OFFSHORE WIND LICENSING

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OFFSHORE WIND LICENSING

Edited by

IGNACIO HERRERA ANCHUSTEGUI

Associate Professor, Faculty of Law, University of Bergen, Norway

TINA SOLIMAN HUNTER

Professor of Energy and Natural Resources Law, and Director of the Centre for Energy Resources Innovation and Transformation (CENRIT), Macquarie University, Australia

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CONTRIBUTORS

Patrick Achor, Doctoral Researcher, University of Aberdeen.

Charlotte Bay Hasager, Professor at Technical University of Denmark, Department of Wind and Energy Systems, Roskilde, Denmark, Affiliate Professor at University of Bergen, Geophysical Institute, Bergen, Norway.

Alice Bouillié, Of Counsel, Gide Loyrette Nouel.

Jack E. Brown, Law Graduate at Norton Rose Fulbright Australia, LLB BEnv (Honours) Macquarie University.

Álvaro Cuesta, Trainee at J & A Garrigues, S.L.P.

Ezequiel Cassagne, Partner, Cassagne Abogados (Buenos Aires, Argentina), Adjunct Professor at the Pontificia Universidad Católica Argentina and the Universidad Nacional de Lomas de Zamora (Argentina), Member of the National Academy of Law and Social Sciences of Buenos Aires.

Íñigo del Guayo, Professor of Administrative Law at the University of Almería.

Haifeng Deng, Associate Professor, Tsinghua University, School of Law.

Birgitte Egelund Olsen, Professor, Department of Law, Aarhus University.

Sigrid Eskeland Schütz, Professor, Faculty of Law and Bergen Offshore Wind Centre, University of Bergen, Bergen, Norway.

Eirik Finserås, Phd-candidate, Faculty of Law and Bergen Offshore Wind Centre, Bergen, Norway.

Emma George Weber, Associate, Gide Loyrette Nouel.

Finn Gunnar Nielsen, Professor emeritus, Geophysical Institute and Bergen Offshore Wind Centre (BOW), University of Bergen.

Ignacio Herrera Anchustegui, Associate Professor, Faculty of Law, University of Bergen, Norway. Member of the Bergen Offshore Wind Centre (BOW).

Suchanun Hunsa-Udom, Lecturer in Environmental and Energy Law at the Faculty of Law, Naresuan University, Thailand.

Anton Ming-Zhi Gao, Professor, Institute of Law for Science and Technology, National Tsing Hua University, Taiwan.

Anne Marie O'Hagan, Senior Research Fellow, MaREI: the SFI Research Centre for Energy, Climate and Marine, Environmental Research Institute: Beaufort Building, University College Cork, Ireland.

Bent Ole Gram Mortensen, Professor, Department of Law, University of Southern Denmark.

John Paterson, Professor, Centre for Energy Law, University of Aberdeen.

Natasha Peter, Partner, Trinity International and Barrister, Cornerstone Barristers.

Joachim Reuder, Professor at University of Bergen, Geophysical Institute, and Bergen Offshore Wind Centre (BOW), and Bjerknes Center for Climate Research, Bergen, Norway.

Alexander Severance, Special Counsel, DLA Piper Denmark.

Tina Soliman Hunter, Professor of Energy Law and Director, Centre for Energy and Natural Resources Innovation and Transformation, Macquarie University, Australia.

Catalina Vallejo Piedrahíta, Temporary Full-Time Professor, Department of International Law, School of Law, Eafit University, Colombia. Member of LawTransform, Center for the Study of Law and Social Transformation, Norway.

Eddy Wifa, Energy Law Lecturer, University of Aberdeen.

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THE REGULATORY FRAMEWORK FOR OFFSHORE WIND ELECTRICITY GENERATION IN ARGENTINA

Ezequiel Cassagne

1. INTRODUCTION

13.001 In Argentina, no offshore wind farms have been developed; only offshore oil and gas exploration takes place. However, Argentina has some of the best offshore wind resources in the world when combining wind speeds, coastal length and capacity factors,[1] and in the last decade has expanded rapidly its renewable energy generation. This includes onshore wind and solar projects. It is expected, therefore, that offshore wind activity may take place in the future. Unlike almost all contributions to this book, Argentina has no specific offshore wind regime. Instead, it has a general set of rules that apply to renewable energy sources, in addition to its general electricity market. Since 2016, the Argentinian regulatory and policy framework has transformed to support the construction of renewable energy projects and attract investment to install new generation capacity. This regime will apply to offshore renewable energy projects if developed.

1 Jonathan Bosch, Iain Staffell and Adam D. Hawkes, 'Temporally explicit and spatially resolved global offshore wind energy potentials' (2018) 163 *Energy* 766; Carlos Weiss and others, 'Marine renewable energy potential: A global perspective for offshore wind and wave exploitation' (2018) 177 *Energy Conversion and Management* 43.

13.002 In this chapter, the general electricity regulation and organization regime is discussed, focusing on the salient aspects related to renewable energy generation. One key aspect of the contribution is the assessment of the State's role in promoting renewable energy through support schemes and programs and the collaboration with the private sector. Project financing and contractual issues regarding electricity generation and wholesale are also studied.

2. THE ELECTRICITY MARKET IN ARGENTINA

2.1 Argentina's electricity generation framework

13.003 In Argentina, the generation of electrical energy is not considered a public service, unlike its transportation and distribution, which are indeed categorized as public services. Generation, on the other hand, is deemed an activity of general interest according to Law No. 24,065, which regulates the electricity market.[2] This characterization of general interest has not been doctrinally precise like that of a public service, although it is recognized that it is a heavily regulated commercial activity due to its impact on the general interest of the proper functioning of the national electricity market. This is not only necessary for the subsequent distribution of electricity to all households in the country but also for industrial development, which requires a constant power supply.[3]

13.004 In Argentina, the different activities within the framework of the electricity market operation (generation, transportation, distribution, and consumption by large and small users) are linked to the Compañía Administradora del Mercado Mayorista Eléctrico ('CAMMESA'), which is the national company administering the wholesale electricity market. CAMMESA is organized as a non-profit corporation and its main function is to manage the wholesale electricity market, optimize the market's physical resources, and settle the financial transactions among market agents. The capital of this corporation is divided into five classes of shares, each representing 20 per cent of the total, held by the national government and four civil associations representing the following agents: generators, distributors, transporters, and large users. The President of CAMMESA is the Secretary of Energy of the Nation, whose vote is essential to reach a quorum in the Board of Directors.[4]

13.005 Both CAMMESA and the Ministry of Energy play a crucial role in any public program related to energy generation, as seen in the case of the Renewable Energy Generation Program ('GENREN'),[5] which was implemented until December 2015, and the Renewable Energy Program RENOVAR, established in 2016 and currently in force. Both GENREN and RENOVAR represent interventions in Energy Policy that can contribute significantly to greater sustainability in all its dimensions: social, productive, economic, and financial development.

