



Ministerio de Defensa Nacional
Dirección General Marítima
Autoridad Marítima Colombiana

**TECHNICAL DATA SHEET FOR DEVELOPMENT OF OFFSHORE WIND FARMS IN
THE DEPARTMENTS OF BOLIVAR AND ATLANTICO**

**GENERAL MARITIME DIRECTORATE (DIMAR)
CARIBBEAN OCEANOGRAPHIC AND HYDROGRAPHIC RESEARCH CENTER
(CIOH for its initials in Spanish)**

2024

CONTENT

INTRODUCTION	3
1. LOCATION	4
2. NOMINATION AREA OR PPLYGON B.....	9
3. AREA PROPOSED BY THE DIMAR OR POLYGON A.....	9
BIBLIOGRAPHY REFERENCES.....	11

FIGURE INDEX

Figure 1. Geographic location of the initial Area and the Area proposed by DIMAR.	4
Figure 2. Uses/activities present in the Competitive Process Area.	7
Figure 3. Uses/activities present in the Area Proposed by DIMAR.....	10

TABLE INDEX

Table 1. Boundary vertices of the Competitive Process Area	5
Table 2. Uses/activities present in the Competitive Process Area.	5
Table 3. Vertices of the Area Proposed by DIMAR.	8
Table 4. Nomination Area Characteristics.....	9
Table 5. Characteristics in the Area Proposed by the DIMAR	9
Table 6. Usos/actividades present in the area proposed by DIMAR.....	10

INTRODUCTION

Wind farms have the capacity to provide large amounts of energy to different geographical areas, and also to reduce greenhouse gas emissions as they replace the use of fossil fuels, thus contributing to the sustainable development goals of the 2030 Agenda (Cranmer & Baker, 2020; Akhtar et al., 2021).

In Colombia there is great offshore wind potential, according to measurements, studies, and research conducted on the Caribbean coast, mainly in the department of La Guajira (Pinilla, 2008). The necessary conditions exist in the national territory for the implementation of large-scale projects; nevertheless, the generation of wind energy in Colombia is only 0.1%, due to different legal, social, cultural, economic and technological limitations. However, in 2014, Law 1715 of 2014 was approved, which establishes incentives to promote the development of alternative energy sources and their integration with the energy market, expecting an increase from 1.5 to 4 GW by 2030 (MinMinas, 2015; González, 2019).

In view of the foregoing, the General Maritime Directorate (DIMAR), as responsible for the execution, regulation and coordination of maritime activities (Decree Law No. 2324 of 1984), within the framework of the Strategic Development Plan 2030 (DIMAR, 2018), establishes within its mission processes the Territorial Planning of Coastal and Marine Areas defined as "Coastal Marine Planning: Maritime Authority Vision" (Afanador et al., 2020).

This document presents the technical data sheet for the development of offshore wind farms, which sets out the characteristics of the area proposed by DIMAR or Polygon A, and the Nomination Area or Polygon B, which make up the Competitive Process Area, in Resolution 40284 of 2022 and its amending Resolutions 40712 of December 1, 2023 and 40368 of September 4, 2024, and other amendments.

1. LOCATION

According to ANNEX A of Resolution No. 40284 of 2022 and its amending Resolutions 40712 of December 1, 2023 and 40368 of September 4, 2024, and other amendments, the Competitive Process Area available for the development of wind energy generation projects extends towards the Caribbean Sea covering an area of 10664,974 km², and includes two polygons, the first one corresponding to the Nomination Area or Polygon B, and the second one to the Area proposed by DIMAR or Polygon A (Figure 1).

