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Legislation on Agrivoltaics in Germany: Changes and Complements Towards a Comprehensive Legal Framework

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Abstract. Following the authors' two contributions "Legal Framework of Agrivoltaics in Germany" [1] and "New Legal Framework of Agrivoltaics in Germany" [2] in previous proceedings of the AgriVoltaics conference series, this study summarizes changes of and complements to the legal framework for agrivoltaics in Germany that have been implemented after April 2023. The changes and complements relate to the public and energy law and represent major and important improvements for agrivoltaics towards a comprehensive legislation. In the public law, a new legislation on building permits privileges small agrivoltaic facilities leading to an easier and faster permitting procedure compared to those of larger facilities. In the energy law, a new amendment to the Renewable Energy Act (German: Erneuerbare-Energien-Gesetz, EEG) provides more attractive feed-in tariffs for certain agrivoltaic systems. Also, the amendment includes a mandatory level of ecosystem services provisions for conventional ground-mounted photovoltaic systems (GMPV), hence, levering the ecologic potential of a dual land use with PV systems. Finally, the authors present the new German pre-standard DIN 91492 that specifies requirements for agrivoltaics with animal husbandry which might provide a definition for legislators in Germany they can refer to. While the adjustments to the legal framework represent important steps towards a broad market entry of agrivoltaics, challenges remain a sufficiently differentiated framework that considers the specific cost and synergies of the respective agricultural application areas.

Keywords: Agrivoltaics, Legal Framework, Energy Transition, Renewable Energy Act (EEG)

1. Summary of the Legal Framework Before April 2023

Over the last years, the legal framework in Germany has significantly evolved to accommodate agrivoltaic systems that integrate land use for both agriculture and solar energy production. A key foundation for this development is the pre-standard DIN SPEC 91434, introduced in May 2021, which outlines the criteria agrivoltaic systems must meet to ensure that the land's primary use remains agricultural [3]. The standard aims to clearly differentiate agrivoltaic systems from conventional GMPV. The DIN SPEC 91434 requires that the agricultural yield of an agrivoltaic system must reach at least 66 percent of the baseline reference yield. Land loss due to the PV facility is limited to a maximum of 10 percent of the total project area for Category 1 (overhead systems with a vertical clearance above 2.1 meters) and 15 percent for Category 2

(interspace systems). Additionally, light availability, light distribution, and water availability must be assessed and adjusted to meet the specific needs of the agricultural crops. It is important to mention that the DIN SPEC 91434 itself is not a legally binding regulation; it only gains legal significance when referenced in relevant legislation.

As part of its agricultural policy, the European Union (EU) provides direct payments to farmers for land primarily dedicated to agricultural use, if specific regulatory conditions are met. A key question, therefore, is whether incorporating agrivoltaic systems causes agricultural land to lose this eligibility. Generally, direct payments from the EU for agricultural land cultivation only play a very minor financial role in most agrivoltaic projects. However, uncertainties about eligibility for these payments on land with agrivoltaic facilities have historically caused notable delays in the sector's development in Germany. Since 2022, a new amendment § 12 (5) of the German GAP Direct Payments Regulation (GAPDZV) clarifies that land with an agrivoltaic facility is eligible for direct payments if two key conditions are met: (1) the system does not hinder conventional agricultural practices, including typical methods, machinery, and equipment, and (2) the facility reduces the agriculturally usable area by no more than 15 percent, according to DIN SPEC 91434 standards [3, 4]. When these conditions are satisfied, 85 percent of the area is deemed eligible for direct payments as a fixed percentage. It is important to note that in the GAPDZV, as well as in all other relevant legal texts, reference is consistently made to the version of DIN SPEC 91434 issued in May 2021 (written as DIN SPEC 91434:2021-05). This ensures a degree of legal security for marked participants if the DIN SPEC 91434 is revised in the future. For clarity and readability, however, we will refer to it simply as DIN SPEC 91434 throughout this article.

Since 2021, the Renewable Energy Act (EEG), Germany's primary legislative framework for its energy transition, has expanded its consideration of agrivoltaic systems [5]. The EEG provides renewable energy systems with several key benefits: prioritized grid connection, preferential electricity purchase, and regulated feed-in tariffs. Agrivoltaic systems, like other renewable energy sources, enjoy prioritized grid access and electricity purchase rights. For feed-in tariff tenders, eligible agrivoltaic systems can access significantly larger areas compared to GMPV, which generally face a restricted access to agricultural land. Additionally, for overhead systems the EEG offers a feed-in tariff premium of 1.2 Euro cents per kilowatt-hour in the case of an award in 2023. For later years, the premium gradually decreases to 0.5 Euro cents per kilowatt-hour in the case of an award in 2026 to 2028.