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2 Art. 1 of Law No. 24065 of 1992.

3 Máximo Fonrouge, (2003): 'Lineamientos del régimen jurídico de la electricidad', in, *Servicio Público, Policía y Fomento. Jornadas sobre servicio público, polícia y fomento* (Buenos Aires, Ediciones Rap), p. 551.

4 Roberto Sobre Casas (2003): *Los contratos en el mercado eléctrico* (Buenos Aires, Ábaco), p. 129.

5 Known in Spanish as 'Programa de generación de energías renovables'.

13.006 Under the GENREN program, the main actor was the State-owned company ENARSA, established as a private corporation under State ownership, with the declared purpose of becoming a significant player in the energy market's development.[6] ENARSA was responsible for conducting the licensing processes, awarding projects, and purchasing energy. In practice, it acted as an intermediary between the generation companies and the final buyer, CAMMESA. However, with the new management model established in RENOVAR, ENARSA has been removed as an intermediary between the generation companies and CAMMESA. As will be explained further, the new contracts for the supply of renewable energy are now directly signed with CAMMESA.

13.007 The large infrastructure projects required by any country to increase its electricity production demand the availability of suitable tools for financing, particularly during times when investment is scarce. These projects represent true infrastructures as they provide support to electricity generation activities, integrating with the energy grid, along with transportation and distribution services.[7]

13.008 In Argentina, electric generation is primarily based on thermal, hydroelectric, and nuclear sources, respectively. According to CAMMESA's annual report for the year 2016, 60 per cent of the installed capacity corresponded to thermal sources, 36 per cent to hydroelectric energy, and 3 per cent to nuclear energy. As of the year 2023, the installed capacity distribution has changed, with 46.2 per cent coming from thermal sources, 28.9 per cent from hydroelectric sources, 14.9 per cent from renewable energy generation, and 7.1 per cent from nuclear sources.

13.009 Today, renewable energy sources have become a reality in this scenario. These sources include wind energy, small hydroelectric power plants, solar energy, thermal energy from biofuels, biomass, and geothermal energy. At the moment, no offshore wind projects have been constructed in Argentina, as we discuss further. This diversification in energy sources reflects the country's efforts to embrace sustainable and environmentally friendly options for electricity generation, combined with its excellent natural resources, including vast offshore and onshore wind.

2.2 Renewable energy sources and their regulation

13.010 The renewable energy sector is a prime example of the need for public-private collaborations, as without public assistance, this industry would struggle to develop due to the lack of profitability in its subsequent exploitation. Renewable energy is costly and currently has a limited market.

13.011 Moreover, it fits within a genuine global energy policy that advocates for a shift towards a sustainable energy matrix, particularly in countries with environmental consciousness. Many of

6 ENARSA S.A. was created by the Law 25943 of 2004. ENARSA S.A. became IEASA S.A. (Integración Energética Argentina S.A.) following the merger between ENARSA SA with Emprendimientos Energéticos Binacionales S.A. -Ebisa SA-.

7 Aguilar Valdéz holds that any infrastructure supports a network or that it is lined to it. See: Oscar Rafael Aguildar Valdéz: 'Principios Jurídicos Aplicables a las Infraestructuras Públicas', in *Organización Administrativa, Función Pública y Dominio Público* (Buenos Aires, Ediciones RAP), p. 377.

these countries have other pressing infrastructure needs, which emphasizes the importance of private sector collaboration for the development of renewable energy sources.

13.012 Renewable energy represents a suitable tool to achieve true sustainable development, a concept defined by doctrine as 'a process of economic, social, ecological, and cultural transformations aimed at meeting the needs of all social groups while preserving resource productivity and the integrity of ecological systems. It considers the dynamic nature of social coexistence and technology, both in productive activities and in those aimed at reducing or eliminating environmental damage'.[8]

13.013 In the pursuit of sustainable development, our country possesses exceptional geo-climatic characteristics, making it an ideal candidate for harnessing renewable energy sources. For instance, Argentina boasts significant and consistent wind resources, with 70 per cent of the country experiencing strong and constant winds suitable for wind power generation. Consequently, Argentina is destined to become a global powerhouse in wind energy generation if public policies support and promote its development.[9] Additionally, biomass represents another attractive option due to the country's diverse geographical features. Different regions can utilize various biomass sources such as sugarcane bagasse, charcoal, forestation waste, or agricultural byproducts. Argentina's fertile lands also make it a significant producer of soy, the primary raw material used in biodiesel production.

13.014 It is essential to emphasize that the energy policy must be a long-term sectorial policy integrated into the overall development strategy. This requires a well-established institutional and legal foundation to facilitate systematic and harmonious development within a pre-established plan. A stable and supportive regulatory framework is crucial to drive the growth of renewable energy sources and ensure a sustainable and prosperous future for the country.

13.015 Indeed, there are at least 60 countries worldwide that have implemented policies to promote renewable energy for electricity generation, including countries like the United States, Australia, Brazil, Uruguay, and, more recently, Argentina. In many countries, including Argentina, the development of renewable energy sources and policies becomes essential due to the considerable growth in energy imports, primarily driven by the purchase of liquid fuels and natural gas. This need for energy is unlikely to change in the short term, even with the exploitation of shale gas and shale oil resources found in Argentine basins. Scaling up production from these unconventional sources requires substantial investments, despite the enthusiasm shown by provincial and national officials. Moreover, there is resistance to this extraction method from environmentalists, as seen in countries like France, where they have succeeded in legally prohibiting this activity.

13.016 Although renewable energy projects use different methods, they all share a common guiding principle: they require additional economic incentives for their realization. Without such incentives, their widespread adoption in the era of fossil fuels becomes nearly impossible.

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8 Gregorio Badeni (2006): *Tratado de Derecho Constitucional* (Buenos Aires, La Ley, tomo I), p. 591 (author's translation).

