

Agri-Photovoltaic Systems

Legal framework in Germany

Dr Viktoria Jank

Freiburg Regional Council

Energy Transition, Wind Energy and Climate Protection

Unit (StEWK)



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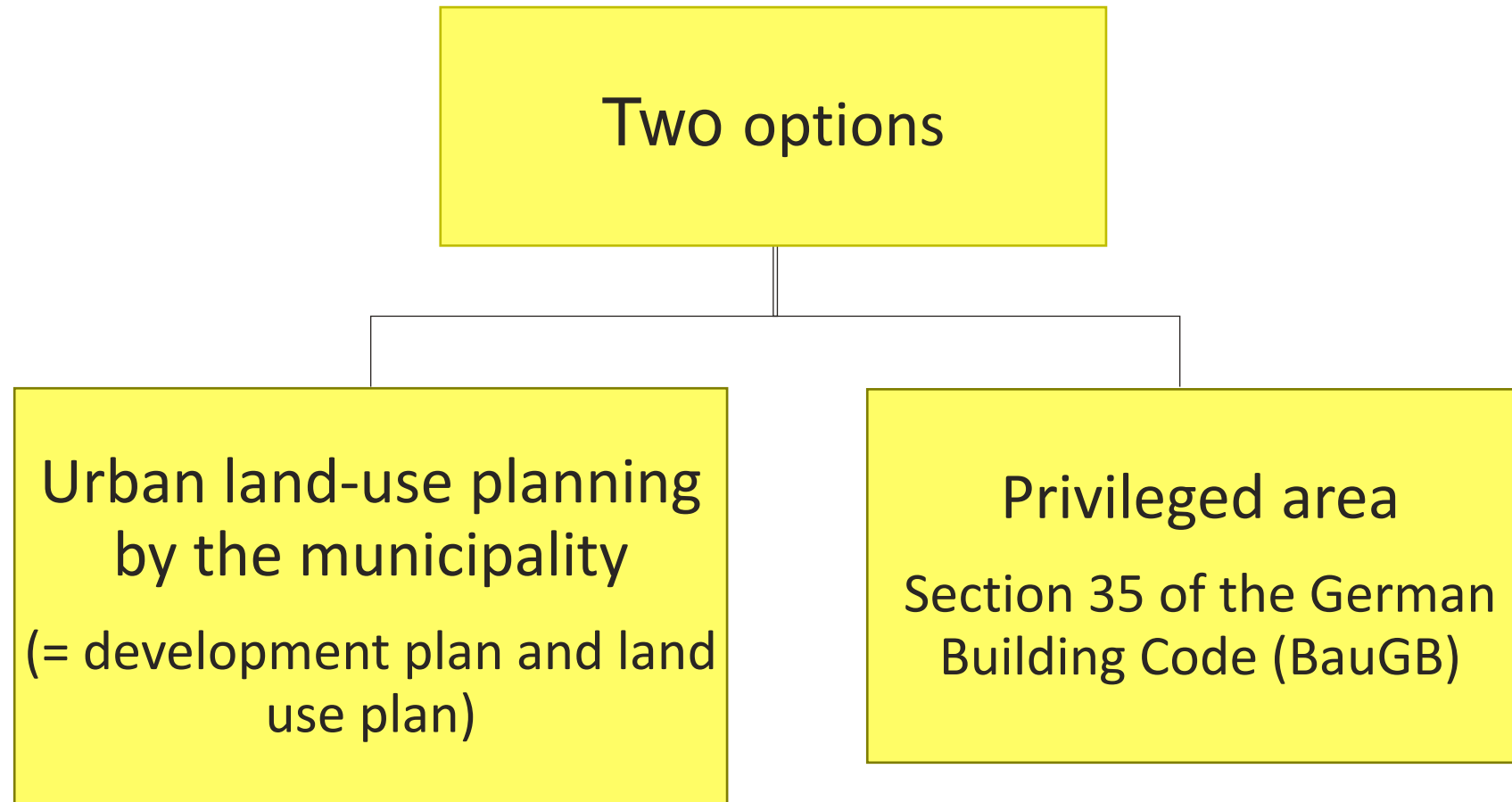
Renewable Energies Act (EEG), Solar Package I, Solar Peak Act and CAP





