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Portfolio of Colombia Energy Industry

Colombian Projects

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**THE
NET-ZERO
CIRCLE**

by IN-VR

Colombia's Hydrogen Potential

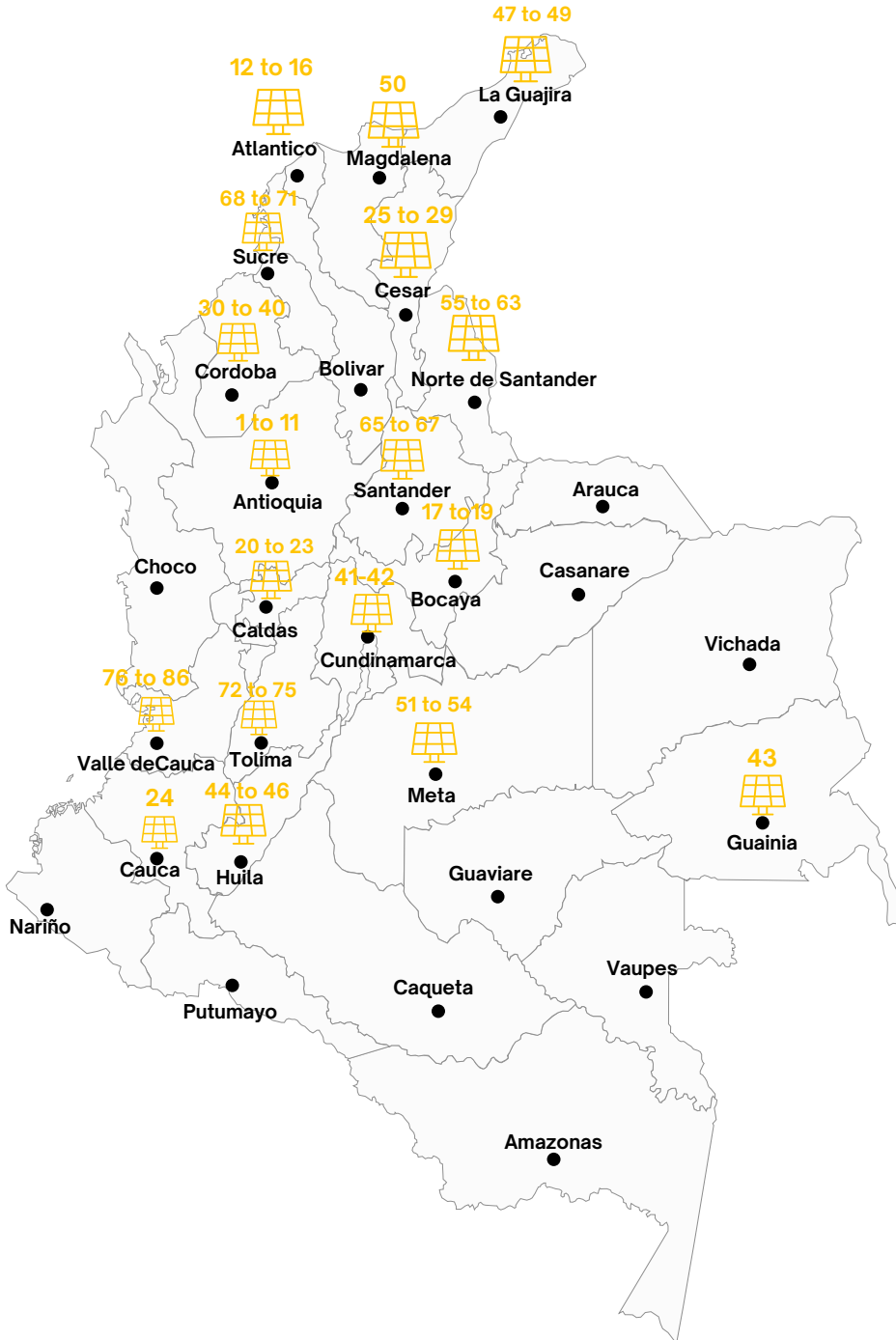
Colombia's hydrogen strengths:

