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Civil-Law Aspects of Agrivoltaic Contractual Arrangements Under Italian Law: Between Innovation and Constraints

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Abstract: Under Italian law, the installation of agrivoltaic systems may be brought within the scope of an agricultural enterprise only where there exists an effective, verifiable, and not merely declaratory link with the agricultural land (*fondo rustico*), within the meaning of Article 2135 of the Italian Civil Code. From this standpoint, the production of energy from renewable sources qualifies as a connected activity, and not as a substitute for the primary agricultural activity. Against the background of the European Union's Common Agricultural Policy (CAP) and the EU climate and energy objectives, this article takes Italy as a case study within the EU legal framework and examines how the civil-law notion of "connected activity" can be reconciled with CAP conditionality and eligibility rules. On the basis of this principle, Italian agrivoltaic contractual practice – in particular, deeds establishing surface rights, land tenure titles, and coordination agreements – must be structured so as to ensure continuity of cultivation, effective access to the land, compliance with the rules of the Common Agricultural Policy (CAP) and with national incentive schemes (Ministerial Decree of 22 December 2023; GSE Director's Decree No. 149 of 19 June 2025) and, at the same time, the bankability of the projects. The legal point of equilibrium in the Italian framework lies in translating the principles of sustainability and multifunctionality into binding contractual clauses capable of preserving the agricultural identity of the land and making

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energy production compatible with the economic and social function of the agricultural enterprise. The analysis also offers brief comparative insights into selected EU Member States, showing that similar tensions between dual land use (food/energy) and CAP requirements arise across Europe, and suggesting criteria for a possible future revision of Article 2135 of the Italian Civil Code in line with EU law.

1. Systemic Framework: Agrivoltaics, the Ecological Transition and Agricultural Law

The integration between agricultural production and power generation amounts to a structural transformation of the agricultural undertaking, with a direct impact not only on technological or permitting aspects, but also on the civil-law configuration of the relationships on which the organization of the farm business is based. This tension between technological innovation and the preservation of agricultural land use can be observed, in different forms, across EU Member States, making agrivoltaics a particularly significant testing ground for European agricultural and energy law.[1]

Agrivoltaics – in its most advanced forms, that is, "advanced" systems compliant with the Ministerial Decree of 22 December 2023 and with the GSE's Operational Rules[2] – implements a model of spatial and

[1] For an EU-wide overview of agrivoltaics as a dual land-use solution and the related legal and policy challenges, see: Anatoli Chatzipanagi, Nigel Taylor, and Arnulf Jäger-Waldau, *Overview of the Potential and Challenges for Agri-Photovoltaics in the European Union* (Luxembourg: Publications Office of the European Union, 2023), https://dx.doi.org/10.2760/208702. For a political-economic analysis of how agrivoltaics reshapes the relationship between solar deployment and farmland protection within the European Green Deal and the CAP, see: Rubén Vezzoni, "Farming the Sun: The Political Economy of Agrivoltaics in the European Union," *Sustainability Science* 20 (2025): 1519–34, https://doi.org/10.1007/s11625-024-01601-7. With specific reference to the Italian debate on the tension between renewable energy development and the protection of agricultural landscapes and traditions, see: Gaetano Armao, "Environmental Sustainability of the Energy Transition: Agrivoltaics in Italy and in the Insular Regions," *Rivista Giuridica AmbienteDiritto.it* 24, no. 4 (2024): 1–23.

[2] By "advanced configurations" this article refers to plants that comply with the rules on so-called advanced agrivoltaics (Ministerial Decree of 22 December 2023; GSE Operational

managerial integration between agricultural production and photovoltaic modules, combined with obligations of agronomic monitoring and continuity of cultivation. In the civil-law system, the sustainability of agrivoltaics is measured by its ability to reconcile technological innovation in plant design with the preservation of the agricultural function of the land. In the Italian case, this assessment is anchored expressly in Article 2135 of the Civil Code, while comparable debates in other European jurisdictions often arise within more general doctrines on land use and rural development.[3]

Agricultural law thus becomes the backbone of the entire system: it is through contractual technique that cultivation obligations must be made enforceable, powers of access regulated, and remedies calibrated for long-term relationships that are exposed to subsequent regulatory and technological developments. From a comparative perspective, this central role of agrarian contract law mirrors broader European concerns about how to channel the green transition through private-law instruments without eroding the productive and social role of farmland.

The core issue is not the mere possibility of coexistence between cultivation and electricity generation, but rather the capacity of the farm organization to keep the latter ancillary and instrumental to the former, in

Rules; GSE Director's Decree of 19 June 2025, No. 149), characterized by spatial and operational integration between agricultural production and photovoltaic modules, together with obligations of agronomic monitoring and verifiable continuity of cultivation.

3 On the central role of Article 2135 of the Italian Civil Code in structuring agricultural multifunctionality and "connected" activities, see: Francesco Tedioli, "Exploring Italian Agritourism: A Model of Sustainable Rural Development," *Journal of Agribusiness and Rural Development* 75, no. 1 (2025): 64–77, https://doi.org/10.17306/J.JARD.2025.00017R1; Anna Kapała, "Legal Instruments to Support Local Food Systems in Italian Law," *EU Agrarian Law* 9, no. 1 (2020): 5–11, https://doi.org/10.2478/eual-2020-0002; Mariagrazia Alabrese et al., eds., *Agricultural Law: Current Issues from a Global Perspective* (Cham: Springer, 2017), 3–6. For broader European debates framed through multifunctionality, ecosystem services and rural land-use planning, see: Massimo Rovai and Maria Andreoli, "Combining Multifunctionality and Ecosystem Services into a Win-Win Solution: The Case Study of the Serchio River Basin (Tuscany—Italy)," *Agriculture* 6, no. 4 (2016): 49, https://doi.org/10.3390/agriculture6040049; Jiao Huang et al., "Comparative Review of Multifunctionality and Ecosystem Services in Sustainable Agriculture," *Journal of Environmental Management* 149 (2015): 138–47, https://doi.org/10.1016/j.jenvman.2014.10.020.

accordance with the paradigm laid down in Article 2135 of the Italian Civil Code. The classification of energy production as an "ancillary" (connected) activity cannot be based on boilerplate clauses or declaratory statements; it must, instead, follow from a carefully structured contractual architecture capable of ensuring the persistence of the agricultural function and of making continuity of cultivation measurable.

In the absence of such safeguards, multifunctionality remains an assertion at the lexical level but not in substance. Where, by contrast, the principles of agricultural compatibility are translated into enforceable contractual obligations, multifunctionality becomes an operational criterion for the governance of the farm enterprise.

Public regulation (in the fields of land-use planning, environmental protection, and energy) and the CAP framework interact with civil-law rules without overlapping, in a relationship of mutual integration. Administrative regulation determines the lawfulness of the plant; the CAP makes access to payments conditional upon the maintenance of effective agricultural use; and the national incentive scheme guides project design towards technical models compatible with cultivation. This multi-level interaction between EU CAP conditionality and national private-law tools is a common feature of agrivoltaic governance in Europe, but the Italian experience offers a particularly clear example of how these layers can be coordinated through contract law.

The junction between these three levels finds its point of equilibrium in agrivoltaic contractual practice: contractual models (surface rights, agricultural tenure titles, coordination agreements) must ensure certainty, opposability, and duration, preventing conflicts between landowner, tenant, and the energy operator; at the same time, they must incorporate agronomic standards and adjustment mechanisms required by public regulation, without altering the contractual synallagma.

In this sense, agrivoltaics constitute, for agricultural law, a crucial test of the "concrete cause" of contracts. If energy integration leads to the marginalization of cultivation, the transaction becomes inconsistent with the economic and social function referred to in Article 2135 of the Civil Code and with the requirement that the parties' interests be worthy of legal protection. Conversely, where the contractual structure makes it possible to demonstrate, over time, the continuity of agricultural activity

– through binding agronomic plans, detailed rules on access, allocation of risks and restoration clauses – energy production retains its ancillary nature and the model of ecological transition acquires a stable legal anchorage. This functional assessment of the contract resonates with broader European debates on the social function of property and the need to align private autonomy with environmental and rural-development objectives.

