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Energy as an Intangible Asset: A Legal Analysis in Light of Res Corporales and Res Incorporales

Éfren Paulo Porfírio de Sá Lima, Ana Clara Ribeiro de Sousa Castro

Law Department, Federal University of Piauí (UFPI), Teresina, Brazil
Email: efrencordao@ufpi.edu.br, claracastro@ufpi.edu.br

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Abstract

This study aims to conduct a legal analysis of energy as an intangible asset by examining its history and comparing the materialist conception of property protection across various legal systems over the centuries, particularly in Germany, Italy, and Latin America. This research employs the inductive method through qualitative research and bibliographical analysis. An institutional change can be observed in how energy is treated as a valuable asset. The study begins with a theoretical examination from the perspective of the Gaian bipartition theory of res corporales and res incorporales, using historical and bibliographical analysis to assess the influence of this institutional theory on the theoretical and dogmatic foundations of legal systems regarding goods, with a specific focus on energy, especially renewable energy, and the potential implications of its use and ownership.

Keywords

Energy, Immaterial Goods, Civil Law, Changes in the Private Order

1. Introduction

One cannot overlook the fact that energy, in general, plays a substantial role in global economic development. Energy can be considered the product of applying forces derived from natural resources, with such forces being defined through various methods that result in powering machinery, commerce, and industries, whether through natural elements like wind and running water or through stored sources such as fossil fuels (oil, coal, natural gas), which are used through intense combustion that promptly alters the environment where they are applied (da Costa & Reis, 2022).

Energy has always driven the world, as transforming resources (renewable or not) into energy is essential to meet numerous human needs. Thus, energy is in-

trinsically linked to all economic, social, and technological development activities. Life itself is impossible without energy. Human interaction with energy dates back to before the discovery of fire, as even the basic pursuit of food is a quest for energy. However, in the past two centuries, there has been a substantial change in the relationship between humans and energy (Colacios, 2010).

In the contemporary context, energy is considered an intangible asset with significant economic value, representing a substantial resource for the development and sustainability of society and the environment, which bestows upon it a value that transcends its intangible nature.

Despite being considered an intangible asset, energy possesses relevant intrinsic value from various perspectives. This raises the need to reflect on the effectiveness of protection mechanisms for interests not related to tangible realities but to intangible interests, such as energy.

This article examines the legal nature of energy as a valuable asset through the lens of the Gaian bipartition theory of res corporales/res incorporales. The study, developed through a historical-comparative approach, will analyze the evolution of the materialist conception of property over time and across different legal systems (German, Italian, and Latin American) to address its potential applications (or lack thereof) in property protection of energy as an intangible asset.

The research employs the inductive method, starting with observing facts or phenomena to understand their causes. It compares these elements to uncover their relationships, concluding based on the verified connections among the analyzed facts or phenomena (Gil, 2007). Furthermore, it is qualitative research through bibliographical analysis, consulting scientific articles, and works on the subject.

2. The Roman Distinction of Res Corporales/Res Incorporales

Bobbio (2007: p. 139) uses the expression "great dichotomy" to refer to the product of the organizational process of research disciplines, where there is a tendency to divide the universe of those disciplines into two mutually exclusive and collectively exhaustive subclasses.

In the context of Civil Law, specifically concerning "things," there is a classical division between res corporales and res incorporales, initially tied to the conception of tangible goods (which can be touched) and intangible goods (which cannot be touched).

Thus, the basis of this Roman classification is the nature of the res, whether physical or abstract. This categorization gave rise to the basic principles of property and legal rights, which ended up influencing and shaping modern civil law. The main characteristics of this division are related to the legal protection that is given to each "thing" based on its physical tangibility, or not.