Overview of the legal procedure

Overview of the legal procedure



Difference: Urban land-use planning and privileged projects

Urban land-use planning:

- key instrument for orderly and sustainable urban development
- control of planning for rural areas is guaranteed by the constitution as part of local self-government, Art. 28 (2) Grundgesetz
→ Whether land is used for solar parks is up to the local authority!

Privileged areas:

- Principle: rural areas must be kept free of development
- Exception: In Section 35 of the BauGB, the legislator has assigned certain projects to rural areas (= privileged)
Consequence: no municipal urban land-use planning required!

Ground-mounted photovoltaic systems

Principle: The local council decides through urban land-use planning whether/where a solar park is possible

Exceptions: Areas where no development plan is required for construction

§ 35 I No. 8b) BauGB:
**200 m along
motorways and double-track
railways***

* of [the primary rail network](#)



§ 35 I No. 9 BauGB: **Agri-PV close to farms up to 2.5 ha**



Urban land-use planning

Standard case: urban land-use planning

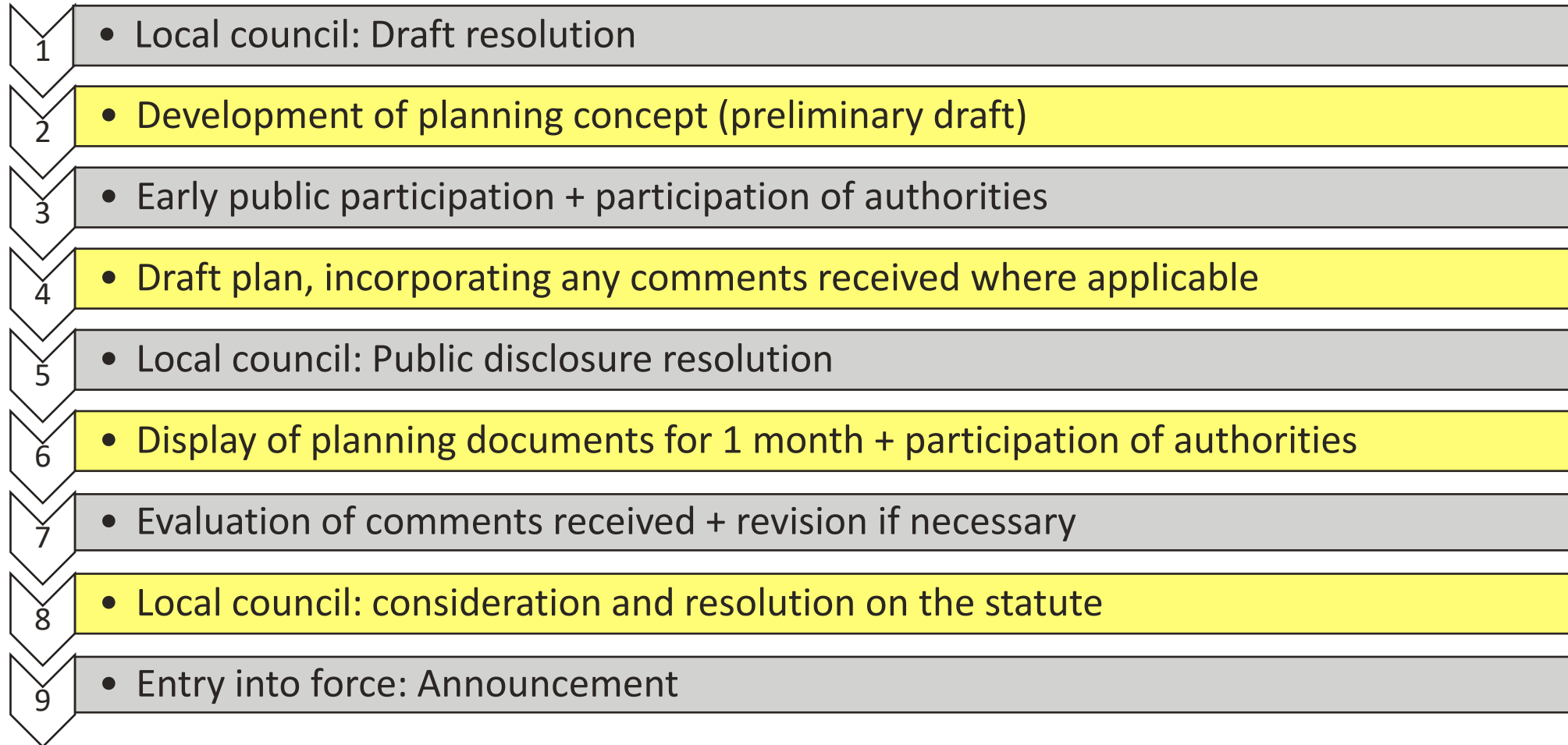
- **Drawing up a development plan**
- **Amendment of the land use plan**

