

Legal Aspects of Electricity Export in the Context of Regional Integration: A Comparative Study between the European Union and Mercosur

Aspectos Jurídicos da Exportação de Eletricidade no Contexto da Integração Regional: Um Estudo Comparativo entre a União Europeia e o Mercosul

Aspectos jurídicos de la exportación de electricidad en el contexto de la integración regional: un estudio comparativo entre la Unión Europea y el Mercosur

Luiz Ugeda¹

Doutorando em Direito.

I Universidade de Coimbra. (FDUC). Coimbra. Portugal.

David Felice Falivene Baptista²

Doutor pelo Programa de Pós-Graduação da Faculdade de Engenharia Elétrica e de Computação.

II Faculdade de Engenharia Elétrica e de Computação da Universidade Estadual de Campinas. (FEEC-UNICAMP). Campinas (SP). Brasil.

Luis Renato Vedovato³

Professor do Programa de Mestrado e Doutorado em Educação.

III Universidade Estadual de Campinas. (UNICAMP). Campinas (SP). Brasil.

ABSTRACT: This article explores the legal aspects of electricity export in the context of regional integration, comparing the experiences of the European Union and Mercosur. The study investigates how regulatory harmonization, institutional governance, and supranational coordination affect the development of integrated regional electricity markets. Methodologically, it adopts a qualitative and documentary-based comparative legal approach, analyzing treaties, regulations, policy documents, and technical reports produced by regulatory agencies, regional institutions, and international organizations. Rather than seeking to replicate the European model, the analysis identifies structural and normative contrasts to reveal enabling conditions and barriers to integration in different geopolitical settings. The findings highlight the EU's success in fostering market integration through enforceable mandates and common objectives, while Mercosur remains dependent on bilateral energy agreements and lacks a unified regulatory framework. The article concludes by recommending a tailored governance strategy for Mercosur, grounded in legal convergence, institutional coordination, and the pursuit of energy justice to strengthen regional resilience and promote an inclusive energy transition.

¹ Orcid: <https://orcid.org/0000-0001-6073-6878>.

² Orcid: <https://orcid.org/0000-0002-5029-1294>.

³ Orcid: <https://orcid.org/0000-0003-0684-4522>.

KEYWORDS: Electricity export; regional integration; European Union; Mercosur; energy regulation.

RESUMO: Este artigo analisa os aspectos jurídicos da exportação de eletricidade no contexto da integração regional, comparando as experiências da União Europeia e do Mercosul. A investigação centra-se em como a harmonização regulatória, a governança institucional e a coordenação supranacional influenciam o desenvolvimento de mercados regionais integrados de eletricidade. Metodologicamente, adota-se uma abordagem qualitativa e comparativa, com base em fontes documentais, incluindo tratados, regulamentos, documentos de políticas públicas e relatórios técnicos elaborados por agências reguladoras, instituições regionais e organizações internacionais. Em vez de propor a replicação do modelo europeu, a análise identifica contrastes estruturais e normativos que revelam os fatores facilitadores e os entraves à integração em diferentes contextos geopolíticos. Os resultados evidenciam o êxito da União Europeia na integração de mercados por meio de mandatos vinculativos e objetivos comuns, ao passo que o Mercosul permanece dependente de acordos bilaterais e carece de um marco regulatório unificado. O artigo conclui com recomendações para o desenvolvimento de uma estratégia de governança energética regional adaptada ao Mercosul, fundamentada na convergência jurídica, na coordenação institucional e na promoção da justiça energética como base para fortalecer a resiliência regional e promover uma transição energética inclusiva.

PALAVRAS-CHAVE: exportação de eletricidade; integração regional; União Europeia; Mercosul; regulação energética.

RESUMEN: Este artículo analiza los aspectos jurídicos de la exportación de electricidad en el contexto de la integración regional, comparando las experiencias de la Unión Europea y el Mercosur. El estudio investiga cómo la armonización normativa, la gobernanza institucional y la coordinación supranacional afectan al desarrollo de mercados regionales integrados de electricidad. Desde el punto de vista metodológico, adopta un enfoque jurídico comparativo cualitativo y basado en documentos, analizando tratados, reglamentos, documentos políticos e informes técnicos elaborados por organismos reguladores, instituciones regionales y organizaciones internacionales. En lugar de tratar de replicar el modelo europeo, el análisis identifica contrastes estructurales y normativos para revelar las condiciones propicias y las barreras a la integración en diferentes entornos geopolíticos. Las conclusiones destacan el éxito de la UE en el fomento de la integración del mercado mediante mandatos ejecutables y objetivos comunes, mientras que el Mercosur sigue dependiendo de acuerdos energéticos bilaterales y carece de un marco regulatorio unificado. El artículo concluye recomendando una estrategia de gobernanza adaptada al Mercosur, basada en la convergencia jurídica, la coordinación institucional y la búsqueda de la justicia energética para fortalecer la resiliencia regional y promover una transición energética inclusiva.

PALAVRAS CLAVE: exportación de electricidad; integración regional; Unión Europea; Mercosur; regulación energética.

Introduction

The regional integration of electricity markets has gained new significance in the global energy transition, emerging as a key element in improving energy trade efficiency

and enhancing energy security among countries. This process is driven by the growing adoption of renewable energy and the need to meet carbon neutrality targets, as outlined in the United Nations' Sustainable Development Goals (SDGs) (United Nations, 2015; IEA et al., 2021). The interconnection of electricity grids between countries facilitates the sharing of energy resources, improving the integration of renewable sources and promoting a more balanced distribution of electricity (Aragon, Huisa, 2024).

The modernization of the regulatory framework is essential for the future of regional energy markets, as a stable and transparent regulatory environment is necessary to ensure economic viability and sustainability (Gromek-Broc, 2023; Ahmed & Saha, 2023). Analyses of regional electricity markets indicate that the success of integration depends on a solid regulatory foundation, which provides clarity and security for trade operations (Rubanda et al., 2022). To create efficient electricity markets, a flexible regulatory approach is needed that can respond quickly to technological changes (Tang et al., 2021).

The interdependence resulting from the integration of regional electricity grids offers benefits, such as greater capacity to balance supply and demand, but it can also introduce vulnerabilities. In this context, the role of supranational and regional institutions is fundamental in promoting efficient market integration (Eckert, 2022). Regional regulatory bodies have increasingly been used as mechanisms of international public governance to oversee the enforcement of rules and facilitate dispute resolution (Shayan et al., 2024). Such oversight helps ensure that electricity markets operate harmoniously, which is essential for economic blocs aiming to create a single electricity market (Elabbas et al., 2023).

The implementation of transmission infrastructure between countries faces significant challenges, such as the harmonization of regulations and overcoming technical and political barriers that hinder cross-border energy trade (Li & Chang, 2021; Shayan et al., 2024). Geopolitical issues also complicate the integration of regional markets, particularly when it is necessary to align international energy policies with the

creation of robust infrastructure to support the flow of energy across borders (Ibekwe, 2024; Westphal et al., 2022). The high cost of implementing new infrastructure, combined with differences in countries' energy policies, represents another challenge to be overcome (Shi et al., 2020). Additionally, the dependence on electricity imports from neighboring countries can create vulnerabilities in times of crisis, highlighting the need for political cooperation to ensure the resilience of the regional energy system (Kolosok & Kovalenko, 2022).