Innovation, therefore, does not lie in the contractual type chosen, but in the drafting technique, which must be able to internalize the protection of the agricultural vocation of the soil within the language of obligations, making it an object of monitoring and guarantee, both for CAP purposes and in relation to national incentive schemes.

2. Classification of the Activity Under Article 2135 of the Italian Civil Code and the Multifunctionality of the Agricultural Undertaking in Agrivoltaics

The civil-law classification of electricity production as a "connected activity"[4] to the agricultural undertaking, within the meaning of Article 2135 of the Italian Civil Code, does not follow from a mere formal statement; it instead requires a substantive and functional assessment of the organizational structure of the farm. It is necessary to demonstrate that the energy activity is instrumental and complementary to the main agricultural activity and not economically or operationally predominant. A similar functional approach to "ancillary" or "secondary" activities can be found in other EU legal systems, even though it is often articulated through different legislative techniques and sectoral regimes.

The reform of Article 2135 of the Italian Civil Code, brought about by Legislative Decree No. 228 of 18 May 2001, replaced the previous criterion of "normality" with that of prevalence, and articulated connected activities in two forms: (1) connection by product, where processing, transformation, or marketing activities relate predominantly to products originating

[4] In the terminology of Article 2135 of the Italian Civil Code, "connection" characterizes the functional relationship between the activity and the agricultural undertaking, while "prevalence" is the evaluative parameter (qualitative/quantitative) used to ascertain it. There is no fixed statutory threshold: the assessment is concrete and is anchored in the actual organization of the holding and in the resources employed.

from the holding; (2) connection by undertaking, where the additional activity predominantly employs resources or means normally used in the agricultural enterprise.

In the first case, prevalence is assessed in terms of quantity or value of the farm's own products, coming from the holding, as compared with products purchased from third parties; in the second, in terms of the predominant use of the farm's resources (land, equipment, buildings, internal roads, labor organization). The aim is to prevent the ancillary activity from acquiring economic and functional autonomy, such as to shift the center of gravity of the undertaking outside the agricultural sphere.[5]

This distinction is of decisive importance in the context of agrivoltaics because it determines the only doctrinal pathway through which electricity generation may be brought within Article 2135 of the Italian Civil Code. Electricity does not constitute an "agricultural product" in the technical sense; therefore, the inclusion of the energy activity within the paradigm of Article 2135 of the Italian Civil Code cannot be based on connection by product, but only on connection by undertaking. Energy production can be classified as "connected" within the meaning of Article 2135 only if it relies on the prevalent and continuous use of typically agricultural resources (land, appurtenances, internal roads, farm infrastructures), without jeopardizing the continuity of the cropping cycle, and provided that the farmer retains material control over the land, management of the activity, and full decision-making power over agronomic choices. Only under these

[5] When the legal system has to determine the functional prevalence of one activity over another, it resorts to objective and measurable parameters. In cooperative company law, Article 2513 of the Italian Civil Code defines "prevalent mutuality" by means of quantitative indices (prevalence of transactions with members), thus providing a model for measuring prevalence. In the tax field, the practice of the Italian Revenue Agency has historically employed numerical criteria to classify connected agricultural activities in the context of energy production from renewable sources (see Circular No. 44/E/2004; Circular No. 32/E/2009), giving weight to prevalence ratios between farm resources employed and external inputs. The reference is purely methodological: it is not suggested that these regimes should apply directly to agrivoltaics, but rather that, for the civil-law purposes of Article 2135 of the Italian Civil Code, "connection" must be demonstrated and measured through verifiable indicators, to be designed *ad hoc* in the agrivoltaic context, and not left to mere declaratory statements.

conditions does the requirement of connection acquire legal substance, resulting in a functional prevalence of agriculture over energy production, consistent with the evolutionary rationale of Article 2135. From a comparative perspective, this reflects a broader European trend towards reading renewable-energy activities on farmland through the lens of functional subordination to primary production, rather than through purely formal classifications.

Prevalence is not a qualitative label, but an objective and measurable parameter, which must be assessed through concrete and verifiable indicators. As regards connection "by products," a comparison must be drawn in terms of quantity and value of own products versus those purchased from third parties. On the side of connection "by undertaking," it is essential to compare the revenues generated by means of normally agricultural equipment and resources, with those produced through assets that are extraneous and not typically agricultural. Turnover that is grossly disproportionate to the size of the holding and to the economic and financial capacity of the agricultural enterprise will thus constitute an indicator of a merely commercial activity.

From this standpoint, one may recall the quantitative criteria developed by the legislature and the tax authorities for energy production by farmers: from the annual thresholds introduced by Law No. 266 of 27 December 2005, Article 1(423) (2,400,000 kWh/year for agroforestry sources; 260,000 kWh/year for photovoltaics) to the parameters elaborated by Circular No. 32/E/2009 of the Italian Revenue Agency (a 200 kW safe harbor; prevalence of agricultural turnover net of incentives; a land/power ratio of 1 hectare for every 10 kW in excess, up to 1 MW). Although conceived for tax purposes, these criteria offer a methodological model for measuring prevalence that can also be adapted in the civil-law sphere in order to assess the genuine subordination of the energy activity. Comparable quantitative or functional thresholds can be found, *mutatis mutandis*, in several other EU jurisdictions when defining the boundary between agricultural activity and commercial energy production on farmland.

The rules on advanced agrivoltaics (Ministerial Decree of 22 December 2023[6] and GSE Director's Decree No. 149 of 19 June 2025[7]) confirm this orientation, shifting the focus from mere energy proportionality to effective agronomic verifiability: connection is not presumed, but must be demonstrated through structural indicators of agricultural prevalence, such as continuity of crops, access to land, and monitoring of production parameters. This approach ensures consistency with the principle, expressed by the legislature and by administrative authorities, whereby the production of energy from renewable sources can be attributed to the agricultural undertaking only where it constitutes an effective, measurable, and verifiable connected activity.

The civil-law inclusion of energy production within the scope of Article 2135 thus has not only a systemic, but also a preventive, value: it reduces the risk of interpretative disputes in the tax or administrative sphere and ensures a coherent reading of the multifunctionality of the agricultural undertaking within the broader framework of the ecological transition.

3. Contractual Models for Agrivoltaics and Drafting Techniques

In the current Italian legal framework, two basic contractual models can be identified through which agricultural activity is coordinated with the production of energy from renewable sources, which broadly correspond to patterns that can also be found, with different labels and technical solutions, in other EU Member States when agrivoltaic projects are implemented on farmland: (1) the dualistic model, in which the plant is developed by an

6 The reference is to the Decree of the Italian Minister for the Environment and Energy Security No. 436 of 22 December 2023, on the "support scheme for innovative agrivoltaic systems" (*regime di sostegno per il fotovoltaico in area agricola cd. agrivoltaico innovativo*), adopted under the National Recovery and Resilience Plan (PNRR), Mission 2, Component 2, Investment 1.1 "Sviluppo agro-voltaico", and in force since February 14, 2024.

7 The reference is to the Director's Decree of the Italian Energy Services Operator (Gestore dei Servizi Energetici – GSE) No. 149 of 19 June 2025, approving the "Operational Rules for access to incentives for advanced agrivoltaic systems" (*Regole operative per l'accesso agli incentivi per impianti agrivoltaici avanzati*), which implement the support scheme established by the Ministerial Decree of 22 December 2023 under Italy's National Recovery and Resilience Plan (PNRR).

energy operator holding a surface right over the agricultural land;[8] (2) the integrated model, in which the farmer retains ownership and management of the plant within the structure of their farm business.