Land use plan: regulates what is permitted in the entire municipal area

Development plan: regulates what is permitted on individual parcel of land

- **Environmental report** required
- **Duration of the procedure:** at least 1 year
- Supplemented by **urban development contract**
 - May contain: transfer of the costs of urban land-use planning to the project developer, deadline for the start of construction, demolition obligation, etc.

Urban land-use planning procedure





Privileged projects: Section 35 (1) No. 9 German Building Code (BauGB)

Section 35 (1) No. 9 BauGB – Requirements

A project is permissible if

- **public interests** pursuant to Section 35 (3) BauGB do not conflict with it,
- **sufficient development** is ensured
- it is an **agri-photovoltaic system** in accordance with Section 48 (1) No. 5 letters a, b, or c EEG (Renewable Energies Act) and complies with the following conditions:
 - a) the project has a **spacial and functional connection** with an agricultural, forestry or gardening business
 - b) the floor space does not exceed **25,000 m²**
 - c) only **one agri-photovoltaic system** is operated per farmstead or business location
- and the **possibility of dismantling** is ensured, Section 35 (5) sentences 2 and 3 BauGB.

Section 35 (1) No. 9 BauGB – Requirements

- **Spacial-functional connection:**

- Proximity to the centre of operational activities
- Distance of 200 m to the farmstead is unproblematic; beyond that, decisions are made on a case-by-case basis
- Topography of the surrounding area must be taken into account
- Must comply with the „state of the art“ (**DIN SPEC 91434**)

- **Floor space (up to 2,5 ha):**

- In addition to the plant itself, the floor space also includes the areas between the rows of modules and the areas for necessary ancillary facilities (e.g. transformer).

Section 35 (1) No. 9 BauGB – Requirements

- **Agri-photovoltaic system in accordance with Section 48 (1) No. 5 letters a, b, or c EEG (renewable energies act):**
 - Arable farming land with crop plants
 - Cultivation areas with permanent crop/multi-year crop
 - Permanent grassland with mowing or grazing
- Excluded: No nature reserve, no national park, no moorland
- Additionally for solar installations on grassland: no natura 2000 area, no habitat type according to Annex I of EU Directive 92/43/EEC
- **Specifications of the Federal Network Agency:** „state of the art“ if the requirements of **DIN SPEC 91434** are met!