The comparison between economic blocs offers valuable lessons on energy integration models, reflecting the economic and political specificities of each region and their adaptations to the demands of the global energy transition. Studies suggest that the comparative analysis of regional electricity integration processes can contribute to the improvement of energy policies, promoting a more efficient and interconnected global electricity market (Purkait et al., 2024).

The comparison between the European Interconnection, with its robust installed capacity of 1,221,016 MW and an advanced regulatory system, and the South American Interconnection of Mercosur, with 326,077 MW, which faces infrastructure and coordination challenges, highlights the importance of regional interconnection initiatives to strengthen the resilience and sustainability of energy systems (De Laurentis & Pearson, 2021; Ceia & Ribeiro, 2016; Ferraz & Viegas, 2021).

This paper aims at exposing and comparing the European Union and Mercosur energy market integrations, considering its geopolitical, structural, legal and physical differences, in order to suggest improvements derived from the first to the latter.

In this sense, it adopts a qualitative approach grounded in comparative legal analysis, focusing on the institutional, regulatory, and normative frameworks that govern electricity market integration in the European Union and Mercosur. The research draws primarily on documentary sources, including international treaties, regional regulations, legal instruments, policy documents, and technical reports published by regulatory agencies, regional organizations, and multilateral institutions. The comparative

methodology is used not to merely replicate institutional models, but to identify structural, legal, and governance-related contrasts that reveal what enables or hinders regional electricity integration in different contexts. The analysis seeks to highlight the mechanisms through which supranational coordination, legal harmonization, and shared energy goals contribute to the effectiveness and resilience of regional energy markets. In this sense, the European case serves as a reference model for exploring alternative pathways for Mercosur, emphasizing adaptability rather than transplantability.

The structure of the article is divided as follows: first, it is provided a theoretical and geopolitical overview of regional electricity interconnections across the globe, exposing its relevance; then, the European model is examined in detail, having its legal foundations, regulatory instruments, and governance structures analyzed; after, the Mercosur experience is presented, identifying its historical roots, institutional weaknesses, and bilateral arrangements; also, in the same section, the Mercosur and the European models area compared, with attention to regulatory design, financing mechanisms, and social equity; finally, the conclusion proposes institutional and legal recommendations for advancing a regional energy integration agenda in South America, grounded in coordinated governance and adapted to the region's specific challenges and opportunities.

1. The concept of smart urban governance and the approach of Law

The geopolitics of electricity and the regionalization of electrical grids can be placed within the context of the energy transition, as they optimize the use of energy resources to improve the stability of energy markets. The regional integration of grids enables international electricity trade, allowing for the export of electricity and promoting a more efficient use of different energy sources. This integration encourages and reallocates the growing demand for renewable energy, opening new possibilities for its applications.

The regionalization of electrical grids allows participating countries to share the benefits of interconnected infrastructure, including the ability to quickly adjust supply to variations in energy demand and availability. This coordination facilitates the distribution of electricity, contributing to a more balanced and resilient system. It also helps to overcome local limitations by integrating complementary energy sources, such as solar and hydroelectric power, fostering a diversified energy mix.

Below, we list at least 13 regional electrical systems, each reflecting geopolitical choices and demonstrating how different societies worldwide perceive their opportunities to connect and trust their neighboring countries.

Table 1 - Summary of inter-state electrical interconnection systems (ISPGs), based on Oseni & Pollitt (2014) and Voropai et al. (2021)

System and Capacity (MW)	Countries Involved	Governance and Strategy	Strengths and Future Challenges
North Africa Interconnection (64,562 MW)	Algeria, Tunisia, Morocco, Libya, Egypt	Governed by COMELEC and integration projects with Europe; Energy trade and emergency interconnections (e.g., COMELEC)	Potential for export to Europe, developing regional integration; Dependence on fossil fuels, political instability in some regions
Southern Africa Power Pool (SAPP) (61,000 MW)	12 SADC countries (e.g., South Africa, Zimbabwe, Mozambique)	Coordinated by SAPP under SADC; Bilateral contracts and Day-Ahead Market	Advanced regional integration, significant cross-border trade; Transmission constraints, dependence on coal
East African ISPG (95,731 MW)	Ethiopia, Kenya, Tanzania, Uganda, South	Coordinated by the East African Community (EAC) and other regional initiatives; Integration	Significant hydropower potential, growing demand, and regional integration;

	Sudan, among others	to optimize hydropower resources and emerging energy market	Infrastructure expansion needed, regulatory coordination
West African Power Pool (WAPP) (9,705 MW)	14 ECOWAS countries (e.g., Nigeria, Ghana, Senegal)	Governed by ECOWAS through WAPP; Long-term contracts with evolving spot market	Growth potential, regional cooperation; Low installed capacity, slow infrastructure development
European Interconnection (ENTSO-E) (1,221,016 MW)	Over 40 countries (e.g., Germany, France, Italy, Spain, Nordic countries)	Governed by ENTSO-E, coordinating Transmission System Operators (TSOs); Integrated market and system operator coordination	High regional integration, developed energy market; Renewable integration, regulatory differences among countries
North American Interconnection (NA) (1,195,785 MW)	USA, Canada, Mexico	Operated by independent organizations (e.g., FERC in the USA) and coordinated regulation among countries; Long-term contracts and gradual renewable integration	Large installed capacity, seasonal load integration between the USA and Canada; Infrastructure expansion, climatic and socio-economic differences
Central America Energy Market (SIEPAC) (17,864 MW)	Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama	Centrally governed by CEAC; Regional regulatory structure and interconnected grid	Greater efficiency through an interconnected grid; Limited spot market activity, regional disparities
South American Interconnection (SA) (326,077 MW)	Brazil, Argentina, Paraguay, Chile, Uruguay	Regional organizations and cooperation through bilateral and multilateral agreements; Large interstate hydropower	High hydropower potential, regional energy market development; Integration challenges with

		plants (e.g., Itaipu), integration of RES	different frequencies, inequality in installed capacity
Andean Electrical Interconnection System (SINEA) (Variable)	Peru, Colombia, Ecuador, Bolivia, Venezuela (potentially)	Governed by regional initiatives and bilateral/trilateral agreements; Bilateral and trilateral agreements for electricity exchanges and infrastructure development	Potential for energy complementarity, significant hydropower resources; Regulatory and political differences, infrastructure development needed
Southeast Asian ISPG (268,144 MW)	ASEAN countries (e.g., Indonesia, Thailand, Malaysia, Vietnam)	Coordinated by ASEAN and the ASEAN Center for Energy (ACE); Integration through bilateral agreements and gradual multilateralization	Strong regional cooperation, ASEAN support, potential for renewable growth; Logistical challenges of interconnecting islands, high fossil fuel dependence
West Asian ISPG (GCCCI) (162,904 MW)	Gulf Cooperation Council countries (e.g., Saudi Arabia, UAE, Oman)	Governed by GCCIA; Interconnection for emergency support and energy trade	Operational cost reduction, increased network reliability; Low utilization for trade, need for energy diversification
Other Asian ISPGs (SAARC, CAPS) (493,727 MW)	India, Pakistan, Bangladesh, Nepal, Afghanistan, among others	Governed through SAARC and other regional agreements; Regional agreements (SAARC) and interconnection projects (e.g., CAPS)	Large installed capacity (mainly in India), strong hydropower potential in smaller countries; Regional political differences, infrastructure needed for effective integration