3.1. The Dualistic Model and the Shaping of the Surface Right

In what is currently the most widespread model, the plant is developed by an energy operator, who acquires a surface right, pursuant to Articles 952 et seq. of the Italian Civil Code, that is, a real right enabling the construction and maintenance of buildings on another's land, separating ownership of the structures from ownership of the land. Functionally similar arrangements, based on a split between land ownership and ownership or long-term control of the agrivoltaic plant (e.g., long leases, real rights in rem, concession-like titles), can likewise be found in other EU Member States' practice, whenever solar assets are installed on agricultural land.[9] This structure, while fully lawful in the abstract, must nonetheless be adapted to the concrete cause of the agrivoltaic operation, which presupposes the actual coexistence of cultivation and energy production.

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[8] The right of superficies, governed by Articles 952 et seq. of the Italian Civil Code, is a real right of enjoyment that entitles the holder (superficiary) to construct and maintain a building on another's land, or to acquire ownership of an existing building, separating it from the ownership of the underlying land. This institution constitutes an exception to the principle of accession (Article 934 of the Civil Code), bringing about a temporary split between ownership of the land and ownership of the structure: the superficiary acquires title to the asset and the corresponding power to exploit it economically, while the landowner retains bare ownership (*nuda proprietà*) of the land. In the agrivoltaic context, the function of the right of superficies lies in the possibility of attributing to the energy operator ownership and management of the plant without transferring title to, or control over, the land itself, thereby ensuring the permanence of the agricultural function and full opposability to third parties through registration pursuant to Article 2643(2) of the Civil Code.

[9] For example, in France the agrivoltaic framework introduced by the APER Law and subsequent Decree No. 2024–318, now reflected in the French Energy Code, explicitly organizes dual land use on agricultural parcels while leaving wide room for contractual solutions based on long-term rights in rem and leases between farmers and PV developers. In Spain, renewable-energy plants on rural land are frequently structured through contracts for the transfer of surface rights, usufruct or long-term leases between landowners and project companies, which separate land ownership from control over the installation. In Germany, practice has largely relied on long-term Pachtverträge for ground-mounted PV on arable or grassland, sometimes in agrivoltaic configurations, again illustrating a functional split between agricultural land tenure and solar asset operation within a single project.

In the context of advanced agrivoltaics, the full and exclusive ownership of a surface right may prove incompatible with the agricultural function of the land and with the paradigm of Article 2135 of the Italian Civil Code, as it risks excluding the farmer from effective use of the land and shifting the economic center of gravity towards the energy component.

The functional cohabitation between plant and cultivation, therefore, requires a functional reinterpretation of the surface right, oriented towards safeguarding continuity of cultivation and the farmer's material availability of the land. The contract must, therefore, precisely delimit the areas physically occupied by the installations, preclude any form of exclusive enjoyment of the agricultural land, impose obligations of non-interference, and provide for mechanisms of periodic verification of agronomic standards.[10]

Recent case law and legal scholarship acknowledge that the surface right may be "shaped by its cause," that is, tailored in its content and limits, in accordance with the specific needs of the agrivoltaic project. In application of this principle, the agrivoltaic real right should: (1) be confined to the sole footprints and works that are indispensable for the plant; (2) include any exclusive use of the interposed agricultural areas, ensuring the tenant's access and the possibility of mechanized farming; (3) make the duration and renewal of the relationship conditional upon the periodic verification of agronomic standards, through suspensive or resolutive conditions linked to the outcome of the checks; (4) lay down non-interference clauses

[10] Cf. Francesco Tedioli, "Il diritto di superficie nel modello agrivoltaico avanzato: compatibilità civilistica, soluzioni contrattuali e disciplina fiscale," *Diritto e giurisprudenza agraria alimentare e dell'ambiente*, no. 3 (2025): 1–9. From a civil-law perspective, the surface right under Article 952 of the Italian Civil Code can be "shaped" in accordance with the concrete cause of the project: in advanced agrivoltaics, the coexistence of cultivation and plant operation requires (1) an objective limitation of the right to the sole footprints and indispensable plant works; (2) the exclusion of exclusive enjoyment over the areas reserved for agricultural use (inter-row spaces/under-panel areas), coupled with obligations of non-interference and coordination of access; and (3) binding agronomic safeguards (plan, KPIs, inspections) that condition the duration of the relationship and its renewals (e.g., suspensive/resolutive conditions or renewal made conditional upon the outcome of periodic checks). This "cohabitative surface right" is consistent with the function of advanced agrivoltaics (integration rather than substitution of agricultural land use) and with the need for opposability and certainty of the legal structure vis-à-vis third parties (Article 2643(2) of the Italian Civil Code), without turning the land into a predominantly energy-based platform.

and rules on operational coordination during critical phases of the cropping calendar.

In the absence of such corrective measures, energy production remains external to the agricultural undertaking and cannot be classified as a connected activity, within the meaning of Article 2135 of the Italian Civil Code. Continuity of cultivation must persist in an effective and verifiable manner, in line with the contractual parameters and the agreed technical standards.

3.2. The Integrated Model

In the integrated model, the farmer retains ownership and direct management of the plant – possibly through an agricultural company – and organizes energy production as an activity "by undertaking," based on the prevalent and continuous use of farm resources. In this way, electricity production preserves its instrumental, complementary, and subordinate nature in relation to cultivation, in full consistency with the multifunctional logic of Article 2135 of the Italian Civil Code. This configuration fits neatly with the CAP narrative on the farm as a multifunctional unit, where on-farm energy generation is recognized only insofar as it remains functionally subordinated to primary agricultural production.[11]

The plant becomes an integral part of the farm organization, rather than a mere infrastructure placed on the land. Consequently, contracts perform a dual function: (1) in the dualistic model, they govern the coexistence of two autonomous activities (agricultural and energy-related), ensuring coordination and non-interference; (2) in the integrated model, by contrast, they operate as an internal mechanism for regulating the multifunctional enterprise, defining how the land is to be used, allocating

[11] See: European Commission, Directorate-General for Agriculture and Rural Development, "Approved 28 CAP Strategic Plans (2023–2027): Summary Overview for 27 Member States – Facts and Figures" (June 2023, pp. 4, 41–42, 63–73, accessed December 19, 2025, https://agriculture.ec.europa.eu/document/download/7b3a0485-c335-4e1b-a53a-9fe3733ca48f_en?filename=approved-28-cap-strategic-plans-2023-27.pdf), which emphasizes that income support and eco-schemes remain tied to the maintenance of the "agricultural area" and the "agricultural activity"; and RES4LIVE Consortium, "Policy Brief no. 1 – Policy Recommendations for the Common Agricultural Policy (CAP)," (2024, pp. 2–4, accessed December 19, 2025, https://res4live.eu/wp-content/uploads/2024/09/Policy-Brief-1_RES4LIVE-PDF.pdf), highlighting that CAP area payments for agrivoltaics are possible only where there is a "predominance of agricultural activity" on the land concerned.

technical responsibilities, and providing for periodic checks on continuity of cultivation and agronomic compatibility. From this perspective, the contract does not transfer ownership of the land, but regulates the functional coexistence between plant and cultivation, translating the principle of agricultural prevalence into binding obligations.

The typical parties to the relationship may be: (1) the landowner and the agricultural company that both farms the land and owns the plant; (2) the farmer and the technical provider or financier (EPC,[12] O&M,[13] agrivoltaic leasing, or an agri-energy partnership agreement[14]); (3) several farms grouped in a consortium or company for joint management; (4) temporary business groupings or consortia (*ATI/RTI*),[15] including mixed groupings, with an agricultural entity as the lead partner or at least one agricultural participant, in line with the project configurations admitted by the GSE for access to incentives.