9 Cámara de Industriales de Proyectos e Ingeniería de Bienes de Capital de la República Argentina, 'Presentación del cluster eólico argentino' (2012), available at: http://www.clustereolico.com.ar/docs/presentacion-del-cluster-eolico-argentino.pdf.

As mentioned, the major challenge faced by electricity generation from renewable sources in Argentina is the high cost of production compared to other sources such as hydroelectric or thermal energy. Hence, any program aimed at incentivizing the generation of green energy must either subsidize the final price of such energy to make it competitive with other sources in the market, guarantee the purchase of this energy at an established price, or create various benefits that impact the final selling price of the energy. These economic incentives are crucial for the successful integration and growth of renewable energy in the country's energy mix.

13.017 In this context, public assistance is essential to achieve this sustainable challenge. De la Riva, who has extensively studied the figure of institutional support, explains that the distinctive element of public assistance or promotion is the convergence of public and private interests. This makes possible 'that the individual voluntarily participates in the supported direction as by pursuing his/her own interest is also contributing to the general interest (…) while the core of the relationship between the Administration that grants the support and the recipient of it lies on the affectation of the elements and infrastructure that is part of the activity that is supported'.[10]

13.018 In essence, these are promotion activities,[11] and the term 'promotion' should be understood in a broad sense, equivalent to fostering or support, as seen in the Industrial Promotion Law No. 21.608, for example. Within these promotion measures, various techniques of support can be found, including fiscal exemptions, tax deferments, and any fiscal benefits, direct and indirect subsidies, grants, preferential loans, waivers of legal, regulatory, or contractual obligations, among others.

13.019 Indeed, much has been written about the principle of subsidiarity as a guiding principle that justifies, in certain cases, the intervention of the State in the economic and social spheres of the community. This model recognizes non-delegable functions of the State, such as justice, security, defence, foreign relations, and legislation, while also acknowledging other functions that serve as a supplement to private activity, such as education, health, and public services.[12]

13.020 The principle of State subsidiarity can be formulated as follows: 'it is not lawful to take from individuals and transfer to the community what they can accomplish with their own effort and initiative'.[13]

13.021 This principle of subsidiarity postulates two main directives for the State that complement each other: the positive, whereby the State should come to the aid of individuals when they are unable to fully develop an activity necessary for the common good, and a negative postulate,

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10 See: Ignacio de la Riva, 'La figura del Fomento: necesidad de encarar una revisión conceptual', in *Servicio Público, Policía y Fomento. Jornadas sobre servicio público, polícia y fomento* (Buenos Aires, Ediciones Rap, 2003), p. 417 (author's translation).

11 See: Juan Carlos Cassagne, 'Reflexiones sobre las ayudas públicas', in *Derecho Administrativo- Revista de doctrina, jurisprudencia, legislación y práctica* (2003), p. 601.

12 Juan Carlos Cassagne, *Derecho Administrativo* (Buenos Aires, Abeledo Perrot, tomo I, octava edición, 2006), pp. 61–63. See also: Johannes Messner (1967): *Ética Social, Política y Económica a la luz del Derecho Natural* (Madrid, Rialp), p. 949 and ss.

13 Gaspar Ariño Ortiz, *Principios de Derecho Público Económico* (Granada, Comares, tercera edición ampliada, 2004), pp. 111–112 (author's translation).

indicating that the State should not replace individuals when they can carry out such activities themselves.[14]

13.022 The principle of subsidiarity takes on its full dimension in the field of renewable energy, and its positive mandate, namely, providing assistance for the promotion of this activity aimed at transforming a country's – and the world's – energy matrix, when circumstances determine that private entities cannot fully undertake it.

13.023 Moreover, it should be noted that the General Law of the Environment itself enshrines the principle of subsidiarity in its Article 4 as a guiding principle for public behaviour to ensure the preservation, conservation, recovery, and improvement of the quality of natural environmental resources.[15]

13.024 In turn, the central concern of any public procurement scheme for the development of large infrastructure projects, such as those required for renewable energy generation, is obtaining financing. It is evident that the State alone cannot afford large infrastructure projects, such as hydroelectric power plants, nuclear power plants, roadworks, railway transportation, improvement, and expansion of public utility networks like gas and water, oil and gas production, ports, airports, hospitals, waste processing plants, etc.

13.025 It is abundantly clear that the scarcity of public resources in the face of growing social demands must lead governments to seek and develop innovative financing alternatives, with an increasing involvement of the private sector.[16]

3. SUPPORT PROGRAMS FOR RENEWABLE ENERGY IN ARGENTINA

3.1 The regulatory framework until 2016

13.026 It is important to bear in mind that as early as 1998, the Argentine National Congress had passed a law – Law No. 25.019 – declaring the generation of wind and solar energy was to be of national interest. This law established benefits for its development, such as fiscal stability for a term of 15 years and tax deferment. It also created a Renewable Energy Trust Fund aimed at incentivizing the generation of such energy through a premium system per MW (currently around 10 dollars per MW).

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14 Ver Utz, See Arthur Utz, *Ética social* (trad. de Carlos Latorre Marín, Barcelona, Herder, tomo I, 1961), p. 312 and ss.

15 Article 4 of Law No. 25.675 of 2002.

16 In our country, the situation for the provinces is much more discouraging than that of the national government. Consequently, many provincial projects are actually financed by the national government. As highlighted by Gorostegui, 'these contracts are usually structured through agreements (ranging from laws that determine them to simple agreements) between jurisdictions, through relevant agencies, where general guidelines for the contracts are established (...) virtually trilateral'. See, Beltrán Gorostegui, 'Régimen de Obras Públicas Financiadas por el Estado', *La Ley*, 2012-C (2012), pp. 642. On 30 November 2016 the Law of Public-Private Participation was enacted. This law aims at coordinating both sectors. It is a national law, but the Provinces may replicate it within their jurisdictions.

13.027 Subsequently, in 2006, the Congress passed Law No. 26.190, which declared the generation of electricity from renewable energy sources for public service as a matter of national interest. The law also emphasized research for technological development and equipment manufacturing with that purpose. The objective set was to reach 8 per cent of the national electricity consumption from renewable energy sources by the year 2016. This objective was later extended until December 31, 2017, through Law 27.191, dated October 21, 2015.