This, tariff premium however, is only applicable for systems that must participate in the EEG tenders (so-called facilities of the first segment). The obligation to participate in the EEG tenders is generally the case for systems with a capacity of more than 1 MW. An exemption exists for facilities owned and operated by civic energy cooperatives. These facilities are only required to participate in the EEG tenders if their capacity exceeds 6 MW. Small agrivoltaic systems not subject to tendering were therefore excluded from receiving the technology premium, creating a significant competitive disadvantage, particularly for horticultural systems that typically show a smaller system size compared to applications in arable farming or permanent grassland. An open question in the EEG legislation was whether the premium for elevated agrivoltaic systems applies specifically to Category 1 of the DIN SPEC 91434, as the legislation mentions only a minimum clearance height of 2.1 meters, without direct reference to DIN SPEC 91434. Details of the special solar facilities are determined by the Federal Grid Agency (Bundesnetzagentur, BNetzA) in accordance with § 85c EEG. With regard to arable agrivoltaics and the horticulture agrivoltaics, the BNetzA's determination of 1.10.2021 is to be applied. Regarding grassland agrivoltaics, the BNetzA was obliged to issue a determination by 1.7.2023.

In terms of agricultural tax relief, installing a photovoltaic system on agricultural land previously posed a risk for landowners: before 2022, such a facility could lead to the land being reclassified from agricultural and forestry property to real estate. This reclassification would result in the loss of preferential tax benefits associated with agricultural and forestry property, such as reduced inheritance and gift taxes. Since summer 2022, a decree published in the

Federal Tax Gazette now ensures that these areas retain their status as agricultural and forestry property, along with all associated tax advantages [6]—if the agrivoltaic system meet the criteria of the DIN SPEC 91434.

For building permits agrivoltaic systems fall under the category ”structural system”, which generally requires a building permit under building regulations law. Typically, these systems are installed on land outside urban areas and without an existing development plan. In such cases, the Federal Building Code (BauGB) distinguishes between “privileged” and “non-privileged” projects: Privileged projects, as defined in § 35 (1) BauGB, can only be denied if they conflict with public interests, while non-privileged projects outside urban areas are generally prohibited under § 35 (2) BauGB if they impact public interests [7]. § 35 (3) BauGB outlines the public interests to be considered in these cases. If a project does not meet the requirements for approval under § 35 BauGB, creating a development plan—potentially with an amendment to the zoning map—might be necessary, though this can be a lengthy process. As of January 2023, § 35 (1) no. 8 BauGB grants privileged status to projects for the utilization of solar radiation energy (GMPV, agrivoltaics, etc.) within a 200-meter-wide strip on both sides of highways and double-track railways. Debates on extending privileged status to agrivoltaic systems have included considerations that, while such a status could expedite the adoption of agrivoltaics in Germany, it might also reduce social acceptance by restricting the decision-making authority of local communities. Even without an explicit privileged status of agrivoltaics, an agrivoltaic project might considered to be a privileged project if, for example, a project serves an agricultural or forestry operation and only takes up a minor proportion of the operating premises (§ 35 (1) no. 1) or a horticultural production operation (no. 2). More details about the possibility of a privileged project according to § 35 (1) no. 1 and 2 are presented in Vollprecht et al. [3].

2. New Regulations in Public Law: Privileged Treatment of Small Agrivoltaics Systems

As described in the previous section, privileged building projects as defined in § 35 (1) BauGB enjoy an easier and faster permitting procedure compared to non-privileged projects. With the introduction of a new no. 9 in § 35 (1) BauGB [4], effective from July 7, 2023, small-scale agrivoltaic facilities with a maximum base area of 25,000 m² are considered as a privileged building project if the facility has a functional and spatial connection to the farming operations (see no. 9 a and b). Further, only one facility is permitted per farm (see no. 9 c). According to the referred § 48 (1) sentence 1 no. 5 a, b or c EEG and the respective specification of the Federal Grid Agency, eligible systems must correspond to the state of the art, which is deemed to be fulfilled if the system meets among others the requirements of the DIN SPEC 91434. Note that, however, receiving funding under the EEG is not a requirement for privileged status in non-urban areas.