Alves (2018: p. 175) states that this distinction is found in the Institutes of Gaius, Justinian's Institutes, and the Digest:

It is of philosophical origin: Cicero, based on Aristotle, distinguished things into existing ones (quae sunt)—those that can be seen and touched (quae cerni tangiue possunt)—and intellectual ones (quae intelleguntur)—those that are only mental conceptions; and Seneca called the existing ones corporales and the intellectual ones incorporales. For Roman jurists, tangible things are perceptible to our senses (quae tangi possunt); intangible things are imperceptible (quae tangi non possunt), such as rights (iura). At first glance, the Romans appear to have equated things (corpora) with tangible objects and rights (iura) with intangible ones. However, it is noted that concerning property rights, they classified it among tangible things since, due to the breadth of powers over the thing that this right grants to its holder, the Romans did not distinguish between the thing and the right of ownership over it.

Gaius, in his traditional division of res corporales/res incorporales, became the starting point for studies of this great dichotomy, which serves to conceive theoretical points related to the acquisition and transfer of res, from the perspective of ius in personae, ius in res, and ius in actiones (Beghini & Zambotto, 2023).

According to Beghini and Zambotto (2023: pp. 2-3), the perspective of tangibility adopted by the Romans stems from Aristotelian and Stoic thought. For the former, the idea of something tangible is linked to a specific conception of corpus. What can be apprehended by the senses is tangible; what cannot be is considered intangible. On the other hand, the Stoics consider everything capable of producing some effect, including intangible entities like energy, as a body due to their impact on tangible things and their transformation into something perceptible to the senses.

The differentiation of things into tangible and intangible has been questioned over time since, if a thing is an object of right, it raises the question of how to classify it into things and rights. Rights cannot be regarded as things that are their object in themselves (Alves, 2018).

A characteristic of great dichotomies is that each of the two terms is susceptible, due to its axiological and historiographical meaning, to be expanded to connote not just one of the two parts but the entire universe, becoming the term of a universal class (Bobbio, 2007).

Given the numerous transformations in law over time and changes in the concept of "things," the original meaning of Gaius's bipartition has been remodeled by legal systems. Thus, despite the materialist conception remaining the basis of proprietary law, an intersection area between res corporales and res incorporales is observed, with a strong tendency for the latter to invoke the entire current universe of res.

2.1. Relationship with the Roman Division of "Res Mancipi" and "Res Nec Mancipi"

When analyzing Gaius's bipartition and the concept of res, it is necessary to as-

sociate it with res mancipi and res nec mancipi, especially regarding property and its transfer of ownership.

Among the various classifications of things in Rome, Moreira Alves (2018) points out that the bipartition of res mancipi and res nec mancipi is linked to the Roman socio-economic order. In ancient Rome, assets were categorized as either res mancipi or res nec mancipi. The former were the most useful things to the early Romans, where the transfer was carried out through formal acts of emancipation. Res nec mancipi, on the other hand, were less important items that did not require formal procedures for transfer and could be transferred by simple tradition.

Thus, the criterion for differentiating res mancipi and res nec mancipi was purely economic, impacting the property transfer rules in the Roman system. However, because there were intangible goods in the res mancipi system, there would be some incompatibility with Gaius's system since the transfer of ownership of res mancipi was conducted through a formal procedure of tradition, which, in turn, is incompatible with res incorporales (Beghini & Zambotto, 2023).

According to Beghini and Zambotto (2023: pp. 3-4), when discussing res incorporales, Gaius deliberately avoided the issue of ownership and its patrimonial relations. He identified dominion with the object itself, excluding it from the category of intangible goods.

From this perspective, there is a combination between "things" and "rights," especially in their common element: patrimonial elements that can be compared with property materialized in the thing (Beghini & Zambotto, 2023).

2.2. The Materialist Conception of Property

Cursi (2004: pp. 180-183) explains that the Romans adopted a materialist conception of property, equating it with the object itself. In the Roman system, owning property meant having something tangible and perceptible to the senses. This was because property was conceived as belonging so exclusively and fully that it could not be imagined in anything other than a material thing.

This conception is so deeply rooted in the proprietary system that it forms the foundation of the legal science of numerous legal systems, regarded as an indisputable reference model for centuries. However, changes in perceptions of natural law regarding "things" have led to questioning the conception of property centered on tangible things, necessitating reflection on whether these axiological foundations still make sense in a world increasingly dominated by res incorporales.