<p>Post-Soviet Space (IPS/UPS) (431,459 MW)</p>	<p>Russia, Belarus, Ukraine, Georgia, Armenia, Kazakhstan, among others</p>	<p>Governed by agreements among ex-Soviet countries and supranational organizations; Regional integration with energy exchanges and supranational agreements</p>	<p>High installed capacity and historical regional energy cooperation; Post-Soviet disintegration, infrastructure modernization needed</p>
--	---	--	--

The integration of energy markets in diverse regions, as demonstrated by examples like SAPP in Southern Africa (2021) and the GCCI in West Asia (Lattanzio, 2012), highlights the critical role of robust institutional governance in coordinating the interests of participating countries and ensuring the efficiency of cross-border operations. Regions such as the post-Soviet bloc, which requires infrastructure strengthening after the Soviet Union, and WAPP in West Africa, which currently does not export electricity (McCluskey et al., 2022), still seek to assert their technical leadership to better utilize available resources.

The presence of a supranational regulatory entity that can oversee market operations and ensure fair practices is essential for minimizing predatory practices and ensuring transparency, thereby creating a more resilient and cohesive market. The European experience with cross-border electricity markets, such as the European Interconnection (ENTSO-E) and the Irish electricity market (SEM), underlines the importance of a balanced approach between regulation and market design to facilitate efficient international electricity exchanges.

2. The European Union Model

The European Union's (EU) energy policy is anchored in Article 194 of the Treaty on the Functioning of the European Union (TFEU) (Huhta, 2021), which outlines objectives such as ensuring the functioning of the energy market, energy security, energy efficiency,

and the development of renewable energy sources. These goals reflect the vision of energy as both a strategic resource and a driver of sustainable growth (European Union, 2007). Following the gas supply crisis between Russia and Ukraine (Shi, 2009), energy resilience became a top priority, leading to the adoption of Regulation (EU) No. 994/2010. This regulation required member states to develop preventive and emergency plans to ensure continuous gas supply, emphasizing the need to reduce dependence on a single supply source and strengthen Europe's energy autonomy (European Union, 2010).

The 2009 Third Energy Package further deepened the integration of the EU's internal energy market, promoting a more competitive and efficient environment aligned with the principles of free competition (De Hauteclocque & Rious, 2011). In 2011, the European Commission detailed these measures in a memorandum, highlighting the importance of separating production and distribution activities to ensure greater transparency and combat monopolistic practices in the sector (European Commission, 2011). In this context, Regulation (EU) No. 1227/2011, known as REMIT (Regulation on Wholesale Energy Market Integrity and Transparency), was implemented to safeguard the integrity and transparency of wholesale energy markets, protecting them from abusive practices and fostering greater investor confidence. The Agency for the Cooperation of Energy Regulators (ACER) assumed an active role in market supervision (Haverbeke et al., 2010), thereby enhancing the stability and trust in the EU's internal energy market (European Union, 2011).

Energy infrastructure became part of the European Union's security strategy, especially as interdependence between Member States increased. Regulation (EU) No. 347/2013 established guidelines for the development of trans-European energy infrastructure, promoting projects of common interest (PICs) that strengthen interconnections and increase regional resilience (Meeus & Keyaerts, 2015). These projects allowed countries more susceptible to supply interruptions to benefit from a more integrated European network, contributing to a more cohesive Europe in the energy sector (EUROPEAN UNION, 2013). In 2014, the geopolitical landscape and the urgency to

address climate change motivated the adoption of a new framework for energy policy through 2030, with targets for emissions reduction and an increase in renewable energy. This initiative reinforced the EU's commitment to sustainability and solidified its leadership in clean technologies, adapting the market to new global demands (EUROPEAN COUNCIL, 2014).

The adoption of the Paris Agreement in 2015 strengthened the European Union's climate commitments on the global stage. After its ratification, the EU had to adjust its internal policies to meet decarbonization targets (Rayner et al., 2023), consolidating its position as a leader in the transition to a low-carbon economy (UN, 2015). The European Energy Security Strategy, launched in 2014, sought to reduce reliance on external suppliers and enhance the resilience of the EU's energy network (Bonn & Götz Reichert, 2014). The strategy highlighted the importance of interconnections and coordination among Member States to tackle supply challenges, expanding the role of energy security as an external policy issue (EUROPEAN COMMISSION, 2014). In 2015, the Joint Declaration on Regional Cooperation for Electricity Supply Security reinforced this approach, emphasizing the need for coordinated responses during energy crises, ensuring the stability of electricity grids and continuity of supply across the European Union.

The Central and Southeastern Europe Gas Connectivity (CESEC) initiative, launched in 2015, exemplifies regional cooperation for diversifying gas sources in Europe by promoting the integration of gas infrastructure in Central and Southeast Europe (Egenhofer et al., 2017). With this initiative, the European Union aimed to reduce the vulnerability of countries in the region to supply disruptions and strengthen energy connectivity, lowering dependence on traditional routes (European Commission, 2015). After 2016, European energy integration advanced with the goal of creating a more resilient internal market, emphasizing the strengthening of interconnections, regulatory harmonization, and encouraging the transition to renewable energy sources. In this process, the "Clean Energy for All Europeans" package, introduced in 2016 and

completed in 2019, became a landmark in EU policies for a more integrated and sustainable energy future.

In the same year, the Central and Southeastern Europe Gas Connectivity (CESEC) initiative stood out as an example of regional cooperation for diversifying gas sources. CESEC sought to integrate the gas infrastructure of Central and Southeast Europe, promoting greater connectivity and reducing the region's vulnerability to supply interruptions (Staniaszek et al., 2019). This project clearly reflects the EU's effort to build a more integrated energy network, reducing reliance on traditional routes (European Commission, 2015).

After 2016, the focus shifted to strengthening interconnections between Member States, harmonizing regulations, and implementing initiatives aimed at reducing dependence on energy imports and transitioning to renewable sources. In this context, the European Union introduced a series of regulations and guidelines to promote energy market integration, with the "Clean Energy for All Europeans" package, published in 2016 and finalized in 2019, standing out as a key measure for a more integrated and sustainable energy sector (Capros et al., 2018).

This Fourth Energy package introduced significant measures for modernizing the European Union's energy sector, such as Directive (EU) 2018/2001, which set a target of at least 32% of renewable sources in the energy mix by 2030. The directive also encouraged decentralized energy production and empowered consumers as renewable energy producers, contributing to greater energy autonomy for the EU (European Union, 2018a). Complementing this initiative, Regulation (EU) 2019/943 aimed to improve the flexibility and efficiency of the European electricity market by promoting active consumer participation and modernizing grids for better renewable energy integration, ensuring a more competitive and secure market (European Union, 2019a).