The new regulation presents a promising opportunity for smaller agrivoltaic systems, especially in horticultural applications where areas are typically much smaller than those used for arable farming or permanent grassland. However, several open questions remain regarding the specifications outlined in the law such as:

- How should the spatial and functional connection of the facility to an operation be defined?
- How to calculate the land footprint of max. 25,000 square meters: by the ground coverage ratio or by the total project area?
- What is considered as another facility in case there is already a PV system installed?

A model implementation decree (German: Muster-Einführungserlass) adopted by the Urban Development Commission on March 13, 2024 tries to address these open questions [8]. Note that the model implementation decree is not binding; rather, it serves as guidance for the German Länder in implementing the new regulation.

According to the decree, the term 'spatial and functional connection of the facility to an operation' is to be interpreted in line with § 35 (1) no. 6 BauGB which regulates the privileged treatment of energy use of biomass production. Accordingly, the determination of this spatial and functional connection primarily depends on the specific circumstances of each individual case. When assessing the spatial and functional connection, the unique characteristics of agrivoltaic systems—which, unlike biomass facilities, require more space and depend on agricultural land or certain crops—should be taken into consideration. According to the implementation decree, it is irrelevant whether the facility is on leased or owned land of the farmer.

With respect to the functional connection, the decree further states that a link between electricity generation by the agrivoltaic system and the existing operational structure is required. Interestingly, the decree suggests that the functional connection should be regarded as given when the specifications of the Federal Network Agency for special solar facilities (§ 85c EEG) are met. This is argued in the decree with the associated high demands on their technology, particularly in the required compliance to the DIN SPEC 91434 as set by the BNetzA.

Further, the decree recommends that—in contrast to the provision in § 35 (1) no. 6 BauGB for biogas—the privileged status under § 35 (1) no. 9 BauGB does not require that the agrivoltaic system be operated 'within the framework' of an agricultural, forestry, or horticultural business. Therefore, the regulation does not stipulate that the operator of the facility and the farm manager must be the same person, nor does it require that the farm manager have significant influence over the facility operator, as long as the requirements for an agrivoltaic system under § 48 (1) sentence 1 no. 5 a to c of the EEG are met.

The most frequently discussed questions concern the calculation of the maximum land footprint of 25,000 square meters. According to the model implementation decree, here, the regulation in § 19 (2) of the German Land Use Ordinance (BauNVO) should not be applied. Using § 19 (2) BauNVO would define the footprint as the vertical projection area of the individual modules, excluding the spacing corridors between module rows. This approach would allow total facility areas significantly larger than the standardized 25,000 square meters to qualify for privileged status. Additionally, this interpretation reaches its limits for nearly vertical facilities or solar fence systems due to the minimal projection area. Instead, the decree suggests defining the area by the perimeter formed by the outermost module edges (including the corridors between module rows). The authors of the decree argue that this interpretation of footprint calculation aligns with the highest level of protection for non-urban areas, as expressed by the legislature in § 35 (5) sentence 1 BauGB. Furthermore, the realization of larger facilities would remain contingent on the municipality establishing an appropriate development plan.

While some federal states in Germany, such as Baden-Wuerttemberg and North Rhine-Westphalia, appear to adopt the recommendations of the model implementation decree [9, 10], the state of Rhineland-Palatinate takes a different stance, suggesting a more liberal approach to footprint calculation [11]. In the view of the Ministry of Finance of Rhineland-Palatinate, the calculation of the maximum footprint of 25,000 square meters may rely on the regulation in § 19 (2) BauNVO. According to their argumentation, this interpretation is supported by the wording of § 35 (1) no. 9 b BauGB, and the new overriding public interest in the expansion of renewable energy, as emphasized in § 2 EEG (more details in the next section).

These different perspectives show that for project development, it’s clearly recommended to check the local interpretation of § 35 (1) no. 9 b BauGB when planning the system size for a privileged agrivoltaics project.