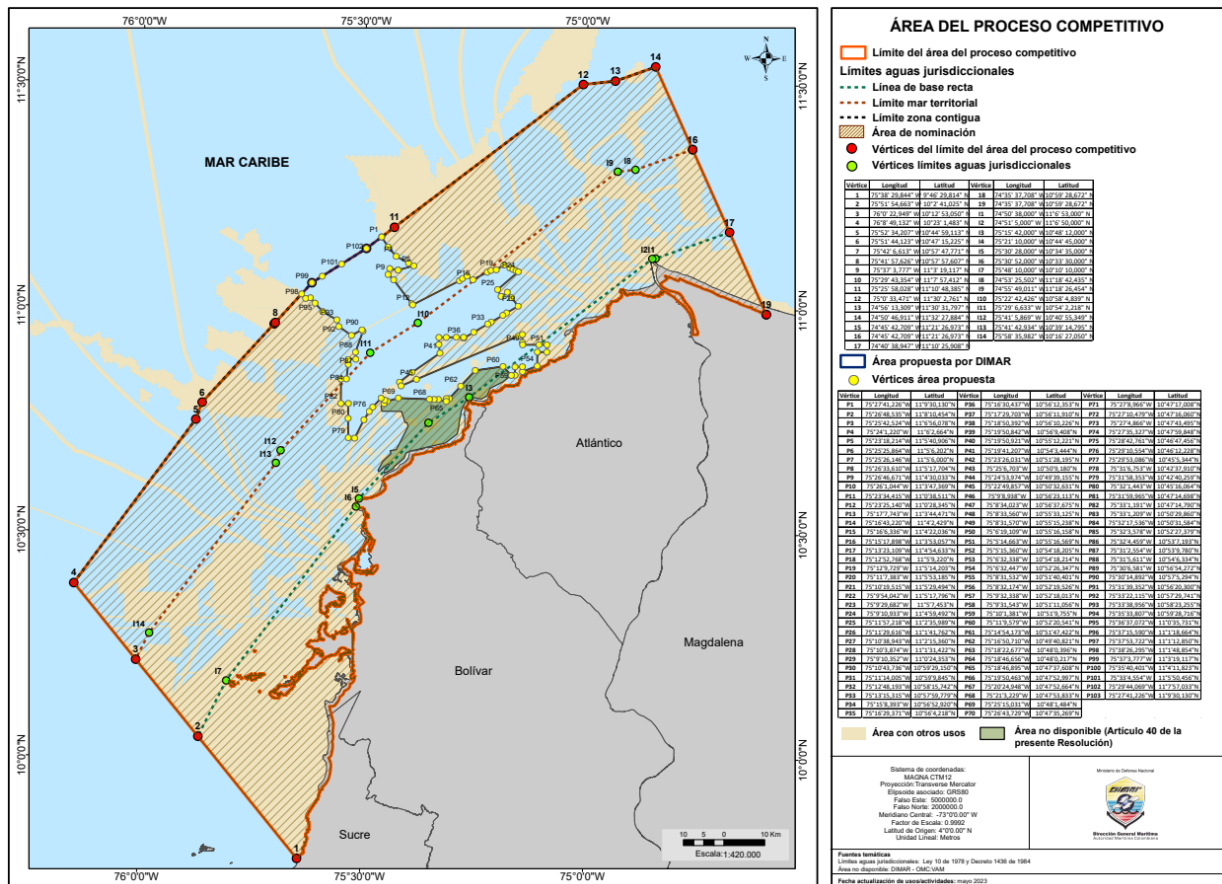


Table 1. Boundary vertices of the Competitive Process Area

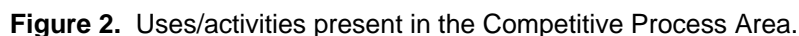
Vertex	Length	Latitude	Vertex	Length	Latitude
1	75°38'29,844"O	9°46'29,814"N	18	74°35'37,708"O	10°59'28,672"N
2	75°51'54,663"O	10°2'41,025"N	19	74°35'37,708"O	10°59'28,672"N
3	76°0'22,949"O	10°12'53,050"N	11	74°50'38,000"O	11°6'53,000"N
4	76°8'49,132"O	10°23'1,483"N	12	74°51'5,000"O	11°6'50,000"N
5	75°52'34,207"O	10°44'59,113"N	13	75°15'42,000"O	10°48'12,000"N
6	75°51'44,123"O	10°47'15,225"N	14	75°21'10,000"O	10°44'45,000"N
7	75°42'6,613"O	10°57'47,771"N	15	75°30'28,000"O	10°34'35,000"N
8	75°41'57,626"O	10°57'57,607"N	16	75°30'52,000"O	10°33'30,000"N
9	75°37'3,777"O	11°3'19,117"N	17	75°48'10,000"O	10°10'10,000"N
10	75°29'43,354"O	11°7'57,412"N	18	74°53'25,502"O	11°18'42,435"N
11	75°25'58,028"O	11°10'48,385"N	19	74°55'49,011"O	11°18'26,454"N
12	75°0'33,471"O	11°30'2,761"N	110	75°22'42,426"O	10°58'4,839"N
13	74°56'13,309"O	11°30'31,797"N	111	75°29'6,633"O	10°54'2,218"N
14	74°50'46,911"O	11°32'27,884"N	112	75°41'5,869"O	10°40'55,349"N
15	74°45'42,709"O	11°21'26,973"N	113	75°41'42,934"O	10°39'14,795"N
16	74°45'42,709"O	11°21'26,973"N	114	75°58'35,982"O	10°16'27,050"N
17	74°40'38,947"O	11°10'25,908"N			