3.3. Drafting Techniques

Contractual drafting must translate into legally enforceable obligations the agronomic and environmental standards on which the sustainability of the plant is based. In agrivoltaic projects, this "translation" from technical

12 "EPC" (Engineering, Procurement and Construction) refers to a turnkey contract under which the contractor is responsible for the design, procurement and construction of the plant, and hands it over to the client fully operational and tested.

13 "O&M" (Operation and Maintenance) concerns the ordinary and extraordinary management and maintenance of the plant; agrivoltaic leasing is a specific form of operating or financial leasing designed for agricultural undertakings for the installation and use of renewable-energy plants on the holding.

14 The agri-energy partnership agreement – an atypical contract developed in practice – governs cooperation between the farmer and the energy operator in the construction and management of the plant, with a proportionate allocation of risks, revenues and agronomic obligations, and thus operates as a contractual model consistent with the multifunctionality outlined in Article 2135 of the Italian Civil Code.

15 "ATI/RTI" refers to Associazioni Temporanee di Imprese or Raggruppamenti Temporanei di Imprese (temporary business groupings) under Italian public procurement law, i.e., contractual alliances through which multiple operators submit a joint bid and appoint a lead partner (*capogruppo*), while internally allocating functions, risks and revenues. In the agrivoltaic context, such groupings allow at least one agricultural operator to be formally involved in the project structure admitted to incentives, alongside technical and financial partners.

design into binding covenants is crucial to ensure that the legal structure reflects, and not merely proclaims, the agricultural primacy of the land use.

The relationship must be structured around three essential layers: (1) a binding agronomic plan, attached to the contract, identifying crops, rotations, soil operations, and standards of mechanical compatibility with the photovoltaic modules, and forming the objective basis for verifying continuity of cultivation; (2) rules on access and coordination, intended to ensure the farmer's effective availability of the land during critical windows of the production cycle and, where necessary, the temporary suspension of non-agricultural activities, in order to avoid interference with agronomic operations; (3) an end-of-life regime, including obligations of selective dismantling and agronomic restoration, backed by appropriate financial instruments (performance bonds or surety bonds)[16] to protect the soil and business continuity. These guarantees – which correspond to insurance suretyships within the meaning of Articles 1936 et seq. of the Italian Civil Code – must be payable on first demand, of an adequate amount, and with a duration covering the entire life cycle of the project, so as to ensure proper fulfilment of restoration obligations even in the event of default by the energy operator.

As regards the material demarcation of the land, cadastral and cartographic documentation must clearly distinguish: (1) the footprints permanently occupied by plant structures; (2) agro-compatible areas (inter-row, under-panel, and buffer strips); (3) appurtenances intended for cable ducts, internal roads and transformer stations. External connection works must be supported by connection and right-of-way easements with clearly defined boundaries and consistent cadastral coordinates.

In complex projects, a coordination agreement between the landowner, the tenant farmer, and the energy operator is a useful tool for regulating access, interference, and operational priorities, as well as for governing forms

[16] Performance bonds and surety bonds are guarantee instruments of Anglo-Saxon origin, which have been progressively incorporated into Italian contractual practice and are used to secure the fulfilment of non-monetary obligations. In the agrivoltaic context, these instruments are employed to guarantee dismantling and agronomic restoration obligations at the end of the plant's useful life, ensuring financial coverage even in the event of insolvency or cessation of the obligated party.

of shared self-consumption[17] or participation in renewable energy communities (RECs/CERs).[18]

The participation of the farm in a renewable energy community constitutes an activity instrumental to the operation of the agricultural undertaking and may fall within the scope of connected activities under Article 2135 of the Italian Civil Code, provided that membership serves the energy needs of the farm and does not upset agricultural prevalence.

The contract must therefore contain obligations of information-sharing and clauses ensuring consistency with CAP conditionality and with the incentive-related constraints laid down by the Ministerial Decree of 22 December 2023 and by GSE Director's Decree No. 149 of 19 June 2025. In this way, private-law arrangements are aligned *ex ante* with both

[17] The literature on self-consumption, energy communities and renewable energy communities is now quite extensive. Without any claim to exhaustiveness, see: Gabriella De Maio, *Povertà energetica e comunità energetiche. Criticità e prospettive per una transizione giusta* (Naples: Editoriale Scientifica, 2024); Paolo Brambilla, "Le comunità energetiche e la sagacia di Pirandello," *Rivista Giuridica AmbienteDiritto.it* 24, no. 1 (2024); Alessandra Coiante, "*Think Global, Act Local*. Le comunità energetiche rinnovabili e il principio di sussidiarietà (anche) sociale come perno della transizione energetica," *Rivista Giuridica AmbienteDiritto.it* 24, no. 1 (2024); Mario Renna, "Le comunità energetiche e l'autoconsumo collettivo di energia. Tutela della concorrenza e regolazione del mercato," *Nuove Leggi Civili Commentate* 1 (2024): 161 ff.

[18] The participation of a farm in Renewable Energy Communities (RECs/CERs) constitutes, in private-law terms, a form of organizational cooperation with patrimonial relevance, based on distributed self-consumption and local sharing of energy within the meaning of Articles 31–32 of Legislative Decree No. 199/2021 and the implementing rules adopted by ARERA and GSE. It is to be regarded as an activity instrumental to the operation of the agricultural undertaking and, as such, may fall within the scope of connected activities under Article 2135 of the Italian Civil Code, provided that participation in the REC serves to meet the farm's energy needs or, in any event, does not alter the prevalence of the agricultural function over the energy function. From this perspective, joining an REC can operate as a mechanism for valorizing the energy produced by the agrivoltaic plant without changing its nature as an activity subordinated to cultivation, on condition that the community's governance model ensures that the farmer plays an effective role in management and decision-making, and that the allocation of economic benefits and shared energy reflects the need to preserve the centrality of agricultural activity. At the contractual level, it is advisable to provide for obligations of information-sharing and cooperation between the farmer and the energy operator, as well as clauses ensuring that the modalities of participation in the REC are consistent with CAP conditionality requirements and with the incentive-related constraints applicable to advanced agrivoltaic plants.

EU-level conditionality and national support schemes, reducing the risk of *ex post* conflicts between contractual practice and public-law requirements.

In conclusion, the surface right and the other contractual instruments that can be used in agrivoltaic models are compatible with Article 2135 of the Italian Civil Code only to the extent that the contractual structure makes agronomic obligations effective and verifiable, and rigorously defines the conditions of opposability, the allocation of risks, and the guarantees for restoration. The integration between cultivation and plant operation is not achieved through declaratory formulas, but through a rigorous contractual architecture capable of making the organizational prevalence of agriculture measurable, verifiable, and guaranteed over time.

4. Agrivoltaics and the CAP: Civil-Law Aspects and Safeguard Clauses

4.1. AP Compatibility, Continuity of Cultivation and Contractual Safeguards

The relationship between agrivoltaic systems and the Common Agricultural Policy (CAP)[19] does not end with the *ex post* verification of the legality of payments; it requires an *ex ante* design of the contractual and organizational structure of the holding, capable of ensuring the compatibility of cultivation with the presence of the photovoltaic plant. Taking Italy as a case study, this section shows how civil-law tools are used at the national level to give concrete effect to CAP eligibility rules on "agricultural area" and "agricultural activity." At the EU level, this reflects the general CAP logic, whereby income support is conditional on maintaining "agricultural area" under "agricultural activity," even if other non-agricultural uses are present on the same land, provided that agriculture remains effective and verifiable.

The point of connection between the two planes – civil and administrative – is the continuity of effective agricultural use, a condition that the CAP takes as a prerequisite for eligibility for direct support and which, in

[19] The Common Agricultural Policy makes the granting of direct payments and area-based interventions conditional upon compliance with substantive obligations to maintain the agricultural use of the land and to carry out an effective agricultural activity. These obligations are now framed within the system of enhanced conditionality laid down in Articles 12 et seq. and Annex III of Regulation (EU) 2021/2115, as well as in the requirement of "active farmer" (Articles 4(1)(b) and 9 of the same Regulation). The legal order therefore does not exclude the coexistence of non-agricultural activities on the holding, provided that they do not undermine the continuity of cultivation and do not lead to the loss of the minimum eligibility requirements for receiving payments.

private-law terms, must be translated into specific, verifiable, and enforceable contractual obligations.