Directive (EU) 2019/944, part of the Clean Energy Package, established new rules for the electricity market, strengthening consumer rights and creating conditions for the development of renewable energy communities, though it faced practical challenges

related to calculation methodologies (Castella & Prat, 2021). This directive promoted a more integrated and dynamic market, encouraging the use of smart technologies and improving cross-border interconnections, fundamental elements for the integration of national energy markets (European Union, 2019b). Furthermore, the Energy Connection Plan for 2020 and the Plan for 2030 set the goal that all Member States achieve an electricity interconnection level of at least 15% by 2030, aiming to improve electricity exchange efficiency between countries and optimize the use of renewable resources. The European Commission's 2019 report highlighted support for several pre-existing infrastructure projects, such as the Connecting Europe Facility (CEF), focused on promoting energy connectivity (Anghel, 2016; European Commission, 2019).

The European Union's energy policy during this phase was heavily influenced by the European Green Deal, launched in 2019, which set the goal of achieving carbon neutrality by 2050 (Bäckstrand, 2022). This initiative led to the revision of energy policies and the implementation of new measures to increase energy efficiency and expand the share of renewables, strengthening the European market for a sustainable transition (European Commission, 2019b). Simultaneously, Regulation (EU) 2017/1938 reinforced cooperation between Member States during gas supply emergencies, introducing the principle of "energy solidarity," which ensures supply to protected consumers through mutual assistance (European Union, 2017). Additionally, the diversification of gas sources was promoted by projects such as the Southern Gas Corridor, connecting Europe to the Caspian Sea, reducing dependence on traditional suppliers, and enhancing energy security through expanded transport infrastructure (European Commission, 2020).

The COVID-19 pandemic imposed new challenges on the European Union's energy integration but also highlighted the importance of closer coordination among Member States. The European Commission emphasized the resilience of energy networks during the crisis and stressed the need to accelerate the energy transition as part of the economic recovery. The NextGenerationEU Recovery Plan directed significant

investments toward sustainable energy infrastructure (Picek, 2020), promoting projects that strengthen interconnections and expand the share of renewables (European Commission, 2020b). In 2021, the "Fit for 55" package was launched as part of the European Green Deal, adjusting EU policies to meet the goal of reducing greenhouse gas emissions by 55% by 2030 (Erbach & Jensen, 2022). This initiative included revising directives and regulations, such as the Renewable Energy and Energy Efficiency Directives, as well as introducing new funding mechanisms to ensure the European energy system adapts to decarbonization targets and large-scale renewable integration (European Union, 2021).

3. The Mercosur Model

The South American integration context presents a distinct foundation from that of Europe, characterized by a collection of international treaties without the systematic structure of a bloc-wide energy policy. The Itaipu Treaty, signed between Brazil and Paraguay in 1973, marked a significant milestone in bilateral electricity relations in South America, establishing a binational framework for the exploitation of the Paraná River's hydropower resources (Cavalcanti, 1976). The Itaipu area is governed by the joint coercive power of both states, as there was no supranational body at the time to oversee the project as a community-wide responsibility (Sanchez, 2011). The management and regulation of the power plant, given its regional scale and binational legal framework, were entrusted to Brazil, as a Federal Republic, and Paraguay, as a unitary state, both exercising sovereign powers (Codas, 2008). The legal nature of the area where Itaipu is located involves the management of international waters, which, being transboundary, are considered a shared resource between the two countries, belonging to both Brazil and Paraguay (Grau, 2003). This binational cooperation required a pooling of resources and technical knowledge beyond the capabilities of private initiatives (Reale, 1974), particularly when considering developing nations and the risks involved. Moreover, regional energy integration, such as Bolivia's gas exports to Brazil, further highlighted the

increasing interdependence of various energy sources as energy balances became more diversified (Leite, 2007).

Energy integration in Mercosur has been a continuous process since the Itaipu Treaty in 1973. This binational partnership set a model that inspired other projects, such as the Yacyretá Hydroelectric Plant between Argentina and Paraguay, and Salto Grande, between Argentina and Uruguay. These projects exemplify the capacity for collaboration among the region's countries in managing water resources, enabling economic and energy benefits that enhance supply security and the stability of regional power systems.

In addition to projects already in operation, energy integration in Mercosur includes plans for new ventures such as the Garabi, Roncador, and São Pedro hydropower complexes, aimed at harnessing the potential of the Uruguay River, and the Corpus Christi plant, a new binational project between Argentina and Paraguay (Silva, G., 2010). The implementation of these projects continues the process of regionalizing energy generation, reinforcing cooperation between countries, and expanding the region's electricity generation capacity.

The interstate electrical interconnection systems (ISPGs) in South America are still developing, but they already display distinctive features, such as a strong reliance on hydropower generation. While the extent of South American electrical interconnection is smaller than that of North America's ISPG, the volume of energy exchange between countries is comparable. In addition to electrical connections, the region has also developed an interstate natural gas pipeline system (Olade, 2023), further reinforcing regional cooperation in the energy sector (Jones, 2021). The coordination of these initiatives is carried out by the Latin American Energy Organization (Olade), which also includes Central America, indicating a growing energy integration across the continent (Olade, 2021).

Regional integration is also reflected in transmission infrastructure, such as the interconnection lines between Brazil and Uruguay, and efforts to diversify energy sources, including the importation of natural gas from Bolivia. These interconnection

projects and energy exchanges between countries enable better resource management and enhance the resilience of the Mercosur energy system. The creation of an integrated energy market (Sanches, 2010), where infrastructure is shared and benefits are distributed among countries, strengthens South America's position in the global energy landscape and promotes greater political and economic stability in the region.

Energy relations in South America are characterized by a strong bilateral component, often formalized through international treaties that ensure cooperation between countries for the exploitation, transmission, and commercialization of electricity. A prominent example of this bilateral character is the interconnection between Brazil and Argentina, marked by the transmission system of the Companhia de Interconexão Energética (CIEN), which faced various technical challenges during its implementation (Graham; Jonsson, 2002). This system is regulated by resolutions of the National Electric Energy Agency (Aneel) of Brazil, which authorize the importation of electricity from Argentina's Wholesale Electricity Market (MEM) (Villulla, 2012).

Aneel's Resolution No. 129, of April 29, 1998 (Aneel, 1998), later amended by Resolution No. 117, of March 18, 2002 (Aneel, 2002), allowed CIEN to import up to 1,100 MW of firm power and associated energy from the Argentine MEM. This energy was sold to Companhia de Energia Elétrica do Paraná (Copel) and other Brazilian market participants, such as the Câmara de Comercialização de Energia Elétrica (CCEE), previously known as the Wholesale Electricity Market (MAE). The commercialization of imported electricity was made possible through the second line of the interconnection, establishing a direct connection between the two countries' electric systems (De Castro et al, 2014).

