

Significant changes regarding alternative energy in Panama

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Generation: 100 MW of Solar Photovoltaic

In commercial operation

- 2.4 MW Sarigua facility (since 2014)
 - Investment of 8 Million USD
 - Located in the Sarigua desert, Parita, Province of Herrera



- 12 MW Chiriqui PV facility (since 2015)
- 42 MW Sol Real PV facility (since April 2017)
 - Investment of 55 Million USD
 - Consists of five PV plants:
 - Caldera Solar (5 MW) and Sol de David (8 MW), located in Chiriquí on the western coast of Panama
 - Sol Real (11 MW), Milton Solar (10 MW) and Vista Alegre (8 MW), located in Coclé in central Panama



Enel has reached 354 MW of renewables installed capacity in Panama including its 300 MW Fortuna hydropower plant

- 10 MW Divisa Solar facility (since 2016)
 - Investment 17.8 Million USD
 - Located in El Roble, Aguadulce, Province of Coclé



Under testing

- 0.10 MW, Zona Franca Albroom, Panama, Generacion Solar, S.A.
- 0.96 MW, Farallon Solar 2, Coclé, Farallon Solar 2, S.A.
- 9.52 MW, Los Angeles, Los Santos, Solar Azuero Venture, S.A.
- 8.99 MW, Herrera, Solar Panama Ventura, S.A.
- 8.99 MW, Coclé, Solar Coclé Venture, S.A.
- 2.56 MW, Bugaba, Chiriqui, Empresa Nacional de Energia, S.A.
- 2 MW, Don Felix I, Coclé, Llano Sanchez Solar Power S.A.

Generation: 300+ MW of Wind Energy

In commercial operation (Penonome, Cocle)

- Nuevo Chagres I, 55 MW
- Rosa de los Vientos, 102.5 MW
- Nuevo Chagres II, 62.5 MW
- Portobello Bastillas, 32.5 MW
- Maranon, 17.5 MW

Under construction

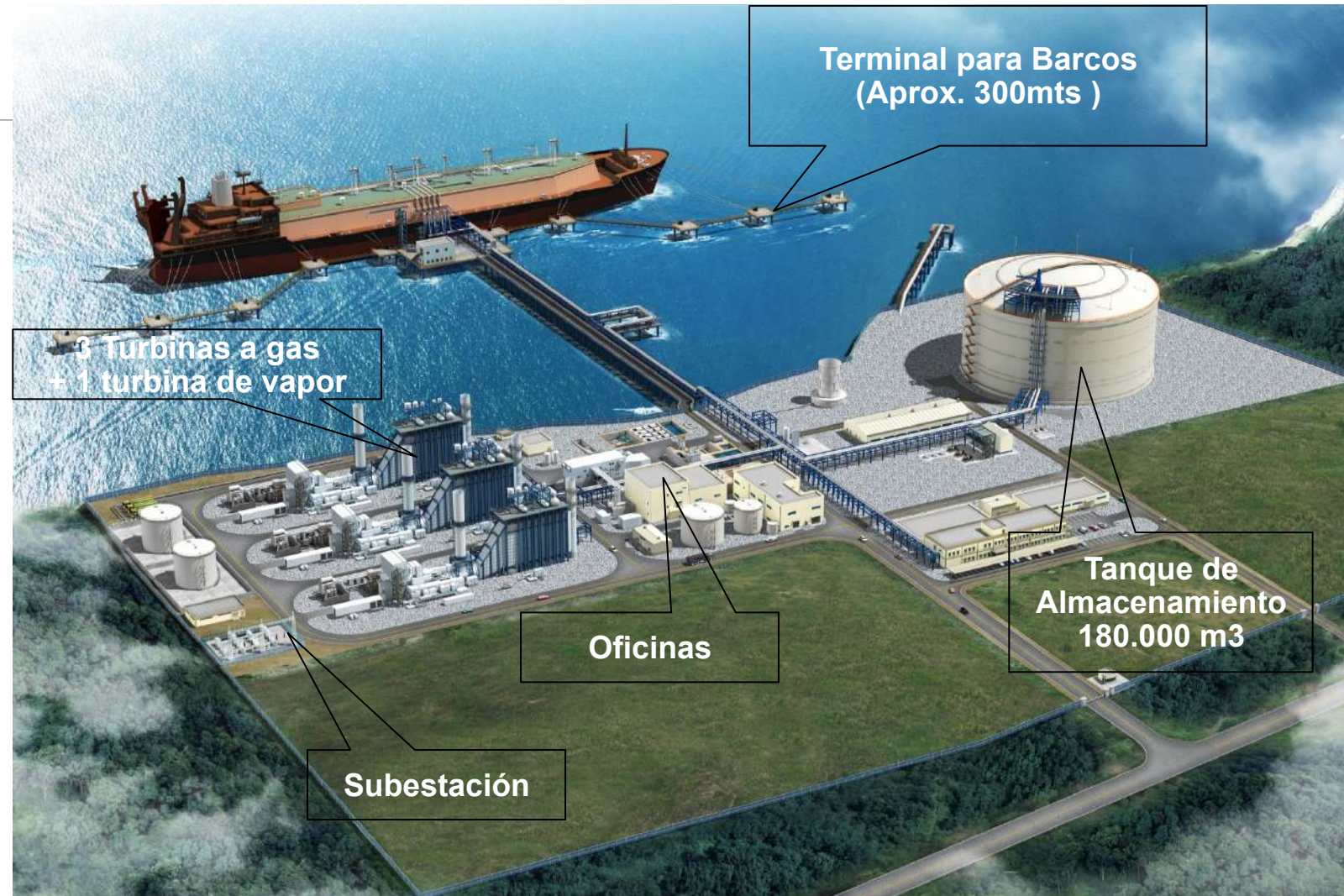
- La Miel, Los Santos, 25.5 MW
- Cerro Azul, 40.8 MW

Generation: Natural gas



Project under construction

- Natural Gas – AES Colon
 - Location: Telfers Island, Province of Colon
 - Investment of \$1,150 Million of USD
 - Will be a 381 MW, combined-cycle power plant
 - Will include a storage facility for natural gas of 180,000 m³ (25% for the power plant operation and 75% for other clients)
 - The plant started construction on 2016 and will be completed on 2018 and the tank on 2019



AES Colon Conceptual Render – Not in scale

Generation: Biogas

Project under testing

- Developer: Urbalia Panamá S. A.
- 10 MW installed capacity
- Fuel: 2,200 tons of waste that arrives daily to Cerro Patacon, Panama



Prosumers: Solar photovoltaic

Changes in the regulation allow the consumers to install up to 500 kW of PV for self consumption and sale to the distribution company



Source: PLAT Installs Solar Panels at Warehouse in Colon Free Zone in Panama, <https://www.panasonic.com/caribbean/corporate/news>



Source: Desarrollo y sustentación de proyectos solares comerciales e industriales en Panama, 9 Simposio Internacional de Energía – Sindicato de Industriales de Panama, 20-21 de abril de 2017