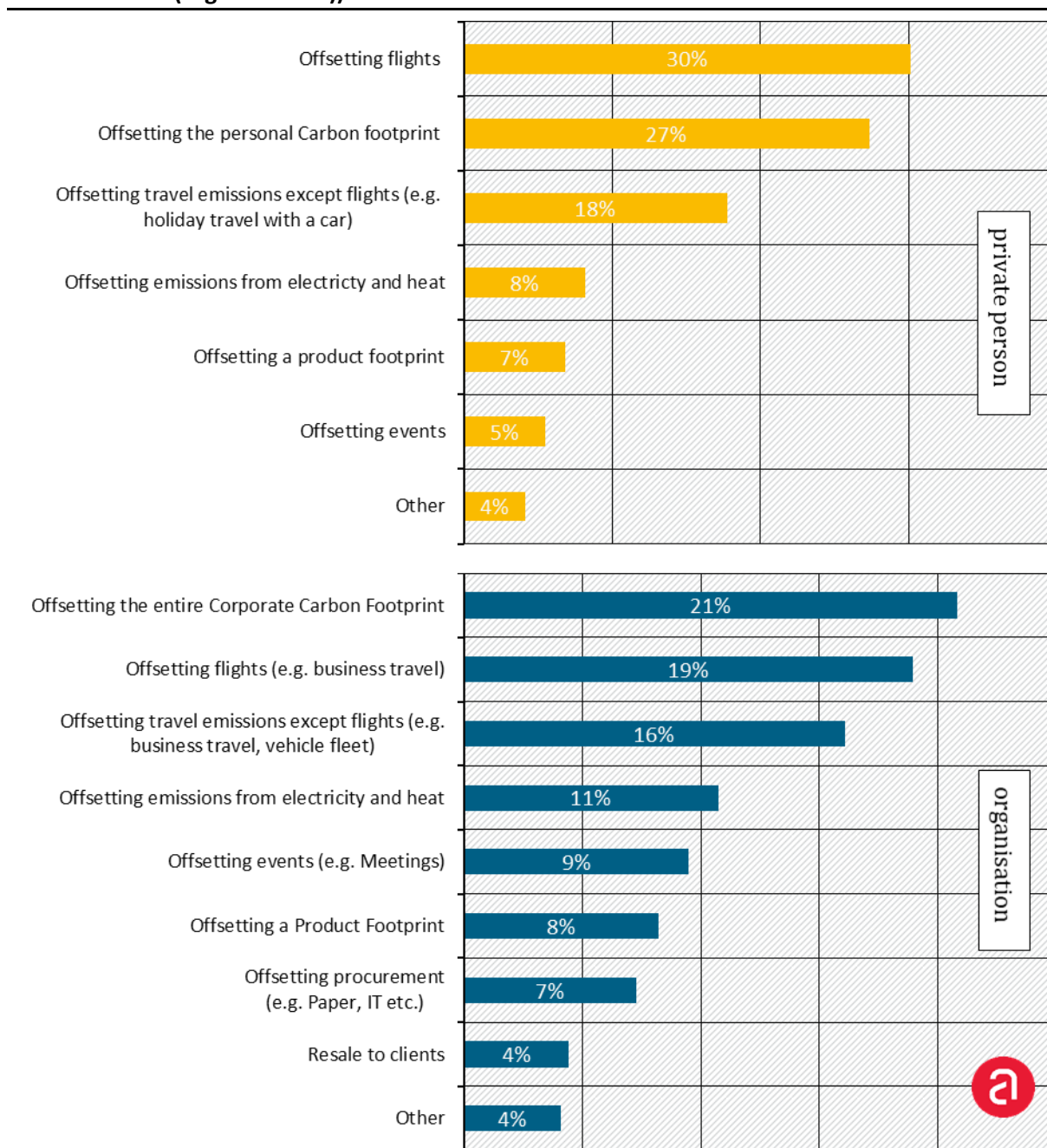
Under "other", the participants repeatedly state that offsetting is currently being planned (companies), that budgetary law does not permit offsetting or that a corresponding political decision does not exist (public sector). Additionally, criticism of climate protection projects is mentioned (e.g., lack of transfer of innovative technologies, risks and lack of transparency around forestry projects, lack of local and municipal offsetting options).

3.4 Intended use of carbon credits

In the 2021 market survey, **one-third of the participating private persons offset their air travel** (Figure 7). In the last market survey in 2015, this was still over 50%. Organisations now, on the other hand, state more frequently than in 2015 that they offset air travel. In the current

market survey, 19% mention this conduct (2015: 12% of companies).²³ More often than air travel, only the **entire (corporate) footprint** is offset.

Figure 7: Question: how do you use the carbon credits you buy? (n=73 (private persons), n=317 (organisations))



Source: adelphi 2021, Data: survey of the demand-side; Question type: Multiple choice with comment function

The results of the semi-structured interviews among the supply side (n=9) show a similar picture. When asked what the customers use the credits for, all 9 respondents state that they are

²³ It should be noted here that the 2015 results can be compared with those of 2021 to a limited extent, as the number and exact wording of the multiple-choice options differ.

used to offset corporate Scope 1 and 2 emissions²⁴. 5 providers mention the offsetting of selected Scope 3 emissions as the purpose of use, in particular emissions from air travel, logistics and events. Less relevant is the purchase of credits to offset the product carbon footprint (5 mentions) and as an instrument for achieving a climate target, i.e. <2°C, 1.5°C or net zero²⁵ (5 mentions). In addition, the purchase of offset credits is also used in a few cases as an isolated, high-profile individual measure.

²⁴ Scope 1 covers direct emissions that arise, for example, from combustion processes in a company's mobile or stationary facilities. Scope 2 emissions arise indirectly from the purchase of grid-bound energy. Scope 3 emissions arise in the upstream and downstream value chain of a company.