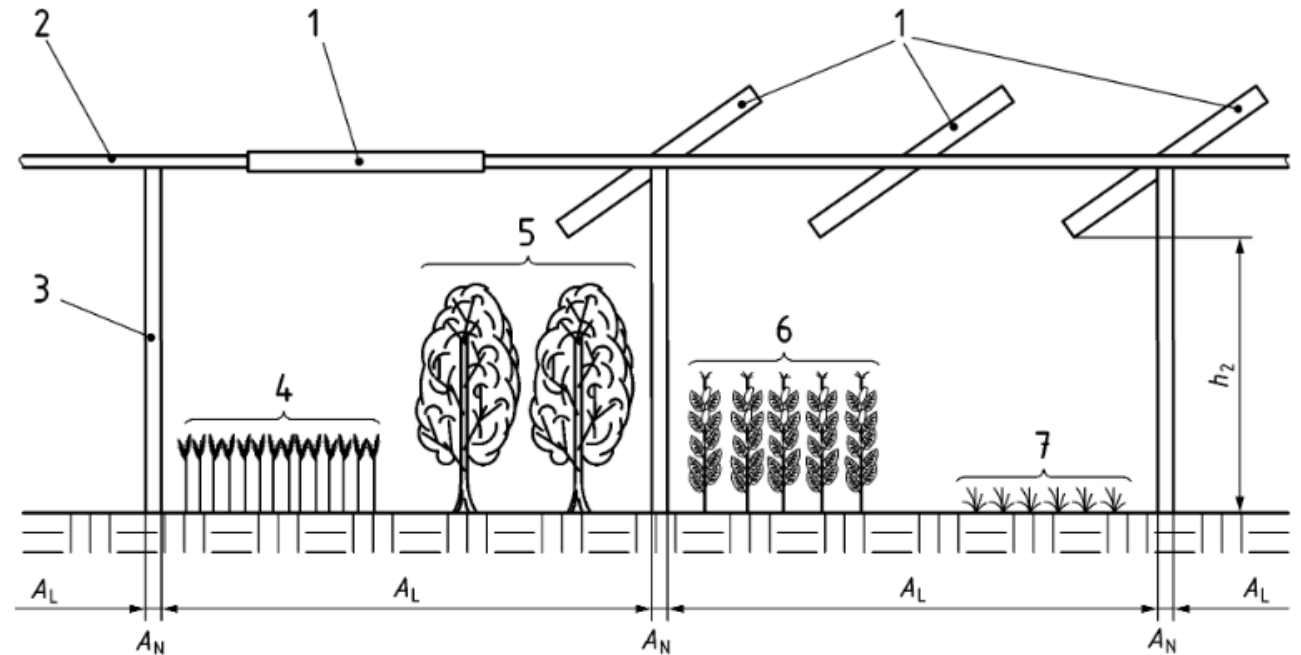
DIN SPEC 91434 – „Agri-photovoltaic systems - Requirements for primary agricultural use”

- A DIN standard is developed by the German standardization organization DIN to ensure that products or processes meet certain requirements. In case of planning and building an agri-photovoltaic system their use is legally binding.
- sets **requirements** for the primary agricultural use under an agri-photovoltaic system
 - on planning
 - operation
 - documentation
 - the monitoring of operations
- Not included are classic open-space PV systems, solar modules on greenhouses and the cultivation concept of vertical farming.

DIN SPEC 91434 – Categorisation of agri-pv systems

- **Category I**

- Mounting system with a clear height of at least 2.10 m
→ Cultivation under the agri-PV system
- Loss of agricultural land max. 10 %