13.028 To achieve this goal, new fiscal benefits were established, such as accelerated depreciation of investments and exemption from minimum presumed income tax, while the premium system – payments – per KW generated was updated. Unfortunately, the law was not regulated until 2009, resulting in the loss of three valuable years. Nevertheless, the premium rates set in these laws, to compensate for the generation of, for example, wind energy, do not even cover 50 per cent of the costs of this type of generation.[17]

13.029 Therefore, in 2009, the GENREN programs were implemented – which we will analyse in detail in the following section – to achieve the goal of reaching 8 per cent of the electricity matrix.[18] According to sources from the Argentine Secretariat of Energy itself, these public policies would result in the installation of 2,500 MW of renewable energy generation.

13.030 It is interesting to note that in 2011, the Secretariat of Energy issued a general resolution (Res. S.E. 108/2011) replicating the GENREN scheme for future projects, establishing a fixed purchase price for renewable energy for 15 years, but in this case without the granting of guarantees or endorsement from the national government, which assists in obtaining financing.

13.031 On the other hand, concerning biofuels specifically, the State has enacted several laws aimed at promoting their production and sustainable use in Argentine territory.[19] The most significant measure in this regard was the mandate to blend biofuels with fossil fuels used in the domestic market, starting with a proportion of 5 per cent, which was increased to 7 per cent in mid-2010, and further raised to 10 per cent in December 2014.[20] Additionally, this promotional regulation generated significant fiscal benefits for biofuel producers.

13.032 By the end of May 2014, a law was approved to exempt biodiesel from taxes to support this industry, which has faced restrictions on exports of this fuel imposed by the European Union since November 2013.

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17 Cecilia Giralt 'Energía Eólica en Argentina: un análisis económico del derecho', *Revista Letras Verdes,* No 9 (2011), p. 68. In Spain, in contrast, the support schemes have worked. As Ariño Ortiz explains, 'the support system of premiums as a complement to the price of energy delivered to the system has proven to be effective, leading, as we have seen, to an extraordinary development of some renewable energies (especially wind energy)' in Gaspar Ariño Ortiz, Juan Miguel de la Cuetara and Íñigo del Guayo Castiella 'Las energías renovables: marco normativo y problemas que plantean', en *Regulación Económica, lecturas escogidas* (Madrid, Thomson Reuters, 2012), p. 864.

18 It is also important to highlight that in 2011, the Secretariat of Energy issued Resolution 108/11, which enables the execution of supply contracts between CAMMESA and potential renewable energy generators. However, unlike the GENREN project, these ventures do not benefit from the sovereign guarantee that assists in accessing financing.

19 See: Law Nº 26093 of 2006 and Law Nº 26334 of 2008.

20 Resolution of the Secretary of Energy of the Nation Nº 44/2014.

13.033 This new law amended Law No. 26.028, which determined the additional tax on diesel, establishing that the 22 per cent rate would not be applied to biodiesel intended for electricity generation. It also exempted biodiesel from the 19 per cent rate of the tax on liquid fuels, reverting the situation to November 2011.

13.034 Finally, in March 2016, through Decree 543/2016, the percentage of ethanol blending in gasoline was increased to 12 per cent, while for diesel fuels, the minimum biodiesel blending percentage remained at 10 per cent, as established in 2014.

13.035 Despite efforts to achieve the 8 per cent goal set by the law, the installed capacity in Argentina in 2016 from renewable sources – excluding large hydroelectric projects – was approximately 1.8 per cent of the total energy generation.[21] However, this situation has changed, and as of mid-2023, at the time of this chapter's completion, the installed capacity in Argentina from renewable sources is approximately 14.9 per cent of the total energy generation.[22]

13.036 Wind energy is the renewable energy with the most potential in Argentina, given the climatic conditions of its territory, making it a recognized global powerhouse. Since 1994, onshore wind farms have been installed in Argentina. In 2016, only a capacity of 374 MW was reached, and in 2022, the installed capacity reached 3,300 MW, an exponential growth. Despite its remarkable increase, it is still a relatively small capacity when compared to Argentina's theoretical wind potential, which is impressive, as it could reach more than 2,000 GW,[23] a value equivalent to twice the currently existing generation capacity in the United States. In 2012, the Argentine Wind Cluster was formally presented, comprising several national companies, which foresaw that within eight years, an annual wind production of 1,000 MW would be achieved, involving 500 suppliers and four national wind turbine brands.[24] Its main focus was on GENREN projects, and now the RENOVAR programs.

13.037 The Secretariat of Energy projects that by 2030, the electricity generation matrix will surpass 160 terawatt-hours (TWh), with renewable energies accounting for 21 percent of production. It is expected that wind energy will provide 68 percent of that proportion, equivalent to 22,905.12 GWh per year.

13.038 While Argentina has advanced significantly faster than its neighbours in implementing its first State-financed wind farms, its limited access to financial credit has hardened conditions for its allocation, mainly in innovative projects related to wind farms for electricity production. In this regard, we should follow the examples of our neighbouring countries, Uruguay, and Brazil.

13.039 Indeed, the incentive program for alternative sources of electric energy in Brazil, 'PROINFA,' initiated in 2002, is now a tangible reality. The program's objective is to increase the participation of renewable energy sources to diversify the energy matrix, by installing thousands of

21 See: María Marta Di Paola, 'El escenario de las energías renovables en Argentina', La Ley Suplemento Ambiental, (2011), p. 7. See also the annual report by CAMMESA from 2015 and the RENOVAR report of 2016.

22 See: CAMMESA, *Fuente de Generación* (2023).

23 María Marta Di Paola (n 21).

24 See Cámara de Industriales de Proyectos e Ingeniería de Bienes de Capital de la República Argentina (n 9), p. 5.

MW, equally distributed among wind turbines, small hydroelectric plants, and power plants using biomass as their energy source.

13.040 The program promotes the participation of Independent Private Producers, who are guaranteed the purchase of electricity delivered to the National Interconnected System through Electrobrás for a period of 20 years at a rate established by the Ministry of Mines and Energy. The Energy Development Fund has been created to ensure the necessary funds, distributed among all consumers, except for low-income populations. As expected, the Brazilian Development Bank was the main source of financing for PROINFA projects. After some initial setbacks, the Brazilian wind market grew enormously.