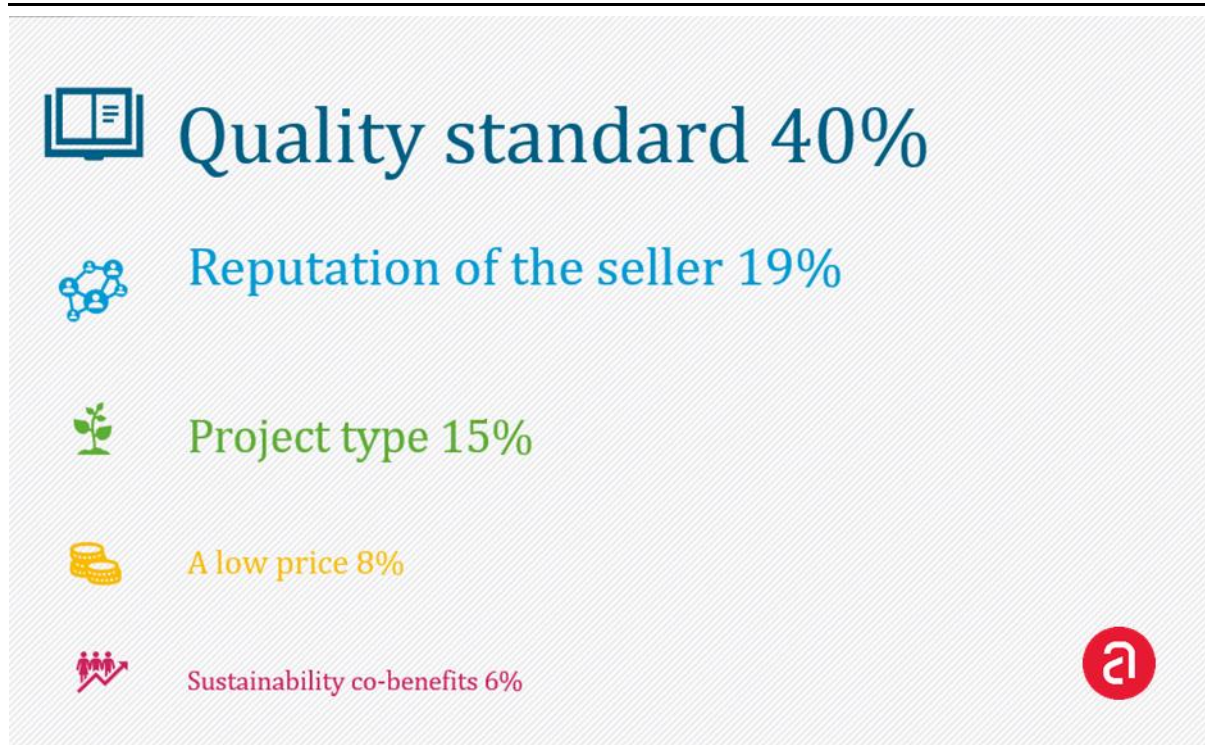
²⁵ The Intergovernmental Panel on Climate Change (IPCC) describes net zero as a state in which anthropogenic emissions of greenhouse gases into the atmosphere are offset by anthropogenic removals over a certain period of time.

4 Project criteria

4.1 Purchase criteria

In the 2021 market survey, 40% of the participants named the **quality standard of the supported projects** as the most important criterion for the purchase decision, whereas in 2015, only 8% of participants designated this criterion as highest importance. Second to quality standard, respondents named the reputation and reliability of the supplier as a decisive argument for their choice. As with the reasons for not offsetting emissions, price is of little relevance when it comes to naming the criterion for offsetting. Only 8% in total (9% each among companies and private persons) now name a low price as the most important criterion, which is also a clearly negative trend compared to the last major market survey (2015: 18% in total, of which 30% were companies and 3% other groups).

Figure 8: Most important criterion for the decision to purchase carbon credits (1st priority); n=165



Source: adelphi 2021, Data: survey of the demand-side; Question type: Ranking

Sustainability co-benefits in the country of origin play a minor role (6%) as the main reason (first priority) in the purchase decision on the demand-side. However, if one considers the all three reasons for the decision, the picture changes: Especially as a secondary (17% of the answers, third most frequent naming) or tertiary decision variable (22% of the answers, most frequent naming) it has an influence on the purchase decision. In 2015, nevertheless, significantly more participants named positive development impacts as the most important criterion, with 17%. Country of origin, vintage²⁶ and project size²⁷ play a minor role, as they did

²⁶ The word "vintage" refers to the year in which the emission reduction on which the carbon credit is based was achieved.

²⁷ In the voluntary carbon market, this project size refers to the annual emission reduction of the climate protection project. In the CDM, for example, three project sizes are distinguished: large-scale (>60,000 tCO₂e p.a.), small-scale (<60,000 tCO₂e p.a.) and micro-scale (<10,000 tCO₂e p.a.).

in the 2015 market survey, although the country in which the project was certified plays a major role (30% as 1st priority), especially for NGOs and foundations. Overall, the results of Wolters et al. 2015²⁸ were similar, with the role of quality standards as the most important criterion increasing fivefold from 8% (2015) to 40% (2021). This focus on quality standards in the purchase decision may reflect the demand-side's desire for reliability and trust in the chosen product, especially against the backdrop of criticism of a confusing market. Meanwhile, a higher awareness of offsetting may go hand in hand with a higher level of knowledge on the demand-side, through which more specific wishes are expressed with regard to the quality standards of the projects.

The **results** presented above for the **demand-side partially contradict the results of the semi-structured interviews with the supply side** on the German market. When asked which criterion (price, project type, standard, vintage, additional development effects and project country) has the **greatest influence on a customer's decision** to buy, the majority of the demand side stated **price as the most important factor**. People are also reluctant to compromise on project technologies and standards. Only with regard to the carbon credits' vintage are customers willing to make compromises in the selection of suitable carbon credits.

Furthermore, the **guarantee of additional development contributions plays a special role in the decision** to purchase a credit. On the supply-side, 74% (n=23) answer that projects with additional development impacts are more frequently demanded. About a quarter (26%) deny this statement, while 4% make no statement on the question—another indication of its relevance, which supports answers from the semi-structured interviews. According to this, additional development effects play an increasing role in the purchase decision. Quality standards that include additional development effects achieve better ratings overall with regard to their quality, which indicates the importance of these effects for public buyers (see chapter 4.2). Companies select additional development impacts to be considered when the impacts classified are as relevant within the framework of their sustainability strategy.

