

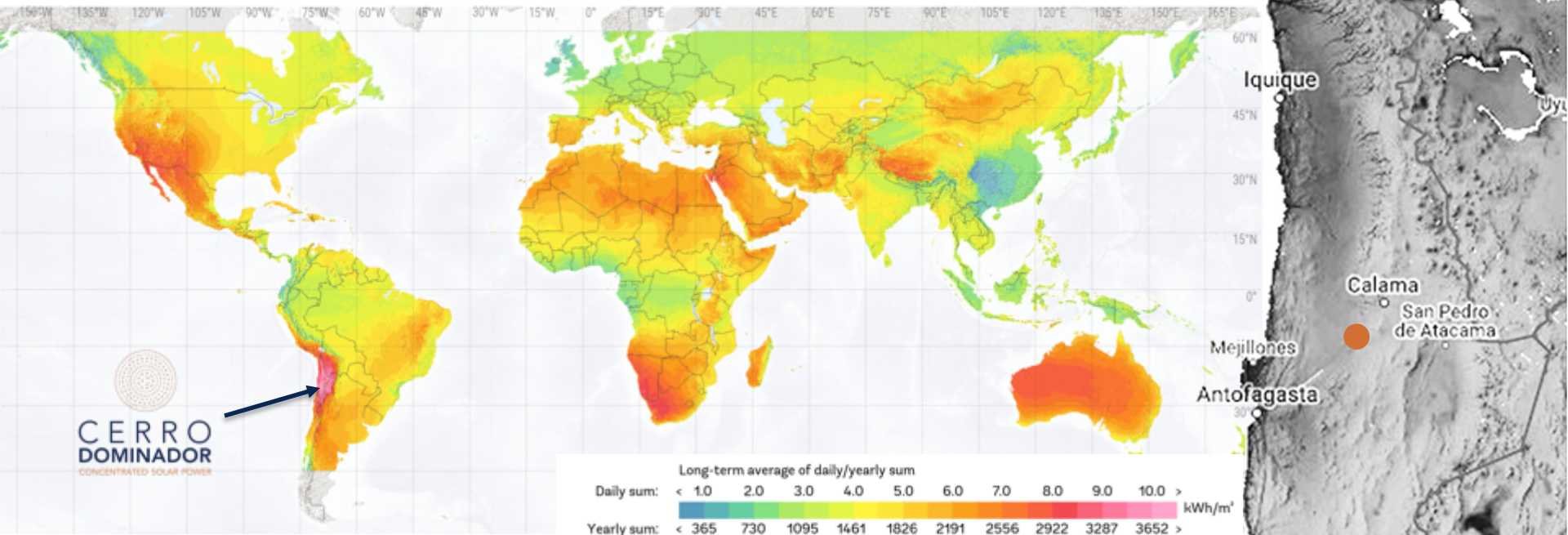
# CERRO DOMINADOR

CONCENTRATED SOLAR POWER

## Project Update

*Fernando Gonzalez*  
*February 18, 2020*

# Project Location



- 1,600 meters above sea level
- Flat desert
- Close to consumption centers

- Close to water supply
- 30-year land concession

Source: Map published by the World Bank Group, funded by ESMAP and prepared by Solargis.

# Project Description

- Hybrid CSP-PV project
- 12 MW of batteries added for additional flexibility
- 17.5 hours of storage on molten salts
- Awarded competitive PPAs in 2014

110 MW

10,600  
heliostats, 140 m<sup>2</sup>  
each

Tower of 243  
meters

In Construction



100 MW

392,000 PV panels

Single-axis tracker

300 hectares

In Operation



# Construction Status



Receiver at the top of the tower

Solar Field completed & under calibration

Tower piping 85% completed

Water treatment plant commissioned

Beginning process of melting salts

Turbine in place

Air Condenser 90% completed

Already connected to the grid

# Market optimization

There is great expectation about the expansion of the Chilean electricity system towards renewables, mostly variable (PV & Wind), which presents operational challenges, that are currently addressed by fossil-fuel generation.