- Abundant natural resources for low-emission H₂ production.
 - Strategic geographic positioning and infrastructure
 - A solid and innovative business ecosystem
 - Stable political-regulatory context conducive to the development of green hydrogen projects.
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Pilot projects:

- **Ecopetrol-Promigas:** Electrolyzers pilot program at the Cartagena refinery with a power of 52.2 KW will evaluate the performance of the electrolyte hydrogen generation technology;
- **Ecopetrol:** Acquisition of two electrolytic hydrogen generation systems with refueling stations for bus and vehicle mobility applications (early 2023);
- **Ecopetrol** will soon start the hydrogen mobility test in Bogotá with the Integrated Transportation System in the town of Fontibón (outskirts of Bogota);
- **Ecopetrol and Automotores Toyota Colombia** (July 18, 2022): three-year agreement to conduct mobility tests with green hydrogen that will move a private vehicle;
- **Sumitomo and Promigas:** agreement to accelerate hydrogen mobility in Colombia (May, 2022);
- **Transportadora de Gas Internacional TGI S.A. E.S.P.:** projects focused on addressing the relevant impacts of hydrogen blending with natural gas that have been identified, such as: operational control of hydrogen and natural gas blending in complex, multi-source transportation networks;
- **CEMEX Ventures and HiiROC:** a clean hydrogen production startup, aims to increase its hydrogen injection capacity across their global cement operations while reducing the consumption of fossil fuels;
- **Hevolution, Opex and Hyundai:** Green hydrogen mobility project;
- **FENOGE** (Fondo de Energías No Convencionales y Gestión Eficiente de la Energía): Financing of 10 study projects for the development of green and blue hydrogen in Colombia for more than \$6,500 million;
- Public Lighting of Barranquilla and Monómeros S.A. signed a memorandum of understanding for the production of green ammonia;

Renewable projects in Colombia - Solar



Renewable Projects



Solar

1. Cedro Solar Plant
2. Malambo solar farm
3. Quimarí Solar Project
4. Samanes PV Solar Park
5. San Isidro Solar Park
6. Manglares Solar Park
7. Almendro PV Solar Plant
8. Heliconia PV Solar Park
9. La Sierra PV Solar Park
10. Guayacanes Solar Park
11. Sebastosol PV Solar Project
12. Caracolí Solar Plant
13. Sabanalarga solar park
14. Atlántico Solar Project
15. Buenavista Solar Park
16. Guayepo I & II (solar park project)
17. Valle Del Sol Solar Park
18. Paipa PV Solar Project
19. Alejandria Solar Project
20. La Estrella Solar Project
21. La Ponderosa Solar Park
22. Portón Del Sol PV Solar Park
23. Carreto Solar Park
24. Las Marías Solar Plant
25. El Paso PV Solar Park
26. Azucenos Solar Park
27. La Loma Solar Park
28. Valledupar PV Solar Project
29. Copey Solar Project
30. Chinu Solar Forest
31. La Unión Solar Park
32. Campano Solar Park
33. Antares Solar Park
34. Colombia Solar Forest
35. Sahagún Solar Plant
36. Valle Negro solar farm
37. Ligustro Solar Plant
38. Summa Solar Project
39. Los Tulipanes Solar Project
40. Chinu Solar Park
41. San Alejo Solar Park
42. Canoas PV Solar Park
43. La Orquídea Solar Project
44. Los Cauchos Solar Plant
45. Cattleya Del Huila Solar Project
46. Altamira PV Solar Park
47. Cuestecitas Solar Park
48. Santa Teresa PV Solar Park
49. Maleiwa PV Solar Project
50. Fundación Solar Park
51. Las Mesetas Solar Park
52. San Fernando Solar Park
53. Kai PV Solar Project
54. Uriana PV Solar Project
55. San Silvestre Solar Park
56. Suria Solar Park
79. Las Coloradas Solar Plant
80. Clip Solar Park
81. Cartago Solar Park
82. Centauro PV solar farm
83. El Zarzal Solar Park
84. Delphi Helios Solar Park
85. El Futuro Solar Project
68. Coveñas Solar Park
69. Altamira Solar Park
70. Andrómeda Solar Project
71. Toluviejo Solar Plant
72. Pacande Solar Park
73. Flamenco Solar Park
74. Magdalena PV Solar Project
75. Magdalena Sol Solar Park
76. Becharry Solar Park
77. Emcali Solar Park
78. Totumo Solar Plant
57. Charcos Solar Project
58. Rincón Solar Project
59. Perales Solar Project
60. Perales Solar Park
61. Yariguíes PV Solar Plant
62. Helios Cesarocafía Solar Park
63. Puertos De Santander Solar Project
64. Pasacaballo Solar Park
65. Refinería Sebastopol Solar Park
66. El Balso Solar Park
67. Carare PV Solar Park