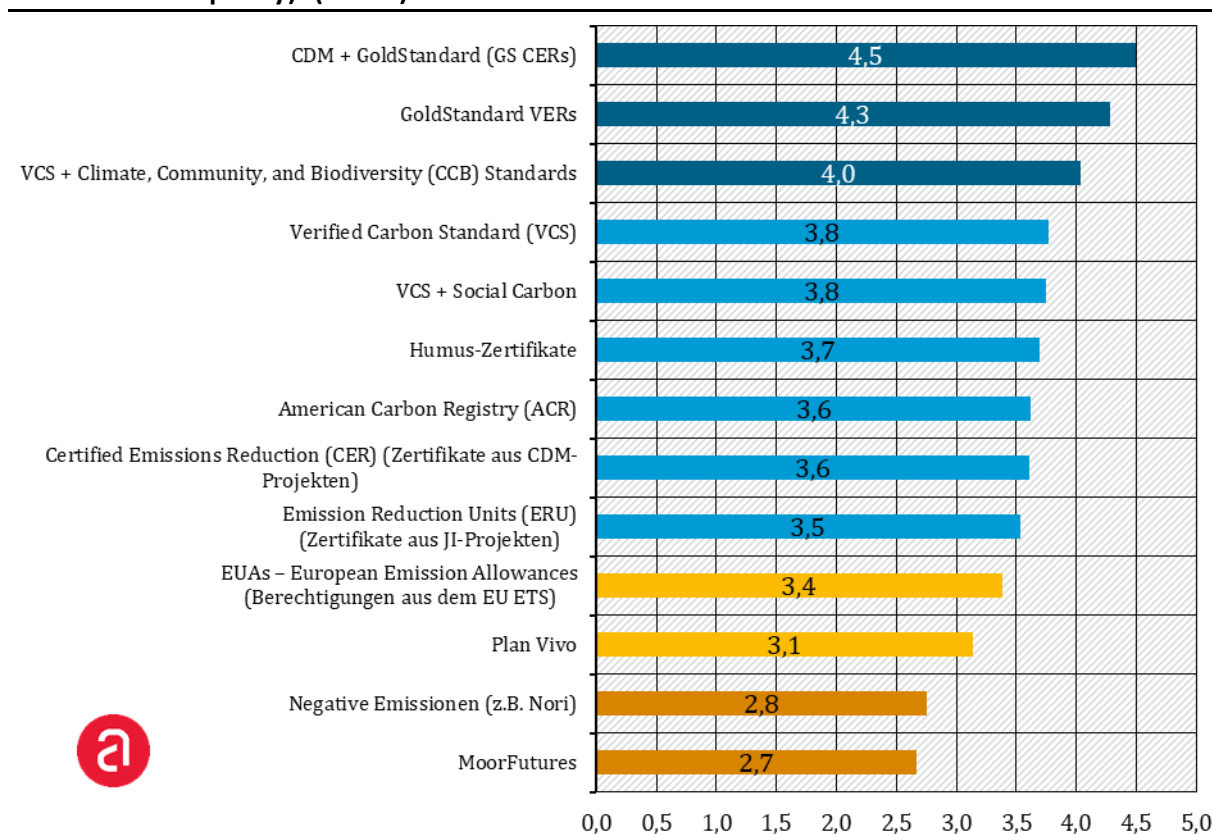
4.2 Quality standards

When assessing the type quality standards, respondents could choose from a pre-selection of 13 options (or double certifications). Each quality standard could be rated on a scale from 1 (low quality) to 5 (very high quality).

In the 2021 market survey, the demand-side rates double certification²⁹ (GS CER) under the **Clean Development Mechanism (CDM)** and **Gold Standard (GS)** with the **highest scores (4.5)** (Figure 9). However, single certification under the CDM is rated low by participants (3.6), while single certification under the Gold Standard (GS VER) scores the second highest (4.3). Projects certified under the Voluntary Carbon Standard (VCS) and the Climate Community & Biodiversity Standard (VCS + CCB) are also rated highly, at an average of 4.0. Overall, particular quality standards with emphases on sustainability co-benefits are rated positively (rank 1 to 3). This indicates that co-benefits might have a higher relevance than shown in Figure 8.

²⁸ Supra 1

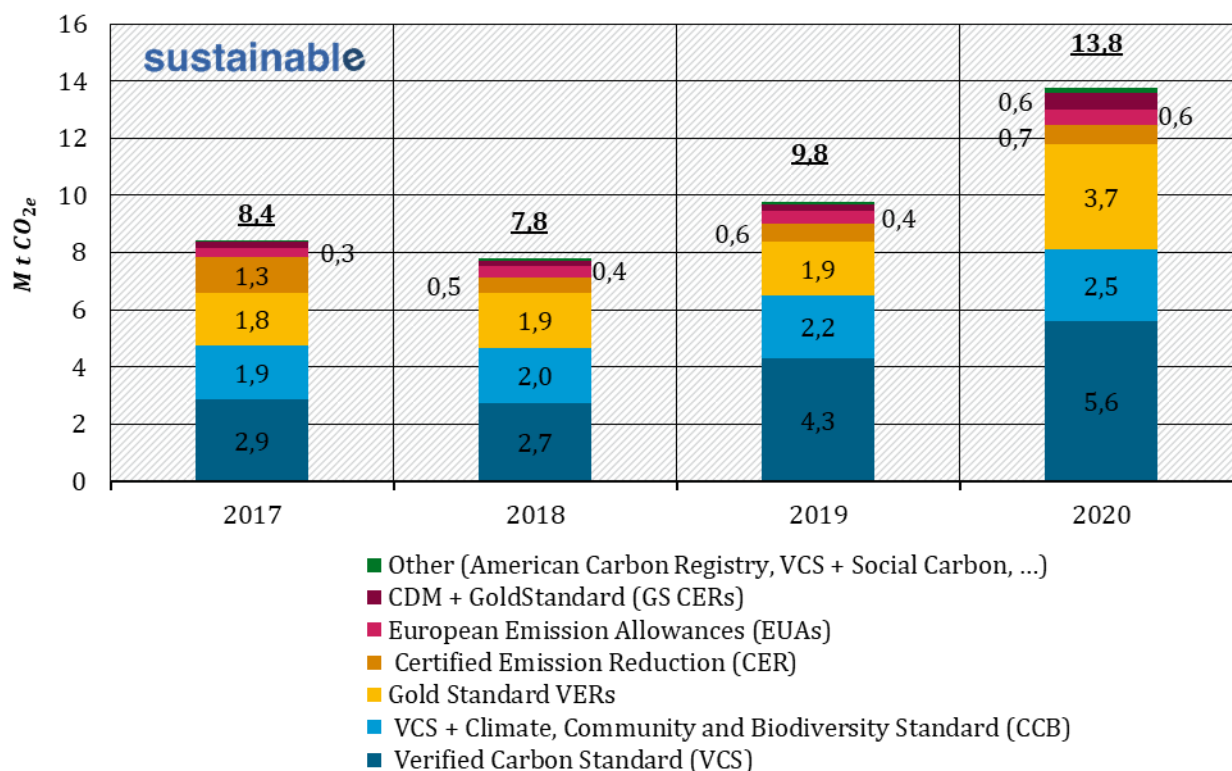
²⁹ Projects that are registered under two offset standards and therefore have their project impacts verified twice - if possible - are referred to as double-certified.

Figure 9: How do you rate the quality standards on a 1-5 scale (1 = very low quality, 5 = very high quality)? (n=107)

Source: adelphi 2021, Data: survey of the demand-side; Question type: 5-Point-Matrix

When querying the credits sold by quality standards, the supply-side could first make a pre-selection from 13 standards and add others. In the next step, the volumes of retired carbon credits per standard and year could be specified. The result, displayed in Figure 10, clearly shows that credits from VCS projects were sold (retired) most frequently over all four years. Carbon credits from projects under the VCS, with an addition of Climate, Community and Biodiversity (VCS + CCB) and Gold Standard (GS VER) projects, were sold second most frequently. A small share of the trading volume is accounted for by projects with double certification (GS CER) under the CDM and the Gold Standard, European Emission Allowances (EUAs), American Carbon Registry (ACR) and VCS and Social Carbon (VCS + SC).