While the model implementation decree provides some clarity at least regarding the spatial and functional connection, it leaves open the question of which PV system counts as another facility to meet the provision of only one facility as stated in § 35 (1) no. 9 c BauGB. Many farming operations already do have PV rooftop facilities. If these facilities would count as a facility, the perspective of a privileged building permit would be much restricted. Also, PV rooftop facilities have no or only minor relevance for spatial planning. Given that the primary goal of the BauGB is to preserve unplanned non-urban areas, it is more convincing that rooftop PV systems are excluded from the interpretation of § 35 (1) no. 9 c BauGB. However, even for PV facilities with spatial planning relevance, it remains unclear whether clause 9 c refers exclusively to other agrivoltaic facilities or also includes GMPV. Since the first part of § 35 (1) no. 9 BauGB defines the facilities that are subject to the regulation as agrivoltaic systems, it might be reasonable to conclude that the term “facility” under no. 9 c also applies exclusively to this type of system. If that is the case, it would also be reasonable to assume that the term “facility” under 9 c refers exclusively to agrivoltaic construction projects granted privileged status under this law. Like the question of how to calculate the system’s footprint, however, also here it’s clearly recommended to check the local interpretation the term “facility” under no. 9 c in the early stage of project development.

3. 2023 Amendment to the Renewable Energy Act (EEG)

With the new amendment from May 15, 2023, the EEG provides a much broader and more attractive support for agrivoltaic systems. As of November 2024, however, the regulations relevant to agrivoltaics are still pending state aid approval from the EU Commission (see § 101 EEG “State Aid Approval Requirement"). Until this approval is granted, the regulations in place prior to the amendment remain effective.

As a foundational boost for the energy transition, the amendment redefines the renewable energy targets in the EEG § 1, aiming for renewables to comprise 80% of gross electricity consumption by 2030. Similarly, the new § 2 EEG declares the construction and operation of renewable energy generation facilities to be of paramount public interest and serving public security. The significance of this new paragraph was already demonstrated in a ruling by the Higher Administrative Court of Greifswald (see Az.: 5 K 171/22 OVG).

The most far-reaching changes regarding the support for agrivoltaics in the EEG relate to the creation of a new sub-segment for so-called “special solar facilities” as introduced in the new § 37d EEG “Special Award Procedure for Solar Facilities in the First Segment”. § 48 (1) sentence 1 no. 5 EEG specifies which facilities are considered as special solar facilities. Next to agrivoltaic systems specified under no. 5 a, b, and c, also PV parking lots, peatland PV, and floating PV are considered under no. 5 d, e, and f, respectively. The sub-segment has a higher maximum value of value to be applied, exceeding those of GMPV. According to § 37b (2) EEG, in 2024, the maximum value to be applied is set at 9.5 cents per kilowatt-hour. From 2025 onward, the maximum value will be calculated as 8% above the average of the highest accepted bid values in the subsegment for special solar facilities (according to § 37d (1) no. 1 EEG) from the last three bidding rounds. However, the value may not exceed 9.5 cents per kilowatt-hour.

As specified in § 37d (1) no. 1, the annual volumes for tendering in the subsegment apply to all types of special solar facilities and amount to the following each year:

- 300 megawatts of installed capacity in 2024,
- 800 megawatts of installed capacity in 2025,
- 1,200 megawatts of installed capacity in 2026,
- 1,500 megawatts of installed capacity in 2027,
- 2,000 megawatts of installed capacity in 2028, and
- 2,075 megawatts of installed capacity in 2029.

According to the explanatory memorandum to the new § 37d EEG, the sub-segment aims at a better and more flexible accommodation of the increased costs associated with special solar energy systems. § 37d (1) no. 2 of the amendment targets the bidding process for agrivoltaic facilities, specifying that only systems with a clearance height of at least 2.10 meters will be considered in the new sub-segment. Here, the amendment directly connects to the former technology premia for overhead agrivoltaics of the first EEG segment. However, in the final version of § 37d EEG, also exclusively vertically agrivoltaic facilities with a clearing height of at least 0.8 meters were included. It is still questionable, whether tracked systems are considered in the sub-segment. This, however, was specified in a law draft for the next EEG amendment from the Economics Ministry from August 27, 2024 [12]. According to this law draft, all tracked agrivoltaic systems can be considered in the subsegment if the rotation axis is located more than 2.1 meters above the ground and the lowest point of the PV module edge has a clearing height of at least 0.8 meters throughout the year. As of November 2024, however, it remains open whether this regulation will be included in the EEG.

As another clear improvement for the development of agrivoltaic systems, the new amendment solved the problem of small agrivoltaic systems not subject to tendering which faced a competitive disadvantage by not being eligible for the technology premium. According to the new § 48 (1b) EEG, for the year 2024, these agrivoltaic systems receive a technology premium of 2.5 Euro cents per kilowatt-hour. In the following years, the technology premium is calculated by the difference between the maximum value to be applied in the subsegment for special solar facilities under § 37b (2) EEG in the previous calendar year and the reference value under § 48 (1) EEG taking into account the degression according to § 49 EEG. This, however, seems to be not sufficiently specified. As there are always three tender rounds per year, there is not only one maximum value to be applied in the subsegment of the respective previous calendar. Instead, there are three different maximum values, one for each tender round. This uncertainty urgently needs to be resolved to provide market participants with clarity on the correct technology premium for facilities in the second segment.