The direct result of these changing perceptions regarding res is the opposite of the Roman proprietary model based on tangible things. The new conception of property would be linked to proprietary situations involving rights rather than tangible things themselves; the personae-res-actiones system is surpassed, proposing a paradigm of belonging as everything different from the subject, even if

they are intangible things, actions, or rights (Cursi, 2004).

Despite the extensive interpretations of the Roman property model, it remains unshaken. It continues to be deeply rooted in the legal science of numerous legal systems, such as the German, Italian, and Latin American ones.

2.2.1. Application in the German Model

In the 18th century, Germany advanced the legal debate between res corporales and res incorporales when addressing issues related to intellectual property. In the following century, the discussion resumed, adopting a materialist view of property in line with res corporales. Despite this, the undeniable correlation between rights related to intellectual production and res incorporales led to classifying intellectual creations as nonphysical objects of right (Beghini & Zambotto, 2023).

For the same authors (Cursi, 2004: pp. 26-30), it is essential to distinguish between "goods" and "things"; the former being intangible entities with a "mere legal dimension," understood as part of someone's property and therefore the object of legal relationships. On the other hand, things exist concretely and materially, being objects of right regardless of the legal context.

This limitation of the proprietary conception forced German doctrine to delineate the relationship between the subject and intangible goods differently than for material goods. The theory of Immaterialgüterrechte was developed, first fully evidenced by J. Kohler (Cursi, 2004).

These theories were developed within the scope of copyright. However, based on the premise that property consists of rights, it is possible to extend the issue to energy through extensive interpretation. It is observed that parts of them are indicated by the things to which the rights refer, even within the legal framework.

In a more detailed analysis, the reasoning distinguishes the constituent parts of property into tangible and intangible, depending on the reference object. Therefore, it is essential to distinguish conceptually between the Roman res incorporales as constituent parts of the property and the modern intangible things as objects of right (Beghini & Zambotto, 2023). Despite efforts to differentiate the two situations, the reference model remains proprietary according to Cursi (2004: pp. 190-193).

2.2.2. Application in the Italian Model

According to Cursi (2004), when examining how the Italian system has regulated res, it is noted that in the Civil Code of 1865, the notion of property was limited to tangible things. In truth, terminologically, the legislator used the broad and nuanced expression "pertinence" instead of the more precise "property" to avoid directly confronting the controversial issue of the nature of rights regarding intellectual creations and intangible goods. The legislator thus preferred not to address the problem, avoiding taking a stance on the matter. In the following code, all "things" that can be objects of rights were included in the category of

"goods." The reference to the legal notion of goods allowed for overcoming the tangible limit of things, including intangible entities among goods (Cursi, 2004).

In Italian law, the distinction between res corporales and res incorporales, along with all associated elements, pertains to property and its respective rights. Initiated during the Enlightenment, the alteration in the perception of the Roman paradigm based on Gaius culminated in an evolution centered on a single form of property. Naturally, this remodeling of the subject/property relationship paradigm allowed the new concept of property to encompass all things, both material and immaterial (Beghini & Zambotto, 2023).

This new interpretive challenge radiates through the entire universe encompassed by legal relationships, including energy matrices and their ramifications, especially when considering new goods resulting from technological advances, including intangible, immaterial, and digital goods.

2.2.3. Application in the Latin-American Model

When analyzing the Argentine context, it is important to emphasize the original project of the Civil Code developed by Dalmacio Vélez Sársfield in the 19th century. The current Argentine Civil Code states that a "thing" includes tangible objects of value, clearly inheriting the Roman system's bipartition of res corporales and res incorporales (Argentina, 1869).

It is interesting to note that the code, even considering "things" only as material objects, refers to immaterial (intangible) objects susceptible to value, calling them "goods" and stating that the set of an individual's goods constitutes their "property."