It should be noted that the total cumulative volume of 2017-2020 constitutes only about 30% of the volume of results from section 2.4. This is due to the basis of data and the fact that only some of the suppliers were able to provide volume-weighted data per standard.

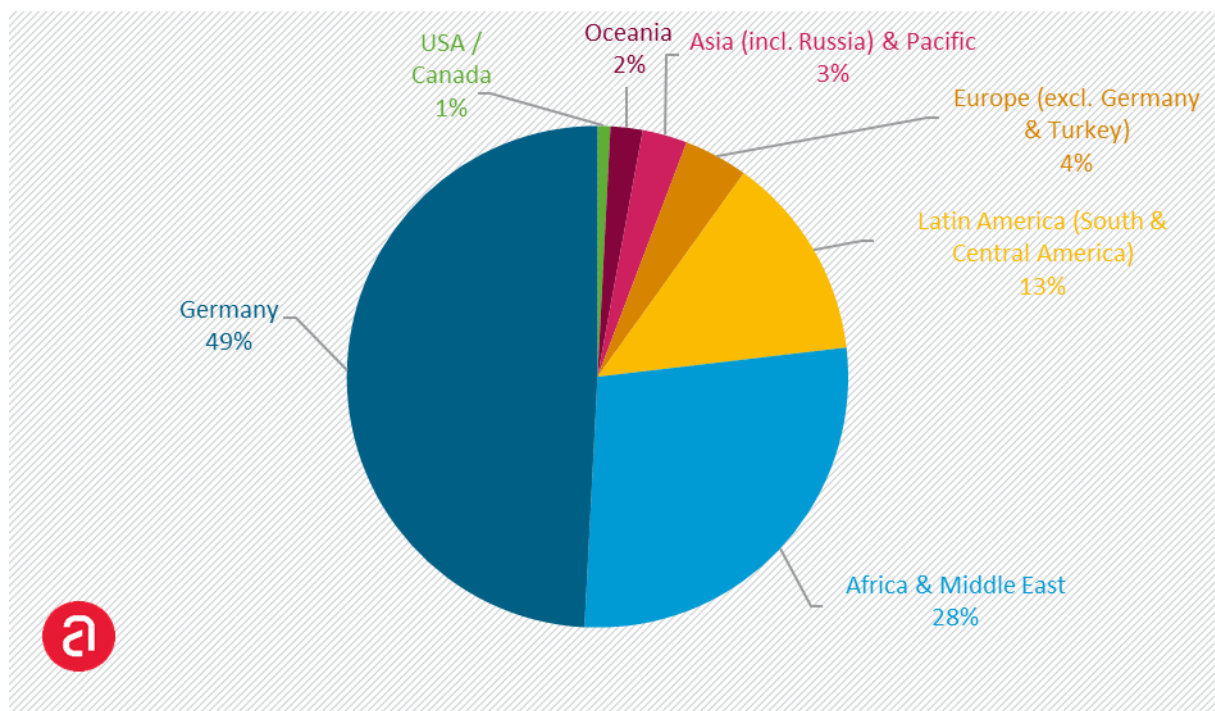
Figure 10: Cumulative volume of retired credits per standard and year

Source: sustainable 2021, Data: Survey of the supply-side; Question type: matrix with text field

4.3 Country of origin (project host countries)

The respondents could indicate their preference for the project host country up to five times. Preferences for the first (highest) selections are shown in Figure 11. The demand-side in Germany is split in two factions for desired project host countries. **49% name Germany as their first preference.** Of these, the majority would like projects in Europe as their second preference (63%) or state no further preference (11%). The second fraction (**44%**) **name regions as their first preference, which can be roughly described as "Global South"** (Africa & Middle East, Latin America, Asia & Pacific) and **only few of them want offset projects hosted in Germany (5% as second preference) or Europe (4% as second preference).** This fraction instead chooses Asia and the Pacific (33%), Latin America (27%) and Africa and the Middle East (18%) as their second preference.

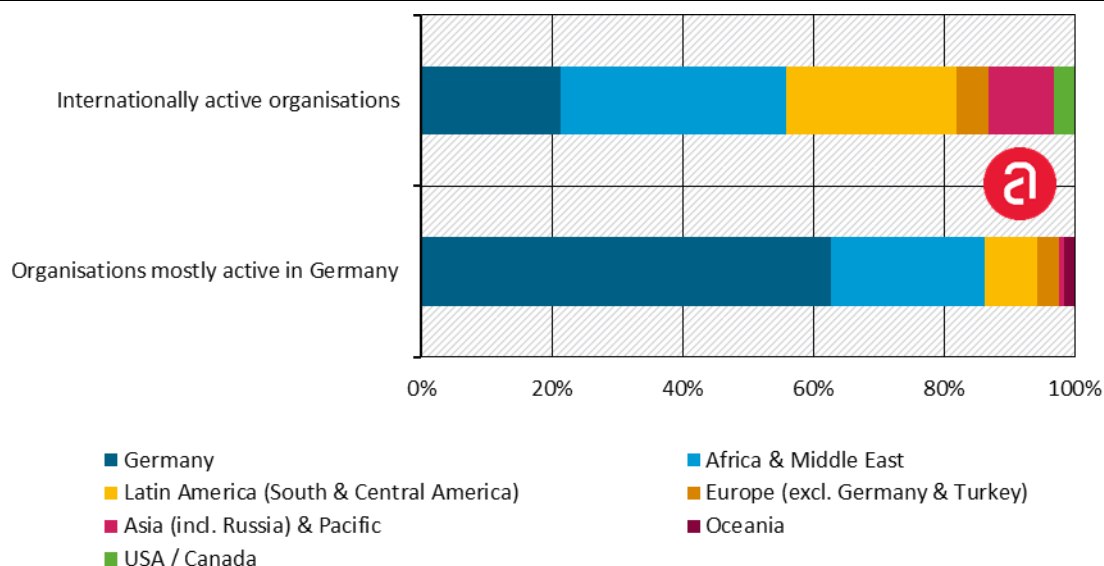
Figure 11: Question: Where should the projects be hosted that you would like to use to offset your emissions (1st priority)? (n=242)



Source: adelphi 2021, Data: survey of the demand-side; Question type: Ranking

The public sector, in particular, is interested in domestic projects (78%), which could be explained by their domestic affiliation (see Figure 12 for this) and their desire to use public funds in said region. NGOs, associations and religious institutions, choose the region "Africa & Middle East" most often as their first preference for project region.

Demand groups that are mainly active in Germany have a higher interest in offsetting projects hosted in Germany. Over 60% of respondents from this group name Germany as their first preference, while respondents with an international alignment only do so by about 20%.