Similarly, the uses/activities identified in the Competitive Process Area correspond to (Table 2 and Figure 2):

Table 2. Uses/activities present in the Competitive Process Area.

Maritime Activities (Decree Law 2324/84)	Uses/Activities
Maritime Signaling	Buoys and Lighthouses
Maritime Traffic Control	Anchoring areas
	Navigation Channels
Construction, operation, and administration of port facilities	Port Concessions
Administration and development of coastal zone	Industry Maritime Concession
	Agriculture Maritime Concession
	Restaurants Maritime Concession
	Hotels Maritime Concession
	Marinas and Piers Maritime Concession
	Submarine Emissaries Maritime Concession
Placement of any type of structures, fixed or semi-fixed works on the marine floor or subsurface	Submarine cables
	Mollusks

Maritime Activities (Decree Law 2324/84)	Uses/Activities
Conservation, preservation, and protection of the marine environment	Bird concentration
	Significant areas for biodiversity
	Platform Conservation Sites
	Natural National Parks
	Protected Marine Zone
	Shallow waters Shrimp Fishing Area
	Artisanal Fishing Zone
	White Fishing Zone
	Crustaceans
	Echinoderms
	Fish Sharks and Rays
	Biological record sites
	Threatened species
	Mammal concentration
	Reptiles concentration
	Sea turtle nesting areas
	Sea Turtle Foraging
	Lobster Spawning
	Seagrasses
	Corals
	Soft seabed
Use, protection, and preservation of coastlines	Public Use Assets - Beaches
	Public Use Assets - Low tides
	Mangroves
Maritime Navigation by ships and naval artifacts	Naval exercise zones
Search and extraction or recovery of shipwrecked antiquities or treasures	Shipwrecks
	Cultural interest assets
Marine recreation and water sports	Dive
	Boating
	Non-motorized water sports zone
Shipyards and shipbuilding	Shipyards and shipbuilding
Filling, dredging, and ocean engineering works	Coast Protection Works
	Filling, dredging, and ocean engineering works
Other uses and/or marine exploitation	Shallow water shrimp fishing route
	Tuna fishing route
	White fishing route
	Restricted areas
Soil uses	Agriculture
	Tourism
	Cattle farming
	Institutional
	Urban Zone
	Unused land
	Open areas with no or little vegetation
	Unused open vegetation
	Deforested zone
	Mixed use zone



The Area Proposed by DIMAR or Polygon A, is defined as the available maritime water space, defined by DIMAR to be assigned in this Process, subject to the rules contained in Resolution 40284 of 2022, and its modifying Resolutions 40712 of December 1, 2023 and 40368 of September 4, 2024, and in the Specific Terms and Conditions. It is located within the Competitive Process Area, in front of the departments of Atlántico and Bolívar, with an area of 1203,126 km² limited by the coordinates shown in table 3.

Table 3. Vertices of the Area Proposed by DIMAR.