13.041 On the other hand, the Wind Energy Program in Uruguay (PEEU), a joint initiative of the National Government with the United Nations Development Programme, executed by the Ministry of Industry, Energy, and Mining through the Energy Directorate, and financed by the Global Environment Facility, is also a tangible reality.

13.042 The history of large-scale wind farms for electricity generation in Uruguay has developed since 2006 when the country's first wind farm was launched. Since 2009, with the installation of the Cerro de los Caracoles wind farm, Uruguay has had a state-of-the-art wind farm capable of meeting the challenging requirements for integrating large wind capacities into the electrical systems. But its expansion does not stop, and the construction and inauguration of wind farms continue.

13.043 Renewable energies are a reality that is gaining ground in the current world and will become even more prevalent in the future. They solve the energy problem while taking care of the environment, ensuring sustainability over time and promoting the development of contemporary humanity in a sustainable manner, as well as safeguarding the well-being of future generations.

13.044 By protecting the environment and being clean sources of energy, they prevent the contamination of air, soil, and resources, and avoid environmental hazards at various stages of production, transportation, and commercialization.

13.045 In essence, renewable energies mitigate environmental risks and damages, making it essential for their promotion to be included in precautionary energy public policies. The principle of 'precaution is the one that best reflects the essence of environmental administrative law',[25] and productive activities must meet current needs without compromising those of future generations.[26]

25 See Eberhard Schmidt-Assman: *La teoría general del Derecho administrativo como sistema* (Madrid, INAP–Marcial Pons, 2003), p. 133.

26 Juan Carlos Cassagne, 'El daño ambiental colectivo', in *Lecturas sobre Derecho del Medio Ambiente* (Colombia, Universidad Externado, 2004), p. 166.

13.046 Indeed, these public policies must be enforced based on the mandate contained in the constitutional right to a healthy environment. After the constitutional reform of 1994, our constitution incorporates Article 41.[27]

13.047 It should be noted that, in addition to recognizing the right to a healthy environment, the National Constitution establishes a clear mandate for national, provincial, and local authorities, requiring them to ensure the protection of this right, the rational use of natural resources, the preservation of natural and cultural heritage, biodiversity, and environmental information and education. In this same vein we find Lorenzetti who argues that 'it is not about mere theoretical claims, but operational norms that create obligations for the State, and exposes it to claims – even before courts – in cases of failure to comply with them'.[28]

13.048 Article 2 of the General Law of the Environment of 2002 sets some minimum requirements related to environmental protection in Argentina, stressing that the national environmental policy must follow a set of determined and specific objectives, including the protection, conservation, recovery and improvement of the environment and the rational and sustainable use of natural resources.

13.049 In this sense, Macera points out that:

> as guardians of community goods against all types of aggressions and, also, as the highest interpreters of the general sentiment of the collectivity, public authorities are entrusted with the mission of safeguarding the general interests through the exercise of powers inherent in their supremacy. In the specific context here discussed, they are assigned the task of ensuring the protection of the environment against any polluting source.[29]

13.050 Ultimately, to achieve the sustainable development of the energy sector, Bellorio Clabot argues that:

> it is necessary to eliminate barriers and incorporate elements in favor of technological options, and effectively include the issue on the agenda of municipalities and other decentralized entities (...). Moreover, it is essential to establish policies that promote technologies and create energy markets, as well as a rational policy regarding the exploitation of fossil resources.[30]

3.2 The GENREN program

13.051 The GENREN program was implemented through the company ENARSA, which called for a public tender in 2009, in which various companies offered their projects for renewable energy production, competing with each other based on the price per megawatt (MW) they offered

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27 Article 41 states that:

> All inhabitants have the right to a healthy, balanced environment suitable for human development, and to ensure that productive activities meet present needs without compromising those of future generations; they also have the duty to preserve it. Environmental damage will primarily result in the obligation to restore it, as established by law. Authorities shall ensure the protection of this right, the rational use of natural resources, the preservation of natural and cultural heritage, biodiversity, and environmental information and education (…).

28 Ricardo Luis Lorenzetti, *Teoría del Derecho Ambiental* (Buenos Aires, La Ley, 2008), p. 48.

29 Bernard-Frank Macera *El deber industrial de respetar el ambiente* (Madrid, Marcial Pons, 1998), p. 153.

30 Bellorio Clabot *Tratado de Derecho Ambiental* (Buenos Aires, Ad- Hoc, tomo II, 1997), p. 305.

to ENARSA.[31] In essence, the methodology implemented resembled more of a public auction process.[32] The successful bidders signed contracts with ENARSA for the construction and operation of these power plants, securing the purchase of said renewable energy for the next 15 years at the proposed value in the bids, which was approximately around 120 to 130 dollars per MW.

13.052 The validity of all these contracts was subject to the signing of a Supply Contract between ENARSA and CAMMESA, in which the latter undertook to purchase all the energy generated by the new power plants from ENARSA.

13.053 In the first GENREN tender, ENARSA demanded 1,015 MW of renewable energies, including wind, thermal with biofuels, small hydroelectric projects, biogas, and solar. It is noteworthy that 754 MW were awarded to wind projects (17 projects),[33] 10.6 MW to small hydroelectric projects (fie projects), 20 MW of solar energy (six projects), and 110.4 MW to thermal energy projects using biofuels (four projects).

13.054 The auction results showed that solar energy is the most expensive, with an average price of 570 USD/MW, followed by thermal with biofuels at 290 USD/MW, then small hydroelectric projects at an average price of 160 USD/MW, and finally wind projects at an average of 120 USD/MW.[34]

13.055 Now, in this scheme, the private sector had to – and still has to – obtain financing on its own. In this regard, some companies opted for direct borrowing, for example, through the issuance of negotiable bonds, while others turned to project finance, where the fundamental guarantee for financiers to collect their credit is the cash flow from the ongoing project.

13.056 Project finance schemes are essential in structuring financing for large projects, as they do not require direct borrowing by the companies or the use of resources from the State.

13.057 In project finance models, a Special Purpose Entity (SPE) is created, which holds the project in its assets (in this case, the long-term power purchase agreement), which constitutes the only source of debt repayment, generally ranging from 60 per cent to 80 per cent of the required investment amount, usually paid back over a period of ten to 15 years. This is why structuring this type of financing takes longer than a traditional corporate loan, as the project needs to be thoroughly analysed (revenues, costs, sensitivities to them, etc.), and risk allocation needs to be determined (which follows the premise of assigning each party the risks they are best able to assume), and legal guarantee schemes need to be structured, etc.[35]

13.058 The project finance model surpasses the classic direct corporate financing, given that the latter encounters limits imposed by the borrowing restrictions of each company.