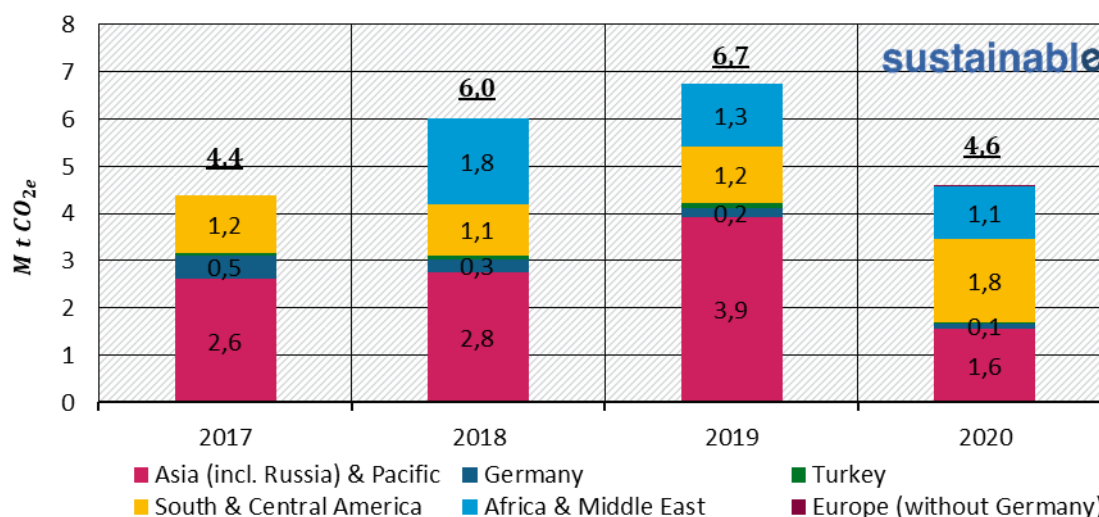
Figure 12: Preferred host country of supported offsetting project by geographical alignment of the responding organisation

Source: adelphi 2021, Data: survey of the demand-side

However, it should be noted that for respondents from the demand-side, the project host country only plays a relatively minor role when purchasing carbon credits.

The survey of suppliers shows (Figure 13), that over all four years a **growing majority of credits come from Asia, including Russia and the Pacific**. The second most common source of credits sold and retired are projects in South & Central America. The third most frequent sellers of credits are from Africa and the Middle East. The remaining volumes are distributed among Turkey, Germany and Europe (excluding Germany). The supply shown thus contrasts with the preferences expressed by the demand-side.

It should also be noted here that the total cumulative volume in 2020 is below the volume from 2019 and only comprises around 10% of the volume from section 3.1. This is also due to the data basis and the fact that only some of the suppliers can provide volume-weighted data.

Figure 13: Cumulative volume of retired credits per region and year in million t CO_{2e} (n=13)

Source: sustainable 2021, Data: Supply-side survey; question type: matrix with text field, values given in % or absolute values.

As reasons for why they are interested in projects hosted in Germany, 39% of respondents state that they want to support climate action in the region. About a quarter of respondents want to contribute to Germany's climate mitigation targets or have more confidence in the projects when they are implemented in Germany. Only 7% of respondents answered that their preference for projects hosted in Germany is influenced by a third party—e.g., their own customers, business partners, etc.

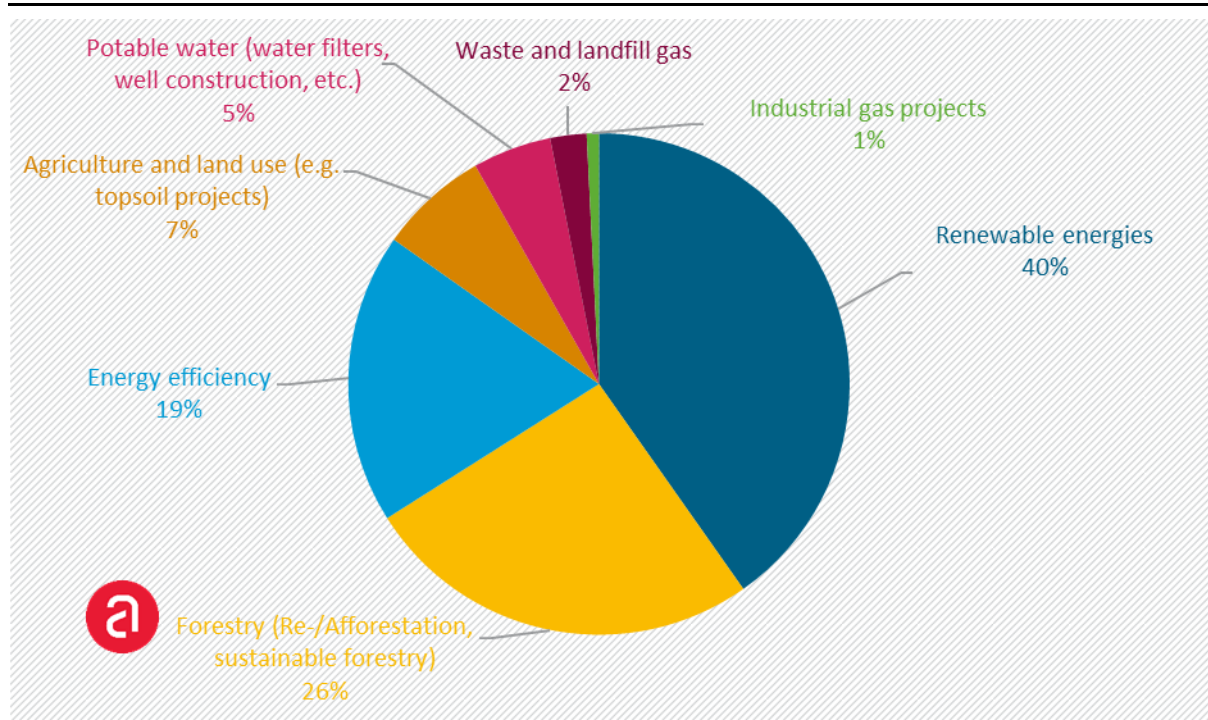
When asked about the extent to which the demand-side³⁰ would use projects hosted in Germany, half of them state that they want to offset with a balanced mix of German and international credits. 36% of respondents want to use mainly credits from projects hosted in Germany and only 14% say they want to use them exclusively.

4.4 Project type

Regarding preferences in the project type, the most popular type did not change compared to our 2015 survey—**renewable energy projects continue to be the most popular project type**. 40% of respondents name this project type as their first preference (2015: 42%). Forestry and agricultural projects, however, have gained in popularity. While this project type was mentioned as first preference by 15% of respondents in 2015, in 2021 it is mentioned as first preference in 33% of cases (2021: 26% forestry and 7% agriculture and land use). Energy efficiency projects are named as first preference by 19% (2015: 32%) of respondents. Other project categories are named only to a small extent in this survey. Credits from forestry projects are of particular interest for NGOs and foundations (in 35% of cases chosen as first preferences). This group chose forestry projects as their first preference more often than the average (26%) and thus more frequently than the project type renewable energy. More than half of the respondents from religious institutions choose the project type renewable energy as first preference. However, it should be noted in this context that, as shown in Figure 8, the project type is only of secondary importance when carbon credits are purchased.