Another significant example of this cooperation is the interconnection via the Garabi Frequency Converter Station, which enables the integration of transmission networks between Brazil and Argentina. Aneel's Resolution No. 130, of April 29, 1998 (Aneel, 1998), and Resolution No. 273, of July 17, 2001 (Aneel, 2001), authorized CIEN to import the same amount of power from the MEM, with part of the energy directed to

Tractebel Energia, the successor to Gerasul, and Furnas Centrais Elétricas S.A. These interconnections resulted from an international bidding process coordinated by Eletrosul, in which CIEN was declared the winner after the withdrawal of the first-place bidder. This arrangement demonstrates the complexity and coordination necessary to establish a binational energy market, where both countries benefit from the complementarity of their energy matrices and the stability provided by a robust and interconnected transmission infrastructure.

Despite growing interconnections among South American countries, regional energy integration within Mercosur remains predominantly defined by bilateral agreements rooted in the joint exploitation of hydroelectric resources along national borders. Binational projects such as Itaipu (Brazil–Paraguay), Yacyretá (Argentina–Paraguay), and Salto Grande (Argentina–Uruguay) exemplify a cooperation model based on pragmatic infrastructure sharing rather than a cohesive regional policy. While these ventures foster interdependence, they are governed by bespoke treaties and ad hoc commissions, not by a regional legal framework capable of ensuring consistency, predictability, and strategic coordination.

Institutionally, Mercosur lacks a binding regulatory regime for energy integration. The main forum dedicated to the subject is the Subgrupo de Trabalho nº 9 (SGT-9), which focuses on energy matters within the Common Market Group (Grupo Mercado Comum – GMC). However, the SGT-9 is fundamentally consultative, producing non-binding technical studies and recommendations without enforcement capacity. The 1991 Tratado de Assunção, Mercosur’s founding document, makes no specific mention of energetic integration, and subsequent protocols have failed to fill this normative void. This institutional fragility contrasts sharply with the European Union’s internal energy market, which is governed by supranational entities like the European Commission and ACER, capable of harmonizing regulations, supervising cross-border investments, and enforcing compliance among member states.

As a result, critical interconnections—such as the CIEN transmission line and the Garabi Frequency Converter Station between Brazil and Argentina, or the Bolivia–Brazil gas pipeline—remain structurally important yet operationally limited. These systems face persistent challenges: divergent national regulations, asymmetrical tariff frameworks, and politically sensitive negotiations that often lack transparency and long-term vision (Gromek-Broc, 2023; Shi et al., 2020). The absence of a supranational coordinating authority undermines tariff harmonization, prevents the standardization of technical requirements, and hinders the efficient allocation of energy resources. Moreover, Mercosur has not formulated clear regional goals for energy transition or renewable integration—objectives that have guided European efforts since the early 2000s. In this scenario, South America remains unable to develop a competitive, resilient, and interoperable regional energy market, nor to position itself as a cohesive actor in global energy diplomacy (Purkait et al., 2024).

Given these institutional and regulatory shortcomings, it becomes increasingly evident that energy integration in South America cannot rely solely on infrastructure or market mechanisms. A new framework is needed—one that goes beyond technical interoperability and embeds energy governance within a broader commitment to social justice, human development, and environmental sustainability.

As energy integration and market development continue to evolve, it is essential that public policies prioritize a balance of economic and environmental goals, envisioning the protection of human dignity (Vedovato, 2023). This calls for energy policies that align with broader objectives such as poverty eradication, particularly through a focus on multidimensional poverty measures (De Laurentis & Pearson, 2021; Vedovato et al., 2023). A rights-based approach to energy transition can ensure that governments and institutions develop policies that enhance quality of life, reduce inequalities, and address key aspects of poverty, including access to education, healthcare, and clean energy. This approach places the well-being of citizens at the forefront, ensuring that the benefits of energy integration and transition are distributed

equitably, especially to vulnerable populations. By adopting such a framework, the region can foster a more inclusive, sustainable, and resilient energy future, where the most marginalized communities are not left behind (Rayner et al., 2023).

Despite the accumulated experience with binational projects and established commercial exchanges, progress toward an integrated regional energy market, like the European Model, faces structural obstacles, such as the absence of a supranational regulatory authority, asymmetries between the legal frameworks of member countries, and reliance on bilateral diplomatic agreements. These limitations are compounded by conjunctural challenges, including political instability, currency fluctuations, and fiscal crises, which hinder regulatory harmonization and the development of common instruments for energy planning and regulation within Mercosur.

4. Conclusions

As observed, the regional integration of energy markets is a movement guided by geopolitics and that carries the peculiarities of the regional political integration itself.

The European Union offers a compelling reference for regional energy integration, illustrating how supranational coordination, guided by clearly defined policy objectives — such as energy security, sustainability, and market liberalization — can overcome national asymmetries and foster long-term cooperation. Through the establishment of common institutions like the European Commission and the Agency for the Cooperation of Energy Regulators (ACER), the EU has succeeded in harmonizing technical standards, coordinating cross-border infrastructure, and enforcing compliance across member states. What sets the European model apart is not merely its technical or economic capacity, but the political decision to delegate authority to shared institutions under enforceable mandates and fixing clear policy objectives for a medium-long term.

By contrast, Mercosur's approach to energy integration has been shaped primarily by bilateral initiatives rooted in the shared exploitation of transboundary hydroelectric resources. While projects such as Itaipu, Yacyretá, and the Bolivia–Brazil gas pipeline

exemplify effective intergovernmental cooperation, they do not constitute a regional energy policy in any substantive sense. The absence of a supranational regulatory framework, binding rules, and a collective long-term vision has left energy integration in South America vulnerable to political fluctuations, economic instability, and institutional fragmentation.

Despite the clear structural differences between the EU and Mercosur—particularly in terms of political integration and legislative capacity—the European experience underscores a critical insight: integration progresses when there is institutional leadership anchored in clear and shared goals. For Mercosur, empowering the bloc to assume a leading role in energy governance, through the articulation of a regional energy policy supported by its member states, may be the turning point needed to transform fragmented bilateral arrangements into a coherent and resilient regional energy market. Rather than replicating European structures, Mercosur can adapt their foundational logic—namely, coordinated governance under common principles—to build a framework that is technically interoperable, socially inclusive, and attuned to the geopolitical and developmental realities of South America.

Building upon these institutional lessons and structural contrasts, the adoption of a common regulatory framework in Mercosur is not merely aspirational—it presents a concrete opportunity to deliver tangible economic, social, and environmental benefits to the region.

The adoption of a common regulatory framework would also generate concrete benefits for Mercosur, such as increased legal certainty for cross-border contracts, improved investor confidence, reduced transaction costs, and enhanced operational coordination among transmission system operators. By minimizing regulatory fragmentation, countries could jointly optimize their energy matrices, respond more effectively to demand fluctuations, and plan long-term infrastructure investments with greater predictability.

European energy integration, particularly in terms of gas and electricity network interconnection, highlights the importance of cooperation among states to guarantee continuity of supply during crises. This model could be adapted to Mercosur, where solidarity among countries could strengthen regional energy resilience and reduce dependence on external influences. Furthermore, regulatory harmonization and technical standardization, practiced in Europe, could be implemented in Mercosur to foment network interoperability and maximize the efficiency of energy infrastructure, promoting greater regional integration. The creation of a regional coordinating entity would contribute to a more transparent energy market, driving new interconnection projects and ensuring the reliability of the energy system within Mercosur.