Renewable projects in Colombia - Wind & Hydro



Renewable Projects




Wind



Hydro

- 86.El Morro wind farm
- 87.Del Magdalena wind farm
- 88.Culantral wind farm
- 89.Colombia's first offshore wind farm in the waters off the city of Barranquilla
- 90.Vientos De Galerazamba wind farm
- 91.Vientos De Bolívar wind farm
- 92.Ricaurte wind farm
- 93.Colibrí wind farms
- 94.De La Bahia wind farm
- 95.Energetica I wind farms
- 96.El Ahumado wind farm
- 97.Apitolorru wind farm
- 98.Acacia wind farm
- 99.Irraipa wind farm
- 100.Jotomana-Apitolorru II wind farm
- 101.San Juan Eólico wind farm
- 102.Chemesky wind farm
- 103.Britos wind farm
- 104.Dividivi wind farm
- 105.Jouttalein SAS
- 106.Casa Electrica wind farm
- 107.Musichi wind farm
- 108.Carrizal Uribia wind farm
- 109.Elipse wind farm
- 110.Tumawind wind farm
- 111.Maria wind farm
- 112.Wakuaipa 200 Mw wind farm
- 113.EO200i Ipapure wind farm
- 114.Windpeshi wind farm
- 115.Alpha wind farm
- 116.Camelia wind farms (3 phases)
- 117.Beta wind farm
- 118.Omega wind farm
- 119.Guajira wind farm
- 120.Punta Cocos wind farm
- 121.Andrea Jusayu wind farm
- 122.Kappa wind farm
- 123.Offshore Vientos Alisios wind farm
- 124.Mobility tests with green hydrogen in order to move a private car
- 125.Electrolysers at the Cartagena refinery
- 126.Green hydrogen project for natural gas net
- 127.HEVOLUCIÓN

Renewable projects in Colombia - Solar

PROJECT 	COMPANIES	CAPACITY (MW)	STATUS	LOCATION
Cedro Solar Plant	Cedro Desarrollos Solares S.A.;	50	Pre-construction	Antioquia
Malambo solar farm	EGAL	50	Pre-construction	Antioquia
Quimarí Solar Project	Urrá S.A. E.S.P.	90	Pre-construction	Antioquia
Samanes PV Solar Park	Fotovoltaico El Alcaravan S.A.S.	99	Pre-construction	Antioquia
San Isidro Solar Park	Parque Solar San Isidro S.A.S.	99	Pre-construction	Antioquia
Manglares Solar Park	TW Solar	100	Pre-construction	Antioquia
Almendro PV Solar Plant	Grenergy Colombia	100	Pre-construction	Antioquia
Heliconia PV Solar Park	Voltalia	150	Pre-construction	Antioquia
La Sierra PV Solar Park	Invenergy	200	Pre-construction	Antioquia
Guayacanes Solar Park	TW Solar	200	Pre-construction	Antioquia
Sebastosol PV Solar Project	Sebastosol	700	Pre-feasibility	Antioquia
Caracolí Solar Plant	Ralos & Blaud Energy Colombia Sas	50	Pre-construction	Atlantico
Sabanalarga solar park	Isagen, Negratin, Trina Solar, Solargreen	100	Construction	Atlantico
Atlántico Solar Project	Diverxia Infrastructure	240	Construction	Atlantico
Buenavista Solar Park	TW Solar	400	Pre-construction	Atlantico
Guayepo I & II (solar park project)	Bavaria AB InBev, Enel Green Power	491	Construction	Atlantico
Valle Del Sol Solar Park	Martifer MPC Renewable Energies Development, MPC Capital	50	Pre-construction	Boyaca