EU law (Regulation (EU) 2021/2115 and Regulation (EU) 2021/2116) and the national implementing rules require that the land maintain an effective and permanent agricultural use, in compliance with environmental conditionality rules[20] (GAEC[21] 1, 5, 6, 7 and 8) and with the obligations relating to the "active farmer" (Articles 4 and 9 of Regulation 2021/2115). Failure to comply with these requirements entails, under Article 83 of Regulation 2021/2116, the reduction or exclusion of direct payments. This does not, in the abstract, exclude the coexistence of non-agricultural activities on the holding;[22] coexistence is allowed provided that cultivation remains effective, prevalent, and verifiable.

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[20] CAP conditionality requires that agricultural activity be maintained in terms of continuity and accessibility, as laid down in the EU regulations (Regulation 2021/2115 and Regulation 2021/2116) and in the practice of the accredited Paying Agencies. This framework reflects a functional logic of protecting the effective agricultural use of land, in line with the environmental and climate objectives of the CAP and with the principle of environmental conditionality as an indispensable prerequisite for the sustainability of public support. In the agrivoltaic context, conditionality translates into the obligation to ensure that the land on which the plant is located maintains an effective and verifiable agricultural use, and that the presence of photovoltaic structures does not prevent compliance with GAECs 1, 5, 6, 7 and 8, relating respectively to the preservation of soil organic matter, minimum land management, crop rotation and the protection of habitats. Failure to comply with these standards leads, pursuant to Article 83 of Regulation 2021/2116, to proportional reductions or exclusions from direct payments, irrespective of the ownership or contractual structure of the holding.

[21] "Good Agricultural and Environmental Conditions" (GAEC, in Italian BCAA) refer to the set of minimum standards that a farm must comply with, failing which CAP payments may be reduced or excluded, as part of the so-called enhanced conditionality regime. These standards, defined within the framework of Regulations (EU) 2021/2115 and 2021/2116 and specified in the National Strategic Plan, concern, inter alia: soil cover and anti-erosion measures, crop rotations/alternations, buffer strips and set-back areas along water bodies, the protection of permanent grassland, the conservation of landscape features (hedgerows, tree lines, dry-stone walls, etc.), prohibitions/limitations (e.g. stubble burning, save for derogations), and specific provisions for wetland and peatland areas. Compliance is subject to administrative and satellite checks (IACS/AMS) and must be evidenced by appropriate planning and traceability of farming practices.

[22] The Common Agricultural Policy makes the granting of direct payments and area-based interventions conditional upon compliance with substantive obligations to maintain the agricultural use of the land and to carry out an effective agricultural activity. These obligations are now framed within the system of enhanced conditionality set out in Articles 12 et seq. and Annex III of Regulation (EU) 2021/2115, as well as in the "active farmer"

It follows that the CAP-compatibility of an agrivoltaic plant depends, in practice, on the civil-law framework governing the cohabitation of cultivation and the plant: the material availability of the land, the continuity of the cropping cycle, and the farmer's decision-making power must be legally guaranteed by the contract.

In this sense, MASAF Note No. 0336902 of 21 July 2025 clarifies that the effective availability of the land, the continuity of cultivation, and the farmer's decision-making power are essential conditions for eligibility for direct payments. The relevant criterion is not the mere "absence of permanent structures" on the land, but the objective possibility of cultivating it.[23] Private law is therefore called upon to provide a contractual structure that makes these conditions enforceable, preventing the withdrawal of aid on account of an unsuitable management setup of the holding.

The incentive scheme for advanced agrivoltaics (Ministerial Decree of 22 December 2023; GSE Director's Decree No. 149 of 19 June 2025) has introduced technical and agronomic parameters and monitoring systems, which, although designed for the granting of financial support, also operate as civil-law reference standards: the agronomic plan and monitoring systems form part of the content of contractual good faith and professional diligence under Articles 1176 and 1375 of the Italian Civil Code. The contract must therefore incorporate these parameters, not merely as documentary attachments, but as essential clauses of the contractual *synallagma*, aimed at guaranteeing the permanence of the agricultural vocation of the land.

From this perspective, the agronomic plan becomes the technical keystone of the relationship: it identifies crops, rotations, soil operations, and standards of mechanical compatibility with the plant, as well as indicators

requirement in Articles 4(1)(b) and 9 of that Regulation. The legal framework therefore does not exclude the coexistence of non-agricultural activities on the holding, provided that they do not undermine the continuity of cultivation and do not lead to the loss of the minimum eligibility requirements for receiving CAP payments.

23 Among the most recent administrative indications, particular mention should be made of MASAF Note No. 0336902 of 21 July 2025, which takes as decisive elements the farmer's effective availability of the land, the continuity of the cropping cycle and the farmer's decision-making power as conditions for eligibility for CAP direct payments in the presence of agrivoltaic installations. Cf. Francesco Tedioli, "PAC e agrivoltaico 'Tipo 2': inammissibilità ai pagamenti diretti?," *Rivista per la consulenza in agricoltura* 104 (2025): 13–28.

of effective agricultural use and verification procedures. Its binding effect makes it possible to translate CAP requirements into enforceable contractual obligations, thereby reducing the risk of discretionary assessments by controlling authorities.

The same logic applies to the availability of the land: the farm must retain the ability to access and operate on the land during the critical phases of the production cycle. The contract must therefore provide for access routes, time windows of exclusivity reserved for farming operations, and, where necessary, the suspension or rescheduling of energy-related activities. This is a clause of substance, not of style: it translates the public-law requirement of effectiveness into private-law terms, acting as a guarantee both for CAP verification purposes and for the day-to-day management of the holding.

The monitoring of continuity of cultivation may be entrusted to contractual monitoring tools (such as agronomic records, periodic reports, joint inspections, or checks entrusted to a third party), thereby providing documentary evidence of continuous cultivation, reducing the risk of administrative litigation, and strengthening the legal certainty of the relationship.

As regards the economic risk arising from the loss or reduction of aid, private law must govern its causal allocation. If the exclusion from direct payments results from plant configurations or management conduct attributable to the energy operator, the financial burden cannot be placed on the farmer. The contract must therefore provide for: (1) specific information obligations for audits and inspections; (2) a regime of liability and indemnification proportionate to the CAP-related loss suffered; (3) a change-in-law[24] or technical adaptation clause governing the

[24] In long-term contracts, the change-in-law clause operates as an instrument for the ex-ante allocation of regulatory risk, designed to govern the impact of subsequent legislative or regulatory changes on the economic and performance structure of the relationship. Italian practice in the field of infrastructure and public–private partnerships (see: ANAC Guidelines and case law on contractual rebalancing under Article 9 of Legislative Decree No. 50/2016, now Article 9 of Legislative Decree No. 36/2023) has consolidated the use of such clauses in order to preserve the sustainability of the contract in the event of regulatory shocks. In the agrivoltaic context, these clauses play a particularly significant role: not only as a safeguard for the bankability of the investment, but also as a mechanism for protecting the functional balance required by Article 2135 of the Italian Civil Code, by ensuring that any technical

impact of regulatory or technical supervening events without jeopardizing continuity of cultivation.

Ultimately, the compatibility between agrivoltaics and the CAP depends on an *ex ante*, contractual design that renders the multifunctionality commitments that are effective and verifiable: (1) structured and controllable agronomic obligations; (2) guarantees of access to and effective management of the land; (3) transparent allocation of risks and remedies. Only such an approach makes it possible to reconcile the objectives of the energy transition with the protection of agricultural income, ensuring that electricity production remains legally connected and subordinate to cultivation.