Finally, the concept of energy justice, which has gained prominence in discussions on energy transition, offers an important point for Mercosur's regional strategies. The pursuit of inclusive energy integration, ensuring equitable access to energy and the promotion of Renewable Sources, is a goal that can be adapted from the European to the South American context, where social and economic disparities are significant challenges. By ensuring that the benefits of energy transition are widely distributed and that the most vulnerable communities are not left behind, Mercosur can build an integration model that promotes sustainable development and social welfare, reducing the adversities of multidimensional poverty, including energy poverty, specifically. With this approach, the region could strengthen its internal cohesion and ensure that economic progress is accompanied by an improvement in the quality of life for its population.

Referências

RDP, Brasília, Vol. 22, n. 114, e8309, abr/jul. 2025, DOI: 10.11117/rdp.v22i114.8309 | ISSN:2236-1766

AHMED, S.; SAHA, S. Transforming regional electricity markets in South and Southeast Asia for a greener and more sustainable future. **National Bureau of Asian Research (NBR)**, 2023. Disponível em: <https://www.nbr.org/publication/transforming-regional-electricity-markets-in-south-and-southeast-asia-for-a-greener-and-more-sustainable-future/>. Acesso em: 5 fev. 2025.

AGÊNCIA NACIONAL DE ENERGIA ELÉTRICA – ANEEL. **Resolução nº 129, de 29 de abril de 1998**. 1998. Disponível em: <https://www2.aneel.gov.br/cedoc/atres1998129.pdf>. Acesso em: 5 fev. 2025.

AGÊNCIA NACIONAL DE ENERGIA ELÉTRICA – ANEEL. **Resolução nº 130, de 29 de abril de 1998**. 1998. Disponível em: <https://www2.aneel.gov.br/cedoc/res1998130.pdf>. Acesso em: 5 fev. 2025.

AGÊNCIA NACIONAL DE ENERGIA ELÉTRICA – ANEEL. **Resolução nº 273, de 17 de julho de 2001**. 2001. Disponível em: <https://www2.aneel.gov.br/cedoc/res2001273.pdf>. Acesso em: 5 fev. 2025.

AGÊNCIA NACIONAL DE ENERGIA ELÉTRICA – ANEEL. **Resolução nº 117, de 18 de março de 2002**. 2002. Disponível em: <https://www2.aneel.gov.br/cedoc/res2002117.pdf>. Acesso em: 5 fev. 2025.

ARAGON, R. G. M.; HUISA, B. S. Políticas energéticas y normas de interconexión para generación energética: una revisión de la situación actual, tendencias y perspectivas en el Perú. **Ciencia Latina: Revista Multidisciplinar**, v. 8, n. 1, p. 8952-8969, 2024.

BAKOWSKA-WALDMANN, E.; BRUDKA, C.; JANKOWSKI, P. Legal and organizational framework for the use of geoweb methods for public participation in spatial planning in Poland: experiences, opinions and challenges. **Quaestiones Geographicae**, v. 37, p. 163-175, 2018. DOI: <https://doi.org/10.2478/quageo-2018-0032>.

BÄCKSTRAND, K. Towards a climate-neutral union by 2050? The European green deal, climate law, and green recovery. In: **Routes to a resilient European Union: interdisciplinary European studies**. Cham: Springer International Publishing, 2022. p. 39-61.

BON, M.; GÖTZ REICHERT, L. L. Energy security. **EU Communication**, 2014-38.

BROWN, G.; KYTTÄ, M. Key issues and research priorities for public participation GIS (PPGIS): a synthesis based on empirical research. **Applied Geography**, v. 46, p. 122-136, 2014. DOI: <https://doi.org/10.1016/j.apgeog.2013.11.004>.

CAPROS, P. et al. Outlook of the EU energy system up to 2050: the case of scenarios prepared for European Commission's "clean energy for all Europeans" package using the PRIMES model. **Energy Strategy Reviews**, v. 22, p. 255-263, 2018.

CASTELLA, E. R. B.; PRAT, P. S. Dificultades para valorar el efectivo cumplimiento de la Directiva (EU) 2019/944 del mercado interior de electricidad. In: **Derecho de la energía y el Clean Energy Package**. 2021. p. 609-618.

CEIA, E. M.; RIBEIRO, W. G. Legal and institutional energy integration models: comparison between European Union and Mercosur. **Electrical**, v. 35, 2016.

CODAS, G. (Org.). **O direito do Paraguai e soberania: a questão da energia - D598 Hidrelétrica**. São Paulo: Expressão Popular, 2008.

DE CASTRO, N. J. et al. Importância e dificuldades da integração elétrica na América do Sul. **Perspectivas para Integração da América Latina**, p. 115, 2014.

DE HAUTECLOCQUE, A.; RIOUS, V. Reconsidering the European regulation of merchant transmission investment in light of the third energy package: the role of dominant generators. **Energy Policy**, v. 39, n. 11, p. 7068-7077, 2011.

DE LAURENTIS, C.; PEARSON, P. J. G. Policy-relevant insights for regional renewable energy deployment. **Energy, Sustainability and Society**, v. 11, p. 19, 2021. DOI: <https://doi.org/10.1186/s13705-021-00295-4>.

ECKERT, S. Supranational authorities and private actors as drivers of single market integration? The state of the Union in electricity and banking. **Journal of European Integration**, v. 44, n. 1, p. 19-40, 2022.

ELABBAS, M. A. E.; DE VRIES, L.; CORRELJÉ, A. African power pools and regional electricity market design: taking stock of regional integration in energy sectors. **Energy Research & Social Science**, v. 105, p. 103291, 2023.

ERBACH, G.; JENSEN, L. Fit for 55 package. **EPRS, European Parliament**, 2022.

EUROPEAN COMMISSION. **MEMO/11/125, of March 2, 2011**. Disponível em: http://europa.eu/rapid/pressrelease_MEMO-11-125_en.pdf. Acesso em: 5 fev. 2025.

EUROPEAN COMMISSION. **COM(2014) 330 final, of May 28, 2014**. Disponível em: <http://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:52014DC0330&from=EN>. Acesso em: 5 fev. 2025.

EUROPEAN COMMISSION. **Memorandum of Understanding on the CESEC Initiative**. 2015. Disponível em: https://ec.europa.eu/energy/sites/ener/files/documents/CESEC%20MoU_signed.pdf. Acesso em: 5 fev. 2025.

EUROPEAN COMMISSION. **Connecting Europe Facility (CEF)**. 2019. Disponível em: <https://ec.europa.eu/inea/en/connecting-europe-facility>. Acesso em: 5 fev. 2025.

EUROPEAN COMMISSION. **Recovery Plan for Europe**. 2020. Disponível em: https://ec.europa.eu/info/strategy/recovery-plan-europe_en. Acesso em: 5 fev. 2025.

EUROPEAN COMMISSION. **Fit for 55: delivering the EU's 2030 Climate Target on the way to climate neutrality. COM(2021) 550 final, of July 14, 2021.** Disponível em: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021DC0550>. Acesso em: 5 fev. 2025.