Paipa PV Solar Project	PSR3	88	Pre-construction	Boyaca
Alejandría Solar Project	Prodiel	150	Pre-construction	Boyaca
La Estrella Solar Project	ABO Wind Renovables Colombia S.A.S., Sustainable Power Group	72	Pre-construction	Caldas
La Ponderosa Solar Park	Eagle Energy S.L.	100	Pre-construction	Caldas
Portón Del Sol PV Solar Park	Parque Solar Portón del Sol SA	102	Construction	Caldas
Carreto Solar Park	Solano S.A.S.	250	Pre-construction	Caldas
Las Marías Solar Plant	Promotora y Generadora de Energías Sostenibles Sas	100	Pre-construction	Cauca
El Paso PV Solar Park	Enel Green Power Colombia	86	Functioning	Cesar
Azucenos Solar Park	TW Solar	100	Pre-construction	Cesar
La Loma Solar Park	Enel Green Power Colombia	187	Pre-construction	Cesar
Valledupar PV Solar Project	TW Solar	200	Construction	Cesar
Copey Solar Project	TW Solar	200	Construction	Cesar
Chinu Solar Forest	Solargreen	100	Pre-construction	Cordoba
La Unión Solar Park	Solarpack	100	Pre-construction	Cordoba
Campano Solar Park	Univergy International	121	Construction	Cordoba
Antares Solar Park	Mainstream Colombia S.A.	150	Pre-construction	Cordoba
Colombia Solar Forest	Solargreen	193	Pre-construction	Cordoba
Sahagún Solar Plant	Colgeólica S.A.	200	Pre-construction	Cordoba

Valle Negro solar farm	Due Capital and Services	200	Pre-construction	Cordoba
Ligustro Solar Plant (2 phases)	Green Energy DS&E S.A.	200	Pre-construction	Cordoba
Summa Solar Project	Proelectrica	200	Pre-construction	Cordoba
Los Tulipanes Solar Project	Univergy International	300	Pre-construction	Cordoba
Chinu Solar Park	LatamSolar Energias Renovables	350	Pre-construction	Cordoba
San Alejo Solar Park	TW Solar	60	Pre-construction	Cundinamarca
Canoas PV Solar Park	Due Capital and Services	200	Pre-construction	Cundinamarca
La Orquídea Solar Project	La Orquídea Solar	200	Pre-construction	Guainia
Los Cauchos Solar Plant	Generadora Solar El Hobo S.A.	70	Pre-construction	Huila
Cattleya Del Huila Solar Project	Black Orchid Solar	100	Pre-construction	Huila
Altamira PV Solar Park	Parque Solar Colombia III	200	Pre-construction	Huila
Cuestecitas Solar Park (3 phases)	Colombia Solar Corporation International	200	Construction	La Guajira
Santa Teresa PV Solar Park	Parque Solar Colombia VIII	200	Pre-construction	La Guajira
Maleiwa PV Solar Project	TW Solar	200	Pre-construction	La Guajira
Fundación Solar Park	TW Solar	200	Pre-construction	Magdalena
Las Mesetas Solar Park	IC Asesorías y Proyectos S.A.S.	50	Pre-construction	Meta
San Fernando Solar Park	Ecopetrol S.A.	59	Functioning	Meta
Kai PV Solar Project	TW Solar	200	Construction	Meta