Key

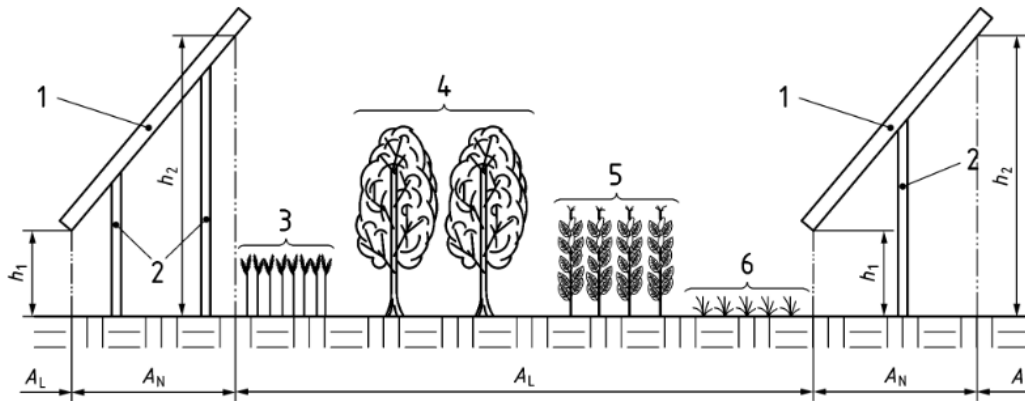
- A_L agriculturally usable area
- A_N agriculturally unusable area
- h_2 clear height over 2,10 m
- 1 examples of solar modules
- 2 strut
- 3 mounting structure
- 4 to 7 examples of agricultural crops

Image: DIN SPEC 91434 – Agri-PV systems, requirements for primary agricultural use

DIN SPEC 91434 – Categorisation of agri-PV systems

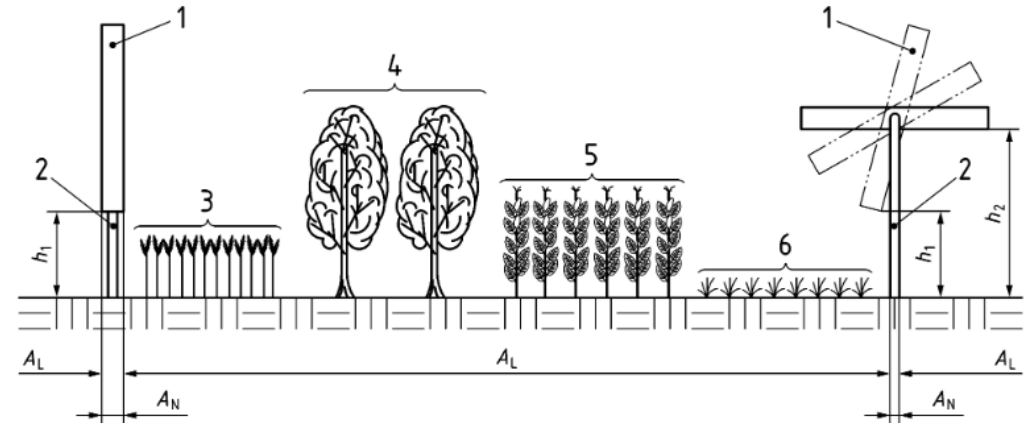
- **Category II**

- Ground-level mounting → Cultivation between rows of agri-PV systems
- Loss of agricultural land max. 15 %



Key

- A_L agriculturally usable area
- A_N agriculturally unusable area
- h_1 clear height under 2,10 m
- h_2 clear height over 2,10 m
- 1 examples of solar modules
- 2 mounting structure
- 3 to 6 examples of agricultural crops



Key

- A_L agriculturally usable area
- A_N agriculturally unusable area
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Images: DIN SPEC 91434 – Agri-PV systems, requirements for primary agricultural use

DIN SPEC 91434 – Agricultural land

- The following are considered crops:
 - **Permanent crops and multi-year crops** (e.g. fruit, berries, viticulture, hops)
 - **Annual and perennial crops** (e.g. arable crops, vegetables)
 - **Permanent grassland** with mowing or grazing
- → to ensure the agricultural usability of the land a **utilisation concept** must be created and submitted to the authorities.

DIN SPEC 91434 – Utilisation concept

- Must be drawn up and **signed** jointly by the land user (farmer) and the plant operator.
- Contains a **utilisation plan** that outlines how the land is to be used in the **first three years** after the installation of the agri-PV system.
- **Land use efficiency:** at least **66 %** of the reference yield must be reached! Reference yield = average yield of the last 3 years. The utilisation concept must include the expected reduction of yield!
- The utilisation concept asks various questions about agricultural usability.