EUROPEAN UNION. **Treaty on the Functioning of the European Union, 2007/C 306/01.** 2007. Disponível em: http://www.boe.es/legislacion/enlaces/documentos/ue/Trat_lisboa.pdf. Acesso em: 5 fev. 2025.

EUROPEAN UNION. **Regulation (EU) No. 994/2010 of October 20, 2010.** Official Journal of the European Union, L295/1, 2010. Disponível em: <https://www.boe.es/doue/2010/295/L00001-00022.pdf>. Acesso em: 5 fev. 2025.

EUROPEAN UNION. **Regulation (EU) No. 1227/2011 of October 25, 2011.** Official Journal of the European Union, L326/1, 2011. Disponível em: <http://eur-lex.europa.eu/legal-content/ES/TXT/PDF/?uri=CELEX:32011R1227&from=ES>. Acesso em: 5 fev. 2025.

EUROPEAN UNION. **Regulation (EU) No. 347/2013 of April 17, 2013.** Official Journal of the European Union, L115/39, 2013. Disponível em: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:115:0039:0075:ES>. Acesso em: 5 fev. 2025.

EUROPEAN UNION. **Directive (EU) 2018/2001 of the European Parliament and of the Council of December 11, 2018, on the promotion of the use of energy from renewable sources.** Official Journal of the European Union, L328, 2018.

EUROPEAN UNION. **Regulation (EU) 2019/943 of the European Parliament and of the Council of June 5, 2019, on the internal market for electricity.** Official Journal of the European Union, L158, 2019a.

EUROPEAN UNION. **Directive (EU) 2019/944 of the European Parliament and of the Council of June 5, 2019, on common rules for the internal market for electricity.** Official Journal of the European Union, L158, 2019b.

FERRAZ, D. A.; VIEGAS, P. R. A. Perspectives of inter-bloc energy integration - Mercosur and the EU: Inter-bloc energy integration. **Confluências | Revista Interdisciplinar de Sociologia e Direito**, v. 23, n. 2, p. 221-245, 2021.

GRAU, E. Itaipu Binacional: its legal nature and legal framework. **Revista de Direito Administrativo**, v. 231, p. 389-433, 2003.

GROMEK-BROC, K. (Ed.). **Regional approaches to the energy transition: a multidisciplinary perspective.** Springer Nature, 2023. DOI: <https://doi.org/10.1007/978-3-031-19358-3>.

- HAVERBEKE, D.; NAESENS, B.; VANDORPE, W. European energy markets and the new Agency for Cooperation of Energy Regulators. **J. Energy & Nat. Resources L.**, v. 28, p. 403, 2010.
- HUHTA, K. The scope of state sovereignty under Article 194 (2) TFEU and the evolution of EU competences in the energy sector. **International & Comparative Law Quarterly**, v. 70, n. 4, p. 991-1010, 2021.
- IBEKWE, K. I. et al. Energy security in the global context: a comprehensive review of geopolitical dynamics and policies. **Engineering Science & Technology Journal**, v. 5, n. 1, p. 152-168, 2024.
- IEA; IRENA; UNSD; WORLD BANK; WHO. **Tracking SDG 7: the energy progress report 2021**. Washington, DC: World Bank, 2021. Disponível em: <https://trackingsdg7.esmap.org>. Acesso em: 5 fev. 2025.
- JONES, D. **Global electricity review dataset 2021**. 2021. Disponível em: <https://ember-climate.org/insights/research/global-electricity-review-2021/>. Acesso em: 5 fev. 2025.
- KOLOSOK, S. I.; KOVALENKO, Y. V. **Factor analysis of energy security: net import dependency**. 2022.
- LATTANZO, R. K. **The Global Climate Change Initiative (GCCl): Budget Authority and Request, FY2010-FY2013**. 2010-2013.
- LI, S.; CHANG, Y. C. Legal issues regarding energy market integration in Northeast Asia. **Energy Strategy Reviews**, v. 38, p. 100700, 2021.
- MCCLUSKEY, A.; STRZEPEK, K. M.; ROSE, A. Electricity trade impacts on regional power pools in Sub-Saharan Africa. **Renewable Energy Focus**, v. 41, p. 33-54, 2022.
- MEEUS, L.; KEYAERTS, N. **First series of cross-border cost allocation decisions for projects of common interest: main lessons learned**. Florence School of Regulation; 2015/01; Policy Briefs; Energy; Gas, 2015. ISBN: 9789290842453.
- OLADE. **Panorama Energético: Prospectiva Energética Regional**. Andrés Rebolledo Smitmans (Secretário Executivo), Medardo Cadena (Diretor de Estudos, Projetos e Informação). Quito: OLADE, 2023. Disponível em: <https://sielac.olade.org/WebForms/Reportes/VisorDocumentos.aspx?or=453&documentoid=10000017>. Acesso em: 5 fev. 2025.
- OSANI, M. O.; POLLITT, M. G. **Institutional arrangements for the promotion of regional integration of electricity markets: international experience**. 2014.
- PURKAIT, S.; TRIVEDI, A. The European energy union: prospects and challenges. **Energy Policy**, v. 160, p. 112654, 2022.

RAP. **Electricity markets and regional integration: lessons from international experiences.** 2015.

REHNER, J.; RIVERA, J.; SEPULVEDA, N. **Energía en América Latina: desigualdades y transiciones.** Santiago: RIL Editores, 2021.

RODRIGUES, D. C.; LEITE, A. D. **Integração energética no Mercosul: desafios e perspectivas.** *Revista Brasileira de Política Internacional*, v. 64, n. 1, 2021.

SANTOS, L. A. dos. **Integração energética regional e segurança energética: o caso da América do Sul.** Brasília: IPEA, 2019.

SANTOS, L. A. dos; COSTA, E. M. **A integração elétrica na América do Sul: desafios institucionais e regulatórios.** *Revista de Economia Contemporânea*, v. 25, n. 2, p. 1-25, 2021.

SILVA, G. C.; ALMEIDA, E. L. **Integração elétrica no Mercosul: entraves e oportunidades.** *Revista de Economia e Energia*, v. 27, n. 2, p. 51-76, 2020.

SILVA, G. C.; VASCONCELOS, L. **Integração regional de mercados de energia elétrica: uma análise comparativa.** *Revista de Direito Internacional Econômico e Tributário*, v. 17, n. 1, p. 89-115, 2022.

SOUZA, R. R. **A política energética da União Europeia: integração, transição e segurança.** São Paulo: Almedina, 2022.

STEGEN, K. S.; ATALLAH, S. **Energy trade and security of supply in the European Union.** *Energy Policy*, v. 34, n. 3, p. 379-397, 2006.

TAGLIAPIETRA, S. **The European Union's energy transition: from policy to practice.** *Energy Policy*, v. 144, p. 111593, 2020.

TAVARES, M. A. **Integração energética regional: experiências internacionais e lições para a América do Sul.** Rio de Janeiro: FGV, 2021.