Uriana PV Solar Project	TW Solar	400	Construction	Meta
San Silvestre Solar Park	Solar Projects Developers S.A.	60	Pre-construction	Norte de Santander
Suria Solar Park	Elawan Energy	99	Pre-construction	Norte de Santander
Charcos Solar Project	Solar Projects Developers S.A.	100	Pre-construction	Norte de Santander
Rincón Solar Project	Solar Projects Developers S.A.	100	Pre-construction	Norte de Santander
Perales Solar Project	TW Solar	200	Pre-construction	Norte de Santander
Perales Solar Park	Fotovoltaico Perales	200	Construction	Norte de Santander
Yarigués PV Solar Plant	Yarigués Solar	200	Pre-construction	Norte de Santander
Helios Cesarocaña Solar Park	Delphi Capital Partners S.A.	200	Pre-construction	Norte de Santander
Puertos De Santander Solar Project	Andes Solar III SAS	500	Pre-construction	Norte de Santander
Pasacaballo Solar Park	Colgeólica S.A.	100	Pre-construction	Quindio
Refinería Sebastopol Solar Park	Refinería Colombiana Sebastopol, VIP Group International	100	Construction	Santander
El Balso Solar Park	TW Solar	180	Pre-construction	Santander
Carare PV Solar Park	ABO Wind Renovables Colombia S.A.S	200	Pre-construction	Santander
Coveñas Solar Park	Elawan Energy	60	Pre-construction	Sucre
Altamira Solar Park	TW Solar	90	Pre-construction	Sucre
Andrómeda Solar Project	Mainstream Colombia S.A.	100	Pre-construction	Sucre
Toluviejo Solar Plant	Elawan Energy	150	Pre-construction	Sucre

Pacande Solar Park	Martifer MPC Renewable Energies Development	50	Pre-construction	Tolima
Flamenco Solar Park	Parque Solar Flamenco S.A.	60	Pre-construction	Tolima
Magdalena PV Solar Project	Prodiel	200	Pre-construction	Tolima
Magdalena Sol Solar Park	TW Solar	300	Pre-construction	Tolima
Becharry Solar Park	Colomener III S.A.	50	Pre-construction	Valle del Cauca
Emcali Solar Park	Empresas Municipales de Cali (Emcali)	50	Pre-construction	Valle del Cauca
Totumo Solar Plant	Operadora Rayo Energía Colombia	50	Pre-construction	Valle del Cauca
Las Coloradas Solar Plant	San Antonio Botero S.A.	50	Pre-construction	Valle del Cauca
Clip Solar Park	Smart Consulting Group	51	Pre-construction	Valle del Cauca
Cartago Solar Park	Trina Solar Ltd.; Continua Energia Positiva	99	Construction	Valle del Cauca
Centauro PV solar farm	Mainstream Colombia S.A.	100	Pre-construction	Valle del Cauca
El Zarzal Solar Park	Lica Energía Renovables	170	Pre-construction	Valle del Cauca
Delphi Helios Solar Park	Delphi Capital Partners S.A.; Enersua	300	Pre-construction	Valle del Cauca
El Futuro Solar Project	CSF Continua	500	Pre-feasibility	Valle del Cauca


Renewable projects in Colombia - Wind

PROJECT 	COMPANIES	CAPACITY (MW)	STATUS	LOCATION
El Morro wind farm	Grupo Argos	80	Pre-construction	Antioquia
Del Magdalena wind farm	Promoenergia	100	Pre-construction	Arauca
Culantral wind farm	Promoenergia	100	Pre-construction	Atlantico
Colombia's first offshore wind farm in the waters off the city of Barranquilla	Monómeros, Public Lighting of Barranquilla (APBAQ), Copenhagen Infrastructure Partners (CIP)	350	Pre-construction	Barranquilla, Atlantico
Vientos De Galerazamba wind farm	Parque Eólico Vientos Galerazamba S.A.S.	60	Pre-construction	Bolivar
Vientos De Bolívar wind farm	Parque Eólico Vientos De Bolívar SAS	150	Pre-construction	Bolivar
Ricaurte wind farm	AES Gener	125	Pre-construction	Boyacá
Colibrí wind farms (3 phases)	Colibrí Energy S.A.S	260	Pre-construction	Boyacá
De La Bahia wind farm	Pampa Energia	50	Functioning	Huila
Energetica I wind farms (2 phases)	Eipor	100	Functioning	Huila
El Ahumado wind farm	Elecnor	50	Pre-construction	La Guajira