³⁰ The question was posed to all participants who chose Germany as their first, second or third preference as a project host country.

Figure 14: Question: Please rank the following project types according to your preferences, 1st priority (n=256)

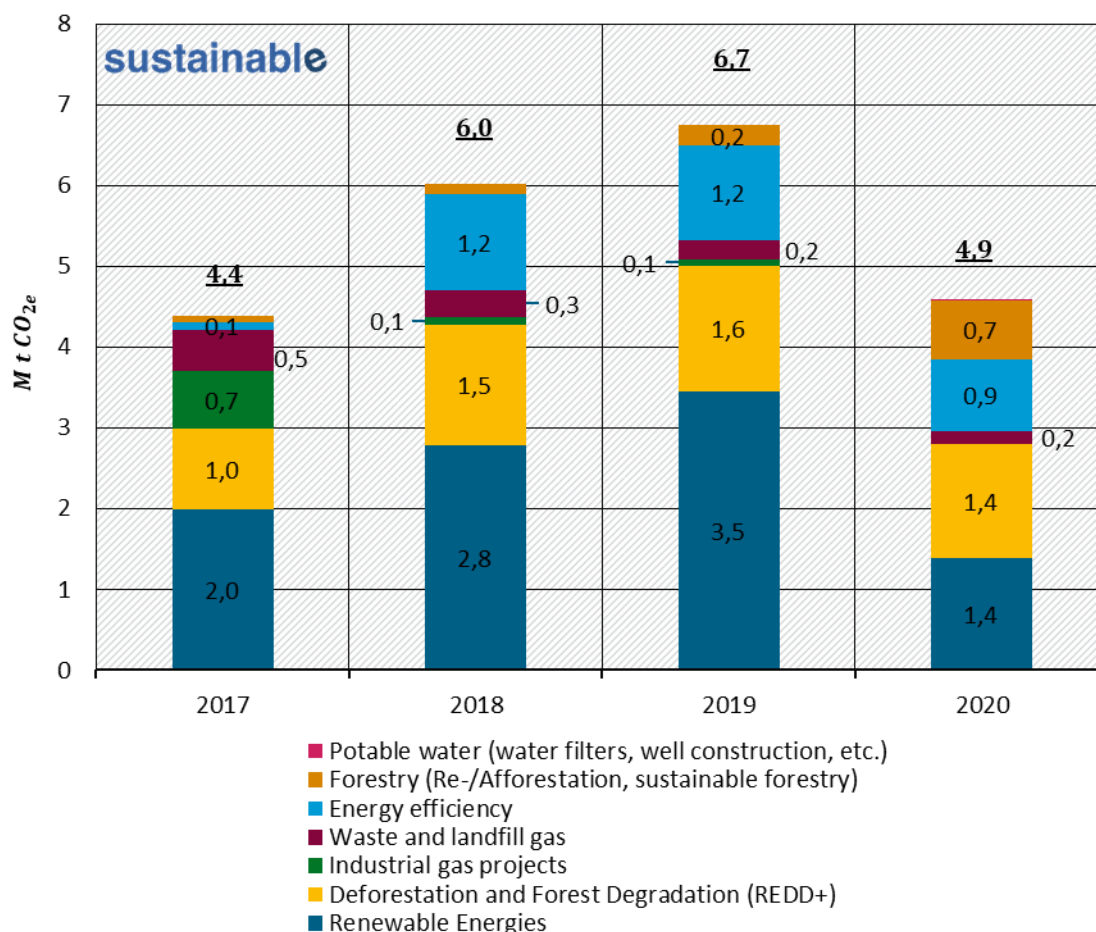


Source: adelphi 2021, Data: survey of the demand-side; Question type: Ranking

The preference of the demand-side is reflected in information provided by the suppliers. As shown in Figure 15, renewable energy projects account for the largest volume of credits sold and retired, with 2 million tonnes CO₂e in 2017, 2.8 million tonnes CO₂e in 2018 and 3.5 million tonnes CO₂e in 2019. In second place are forest protection projects designed to reduce emissions from deforestation and forest degradation: so-called Reducing Emissions from Deforestation and Forest Degradation (REDD+)³¹, which account for the same share as renewable energy projects with 1.4 million tonnes CO₂e in 2020. There is also a change in volume of the third most-sold credits. While industrial projects were still in this position in 2017, credits from energy efficiency projects have been the third most-sold since 2018. Today, credits from industrial projects are rarely traded.

It should also be noted that, in principle, the cumulative volume in 2020 is below that from 2019. The graph only shows around 5% of the volume from section 3.1. This is due to the data basis and the fact that only some suppliers were able to provide volume-weighted data.

³¹ REDD+ = Reducing Emissions from Deforestation and Forest Degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks.

Figure 15: Cumulative volume of retired credits per project type and year (n=13)

Source: sustainable 2021, Data: Supply-side survey; question type: matrix with textfield, values given in % or absolute values.

Preference for forestry and agriculture projects is higher when Germany is the host country³², higher still than for renewable energy projects. Here, a total of 37% (22% forestry, 15% agriculture and land use) participants chose forestry and agriculture projects as their first preference, with peatland projects selected by a further 17%. Renewable energy, on the other hand, has a lower popularity among domestic projects with 21% of the votes, as do energy efficiency projects (14%).

53% of respondents purchase forestry and land use credits, despite known risks of non-permanence of these emission reductions. 38%, on the other hand, do not use credits from LULUCF-projects for the very same reason. 5% state that they don't purchase credits from this type of project for other reasons.