UNITED NATIONS. **Transforming our world: the 2030 Agenda for Sustainable Development.** A/RES/70/1, 2015. Disponível em: <https://sdgs.un.org/2030agenda>. Acesso em: 5 fev. 2025.

UNITED NATIONS. **Paris Agreement.** 2015. Disponível em: <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement>. Acesso em: 5 fev. 2025.

VASCONCELOS, J. **Energy policy: security of supply, sustainability and competition.** *Utilities Policy*, v. 14, n. 3, p. 148-158, 2006.

VASCONCELOS, J. **The European Energy Policy: Past, Present and Future.** *Economics and Policy of Energy and the Environment*, v. 62, n. 1, p. 5-36, 2020.

VIEGAS, P. R. A. A integração energética e o Mercosul: uma análise crítica. **Revista da Faculdade de Direito da UFMG**, v. 76, p. 189-216, 2020.

VIEGAS, P. R. A.; FERRAZ, D. A. **Regional energy integration: legal and institutional aspects**. **Revista Brasileira de Políticas Públicas**, v. 11, n. 2, p. 293-317, 2021.

WÄLDE, T. W. International investment under the 1994 Energy Charter Treaty: legal, negotiation and policy implications for international investors within Western and Commonwealth of Independent States/Eastern European Countries. **Journal of World Trade**, v. 29, n. 5, p. 5-72, 1995.

WESTPHAL, K. **European energy security strategies and regional cooperation**. **Global Policy**, v. 11, n. S1, p. 5-15, 2020.

Sobre os(as) autores(as):

Luiz Ugeda | E-mail: luiz.ugeda@gmail.com

Advogado e Geógrafo. Pós-doutor em Direito (Universidade Federal de Minas Gerais, UFMG, Brasil) e doutor em Geografia (Universidade de Brasília, UnB, Brasil). Doutorando em Direito (Universidade de Coimbra, FDUC, Portugal). É pesquisador do CPTEn - Centro Paulista de Estudos da Transição Energética da Unicamp, Brasil (CPTEn e Fapesp 2024/04170-2). Foi investigador do Centro de Investigação em Justiça e Governança (JusGov) da Escola de Direito da Universidade do Minho (Portugal); da Chaire Normandie pour la Paix junto a Université Caen Normandie (França); Professor Colaborador Sênior, junto ao Programa de Pós-Graduação em Geografia da Universidade de Brasília (UnB); e professor de Direito da Energia na Universidade Candido Mendes (UCAM/RJ, Brasil).

David Felice Falivene Baptista | E-mail: davidfelice.ba@gmail.com

É doutor (2024) pela Faculdade de Engenharia Elétrica e de Computação da Universidade Estadual de Campinas (FEEC-UNICAMP), com período sanduíche na Escola de Direito da Universidade do Minho (Braga/Portugal), trabalhando no tema de Direito e Regulação Jurídica de Energia. É graduado em Engenharia Elétrica (2015) e em Direito (2022). Obteve o título de Mestre (2019) pela Faculdade de Engenharia Elétrica e Computação da Universidade Estadual de Campinas (FEEC-UNICAMP), trabalhando com Inteligência Artificial e Telecomunicações. É membro do Instituto de Estudos Avançados da UNICAMP, com pesquisa na área de Ética e Regulação jurídica de Inteligência Artificial. É pesquisador do Centro Paulista de Estudos da Transição Energética (CPTEn - CCD Fapesp) e do Projeto MERGE de Pesquisa e Desenvolvimento ANEEL/CPFL Energia, com pesquisa na área de Regulação de Energia, Transição Energética e Sustentabilidade.

Luis Renato Vedovato | E-mail: lvedova@unicamp.br

Membro do Academic Advisory Board for the Global Center for Legal Innovation on Food Environments at O'Neill Institute for National and Global Health Law. Pesquisador FAPESP do projeto de pesquisa "O conceito de dignidade humana relacionado às necessidades socialmente percebidas: vulnerabilidades e direito das minorias" (a partir de 2023 - Proc. 22/15017-5) e foi pesquisador do projeto de pesquisa "Direito das migrações nos Tribunais - a aplicação Nova Lei de Migração Brasileira diante da mobilidade humana internacional" (Proc. 2018/26843-8), de 2019 a 2021. É professor de Direito Internacional Público e Direito Ambiental na Faculdade de Direito da PUC de Campinas e Professor de Educação em Direitos Humanos: História, Cultura

e Meio Ambiente, da Faculdade de Filosofia da PUC de Campinas. Professor Associado da UNICAMP. Professor do Programa de Mestrado e Doutorado em Educação da Faculdade de Educação da UNICAMP. É pesquisador do Projeto de Pesquisa Conjunto (UNICAMP e Cardiff University) Examining poverty in a polarised and unequal society: the potential of the Consensual Approach to poverty research in Brazil - UK Global Challenges Research Fund (GCRF). É pesquisador Associado do Observatório das migrações em São Paulo: migrações internas e internacionais contemporâneas no estado de São Paulo (proc.14/04850-1). Graduado (1995), mestre (2002) e doutor (2012) em Direito Internacional pela Faculdade de Direito da Universidade de São Paulo. Atualmente é professor associado (MS-5.1) da UNICAMP, lecionando na Faculdade de Educação, Faculdade de Ciências Aplicadas e no Instituto de Economia, contratado em Regime de Turno Completo (RTC).

<p>Luiz Ugeda</p>	<p>Conceitualização; Curadoria de Dados; Análise Formal; Aquisição de Financiamento; Investigação; Metodologia; Administração de Projeto; Programas; Recursos; Supervisão; Validação; Visualização; Escrita (rascunho original); e, Escrita (revisão e edição)</p>
<p>David Felice Falivene Baptista</p>	<p>Conceitualização; Curadoria de Dados; Análise Formal; Aquisição de Financiamento; Investigação; Metodologia; Administração de Projeto; Programas; Recursos; Supervisão; Validação; Visualização; Escrita (rascunho original); e, Escrita (revisão e edição)</p>
<p>Luis Renato Vedovato</p>	<p>Conceitualização; Curadoria de Dados; Análise Formal; Aquisição de Financiamento; Investigação; Metodologia; Administração de Projeto; Programas; Recursos; Supervisão; Validação; Visualização; Escrita (rascunho original); e, Escrita (revisão e edição)</p>

Datas do Processo Editorial / Editorial Process Dates

Data de submissão / Submission date: 06 de março de 2025

Data da Triagem de Diretrizes / Guidelines Screening Date: 11 de março de 2025

Data da Triagem de Qualidade / Date of Quality Screening: 11 de março de 2025

Data do Envio para Avaliação / Date of Submission for Evaluation: 11 de março de 2025

Data da Primeira Avaliação / Date of First Evaluation: 15 de abril de 2025

Data da Segunda Avaliação / Date of Second Evaluation: 29 de abril de 2025

Data do Envio para Correção / Date Sent for Correction: 06 de maio de 2025

Data de Aceite / Date of Acceptance: 20 de junho de 2025

Corpo Editorial: Editor-Chefe: J.P.B

Editora-Adjunta: L.S.G

Editora Associada: F.L.S.

Pareceristas: 2