Vertex	Length	Latitude	Vertex	Length	Latitude	Vertex	Length	Latitude
P1	75°27'41,226"W	11°9'30,130"N	P3	75°16'30,437"W	10°56'12,353"N	P71	75°27'8,966"W	10°47'17,008"N
P2	75°26'48,535"W	11°8'10,454"N	P37	75°17'29,703"W	10°56'11,910"N	P72	75°27'10,479"W	10°47'16,060"N
P3	75°25'42,524"W	11°6'56,078"N	P38	75°18'50,392"W	10°56'10,226"N	P73	75°27'4,866"W	10°47'43,495"N
P4	75°24'1,220"W	11°6'2,664"N	P39	75°19'50,842"W	10°56'9,408"N	P74	75°27'35,327"W	10°47'59,848"N
P5	75°23'18,214"W	11°5'40,906"N	P40	75°19'50,921"W	10°55'12,221"N	P75	75°28'42,761"W	10°46'47,456"N
P6	75°25'25,864"W	11°5'6,202"N	P41	75°19'41,207"W	10°54'3,444"N	P76	75°29'10,554"W	10°46'12,228"N
P7	75°25'26,146"W	11°5'6,000"N	P42	75°23'26,031"W	10°51'28,195"N	P77	75°29'53,086"W	10°45'5,344"N
P8	75°26'33,610"W	11°5'17,704"N	P43	75°25'6,703"W	10°50'9,180"N	P78	75°31'6,753"W	10°42'37,910"N
P9	75°26'46,671"W	11°4'30,033"N	P44	75°24'53,974"W	10°49'39,155"N	P79	75°31'58,353"W	10°42'40,259"N
P10	75°26'1,044"W	11°3'47,369"N	P45	75°22'49,857"W	10°50'32,631"N	P80	75°32'1,443"W	10°45'16,064"N
P11	75°23'34,415"W	11°0'38,511"N	P46	75°9'8,938"W	10°56'23,113"N	P81	75°31'59,965"W	10°47'14,698"N
P12	75°23'25,140"W	11°0'28,345"N	P47	75°8'34,023"W	10°56'37,675"N	P82	75°33'1,191"W	10°47'14,790"N
P13	75°17'7,743"W	11°3'44,471"N	P48	75°8'33,560"W	10°55'33,125"N	P83	75°33'1,209"W	10°50'29,860"N
P14	75°16'43,220"W	11°4'2,429"N	P49	75°8'31,570"W	10°55'15,238"N	P84	75°32'17,536"W	10°50'31,584"N
P15	75°16'6,336"W	11°4'22,036"N	P50	75°6'19,109"W	10°55'16,158"N	P85	75°32'3,578"W	10°52'27,379"N
P16	75°15'17,898"W	11°3'53,057"N	P51	75°5'14,663"W	10°55'16,569"N	P86	75°32'4,459"W	10°53'7,193"N
P17	75°13'23,109"W	11°4'54,633"N	P52	75°5'15,360"W	10°54'18,205"N	P87	75°31'2,554"W	10°53'9,780"N
P18	75°12'52,768"W	11°5'9,220"N	P53	75°6'32,338"W	10°54'18,214"N	P88	75°31'5,611"W	10°54'6,334"N
P19	75°12'9,729"W	11°5'14,203"N	P54	75°6'32,447"W	10°52'26,347"N	P89	75°30'6,581"W	10°56'54,272"N
P20	75°11'7,383"W	11°5'53,185"N	P55	75°8'31,532"W	10°51'40,401"N	P90	75°30'14,892"W	10°57'5,294"N
P21	75°10'19,515"W	11°5'29,494"N	P56	75°8'32,174"W	10°52'19,526"N	P91	75°31'39,352"W	10°56'20,300"N
P22	75°9'54,042"W	11°5'17,796"N	P57	75°9'32,338"W	10°52'18,013"N	P92	75°33'22,115"W	10°57'29,741"N
P23	75°9'29,682"W	11°5'7,453"N	P58	75°9'31,543"W	10°51'11,056"N	P93	75°33'38,956"W	10°58'23,255"N
P24	75°9'10,933"W	11°4'59,492"N	P59	75°10'1,381"W	10°51'9,755"N	P94	75°35'33,807"W	10°59'28,716"N
P25	75°11'57,218"W	11°2'35,989"N	P60	75°11'9,579"W	10°52'20,541"N	P95	75°36'37,072"W	11°0'35,731"N
P26	75°11'29,616"W	11°1'41,762"N	P61	75°14'54,173"W	10°51'47,422"N	P96	75°37'15,590"W	11°1'18,664"N
P27	75°10'38,943"W	11°2'15,360"N	P62	75°16'50,710"W	10°49'40,821"N	P97	75°37'53,722"W	11°1'12,850"N
P28	75°10'3,874"W	11°1'31,422"N	P63	75°18'22,677"W	10°48'0,396"N	P98	75°38'26,295"W	11°1'48,854"N
P29	75°9'10,352"W	11°0'24,353"N	P64	75°18'46,656"W	10°48'0,217"N	P99	75°37'3,777"W	11°3'19,117"N
P30	75°10'43,736"W	10°59'29,150"N	P65	75°18'46,895"W	10°47'37,608"N	P100	75°35'40,401"W	11°4'11,823"N
P31	75°11'14,005"W	10°59'9,845"N	P66	75°19'50,463"W	10°47'52,997"N	P101	75°33'4,554"W	11°5'50,456"N
P32	75°12'48,193"W	10°58'15,742"N	P67	75°20'24,948"W	10°47'52,664"N	P102	75°29'44,069"W	11°7'57,033"N
P33	75°13'15,315"W	10°57'59,779"N	P68	75°21'3,229"W	10°47'53,833"N	P103	75°27'41,226"W	11°9'30,130"N
P34	75°15'8,393"W	10°56'52,920"N	P69	75°25'15,031"W	10°48'1,484"N			