DIN SPEC 91434 – Example utilisation concept

Annex A (normative)

Form for an agricultural cultivation proposal

NOTE The clause numbers listed in brackets below and the named designations of the categories of agrivoltaic systems refer to DIN SPEC 91434.

1. General operating information

Name and address of the company: _____

Name and address of the contact person: _____

Please mark where applicable: Owner Tenant

Farm type according to agricultural structure survey (multiple answers possible):

Arable farm Vegetable farm Permanent cultivation

Forage farm Grafting farm Mixed farm

Other

Farm size: _____

2. Information on the agrivoltaic system

Name and address of the owner (if not owner of the agricultural holding): _____

Name and address of the operator of the agrivoltaic system: _____

Category of agrivoltaic system (installation and use, see Clause 4): _____

Clear height of the agrivoltaic system (5.2.2): _____

Specific PV power in (kWp DC): _____

3. Information on the total project area

Size of the total project area (location, size, field number) (see definition 3.3): _____

Expected loss of land due to construction of the agrivoltaics system (5.2.3): _____

Size of the arable land (see definition 3.4): _____

1. General operational information:

- Type of operation
- Farm size

2. Information on the agri-PV system:

- Category
- Clear height

3. Information on the total project area:

- Size
- Area loss

DIN SPEC 91434 – Example usage concept

4. Use plan for the agricultural area with agrivoltaic system

(for three years or one crop rotation cycle)

To be completed for agricultural use according to category 1A, 1B, 1C, 1D or 2A, 2B, 2C, 2D:

List of planned crop rotation or permanent crop(s) and their sowing/harvesting dates:

List of the planned crop protection measures (taking into account possible damage to the agrivoltaic system due to e.g. corrosion):

Planned machine and working widths (taking into account the turning circle/headland and working heights) (5.2.4):

Is tillage with the required machines ensured in relation to the system design? (5.2.4)

Light requirements of crops (5.2.5):

Is the light requirement of the crop plants ensured in the system design (5.2.5)? Add explanations

Water requirements of crops (5.2.6):

Is optimal water supply ensured in the system design (5.2.6)? Add explanations

To be completed additionally for agricultural use according to category 1D or 2D:

Animal species and use: _____

Area and period of pasture use: _____

Specific requirements for animal husbandry (fencing, shelter, etc.):

5. Soil erosion and silting of the topsoil

Measures to reduce soil erosion and topsoil siltation (5.2.7):

4. Utilisation plan for agricultural land:

- Crops
- Plant protection products
- Working widths of machinery
- Light requirements

5. Soil erosion:

- Reduction through rainwater collection systems

DIN SPEC 91434 – Example usage concept

6. Residue-free assembly and disassembly

Measures to reduce permanent damage to agricultural land (5.2.8):

7. Calculation of economic efficiency (5.2.9)

Reference yield (dt/ha): _____

Forecast of crop yield (dt/ha): _____

Forecast of electricity yield (kWh/ha): _____

Explanations of the forecasts (e.g. quality reductions/quality increases):

Profitability from the farmer's point of view:

8. Land use efficiency (5.2.10)

6. Dismantling:

- Reduction of soil damage

7. Economic efficiency:

- Crop yield forecast
- Forecast electricity yield
- Explanations of the forecasts
- Economic efficiency calculation

8. Land use efficiency:

- At least 66% of the reference yield

Image: DIN SPEC 91434 – Agri-PV systems, requirements for primary agricultural use



Conflicting public interests, Section 35 (3) of the German Building Code (BauGB)

Conflicting public interests

Section 35 (3) BauGB, e.g.:

- Nature conservation, species protection and landscape
- Water protection
- Soil protection concept
- Road law -> glare report
- Monument protection
- (...)