4.2. Maintaining "Active Farmer" Status and the Tax Classification of Energy Production

A further aspect, closely linked to CAP sustainability and to the logic of Article 2135 of the Italian Civil Code, concerns the maintenance of "active farmer" status in the presence of agrivoltaic plants.

From a tax perspective, the Italian Revenue Agency, in coordination with the Ministry of Economic Development (now the Ministry for the Environment and Energy Security), has clarified that agrivoltaic plants must comply with the same criteria already laid down for photovoltaics, in order to be regarded as a connected agricultural activity and thus benefit from the preferential tax regime (agricultural income and agricultural VAT). Similar tensions between tax classification, "active farmer" status, and on-farm renewable energy can be found in other EU Member States; although, they are addressed through different combinations of income-tax rules and CAP implementation choices.

Circular No. 32/E of 6 July 2009 identifies three alternative parameters under which energy production may be considered a connected activity, when annual output exceeds 260,000 kWh: (1) structural integration of the plant on existing farm buildings (greenhouses, barns, sheds, agricultural structures); (2) prevalence of agricultural turnover over that deriving from

or economic adjustments do not unduly impair continuity of cultivation and the agreed agronomic standards. The clause must therefore clarify the criteria, timing and effects of the adjustment, linking the economic burden to the party that derives the predominant benefit from the supervening change, and providing for graduated remedies where the adjustment proves impossible or excessively onerous.

the sale of electricity; (3) availability of at least 1 hectare of cultivated land for every 10 kW of installed capacity exceeding 200 kW, up to a maximum of 1 MW per farm. In Ruling No. 61/2025, the Revenue Agency specified that agrivoltaic plants installed on poles and not integrated into buildings cannot benefit from the first criterion (structural integration) and must, therefore, comply with one of the other two parameters. Both, however, present practical difficulties.

On the economic side, energy production from medium- or large-scale energy plants tends to significantly exceed agricultural turnover, making it difficult to demonstrate the prevalence of agricultural income. On the territorial side, the land-based criterion of "1 hectare for every 10 kW in excess" implies very large areas, often incompatible with the average size of Italian farms and with the yields of modern photovoltaic panels, which are now significantly higher than in 2009.

A quantitative check confirms the problem: one hectare of land in Central Italy, occupied by an advanced agrivoltaic plant, produces, on average, between 250,000 and 350,000 kWh per year. This value is at the limit of the threshold within which, for tax purposes, energy production can still be brought under the heading of agricultural income. The surplus must instead be classified as business income (*reddito d'impresa*) and may be determined on a lump-sum basis by applying the 25% profitability coefficient (Article 56-bis of the Italian Income Tax Code – TUIR), provided that agricultural turnover continues to prevail over energy-related turnover.

Losing such prevalence has significant consequences also for the CAP: an undertaking that can no longer qualify as an "active farmer" within the meaning of Article 9 of Regulation (EU) 2021/2115 risks losing eligibility for direct payments, with immediate repercussions at the civil law and contractual levels. Maintaining agricultural status therefore requires a substantive balance between the energy dimension and agricultural activity, to be pursued already at the design stage and in the drafting of contracts.

Where energy production is predominant in economic or organizational terms, the operator can no longer benefit from the preferential tax regime, nor invoke the notion of a connected activity under Article 2135 of the Italian Civil Code, with knock-on effects for the economic and legal viability of the entire agrivoltaic project.

5. Civil-Law Constraints, Liability, and Remedies in Agrivoltaic Contracts

The real test of the civil-law sustainability of agrivoltaic contractual relationships does not lie in the mere technical compliance of the plant, but in the ability of the contractual structure to withstand, over time, the constraints imposed by private law.

The first critical juncture concerns the "concrete cause" and the *meritevolezza*[25] of the contractual arrangement (Article 1322 of the Italian Civil Code): a contract which, in substance, downgrades cultivation to an ancillary or marginal function, turning the land into a production platform for energy, is incompatible with Article 2135 of the Italian Civil Code and with the economic and social function of the agricultural undertaking.

The prevalence of the agricultural component must emerge, in fact, not by mere declaration, and must result from the combination of contractual stipulations and their performance in accordance with good faith (Articles 1366 and 1375 of the Italian Civil Code).

The contractual architecture must therefore constitute a coherent system of primary obligations, including: (1) continuity of the cropping cycle; (2) effective availability of the land during critical operational windows; (3) regulation of powers of access and coordination between the farmer and the plant operator; (4) an undertaking to carry out agronomic restoration at the end of the plant's life. In the absence of such safeguards, the contract will be supplemented *ex lege*, pursuant to Article 1374 of the Civil Code (*eterointegrazione*), with a corresponding increase in interpretative uncertainty and in the risk of litigation.

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[25] In Italian contract law, the notion of *meritevolezza* (literally, the "worthiness" of the interests pursued) refers to the requirement, laid down in the second paragraph of Article 1322 of the Civil Code, that atypical contractual arrangements must pursue interests that are compatible with the legal order. It operates as a substantive limit to contractual freedom, allowing courts to refuse protection to schemes whose underlying economic or social function is inconsistent with constitutional principles, public policy or the structural safeguards of a given area of law. In the agrivoltaic context, the requirement of *meritevolezza* implies that contractual configurations which effectively displace agricultural activity and transform the land into a mere energy platform cannot be regarded as worthy of legal protection where this outcome conflicts with the statutory paradigm of Article 2135 of the Civil Code and with the recognized economic and social function of agricultural undertakings.

From the formal and publicity standpoint, the surface right must be created by notarial deed or authenticated private writing[26] and registered in the land registers (Article 2643(2) of the Civil Code), while respecting continuity of registrations (Article 2650 of the Italian Civil Code). A lack of publicity, or inconsistencies in the contractual chain, may result in the inopposability and priority conflicts (Article 2644 of the Italian Civil Code), with consequences for the validity of the *titoli di disponibilità* required by the GSE and for the bankability of the project. Where the landowner grants rights that are incompatible with pre-existing legal situations, this may amount to non-performance (Article 1218 of the Italian Civil Code) or to pre-contractual liability (Article 1337 of the Italian Civil Code).

The material delimitation of the object of the contract is of substantive importance: the footprints, appurtenances, and easements must be identified with precision, not only for cadastral purposes, but also as a guarantee of continuity of agricultural use. Imprecise delimitation may lead to overlapping rights of enjoyment and, as a consequence, to a distortion of the contractual balance.

As regards contractual performance, the clauses must ensure cooperation between the parties in such a way as to preserve the agricultural destination of the land. In particular, the contract must provide for: (1) obligations of non-interference and operational coordination during cropping phases; (2) procedures for scheduled access for the plant's personnel and machinery; (3) a system for periodic verification of compliance with the agronomic plan; (4) end-of-life restoration guarantees by means of first-demand bank or insurance guarantees.

The liability of the plant operator is not exhausted by the performance of the primary obligations but extends to harmful consequences resulting from abnormal use or alteration of the soil (Article 2043 of the Italian Civil Code) and, where dangerous activities are involved, to strict liability under Article 2050 of the Italian Civil Code. The farmer remains the holder of the *position of guarantee* associated with the custody of the land (Article 2051

[26] On this point, see Article 1350(1) of the Italian Civil Code, which requires a notarial deed (*atto pubblico*) for contracts transferring or creating rights in rem over immovable property, and Article 2643(2) of the Civil Code on registration. In practice, an authenticated private deed is also accepted for the purposes of both form and registration in the land registers.

of the Italian Civil Code) and is liable towards third parties for damage attributable to failures in supervision or maintenance, without prejudice to the right of recourse against the person actually responsible.