It is important to emphasize that the Argentine legislator gave special attention to energies and natural forces susceptible to appropriation, treating them as "things." It is noteworthy that the issue of "value" is a central element in considering "things" as a whole as "goods"; thus, res has always been fundamentally linked to the value it represents in the material and legal realms.

The Argentine code influenced even the Venezuelan Civil Code, developed in 1871 and revised in 1968, extending the applicability of provisions on things to energy and natural forces susceptible to appropriation (Beghini & Zambotto, 2023).

The Civil Code of the Republic of Chile, enacted in 1855, was based on the works developed by Andrés Bello, who adopted the institutional system, dividing the code into a "Preliminary Title" dedicated to general law; another dedicated to people, and three more parts: one related to tangible things and their acquisition and intangible things related to ownership; the others concerning successions and obligations.

Thus, it is highlighted that in the Gaian system, the differentiation between res corporales and res incorporales plays a primordial role since within the tripartite objective law (ius in personae, ius in res, and ius in actiones), it allows inserting in the category of res all legal relationships related to property. This is justified because res corporalis, considered a thing in a legal sense, is only regarded as an

object of a property right, which, in truth, is identified with the thing itself. On the other hand, real rights are those arising from obligations and successions, considered res incorporales (Clementoni, 2020).

In the Latin context, the influence of the Gaian bipartition is strong. It serves as the doctrinal basis for civil legislation and legal reasoning, supporting both doctrinal and philosophical interpretation. Generally, there is an enhanced interpretation of the bipartition where res corporales and res incorporales integrate the property as a whole, often two sides of the same coin.

3. Energy as an Intangible, Immaterial Good

Firstly, for semantic agreement purposes, it is important to point out that there is no doctrinal consensus on the difference between a "good" and a "thing." According to da Silva Pereira (2011: p. 336), "the legal terminology lacks scientific precision."

Teresa Negreiros (2006: p. 425) points out different meanings of "thing" and "good," both in legal and non-legal contexts. In the former, she states that "thing" is "whatever is capable of satisfying human interests and is susceptible to individual appropriation"; regarding "good," she defines it as "whatever can be appropriated to satisfy human needs or interests, that is, whatever can be the object of a legal relationship." Thus, a distinction based on "materiality or immateriality" is observed. This application is contested regarding energy, as it possesses value as an immaterial good and should therefore be considered a good.

Some authors, such as Luiz Paulo Vieira de Carvalho, consider "good" as a genus of which "thing" is a species. Others, like Rubens Limongi França and Antônio Chaves, regard "thing" as the genus, with "good" being a species of it (Ueda, 2014).

For Venosa (2023: p. 301), "goods or things (res) are all objects capable of providing any utility to humans. The word 'res' in Latin has a meaning as broad as the word 'thing' in our language." He explains that res has a broader sense than our law has since it includes immaterial things. Therefore, according to our legislation, "goods" would have the same meaning, encompassing immaterial things like energy.

Freitas (1860) also understands the term "things" in the broader sense, encompassing everything that can be the object of a right or at least everything that forms an integral part of the property, understood as a set of rights over "goods" with value. He considers it incoherent to regard res corporales as the material object on which dominion falls while abstracting from this real right. On the other hand, res incorporales dispense with the object to which it relates, considering only the right itself.

For Freitas (1860), there is no need to use the word res/"thing" since the word "goods" and, even better, the word "objects" exists. In truth, "things" would always be tangible. On the other hand, the "object of right" would be material or

not, depending on the "good" to which it refers. According to the author:

> The term "goods" concerning real rights undoubtedly includes all possible objects of these rights, whether "material" or "tangible", which are the things upon which real rights immediately fall.

Alves (2018) also addresses objections to these meanings, considering that "thing" has a broad definition, encompassing everything that exists in nature, or that human intelligence can conceive. However, considering its legal meaning, "thing" is used in a more restricted sense, being "whatever can be the object of subjective property right."