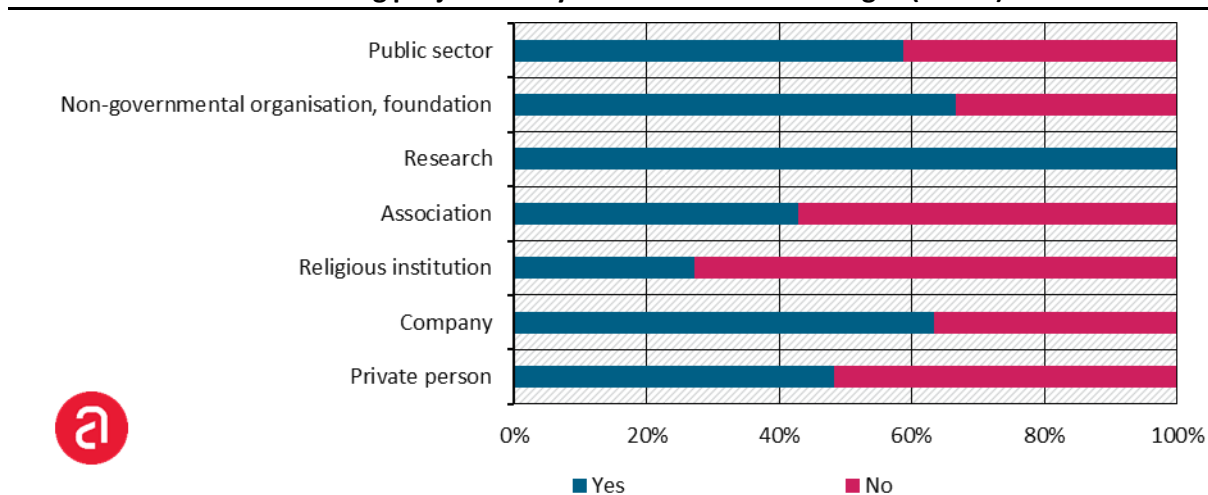
Asked about the reasons for their interest in LULUCF projects, co-benefits like increases in biodiversity are the main reason (41% of respondents). Another important reason is that the climate benefits of a forest are easy to understand. This reason accounted for 34% of the votes cast. Marketing benefits (12%) and the low price of the credits (5%), on the other hand, are less influential.

³² All participants who indicated Germany as their first preference for the desired project country were asked for their preferred project type for German projects.

4.5 Double Claiming and the Financial Contribution Claim

Finally, the survey examines the demand-side's attitude towards a double claiming (also called double counting) of carbon credits and the Financial Contribution Claim.³³ **Overall, 57% of respondents say that they are aware of the problem of double claiming emission reductions.**³⁴ However, it must be taken into account that a significant number of respondents were identified and invited to participate in the survey due to their affinity for environmental and climate change issues. It is therefore possible that the group of participants invited have a comparatively broad knowledge of the offset market, and thus of the double claiming and Financial Contribution Claim issues.

Figure 16: Question: Currently, there are no rules to avoid a double claiming of emission reductions from offsetting projects. Are you aware of this challenge? (n=265)



Source: adelphi 2021, Data: survey of the demand-side; Question type: single choice

18% of respondents state that they have already heard of the Financial Contribution Claim alternative. The question of whether the participants would also use this alternative (Figure 17) is unclear. **45% of respondents state that they have not yet decided**, and 19% of each respondent category would not use the Financial Contribution Claim or would only use it if a neutralisation claim is still associated with it. The latter contradicts the logic of the approach.³⁵ Only 17% state that they would use the Financial Contribution Claim even without such a claim. A difference emerges between the demand groups analysed. **While only 9% of companies want to use the Financial Contribution Claim, this proportion is four times as high in the private persons demand group (38%).** The ability to claim climate neutrality is stated as a motivating factor almost twice as often by companies (26%) as it is by private persons (14%).

The semi-structured interviews with the supply-side corroborate these results. When asked whether customers would also use an alternative claim, for example, the statement, "My company contributes to achieving the German climate target", **all respondents whose customers are primarily companies stated that this communication is unattractive.** On the

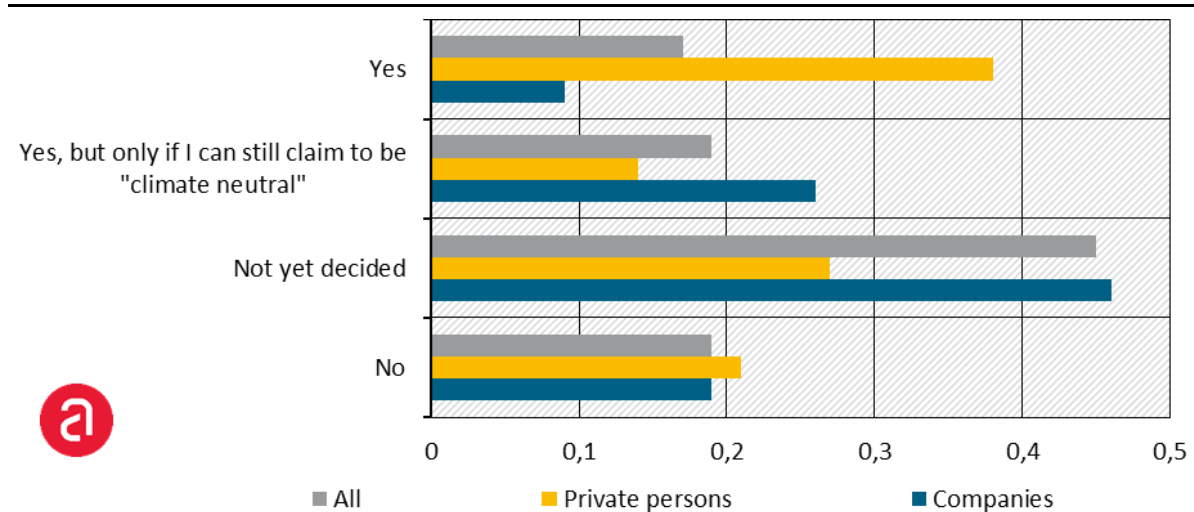
³³ The following explanation was presented to the participants of the survey: If a double claim cannot be avoided, the buyers cannot offset their own emissions or become climate neutral by purchasing carbon credits. Instead, the buyer contributes financially to the fulfilment of the climate goals of the project host country. This financial support can be advertised (a so-called financial contribution claim).

³⁴ Participants in the survey were also presented with an explanation of the dual use.

³⁵ for more background on the Financial Contribution Claim see: <https://www.umweltbundesamt.de/publikationen/future-role-for-voluntary-carbon-markets-in-the>, last accessed 15.02.2022

other hand, the term "climate neutral" is very attractive and has a high recognition value, which is the main reason that many customers buy credits (see also Figure 6).

Figure 17: Question: Would you use the alternative of a Financial Contribution Claim? (n (gesamt)=151, n (privat persons)=29, n (Companies)=68)³⁶



Source: adelphi 2021, Data: survey of the demand-side; Question type: single choice