Apotolorru wind farm	AES Gener	75	Pre-construction	La Guajira
Acacia wind farm	Celsia, Nordex	80	Construction	La Guajira
Irraipa wind farm	AES Gener	99	Pre-construction	La Guajira
Jotomana-Apotolorru II wind farm	AES Gener	99	Pre-construction	La Guajira
San Juan Eólico wind farm	Sj Renovables Wind 1 S.A.S. E.S.P	103	Pre-construction	La Guajira
Chemesky wind farm	Enel Green Power	112	Pre-construction	La Guajira
Britos wind farm	Parque Eólico Britos S.A.S.	144	Pre-construction	La Guajira
Dividivi wind farm	Guajira Eólica li Sas	150	Pre-construction	La Guajira
Jouttalein SAS	Jouttalein SAS	150	Pre-construction	La Guajira
Casa Electrica wind farm	AES Gener	180	Pre-construction	La Guajira
Musichi wind farm	Eólica Musichi S.A.S.	194	Pre-construction	La Guajira
Carrizal Uribia wind farm	AES Gener	195	Pre-construction	La Guajira
Elipse wind farm	Elipse Energía SAS ESP	200	Pre-construction	La Guajira
Tumawind wind farm	Enel Green Power	200	Pre-construction	La Guajira
Maria wind farm	Oak Creek Energy	200	Pre-construction	La Guajira
Wakuaipa 200 Mw wind farm	Parque Eólico Wakuaipa S.A.S.	200	Pre-construction	La Guajira
EO200i Ipapure wind farm	Isagen	201	Pre-construction	La Guajira
Windpeshi wind farm	Enel Green Power	205	Pre-construction	La Guajira

Alpha wind farm	EDP Renováveis	212	Pre-construction	La Guajira
Camelia wind farms (3 phases)	Celsia, Nordex	250	Construction	La Guajira
Beta wind farm	EDP Renováveis	280	Pre-construction	La Guajira
Omega wind farm	Omega Energía SAS ESP	300	Pre-construction	La Guajira
Guajira wind farm	Isagen	325	Pre-construction	La Guajira
Punta Cocos wind farm	Desarrollos Eolicos Uribia	362	Pre-construction	La Guajira
Andrea Jusayu wind farm	Desarrollos Eolicos Uribia	378	Pre-construction	La Guajira
Kappa wind farm	Kappa Energía SAS ESP	500	Pre-construction	La Guajira
Offshore Vientos Alisios wind farm	BlueFloat Energy, Parque Eólico Offshore Vientos Alisios SAS,	200	Pre-construction	Offshore (Atlantico)

Renewable projects in Colombia - Hydro Projects

PROJECT 	COMPANIES	STATUS	LOCATION
Mobility tests with green hydrogen in order to move a private car	Ecopetrol, Automotores Toyota Colombia S.A.S.	Feasibility	Cartagena, Bolívar
Electrolysers at the Cartagena refinery (Reficar)	Ecopetrol, Promigas.	Functioning	Cartagena, Bolívar
Green hydrogen project for natural gas net (Mamonal area)	Ecopetrol, Promigas.	Pre-construction	Cartagena, Bolívar
HEVOLUCIÓN (Green hydrogen mobility project)	Hevolution, Opex, Hyundai.	Pre-construction	Medellín, Antioquia
Investment for Hydrogen injection on cement ovens	CEMEX Ventures, HiiROC	Functioning	
Hydrogen mobility solutions	Promigas, Sumitomo Corporation Andes S.A.S. (SCAN)	Feasibility	

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Presence
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50,000

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320

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Meet all the active projects at the Colombia Green Energy Summit

The Net-Zero Circle, by IN-VR is pleased to announce this exclusive platform for networking and business opportunities "**Colombia Green Energy Summit 2023**".

The Colombia Green Energy Summit will bring together national energy stakeholders along with regional and global industry leaders to strategize for the **future of Colombia's energy transition and the new opportunities created for green businesses** through the prioritization of green projects in Colombia's energy matrix.

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