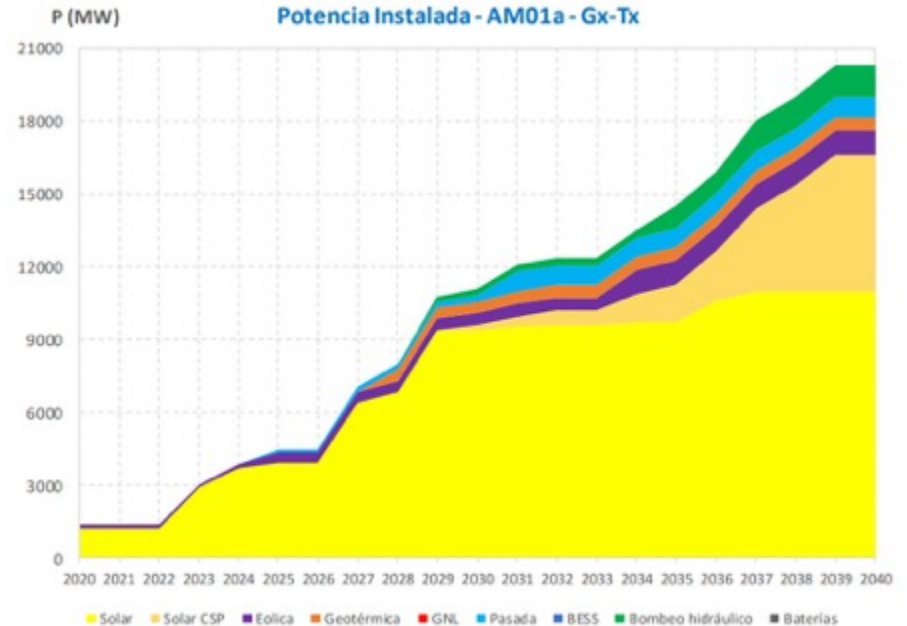
This opens a great opportunity for CSP Technology, as an enabler of an accelerated decarbonization process, as adding value in many key aspects:

Solar Energy  
in the Night

Support on  
daily ramps  
for PV plants

Flexible  
Generation

Ancillary  
Services  
Support



CSP penetration in a decarbonization scenario - Chilean Independent System Operator - dec 2018

# Ancillary Services - Chile

According to the new regulation, the ancillary services to be provided, each by the technology and particularly by Cerro Dominador are as follows

Ancillary Services	Mechanism	Cerro Dominador *	CSP General	BESS General
Primary Frequency Control	Direct Instruction	X	X	X
Secondary Frequency Control	Bid	(**)	X	X
Tertiary Frequency Control	Bid	X	X	X
Voltage Control	Direct Instruction	X	X	
Fast Start	Direct Instruction	(**)	X	
Fast Isolation	Direct Instruction	(**)	X	

(\*) (CSP + PV + BESS) Based on the actual requirement of services demanded by the system and instructed by the independent coordinator.

(\*\*) Currently not required but available with minor modifications.

# What is next?

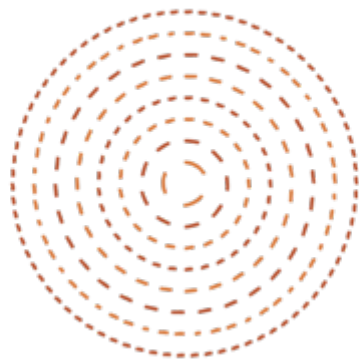
Very competitive landscape.

*- Technology agnostic but with opportunity to improve allocation of costs/prices based on impact*

New CSP projects under development.

*- Private and public processes.*

Critical to demonstrate performance and competitiveness of CSP.



# CERRO DOMINADOR

CONCENTRATED SOLAR POWER

---

*[cerrodominador.com](http://cerrodominador.com)*