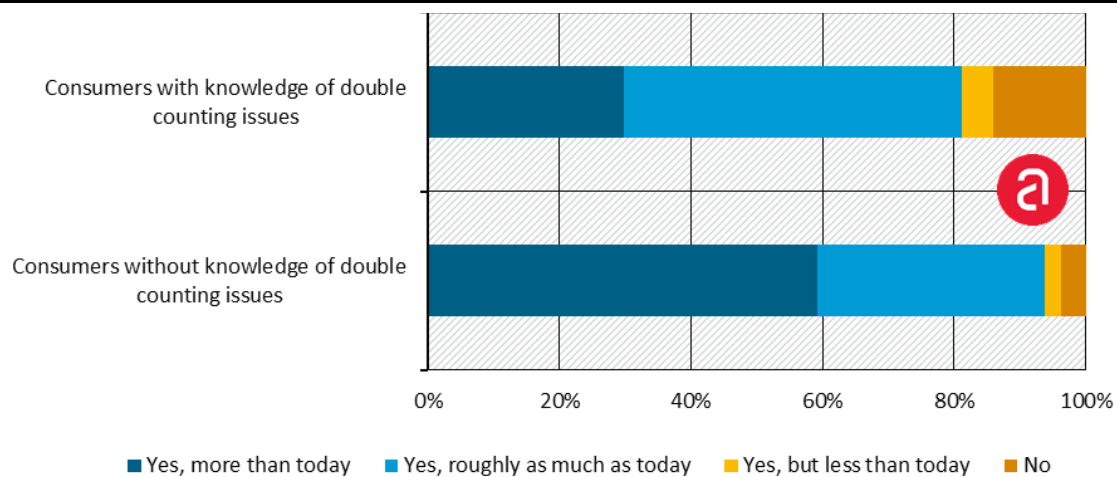
The survey shows the importance—for companies in particular—to offset with the aim of claiming climate neutrality and not necessarily to contribute to climate change mitigation irrespective of who claims the emission reductions. Whether Financial Contribution Claims will be attractive alternatives in the future remains to be seen. However, private persons can increase the popularity of the Financial Contribution Claim by pioneering it.

The survey (Figure 18) also shows that the **demand-side is interested in buying carbon credits in the future, despite the problem of double claiming emission reductions**. About half of respondents say they will offset as much in the future as they do today, while 30% even plan to offset more. 14% indicate that they do not want to offset in the future and only 5% say they want to offset less than today. Among the respondents who are unfamiliar with double claiming, however, willingness to offset in the future is higher: Here, 59% (+9%) want to offset more, 35% (+5%) the same amount and only 4% (-10%) do not want to offset any emissions in the future.

Results from the semi-structured interviews with the supply-side concerning credit volumes provisionally sold in 2021 confirm the trend. According to the interviews, as of July 2021, **the volume already sold this year exceeds the total volume of the previous year in all 9 cases**. The trend of strong market growth in recent years thus continues in 2021.

³⁶ The difference between n(total) and the n-values for private individuals and companies, results from the answers of the other participant groups.

Figure 18: Question: Will you offset GHG emissions in the future? (n=145)



Source: adelphi 2021, Data: survey of the demand-side; Question type: single choice

5 Summary and Conclusions

The supply-side on the German market for greenhouse gas offsetting has changed in comparison to the last market surveys. There is a tendency for the supply-side to successively expand its business model. In addition to trading in carbon credits, consulting services are increasingly offered for areas like strategy development (offsetting, climate and sustainability) and their embedding in companies.

- ▶ The traded volume of offset credits developed rapidly in the survey period since 2017: **In 2021, the supply-side in Germany sold and retired a total of 43.6 million tCO₂e in the form of offset credits.** This growth trend is likely to continue, as for many suppliers and providers, the credits already sold and retired between January and July 2021 exceed the total value of the previous year.
- ▶ Regarding project types, **projects from the renewable energy sector continue to be of highest popularity**, although the total volume of retired credits from this sector has decreased since 2017. **REDD+ projects as well as other forest and forestry projects are gaining in popularity.** Preferred over the entire survey period are also efficient cookstove projects (energy efficiency projects).
- ▶ While the demand-side has a high interest in offsetting projects hosted in Germany, the supply-side is not able to meet this demand due to significant concerns about potential double counting of emission reductions. **The focus regarding host project regions continues to be on Asia, South & Central America as well as Africa and the Middle East.**

Demand for offset services is increasing. The desire to contribute to climate protection in general or even to claim climate neutrality are the main motives.

- ▶ Compared to 2015, the **price of offset credits is significantly less relevant**—both as the reason for not offsetting as well as for the reason to choose offsetting services. However, this trend is not confirmed by information gathered from the supply-side: They continue to see credit prices as the most relevant criteria.
- ▶ The **lack of transparency in the market remains an obstacle** that prevents the demand-side from offsetting. At the same time, the **demand for high-quality credits is increasing.** The **quality standard** is the most important factor for customers when choosing carbon credits. A **double certification**, e.g., registering a project under a standard with a focus on accounting, and using another standard focusing on sustainability co-benefits, is **rated as being of the highest quality** by the demand side.
- ▶ Renewable energy projects continue to be the most popular project type for the demand-side, but the importance of credits from forestry and agricultural projects continues to grow. LULUCF projects are particularly desirable for projects hosted in Germany.
- ▶ There is **considerable theoretical potential for Germany as host country**, but this is not easy to leverage due to higher project costs and Germany's existing comprehensive mitigation commitments and goals (and consequent problems in determining additionality of projects and double counting of emission reductions). At the same time, slightly less than half of the respondents are neither interested in projects hosted in Germany nor in Europe.

- If the appropriate framework conditions are ensured, a further increase in demand can be expected. The **demand-side also wants to offset GHG emissions in the future**, and they are aware of the problem of double claiming emission reductions. The **alternative Financial Contribution Claim is attractive for private persons**, while companies still want to claim climate neutrality when offsetting.

Comparing survey results from the supply and demand-side shows ostensibly contradictory results. Both sides rate relevant purchasing criteria, especially the price of an offset credit and the importance of co-benefits, quite differently. Regarding co-benefits, this discrepancy can be explained by taking a closer look at the second and third preferences chosen by the demand-side. Here, sustainability co-benefits are mentioned the third-most frequently (second preference) and most often (third preference). Additionally, those demand-side groups—especially NGOs—that rated the importance of co-benefits particularly highly comprised a small portion of participants in the demand-side survey, resulting in a low average importance of sustainability co-benefits. Co-benefits will therefore probably continue to play an important role in the future. However, the different assessment of the price of a carbon credit cannot be explained by comparing the answers given by the individual demand groups or by looking at other reasons given for purchasing carbon credits. According to the demand-side, the price is always of least among considerations—which starkly differs from the 2015 market survey. One reason could be that this year's market survey reached more respondents on the demand-side who may already be committed to climate mitigation out of intrinsic motivation—this is indicated by the higher proportion of respondents who already offset—and are, as a result, perhaps willing to pay a higher price for carbon offsets. There is also a diverse range of credits from different projects and quality standards available in Germany, which means that an attractive and fitting product may be found for the demand-side in the desired price corridor; this criterion therefore is of less relevance.

However, when comparing the supply- and the demand-side, it becomes clear that the offset market in Germany continues to grow strongly and will likely continue its trajectory. During the period studied from 2017 to 2020, one record year follows the next. Carbon offsets traded in the first half of 2021 are already at record numbers and a high demand is projected for the near future. However, there is some uncertainty when looking at future demand from companies that offset primarily due to their wish to claim carbon neutrality; the extent to which offsetting can continue to be offered with this claim is uncertain.