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31 Licitación Pública Nacional e Internacional N° 1/2009.

32 Cecilia Giralt (n 17) p. 69.

33 Ibid., p. 64–86.

34 María Marta Di Paola (n 21).

35 Gaspar Ariño Ortiz, Juan Miguel de la Cuetara and Íñigo del Guayo Castiella (n 17), p. 700.

13.059 Considering that infrastructure financing is akin to a puzzle in terms of the complexity of its drafting and the negotiations to achieve an effective set of credit and guarantee agreements, many of these financings take years to reach their structuring and closing, and it is common for them to be affected by social, economic, and political contingencies, which require introducing modifications and successive amendments to the original contract project.[36]

13.060 Since obtaining financing is a decisive element for the development of the projects, the GENREN project included, to provide security to the investments, the creation of a Guarantee Fund to ensure compliance with the obligations assumed by ENARSA under the 'Provision Contracts'.

13.061 Therefore, to comply with this, ENARSA, CAMMESA, and the Banco de Inversión y Comercio Exterior (BICE) entered into a trust agreement to guarantee the payment of the price that ENARSA owes to the contractors under all the supply contracts, and the payment that CAMMESA owes to ENARSA as a result of the 'Supply Contracts' (*Contratos de Abastecimiento*).

13.062 The trust agreement provided for the granting of a guarantee by the National State for up to two billion US dollars in favour of ENARSA. In turn, this State-owned company, in the same contract, committed to transfer this guarantee to the trust to ensure payment of the price to the contractors. The beneficiaries of the guarantee are the contractors or those who become assignees of the collection rights derived from the supply contracts.

13.063 It is clear that while the guarantee integrates the trust, it only had the purpose of securing the payment of the price due by ENARSA derived from the supply contracts. In summary, regarding the contracts signed by ENARSA with private companies for the development of renewable energy power plants, the trust agreement, and specifically the guarantee, are the means by which investors are ensured that ENARSA will fulfil its obligations.

13.064 The establishment of this payment guarantee was highly relevant for the companies when seeking financing, as the guarantee is a significant factor that lenders take into account when evaluating credit conditions (interest rate, term, risks, etc.).

13.065 However, it is important to highlight that the companies encountered difficulties in obtaining private financing for these projects. In some cases, they tried to approach credit institutions such as the Development Bank of Brazil, which required having an export insurance and enrolling through the Payment and Reciprocal Credit Agreement (CCR) of the Latin American Integration Association (ALADI).[37] It is also worth noting that loans offered by the Development Bank of Brazil were demanded under the buyer's credit modality, meaning

36 Eduardo Antonio Barbier, 'Contrato de Financiación de Proyectos', en *Contratación Bancaria* (Buenos Aires, Astrea, tomo II, segunda edición actualizada y ampliada, 2007), p. 253.

37 The CCR is basically a mechanism of compensation between Central Banks, where each Central Bank establishes, with each of the others in the system, a line of reciprocal credit expressed in US dollars, which varies, depending on the case, according to the importance of the established trade flows with the respective countries. These lines of credit allow for the channelling of payments between the members, covering the daily balances produced between two Central Banks, as well as enabling the deferred payment of the debit balance of the accounts they hold with each other.

financing for Specific Purpose Companies (SPE) that had to import the acquisition of goods from Brazil (such as wind turbines). These negotiations did not succeed because, in addition, the Development Bank of Brazil demanded that the Central Bank of the Argentine Republic (BCRA) irrevocably guarantee payment to the Central Bank of Brazil, which in turn would guarantee payment to the Development Bank of Brazil.

13.066 In other cases, financing operations were closed with the Banco de la Nación Argentina (BNA) under traditional schemes, that is, loans from this institution to the companies developing the projects, with such financing being provided through the creation of investment trusts that issue Debt Representative Securities (VRDs), in which BNA invests, and their repayment would be guaranteed through the fiduciary assignment of the collection rights related to the Power Supply Contract (*Contrato de Provisión de Energía Eléctrica*) between ENARSA and the private company. In many of these schemes, a significant portion of equity from the companies was required.

13.067 Likewise, several companies have tried to obtain financing from the Inter-American Development Bank (IDB); BICE; the Andean Development Corporation (CAF); and various national and foreign private banks, whose mention would exceed the scope of this work. Other companies have been able to finance themselves by issuing negotiable bonds.

3.3 The new normative framework to develop renewable energy in Argentina

13.068 In October 2015, Law 27.191 was promulgated in Argentina, amending the National Promotion Regime for the use of Renewable Energy Sources for Electricity Production. This regulation was subsequently detailed in Decree 531/16.

13.069 Its objective was to achieve that 8 per cent of the national electricity matrix would come from renewable sources by the year 2017 and reach 20 per cent by 2025.

13.070 Among the novelties, the 'Renewable Energy Development Fund' was created to support the financing of investment projects. FODER is an administrative and financial trust that will govern throughout the territory of the Argentine Republic. Its objective is to use the trust assets to grant loans, make capital contributions, and acquire any other financial instrument intended for the execution and financing of eligible projects, in order to make the acquisition and installation of capital goods or the production of goods or infrastructure works viable, within the framework of electricity production ventures from renewable sources under the terms of Law 26.190.

13.071 FODER has significant financial resources, coming from the following sources:

(a) Resources from the National Treasury allocated by the national government through the Application Authority, which shall not be annually less than 50 per cent of the effective savings in fossil fuels due to the incorporation of generation from renewable sources obtained in the previous year, as determined by the regulations.
(b) Specific charges to the energy demand as established.
(c) The recovery of the capital and interest from the granted financings.

(d) Dividends or profits received from the ownership of shares or participations in eligible projects and income from their sale.
(e) The proceeds from its operations, income, fruits, and investment of the trust assets.
(f) Revenues obtained from the issuance of fiduciary securities issued by the fiduciary on behalf of the Fund. For this purpose, the Fund may request the endorsement of the National Treasury, as provided by the regulations.