The 2023 EEG amendment introduces for the first time so-called minimum conservation criteria for GMPV in §§ 37 (1a) and 48 (6). The goal of these minimum criteria is to enhance biodiversity on the land used for GMPV. Special solar facilities, such as agrivoltaics are exempt from fulfilling these criteria. Sections §§ 37 (1a) and 48 (6) EEG outline a catalogue of five minimum conservation criteria, of which operators of GMPV must fulfil at least three. The selection of which three criteria to meet is solely at the discretion of the GMPV operator. While this new regulation is not directly relevant for agrivoltaics, it highlights the growing awareness of dual PV land use concepts.

As in the previous EEG, the BNetzA determines the requirements for special solar facilities through a directive, as outlined in § 85c EEG. Accordingly, the BNetzA's determination from October 1st, 2021 (Az.: 8175-07-00-21/1) for arable agrivoltaics and the horticulture agrivoltaics stays in place. Since July 1st, 2023, a further determination from the BNetzA specifies agrivoltaics for permanent grassland applications (Az.: 4.08.01.01/1#4). The determination outlines which areas are considered as permanent grassland in the context of the EEG and clarifies that—as done in the determination from 2021—the agrivoltaic systems must comply to the state of the art. Compliance with state-of-the-art standards is generally deemed achieved if the construction and operation of the agrivoltaic systems meets the requirements of DIN SPEC 91434. Thus, meeting the criteria of DIN SPEC 91434 is mandatory to qualify for the benefits for agrivoltaics systems provided under the EEG and BauGB.

4. New Pre-Standard DIN SPEC 91492: Requirements for Agrivoltaics with Animal Husbandry

While the DIN SPEC 91434 also mentions animal husbandry in the categories 1d and 2d, it does not include more specific requirements for animal husbandry. For this reason, a new DIN

SPEC 91492 process started in April 2023 to establish more specific requirements for livestock farming in the context of agrivoltaics [3] specifying regulations that are already outlined in the existing DIN SPEC 91434. The DIN SPEC 91492 was published in July 2024 and can be seen as a supplement to the existing DIN SPEC 91434. Accordingly, the DIN SPEC 91492 follows the same general ideas and a similar structure to those of the DIN SPEC 91434.

The DIN SPEC 91492 aims at addressing all economically relevant areas and types of use for livestock farming, adhering to principles of good economic practice and technical openness. As a result, no forms of livestock farming on agricultural land are fundamentally excluded from integration into agrivoltaic systems. In line with the DIN SPEC 91434, also the DIN SPEC 91492 categorizes agrivoltaic systems into overhead systems (Category 1: ≥2.1m) and interspace systems (Category 2: <2.1m).

As one main criterion, a minimum animal stocking density of 85% must be achieved and maintained across the total project area in comparison to a reference area after the construction of the agrivoltaic facility. The change in animal stocking density following the construction of the agrivoltaic system results from the reduction in usable land for livestock farming relative to a reference area with a comparable form of livestock management.

Regarding land losses and downgrading agricultural activity by converting arable land or land for perennial crops into permanent grassland, the new DIN SPEC 91492 is less restrictive compared to the DIN SPEC 91434. While the allowed land losses of Category 1 of DIN SPEC 91434 are maximum 10%, DIN SPEC 91492 accepts 15% (see Section 5.2.3 “Land losses”). Similarly, there are no restrictions in the new DIN SPEC 91492 about converting arable land or land for perennial crops into permanent grassland. In contrast, the DIN SPEC 91434 did not allow such a downgrading as this usually lowers the agricultural productivity. The DIN SPEC 91492 is accessible free of charge. As of October 2024, DIN SPEC 91492 is not legally binding, as it is not referenced in any relevant legal framework.