→ **Balancing act!** Section 2 of the Renewable Energies Act (EEG): Renewable energies are **in the overriding public interest**. Until electricity generation in Germany is greenhouse gas-neutral, renewable energies are to be given priority consideration in the weighing up of protected interests.

- Regional planning objectives (regional plans)



Building permit?

Baden-Württemberg: LBO amendment

→ As of 28 June 2025 open-space solar installations are now exempt from procedures under the Baden-Württemberg State Building Code (LBO BW)!

However, developers are now responsible for checking whether their project is legally permissible!

- Building regulations: structural stability, fire protection, clearance areas
- Privileged project or development plan required?
- If privileged project: Conflicting public interests?
- Conduction of **separate procedures where required!**

Option: Legal certainty through **preliminary building permit** for individual legal questions, Section 57 LBO BW or – beyond the wording – a preliminary building application for the permissibility of the project as a whole.

Please note: Battery storage and fencing are not included!

→ Building permit still required in most cases! (Exceptions: Appendix to Section 50 (1) LBO BW)



Renewable Energies Act (EEG), Solar Package I, Solar Peak Act and CAP

EEG funding framework

Requirements for agri-photovoltaic systems:

- See above, in line with Section 35 (1) No. 9 of the German Building Code (BauGB)!
- Compliance with **DIN SPEC 91434**

Funding:

- Power output **below 1 MWp: statutory fixed remuneration**, Section 48 (1) No. 5 EEG (currently: 6,72 ct/kWh)
- Power output between **1-20 MWp: participation in the bidding procedure of the Federal Network Agency**, Section 37 (1) No. 3 EEG („pay as bid“)

"Solar Package I"

Entered into force on 16 May 2024, aims for a stronger financial support of special solar installations

Planned changes:

- Additional Agri-PV funding: vertically aligned solar installations with a clear height of at least 0.8 m, otherwise with a clear height of at least 2.1 m
- Bidding process: **priority awarding** of Agri-PV through the introduction of a new sub-segment and bids up to a **higher maximum value** (2024: 9.5 ct/kWh)
- Statutory fixed remuneration: Agri-PV bonus (2024: 2.5 ct/kWh)

However: funding is subject to **approval** by the European Commission!

→ Not yet granted, timeframe not foreseeable

Therefore, the previous regulations continue to apply:

- Additional funding only for elevated installations with a clearance height of 2.1 m in bidding procedure (Section 38b EEG 2023, old version, 2025: 0.7 ct/kWh; 2026-2028: 0.5 ct/kWh),
- No bonus for systems with statutory fixed remuneration! (Section 48 EEG 2023, old version)

"Solar Peak Act"

Entered into force on 25 February 2025

→ Abolition of the statutory fixed remuneration in the event of negative electricity prices

- Affects **almost all new photovoltaic installations**
- Objective: Incentivize energy storage or self-consumption in times of negative electricity prices
- Compensation mechanism: Extension of the 20-year remuneration period

- For **existing solar parks**: Application of negative electricity prices increases gradually (2025: at least 3 hours; 2026: at least 2 hours; 2027: 1 hour)
- Option to switch to the new regime, with **0.6 ct/kWh** increase in remuneration. However, this regulation is also subject to approval by the EU Commission!

Agri-PV and agricultural subsidies/CAP:

- **Section 12 (5) of the CAP Direct Payments Regulation** clarifies that agri-PV installations that comply with **DIN SPEC 91434** are to be classified as agricultural use.
- **Consequence:** Eligibility for subsidies continues!
- New: Removal of the maximum limit of 85 % for areas with agri-PV!
The extent of the eligible area now depends on the actual impairment of agricultural use → a **deduction of less than 15 % is possible!**

Thank you very much!



Dr Viktoria Jank

Freiburg Regional Council

Energy Transition, Wind Energy and Climate Protection Unit (StEWK)

stewk@rpf.bwl.de