The Brazilian Civil Code, in turn, does not provide a concrete definition of what goods are, only establishing three divisions—goods considered as themselves, goods reciprocally considered, and public goods; within each division, it sets the respective qualifications and nomenclatures such as movable and immovable property, divisible, consumable, and fungible goods, singular and collective goods for the first division; principal and accessory goods for the second; and common-use goods, special-use goods, and public domain goods for the third (Ueda, 2014).

This article adopts Venosa's broader definition of "good." Thus, a "good" can be anything that adds utility to an individual, regardless of its tangible materiality (or lack thereof). Within this perspective, energy is a valuable good, even within the universe of immaterial goods.

Regarding the nature of energy as a good, according to Ueda (2014: p. 42), some believe that natural forces are tangible things, exemplifying electricity, as they consider that material goods transform due to the action of energy. However, an opposing view holds that electricity, when circulating through wires, can be measured but not stored, nor can its origin be determined. Thus, it is an intangible and immaterial good, as already highlighted by Pontes De Miranda (2012: p. 209).

Therefore, it is perceived that energy can encompass a dual meaning by being assessed as a means for the production chain of goods or to satisfy a human need. This differentiation is important when analyzing the property protection of energies as an intangible, immaterial good.

3.1. Property Protection of Energy

According to Professor José Goldemberg (2010: p. 13), "energy is usually defined as the capacity to perform mechanical work, such as moving an object from one position to another by applying force," defining it as "the capacity to produce transformations [physical, chemical, and biological] in a system."

He also states that energy can have different expressions, such as "radiation energy, chemical energy, nuclear energy, thermal energy, mechanical energy, electricity, magnetic energy, and elastic energy," which can be transformed into one another without loss. He highlights that "the energy available to humans on

the Earth's surface" originates from "four distinct sources"—solar (which generates fossil fuels, wind, biomass, and hydraulic potentials), geothermal, tidal, and nuclear.

Based on this, Ueda (2014: p. 52) separates energies into primary sources—fossil fuels (oil, natural gas, and coal), nuclear (uranium), geothermal, solar, wind, biomass, tidal, and hydraulic potentials—and secondary sources derived from transformations of primary sources. Thus, secondary sources are those consumed by individuals and, as a rule, can be valued and the object of transactions.

Analyzing Article 83 of the Brazilian Civil Code, paragraph I, it is observed that the only energies with economic value are those from secondary sources, as they are effectively used by individuals in their activities. Thus, a superficial analysis would suggest that only these energies are legal goods.

However, by using only the term "energies" without delimiting it as natural or secondary energies and only specifying the need to possess economic value, it is necessary to observe the primary energies released by nature when the sources are the object of lease contracts, especially in renewable energy projects like wind and solar.

3.2. Analysis of Renewable Energy Property

In its natural conception, real rights are linked to a material and concrete thing in the Roman conception of res. From this perspective, property rights would be those that can be exercised over the "thing" (Savatier, 1958).

However, it is undeniable that social transformations and technological advancements have brought institutional changes that reflect on the legal perceptions of legal instruments, especially regarding the meaning of "goods." For Savatier (1958: p. 332), "the abstract replaces the concrete, modifying the very substance of concepts."

Thus, when analyzing energy sources, it is observed that even renewable sources are the object of legal relationships. Both secondary sources, such as electricity, and primary sources are objects of rights. Interestingly, this includes tangible sources like oil and immaterial ones like wind and solar.

Wind energy derives from the movement of wind (air), which is considered by Talavera (2008: p. 101):

> (…) indirect manifestations of solar energy, as they are produced by differences in heating between various regions of the Earth's surface. Thus, warm air from one region, being lighter than cold air, rises, and the vacant space is filled by cold air from another region. This displacement of cold air produces wind.

Therefore, considering that the atmosphere is legally defined as an environmental resource not only due to the provisions of Article 3, V of Law No. 6938/81 (Brazil, 1981) but also due to the provisions of Article 2, IV of Law No.

9985/00 (Brazil, 2000), its legal nature as a constitutionally protected environmental good is demonstrated, requiring wind energy to comply with constitutional mandates on environmental law and the applicable legal determinations, particularly in the civil order (Fiorillo, 2010).