Vertex	Length	Latitude	Vertex	Length	Latitude	Vertex	Length	Latitude
P35	75°16'29,371"W	10°56'4,218"N	P70	75°26'43,729"W	10°47'35,269"N			

2. NOMINATION AREA OR PPLYGON B

Described below are the Nomination Area characteristics according to the criteria used by DIMAR (Table 4):

Table 4. Nomination Area Characteristics

Criterion	Nomination Area Characteristics
Depth	Located between -70 and -2000 m verils
Type of seabed	Muddy seabeds predominate; however, sandy and rocky seabeds are found.
Seabed slope.	0 – 12%
Currents	0 – 1,75 m/s
Wave height	0 – 5 m
Wind velocity	0 – 8 m/s
Direct destruction	Seagrasses, coral reefs, and sediment Ecosystems of are found in the area.
Generation of sediment plumes	Mud and silt predominate in the area.

3. AREA PROPOSED BY THE DIMAR OR POLYGON A

Described below are the general characteristics of the Area Proposed by DIMAR in accordance with its criteria (Table 5):

Table 5. Characteristics in the Area Proposed by the DIMAR

Criterion	Characteristics in the area proposed by the DIMAR
Depth	It is located between -70 and -1000 m verils
Type of seabed	Sandy seabed predominates; however, muddy seabeds are found.
Seabed slope.	0 – 12%
Currents	0 – 1,75 m/s
Wave height	0 – 5 m
Wind velocity	Winds greater than 8 m/s predominate
Direct destruction	This area was delimited excluding most marine ecosystems (Figure 6).
Generation of sediment plumes	Sands predominate in the area.

Likewise, the uses/activities identified in the Area Proposed by DIMAR correspond to (Table 6 and Figure 3):

Table 6. Uses/activities present in the area proposed by DIMAR

Maritime Activities (Decree Law 2324/84)	Uses/Activities
Placement of any type of structures, fixed or semi-fixed works on the marine floor or subsurface	Submarine cables
Conservation, preservation, and protection of the marine environment	Significant areas for biodiversity
	Platform Conservation Sites
	Artisanal Fishing Zone
Other uses and/or marine exploitation	Shallow water shrimp fishing route
	Tuna fishing route