Among its attributions, FODER can: **13.072**

(a) Provide funds and grant facilities through loans, acquisition of public or private fiduciary securities, provided that they are issued exclusively for obtaining financing for projects covered by this law.
(b) Make capital contributions to companies carrying out the projects and subscribe to any other financing instrument determined by the Application Authority, as long as they allow financing projects with the purposes established in this law.
(c) Offer interest rate discounts on credits and securities issued by financial institutions or other entities acting as financing providers. In this case, the credit risk will be assumed by those entities, which will be responsible for credit risk assessment. However, for the granting of the benefit, prior eligibility approval of the project by the Executive Committee will be required.
(d) Grant guarantees to support power purchase agreements to be entered into by CAMMESA or by the institution designated by the Application Authority on behalf of the national government.

Another important aspect introduced by the new law refers to the contribution of electricity users to the fulfilment of the renewable energy promotion regime's objectives. To this end, the law establishes that all electricity users in the Argentine Republic must contribute to the fulfilment of the objectives set forth in Law 26.190, and each obligated subject must achieve a minimum incorporation of 8 per cent of their total electricity consumption from renewable sources by December 31, 2017, and 20 per cent by December 31, 2025. **13.073**

To reach this level of compliance, the legislation itself stipulates that it must be done gradually, according to a schedule that sets biennial targets. **13.074**

Another central aspect is to establish an obligation with penalties for large electricity users – particularly those with consumption equal to or greater than 300 kW – to individually meet the renewable energy consumption targets set by the law. **13.075**

With this measure, it is intended that they contract volumes of energy directly in the market, either with independent renewable energy generators, through traders, or through the execution of their own projects. **13.076**

In this regard, large consumers can opt for the 'joint purchase' model, meaning they can contract their supply through CAMMESA, which will call for bids to acquire energy. If they do so, they will not be penalized for not achieving the renewable energy quotas, as their inclusion in the Joint Purchase mechanism and the payment of the cost of the renewable energy previously consumed by them is sufficient to establish their compliance with the Promotion Regime. **13.077**

13.078 Notwithstanding the above, large consumers have three alternative mechanisms to procure renewable energy. First, individual contracting with a renewable generator directly or through a distributor or marketer, to be negotiated freely between the parties. Second, self-generation. Third, cogeneration.

13.079 A self-generator is a consumer that generates electricity as a secondary product, with the main purpose being the production of goods and/or services. They must have an installed capacity of no less than 1 MW, with an average annual availability of no less than 50 per cent. The available capacity, which is the product of the installed capacity and the reported availability, must be capable of covering 50 per cent or more of their annual energy demand. Self-generators can sell their surplus energy or buy shortages in the Wholesale Electricity Market (MEM).

13.080 As a variant, there is the figure of the 'distributed self-generator' (created by Resolution SE 269/08), who, in addition to being an energy consumer, is also an energy generator, with the particular characteristic that the points of consumption and generation are linked to the Argentine Interconnection System (SADI) at different connection nodes.

13.081 The cogenerator represents those who jointly generate electricity and steam or other forms of energy for industrial, commercial, heating, or cooling purposes. Cogenerators can sell in the MEM their electricity production necessary for the production of steam or other type of energy required for their production process, but unlike self-generators, they cannot buy energy.

13.082 It is important to highlight that those who choose any of the three aforementioned alternatives must express their intention before the Ministry of Energy and Mining in order to be excluded from the aforementioned Joint Purchase mechanism, automatically being included if they fail to do so.

3.4 The RENOVAR Program

13.083 With the aforementioned new regulations, a new stage has opened in the field of renewable energy development in Argentina, which may apply and guide offshore wind projects, if set in motion. This has been materialized through RENOVAR. RENOVAR is a well-defined public policy that endures over time and can be achieved as long as there is legal certainty and a climate of trust that allows the approach of investors who bet on these types of projects.

13.084 The RENOVAR program aligns with the objectives established by Laws 26.190 and 27.191 and their regulatory Decree 531/16, regarding renewable generation contribution. The Ministry of Energy and Mining of the Nation issued Resolution 136/16, which established the conditions for bidding the installation of 1000 MW of renewable energy capacity. The bidding process, named 'RENOVAR Round 1,' set the criteria of allocating 600 MW to wind projects, 300 MW to solar projects, 65 MW to biomass projects, 20 MW to small hydroelectric projects, and 15 MW to biogas offers.

13.085 Renovar Round 1 has been structured with a system of three guarantees. Firstly, the aforementioned FODER guarantees the payment that CAMMESA must make for the contracted energy, as well as in case of a contract termination event. Secondly, there is a second level of

guarantee, with the national State acting as a guarantor in case of contract termination. Finally, in the unlikely event of need, the World Bank stands as the final guarantee.

13.086 Regarding FODER, energy generators can directly claim from FODER any unpaid energy by CAMMESA. FODER will pay the sellers directly and then, in turn, claim the corresponding repayment from CAMMESA.

13.087 In case of CAMMESA terminating a supply contract or selling the project, and failing to meet its payment obligations, the generating company must submit its claim to FODER, who will then request the funds from the Ministry of Energy and Mining, in exchange for the guarantees provided by the national State as the custodian. In the event that the national State does not have the necessary funds to meet the debt, and consequently FODER cannot pay the submitted claim, the company may directly claim the World Bank, who will be obliged to pay the defined amount and resolve their differences directly with the Argentine State.

13.088 The deadlines of the Power Purchase Agreements (PPAs) were extended from 15 to 20 years, and certainly, the new legal framework established in the current regulations, which grants the significant public aids mentioned before, created the appropriate framework that allowed the bidding process to be a true success, resulting in highly competitive prices. CAMMESA and the Ministry of Energy and Mining themselves established beforehand maximum prices for the offers (cut-off prices) as follows: wind energy at 82 USD/MW; solar energy at 80 USD/MW, Biomass at 110 USD/MW, Small Hydroelectric at 110 USD/MW; and Biogas at 160 USD/MW, and the awarded contracts were for much lower amounts.

13.089 Indeed, in Round 1, 123 offers were submitted, totalling 6,343 MW, of which 105 offers, totalling 5,209 MW, were qualified to compete. This competition allowed the award of 17 projects, distributed as follows: 12 wind energy contracts for a total of 708 MW, four solar projects for 408 MW, and one Biogas project for only 1 MW.

13.090 In Round 1, the average awarded prices for each type of project were as follows: 59.4 USD/MWh for wind energy; 59.7 USD/MWh for solar energy; and 118 USD/MWh for Biogas-derived energy.