5. Summary, Discussion, and Outlook

The new changes and complements of the agrivoltaics legal framework in Germany represent important steps towards a broad market entry of agrivoltaics. The privileged treatment of small agrivoltaic systems within the German BauGB is expected to speed-up the permitting procedure of those systems incentivizing stakeholders to invest in smaller decentralized agrivoltaics. From an agricultural perspective, the new regulation is especially welcomed, as it could enable systems in horticultural applications where synergies are typically high—such as through crop protection—but where areas are much smaller than those used for arable farming or permanent grassland. However, due to legal uncertainties resulting from inconsistent interpretations of the new regulation across federal states, it is important to verify the local interpretation of the law at the early stage of a project.

The recent EEG amendment of May 2023 offers more attractive support for agrivoltaic systems. In particular, the new technology premium leading to increased feed-in tariffs for facilities that are exempt from the tender process, improves the situation by creating a realistic opportunity to also install smaller systems. From an agricultural perspective, this could enable farmers to own and operate the systems independently, as the required investment is more manageable compared to that of larger facilities. Regarding the introduced sub-segment of the PV tenders, agrivoltaic systems can benefit from more attractive feed-in tariffs compared to the past. At first sight, this looks like an improvement for the development of the agrivoltaics sector. Upon closer examination, however, the new regulation also presents several risks, most of which stem from the lack of differentiation between the three application areas.

A joint tender of permanent grassland, arable farming, and horticultural applications will only allow the most cost-competitive ones to succeed. However, certain types of facilities are significantly cheaper than most other variants. This is particularly expected for agrivoltaics on

permanent grassland. Due to the large available areas and flexible usage possibilities for livestock farming, a high number of projects are anticipated in permanent grassland. However, agricultural value creation in permanent grassland is typically very low, and it can be challenging to distinguish these projects from GMPV, such as those used in sheep farming. In contrast, agrivoltaic systems in horticulture and for perennial crops appear especially valuable, as PV modules provide protection from increasing sunlight and extreme weather but also enhance public acceptance. However, they have a different cost structure compared to agrivoltaics on permanent grassland. Similarly, also other special solar facilities in the joint tender might not compete with low-cost agrivoltaic systems on permanent grassland. The recent publication of the new DIN SPEC 91492 could exacerbate this situation. As the criteria of the DIN SPEC 91492 are less strict than those of the DIN SPEC 91434, projects in permanent grassland might become even more economically attractive in case the legal framework will refer to the new DIN SPEC 91492 in the future. As a result, including agrivoltaics on permanent grassland in the same EEG sub-segment as all other special and innovative solar facilities could lead to the following undesirable effects:

- Windfall effects in early tenders: Since the electricity generation costs for agrivoltaic systems on permanent grassland are similar to those for GMPV, they may receive unnecessarily high subsidies in initial tender rounds.
- Displacement of technologies with high synergy potential: Innovative solutions such as peatland PV, floating PV (FPV), or agrivoltaics with perennial crops are likely to miss out on funding due to the lower-cost grassland systems.
- Reduced support for small agrivoltaic systems within statutory tariffs: An oversupply of low-cost agrivoltaic systems may drive down the maximum bid limit in tenders, thereby also reducing feed-in tariffs for non-tendered systems in subsequent years (see the calculation of the technology premium described in Section 3).
- Loss of acceptance for agrivoltaics: If facilities with low agricultural value and similar construction to GMPV are additionally subsidized, this could weaken public support for agrivoltaics and the energy transition as a whole.

A possible solution might be a to take out agrivoltaics projects on permanent grassland from the sub-segment but granting them a small grassland premium high enough for them to compete with GMPV in the general tender. This solution was also proposed by the German Association for Sustainable Agrivoltaics (German: Verband für Nachhaltige Agri-PV, VnAP).

While recent updates and additions to agrivoltaics legislation represent significant progress, the discussion reveals that the diversity within agrivoltaic applications still requires further adjustments to fully harness their potential for agriculture and the energy transition in Germany.

Data availability statement

There have been no data used apart from the indicated laws and regulations in the references.

Author contributions

Max Trommsdorff: Conceptualization, Writing - Original Draft, Funding acquisition, Project administration. Jens Vollprecht: Investigation, Conceptualization, Writing - Review & Editing. Till Sterzenbach: Writing - Review & Editing.

Competing interests

The authors declare that they have no competing interests.

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[12] Federal Ministry for Economic Affairs and Energy (2024): “Entwurf eines Gesetzes zur Änderung des Energiewirtschaftsrechts im Bereich der Endkundenmärkte, des Netzausbaus und der Netzregulierung“. See page 392 of the draft from November 26. https://www.bmwk.de/Redaktion/DE/Artikel/Service/Gesetzesvorhaben/20241115-enwg-novelle.html