The issue of professional negligence is relevant for technical, agronomic, and legal advisers involved in drafting the contracts: failure to provide for adequate safeguard clauses or failure to point out structural incompatibilities may amount to a breach of the heightened standard of professional diligence (Article 1176(2) of the Italian Civil Code). In this framework, contractual remedies acquire the role of substantive safeguards, because they translate agronomic and regulatory constraints into enforceable legal consequences.

In addition to express termination clauses for breaches of agronomic obligations, it is advisable to provide for: (1) technical revision mechanisms (change-in-law or change-in-technology)[27] allowing the project to be adapted to supervening regulations without altering the overall contractual balance; (2) guarantee penalty clauses,[28] calibrated on any loss of CAP support or GSE incentives; (3) obligations of separate accounting, in order to distinguish agricultural income from energy-related income and to document the prevalence of agricultural activity.

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[27] The change-in-technology clause is borrowed from international contractual practice in energy and infrastructure projects. It provides for the possibility of adapting the plant or its operating methods to technical progress occurring during the performance of the contract, without altering the original economic function of the relationship. In the agrivoltaic context, such a clause allows components to be replaced or innovations to be introduced (for example, bifacial modules, solar-tracking systems, agronomic sensors or monitoring software), provided that agronomic compatibility is respected and that continuity of cultivation, agricultural prevalence and compliance with CAP conditions and GSE incentive standards are not impaired.

[28] Guarantee penalty clauses in agrivoltaic contracts serve as an economic safeguard against regulatory and management risk. They provide for the payment of a predetermined sum in the event of a breach of agronomic obligations or of conduct resulting in the total or partial loss of CAP contributions or GSE incentives. Their function is not merely punitive, but compensatory of the loss suffered by the agricultural undertaking, which must be able to maintain the economic sustainability of its farming activity even in the face of the energy operator's default. In this sense, the amount of the penalty must be proportionate to the foreseeable damage and calibrated to the extent of the lost benefit, pursuant to Article 1382 of the Italian Civil Code, and may also operate as a clause for the pre-liquidation of agronomic or environmental damage.

At a systemic level, agrivoltaic contracts must also incorporate the public-law obligations deriving from Ministerial Decree No. 436 of 22 December 2023 and from the GSE's Operational Rules: agronomic monitoring, periodic data reporting and traceability of cropping activities must be embedded in the contractual framework as essential ancillary obligations. Their omission does not simply lead to the possible forfeiture of incentives, but may also amount to non-performance in private-law terms, by reason of a breach of statutory obligations that supplement the contract.

In conclusion, private law provides the framework of stability and liability within which agrivoltaics can operate. The validity of the entire contractual set-up depends on the parties' ability to translate the principles of agricultural compatibility and sustainability into enforceable clauses, thereby preserving the function of the land and the *meritevolezza* of the contractual cause, in line with the paradigm of Article 2135 of the Italian Civil Code.

6. A European Comparative Glimpse of Contractual Frameworks for Agrivoltaics

Although the present analysis focuses on the Italian framework, the contractual challenges posed by agrivoltaics are not unique to Italy. Across the European Union, Member States are experimenting – often within their own civil-law traditions of property and rural leases – with long-term legal structures that must simultaneously secure access to land for agricultural use, deliver bankable rights for energy operators, and remain compatible with CAP-based income support schemes.

In France, the *Loi relative à l'accélération de la production d'énergies renouvelables* of 10 March 2023 (the so-called *Loi APER*) introduced, for the first time, a statutory definition of *installation agrivoltaïque* in Article L. 314–36 of the *Code de l'énergie*. An agrivoltaic installation is defined as a facility producing electricity from solar radiation, whose modules are located on agricultural land and "durably contribute to the installation, maintenance, or development of agricultural production" on that parcel. This general principle has been further specified by Decree No. 2024–318 of 8 April 2024, which sets out the regulatory framework for agrivoltaic projects and other photovoltaic installations on agricultural, natural, and forest land, including conditions on siting, monitoring, and sanctions. Subsequent

administrative guidance and industry summaries emphasize quantitative thresholds – such as limits on the percentage of agricultural land that may be covered by modules and minimum yield levels to be maintained compared with a reference plot – as well as reversibility of the installation and the requirement of financial guarantees to secure decommissioning and soil restoration. From a private-law perspective, these public-law constraints are translated into contractual clauses embedded in *baux ruraux* combined with separate agreements with the energy operator, or in long-term real rights (*droits réels* such as *droits de superficie* or *baux emphytéotiques*) that remain subordinated to the requirement, now explicit in French law, that agriculture must retain the primary role on the plot and that the solar installation must demonstrably provide agronomic services (protection against climatic risks, improvement of yields, animal welfare, etc.).

In Spain, where no specific statutory category of "agrivoltaic installation" has yet been introduced, contractual practice on agricultural land has so far relied on classic civil-law instruments: *arrendamientos rústicos* governed by Law 49/2003 of 26 November on rural leases (*Ley de Arrendamientos Rústicos*) and, for more capital-intensive projects, the *derecho de superficie* and related real rights structures. Law 49/2003 defines the rural lease as a contract whereby one or more rustic plots are temporarily ceded for agricultural, livestock, or forestry use in exchange for a price or rent, and imposes a minimum contractual duration of five years with automatic renewals in the absence of notice. In the context of ground-mounted solar or nascent agrivoltaic schemes, this has led to layered arrangements, in which the farmer remains *arrendatario rústico* with full rights to exploit the holding, while a separate surface right or easement is granted to the energy company for the installation of PV structures. Practice-oriented Spanish literature on PV projects underlines that the *derecho de superficie* is particularly attractive for financiers because it is a registrable, real right, opposable to third parties and mortgageable, yet ultimately temporary and reversible. At the same time, some regional guidance – most notably in Catalonia – has begun to require that agricultural activity and yields be maintained above certain thresholds, so that the priority of agricultural use must increasingly be reconstructed and guaranteed at the contractual level. The key challenge, however, is that – absent an agrivoltaic-specific regime – the parties must contractually reconstruct the priority of agricultural use

within instruments that were originally conceived either for pure farming leases or for urban and infrastructure developments; this raises delicate questions of qualification for tax purposes and for the implementation of the Spanish CAP Strategic Plan, when energy revenues become significant.

Germany offers a third model, where the public-law framework for agrivoltaics has advanced rapidly under the *Erneuerbare-Energien-Gesetz* (EEG) 2023 and the subsequent "solar package" reforms. The EEG 2023 introduced specific support categories for Agri-PV systems on arable land, permanent crops and grassland, subject to conditions intended to ensure continued agricultural use and to exclude sensitive areas, such as moorland and certain protected sites. Recent legal commentary and administrative guidance also stress minimum proportions of the area that must remain available for normal agricultural operations (often expressed as a high percentage of the surface that may not be structurally occupied by PV infrastructure), as well as technical standards for system height and configuration. On the contractual side, these requirements are typically implemented through long-term *Pachtverträge* (farm leases) and ancillary use agreements (*Nutzungsverträge*) that allocate rights and duties between landowners, farmers, and plant operators: the farmer must retain effective control over cropping decisions and access to the land, while the operator is granted defined rights to erect and maintain the PV structures, often backed by decommissioning guarantees. German transactional practice thus closely mirrors the Italian distinction between the "dual" and "integrated" models but is strongly influenced by the detailed Agri-PV categories and funding conditions laid down in the EEG and subordinate regulations.

Taken together, these examples suggest that, despite significant differences in legislative technique and market maturity, European legal systems are converging around a common private-law grammar for agrivoltaics. Long-term real rights (surface rights, emphyteusis-like arrangements, concession-type schemes) and leases remain the backbone of contractual structuring, but they are increasingly "shaped by their cause" to embed agronomic obligations, monitoring duties, and decommissioning guarantees drawn from public-law regimes and CAP-inspired conditionality. In this comparative perspective, the Italian approach – based on a functional reading of Article 2135 of the Civil Code, the "configured" surface right, and the centrality of an enforceable agronomic plan – appears less as an outlier

and more as one of several national laboratories where the civil-law instruments of rural property and long-term use rights are being re-engineered to accommodate the dual objective of land-based energy production and the preservation of agricultural activity.