13.091 The success has been so resounding that immediately a new tender was published, called 'Round 1.5,' in which only projects that had been submitted in Round 1 and had not been awarded were allowed to participate. The new call explicitly indicated the list of projects that could express their interest in participating in this new bidding.

13.092 In 'Round 1.5,' 30 projects were awarded, totalling 1,281.6 MW, distributed as follows: ten wind energy contracts for a total of 765.4 MW, and 20 solar energy contracts for a total of 516.2 MW. In this Round, the average awarded prices per type of project were as follows: 53.34 USD/MWh for wind energy and 54.94 USD/MWh for solar energy.

13.093 In August 2017, the former Ministry of Energy launched Round 2, through which 1,200 MW of power were tendered, divided into 550 for wind, 450 for photovoltaic, 100 for biomass, 35 for biogas, and 50 for small hydroelectric projects. In November of the same year, 66 offers were awarded for a total of 1,408.7 MW.

13.094 In November 2018, Argentina published the 'MiniRen Round 3' auction, targeting small- and medium-sized renewable energy projects, with permitted capacity ranging from 0.5 to ten megawatts, capable of connecting to 13.2, 33, or 66-kilovolt power lines. A total of 400 MW were contested, distributed across different technologies: 350 for wind and solar projects, 25 MW for biomass plants, ten MW for small hydroelectric power plants, ten MW for biogas plants, and 5 MW for biogas projects from landfills.

13.095 Unlike other technologies, offers for wind and solar projects were segmented into seven regions in Argentina, with specific quotas granted. The maximum allocation per province was set at 20 MW, except for Buenos Aires, where the quota was extended to 60 MW.

13.096 To meet the need to increase the share of renewable energy sources in the national electricity consumption to reach 20 per cent by December 31, 2025, the Ministry of Energy and Mining issued Resolution 36/2023, which called for open national and international offers under the 'RenMDI' Open Call. The purpose was to enter into Renewable Electricity Supply Contracts with CAMMESA. This is the first renewable auction in the last three years and includes 20 provinces.

13.097 These are 15-year Power Supply Contracts from the Commercial Enablement Date at the Adjudicated Offer Price in US dollars per megawatt/hour, and they will be remunerated for seasonality to encourage generation during periods of higher demand for the system.

13.098 Such contracts will not have the Guarantees provided by the Renewable Energy Development Fund (FODER) to the beneficiaries of Rounds 1, 1.5, 2, and 3 of the RENOVAR Program.

13.099 The 'RenMDI' auction offered a total capacity of 650 MW to be allocated according to the available transmission nodes in the grid, as analysed by CAMMESA. As of the completion of this work in July 2023, the winners had not yet been assigned.

3.5 The retailoring of some prior contracts under the GENREN program

13.100 As explained before, under the GENREN regime, energy-generating companies entered into 'Energy Supply Contracts' (*Contrato de Provisión de Energía Eléctrica*) with ENARSA, through which they sold the generated energy to the state-owned company, which, in turn, sold it to CAMMESA.

13.101 In this way, a system of mirror contracts was implemented, in which the contractual conditions agreed upon between the producing companies and ENARSA – in the Energy Supply Contracts – had to be reflected in the contracts between the latter and CAMMESA – in the Supply Contracts.

13.102 During the validity of the GENREN scheme, ENARSA agreed to modify the contractual conditions with some generating companies, and the corresponding addenda were executed. The main modifications consisted of price reductions and extensions of completion deadlines for the projects.

13.103 For these modifications agreed upon between ENARSA and the generating companies to take effect, it was necessary to reflect these conditions in the mirror Supply Contracts entered into between ENARSA and CAMMESA.

13.104 However, before the addenda to the 'Supply Contracts' (*Contratos de Abastecimiento*) between ENARSA and CAMMESA were signed, there was a change of government, and the new administration decided to suspend the execution of those addenda, considering that the conditions agreed upon between ENARSA and the generating companies did not reflect the current market conditions.

13.105 In this regard, the Ministry of Energy and Mining of the Nation issued Resolution 202/2016, which allowed generating companies that met certain requirements to modify the structure of the contracts entered into under the GENREN regime and adapt them to the new RENOVAR Program regime.

4. THE OFFSHORE WIND ELECTRICITY GENERATION

13.106 The generation of offshore wind energy in jurisdictional waters, known as offshore, does not have a specific regime but is subject to the regulations described in this work for renewable energy as a whole, especially Law 26.190 and its amendments.

13.107 In Argentina, no offshore wind farms have been developed; only offshore oil and gas exploration takes place. This is mainly due to the excellent wind conditions in its onshore territory, specifically in the Patagonian region. Due to the strong winds and geographical conditions, for now, there have been no projects to develop offshore wind farms in either the marine coast or in the Río de la Plata.

13.108 However, there is a huge potential of untapped resources in Latin America and the Caribbean when it comes to offshore wind and as discussed in this book in the contribution regarding Colombia by Herrera Anchustegui and Vallejo Piedrahíta.[38] The World Bank estimated a technical potential close to 8,000 GW in the region's waters. Brazil and Colombia are the most advanced in their offshore wind legislations. For instance, developers in the Brazilian industry have proposed over 130 GW of offshore wind capacity in 55 projects.

13.109 In this context, the World Bank identifies Argentina as one of the countries with the highest potential in South America, with the possibility to develop 1,870 GW of offshore wind energy, 1,312 GW with floating wind turbines, and 558 GW with fixed bottom wind turbines. This represents around 15 per cent of its total electric consumption, for example, in the year 2019.

13.110 Given its extensive coastline, Argentina should pay greater attention to the World Bank's projections regarding its potential for offshore wind energy. There are multiple incentives for the emergence of the Argentine offshore wind industry. Some are of an economic nature, such as the investment generated by this industry, job creation, and 'blue growth'; others are

38 See in this book Chapter 14 by Herrera Anchustegui and Vallejo Piedrahíta, 'Offshore wind licensing in Colombia: A pioneer in Latin America and the Caribbean'.

technological, including innovation, scientific development, highly specialized professions or trades, and green hydrogen; and there are also environmental benefits, such as decarbonization of the electric matrix and the fight against climate change. Perhaps, to develop this potential, a specific framework with better public support than that granted to onshore renewable energy generation may be necessary.