Imagine a wind power project that determines if an area is suitable for installing wind turbines after analyzing the region's soil and wind conditions. Based on this finding, lease contracts are made with the landowners to install turbines on those properties.

The issue arises regarding using other ramifications of property that constitute a kind of usufruct. Considering usufruct as a classic type of real right, it is observed that it can involve not only tangible things but the property as a whole, including all elements, even immaterial ones like renewable and intangible energy matrices.

According to Savatier (1958: p. 333), usufruct can be detached from any right (real, personal, or other). It does not need to be necessarily real; its specificity lies in being a lifelong income related to yield. Thus, usufruct can continue to be considered a real right when linked to tangible things, but what makes it specific is no longer its reality but the fact that it constitutes guarantees taken from any concrete or abstract good to ensure debt liquidation.

When considering wind power projects and contracts involving intangible goods (either the energy itself or the primary wind source), it is crucial to note that air generally has no value. However, upon recognizing that wind has value, even as a renewable primary energy source, it is inevitable to conclude that wind should be considered a "good" for legal protection.

Going further, it is necessary to question that even without specific economic or legal value, the wind is a potential energy source and, from a non-legal perspective, could be considered a good due to its ability to add utility to an individual and its capacity to impact tangible things, being something perceptible to the senses.

Thus, secondary and primary energy sources, including air, have the legal nature of "goods," with their intangible nature not being an obstacle to legal protection.

4. Final Considerations

For de Barros Monteiro (1966), codes are similar to philosophical systems, as they embody a given worldview at a certain time and for certain people, corresponding to the needs of a particular period. However, civil life is dynamic, and over time, with social transformations, it is necessary to break away from previous thoughts and expand the scope of doctrine.

Thus, codes need to follow the flow of life and adapt to new and unforeseen demands. The law cannot be condemned to immobility. Over time, it is necessary to alter everything considered mutable, adapting to new needs, but with caution. It is inconceivable for these transformations to occur by breaking from

the past and abandoning tradition. Lawmakers and jurists must be diligent not to waste the legacy of previous generations.

On the other hand, based on Reale's (1910: pp. 190-192) idea, the legal system as a whole is a system of rules in its concrete realization, composed of explicit rules and rules developed to fill possible gaps, as well as negotiable rules left to the discretionary power of individuals. According to the author, the legal system may be omissive in certain situations or require adaptations over time. However, the legal system is complete, denoting what he calls the "principle of the plenitude of the positive legal order."

Considering that the legal system is a system of rules in its full updating, being thus in force and effective, it cannot have gaps; the legal system and all other rules, including negotiable ones, must be sufficient and able to resolve all legal issues.

From this perspective, the civil order is seen as a stable and permanent structure, despite the changes and transformations that stir civil life. From another perspective, the content of the civil order is vast and diverse, and it cannot be reduced to the limits of the private order, which civil life seems to surpass nowadays.

Therefore, there is a need for an understanding of institutional changes, highlighting the importance of inclusive institutions to promote sustainable economic growth. At the same time, it is essential to emphasize the continuous transformation of the legal system. This ensures that the system, supported by the "principle of plenitude," is robust enough to resolve emerging conflicts in the contemporary civil order.

Thus, it is observed that, when analyzing energy as an intangible asset, from the perspective of the Roman "res incorporales", a profound evolution in the conception of property is noticeable, as well as in the way in which the legal system adapts to the needs that arise. The study verifies a growing importance of assets considered intangible, even though the concept of property originated from a materialist perspective. For example, energy is precisely what has currently required a reformulation of the traditional view, with the recognition of its legal value.

Likewise, the research addresses the need to consider the influence of the nature of energy, both from the perspective of a natural force and of a marketable asset, according to the definition of the legal regime applicable to it. The Gaian and Roman contributions to the treatment of res in the civil order are undeniable, requiring the legal system not to disregard the philosophical and doctrinal foundations that have permeated civil law for centuries. However, institutions must adapt to changes manifesting in the civil order.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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