7. Towards a Revision of Article 2135 of the Italian Civil Code?

Agrivoltaics is currently one of the most significant testing grounds for agricultural and civil law: it tests the capacity of Article 2135 of the Italian Civil Code to accommodate, within its boundaries, hybrid productive models combining agriculture, technology, and energy, in a context where EU climate and energy objectives require a rapid deployment of renewables without undermining food production and rural cohesion.

The challenge is not only technical or environmental, but also legal: to find a balance between the need to maintain the centrality of cultivation and the need to recognize energy production as a structural factor in the economic resilience of farm enterprises. From a broader European perspective, this balance mirrors the tension between the CAP's green architecture and the accelerated roll-out of renewable energy under the European Green Deal and the "Fit for 55" package.

Positive law, in its current configuration, continues to confine electricity production within the perimeter of "connected" activities, which are ancillary and instrumental. However, the most advanced agrivoltaic practices show that renewable energy generation, when fully integrated into the farm cycle and managed directly by the farmer, does not constitute an extraneous element but a stable component of the productive organization.

The jurist's task is therefore twofold: in the short term, to ensure the civil-law compatibility of legal relationships through contractual arrangements capable of making agronomic obligations enforceable; and, in the medium term, to foster a systematic reflection on the need to update Article 2135 of the Italian Civil Code.

Perhaps the time has come to recognize, with clear limits and adequate legal safeguards, that energy production from renewable sources may constitute a primary activity of the farmer, where it is intrinsically integrated into the organization of the farm and subject to strict regulatory conditions capable of preventing the "energeticization" of the agricultural undertaking. Such a reclassification would also need to be coordinated with EU

State aid rules and CAP eligibility criteria, in order to avoid distortions of competition and inconsistencies between national civil law and EU funding conditions.

In this direction, a possible reform should be based on a number of key criteria: (1) functional and territorial integration: plants located and configured in harmony with the cropping cycle, with verifiable agronomic compatibility (height, layout, access, soil management); (2) substantive agricultural prevalence: measurable indicators (agronomic KPIs, material availability of the land, protected operational windows) and separate accounting, so as to avoid energy becoming economically dominant; (3) agricultural governance: entrepreneurial control firmly vested in the agricultural operator, including through an agricultural company, with a prohibition on purely vehicular structures lacking organizational substance; (4) a "net agro-environmental benefit" clause: a legal obligation to achieve a measurable improvement of soil quality, biodiversity, and water resources compared with a verifiable baseline, backed by standardized remedies (corrective measures, penalties, suspensions); (5) guaranteed end-of-life: a legally mandated obligation to dismantle the plant and restore agronomic conditions, backed by an autonomous, callable guarantee or segregated escrow, as an essential and not merely ancillary element; (6) anti-avoidance safeguards: a prohibition on transactions that shift the economic center of gravity towards energy; consistency with CAP conditionality and the applicable incentive schemes.

Such an evolution would not "denature" the agricultural undertaking, but would broaden its economic and social function: energy would become a primary productive resource, on condition that it remains anchored to the land, to cultivation, and to environmental stewardship.

The legislative drafting technique could follow two paths: (1) the creation of a new category of primary agricultural activity based on "integrated and conditional" renewable energy; or (2) the strengthening of the legal regime of connected activities through statutory presumptions and binding thresholds. In either case, the centrality of agriculture must remain the non-derogable core of the system.

The objective, more than lexical, is cultural: to move from a criterion of "non-impediment" to one of "improvement," making improvement itself a legal rule, rather than a mere aspiration. Only under this approach

can the energy transition become a truly agricultural practice, capable of enduring over time and anchored not only in technical design, but also in a coherent body of EU and national law.

References

Alabrese, Mariagrazia, Margherita Brunori, Silvia Rolandi, and Andrea Saba, eds. *Agricultural Law: Current Issues from a Global Perspective*. Cham: Springer, 2017.

Armao, Gaetano. "Environmental Sustainability of the Energy Transition: Agrivoltaics in Italy and in the Insular Regions." *Rivista Giuridica AmbienteDiritto.it* 24, no. 4 (2024): 1–23.

Brambilla, Paolo. "Le comunità energetiche e la sagacia di Pirandello." *Rivista Giuridica AmbienteDiritto.it* 24, no. 1 (2024).

Chatzipanagi, Anatoli, Nigel Taylor, and Arnulf Jäger-Waldau. *Overview of the Potential and Challenges for Agri-Photovoltaics in the European Union*. Luxembourg: Publications Office of the European Union, 2023. https://dx.doi.org/10.2760/208702.

Coiante, Alessandra. "*Think Global, Act Local*. Le comunità energetiche rinnovabili e il principio di sussidiarietà (anche) sociale come perno della transizione energetica." *Rivista Giuridica AmbienteDiritto.it* 24, no. 1 (2024).

De Maio, Gabriella. *Povertà energetica e comunità energetiche. Criticità e prospettive per una transizione giusta*. Naples: Editoriale Scientifica, 2024.

European Commission, Directorate-General for Agriculture and Rural Development. "Approved 28 CAP Strategic Plans (2023–2027): Summary Overview for 27 Member States – Facts and Figures," June 2023. Accessed December 19, 2025. https://agriculture.ec.europa.eu/document/download/7b3a0485-c335-4e1b-a53a-9fe3733ca48f_en?filename=approved-28-cap-strategic-plans-2023-27.pdf.

Huang, Jiao, Muriel Tichit, Monique Poulot, Ségolène Darly, Shuangcheng Li, Caroline Petit, and Christine Aubry. "Comparative Review of Multifunctionality and Ecosystem Services in Sustainable Agriculture." *Journal of Environmental Management* 149 (2015): 138–47. https://doi.org/10.1016/j.jenvman.2014.10.020.

Kapała, Anna. "Legal Instruments to Support Local Food Systems in Italian Law." *EU Agrarian Law* 9, no. 1 (2020): 5–11, https://doi.org/10.2478/eual-2020-0002.

Renna, Mario. "Le comunità energetiche e l'autoconsumo collettivo di energia. Tutela della concorrenza e regolazione del mercato." *Nuove Leggi Civili Commentate* 1 (2024): 161 ff.

RES4LIVE Consortium. "Policy Brief no. 1 – Policy Recommendations for the Common Agricultural Policy (CAP)," 2024. Accessed December 19, 2025. https://res4live.eu/wp-content/uploads/2024/09/Policy-Brief-1_RES4LIVE-PDF.pdf.

Rovai, Massimo, and Maria Andreoli. "Combining Multifunctionality and Ecosystem Services into a Win-Win Solution: The Case Study of the Serchio River Basin (Tuscany—Italy)." *Agriculture* 6, no. 4 (2016): 49. https://doi.org/10.3390/agriculture6040049.

Tedioli, Francesco. "Exploring Italian Agritourism: A Model of Sustainable Rural Development." *Journal of Agribusiness and Rural Development* 75, no. 1 (2025): 64–77. https://doi.org/10.17306/J.JARD.2025.00017R1.

Tedioli, Francesco. "Il diritto di superficie nel modello agrivoltaico avanzato: compatibilità civilistica, soluzioni contrattuali e disciplina fiscale." *Diritto e giurisprudenza agraria alimentare e dell'ambiente*, no. 3 (2025): 1–9.

Tedioli, Francesco. "PAC e agrivoltaico 'Tipo 2': inammissibilità ai pagamenti diretti?." *Rivista per la consulenza in agricoltura* 104 (2025): 13–28.

Vezzoni, Rubén. "Farming the Sun: The Political Economy of Agrivoltaics in the European Union." *Sustainability Science* 20 (2025): 1519–34. https://doi.org/10.1007/s11625-024-01601-7.