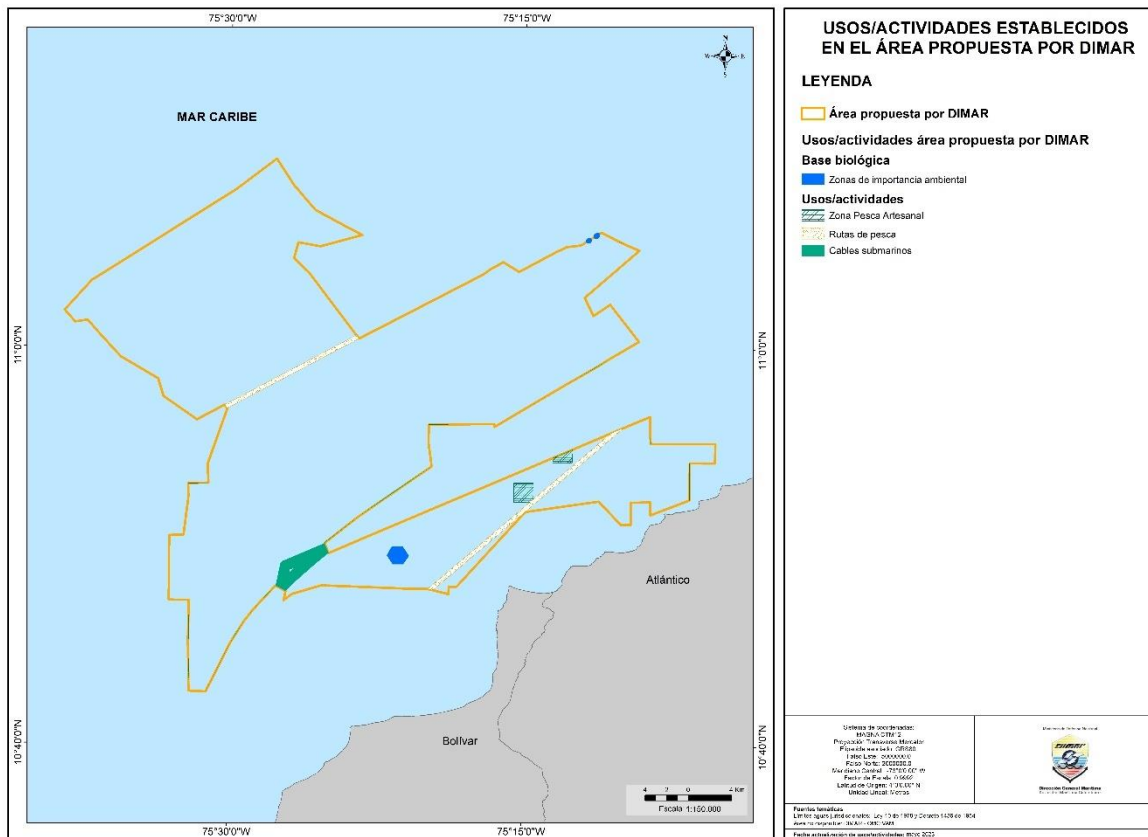


Figure 3. Uses/activities present in the Area Proposed by DIMAR.

BIBLIOGRAPHY REFERENCES

Afanador-Franco, F., Molina-Jiménez, M.P., Pusquin-Ospina L.T., Guevara-Cañas N, González-Bustillo M.J., Martínez-Uparela K.I., Banda-Lepesquer C., Escobar-Olaya G.A., Castro-Mercado I., (2020) Coastal Marine Planning: Vision of the Maritime Authority. Case of the Department of Bolivar - Colombia. *Revista Costas*, vol. esp., 2: 137-164. doi: 10.26359/costas. e0721

Akhtar, N., Geyer, B., Rockel, B., Sommer, P. S., & Schrum, C. (2021). Accelerating deployment of offshore wind energy alter wind climate and reduce future power generation potentials. *Scientific reports*, 11(1), 1-12.

Cranmer J. & Baker M. (2020). The global climate value of offshore wind energy. *Environ. Res. Lett.* 15 054003.

DIMAR. (2018). Plan Estratégico de Desarrollo 2030.

González, C. (2019). El viento del este llega con revoluciones. Multinacionales y transición con energía eólica en territorio Wayúu. Bogotá: Fundación Heinrich Böll.

Ministerio de Minas y Energía de Colombia [MinMinas]. (2015). Unidad de Planeación Minero Energética Plan de Expansión de Referencia: Generación - Transmisión. 2015-2029. Retrieved from http://www.upme.gov.co/Docs/Plan_Expansion/2013/Plan_Expansion_Referencia_2013.pdf

Pinilla, A. (2008). El poder del viento. *Revista de Ingeniería*, 28, 64–69. Recuperado de: <https://ojsrevistaing.uniandes.edu.co/ojs/index.php/revista/article/view/267/304>