

SUCCESS STORY

Remote monitoring for plant construction Enel Green Power



EXECUTIVE SUMMARY



LOCATION

South America | Perú



KEY SOLUTION

s-EM
Satellite-base plant
construction monitoring



BENEFIT

Reduce the cost of plant construction management by remote monitoring

BACKGROUND

From construction to operation & maintenance: keep the life cycle of plant always under control

Nowadays remote sensing information can be exploited to support the management of renewable energy plants during all its life cycles. Earth observation satellite can provide a continuous monitoring of each location of the earth. Low-resolution and high-resolution imagery can be exploited to obtain accurate descriptions of the monitored scenarios/plants. Moreover, the use of unmanned air vehicle can provide complementary information to monitor important features not detectable with satellite sensors.

i-EM, within the s-EM platform for the management of solar plants, provides to EPC player a module called Satellite-based plant construction monitoring, a Decision Support System aimed to exploit remote sensed data to advantage and support the management of solar plant during the construction and pre-commissioning phase.

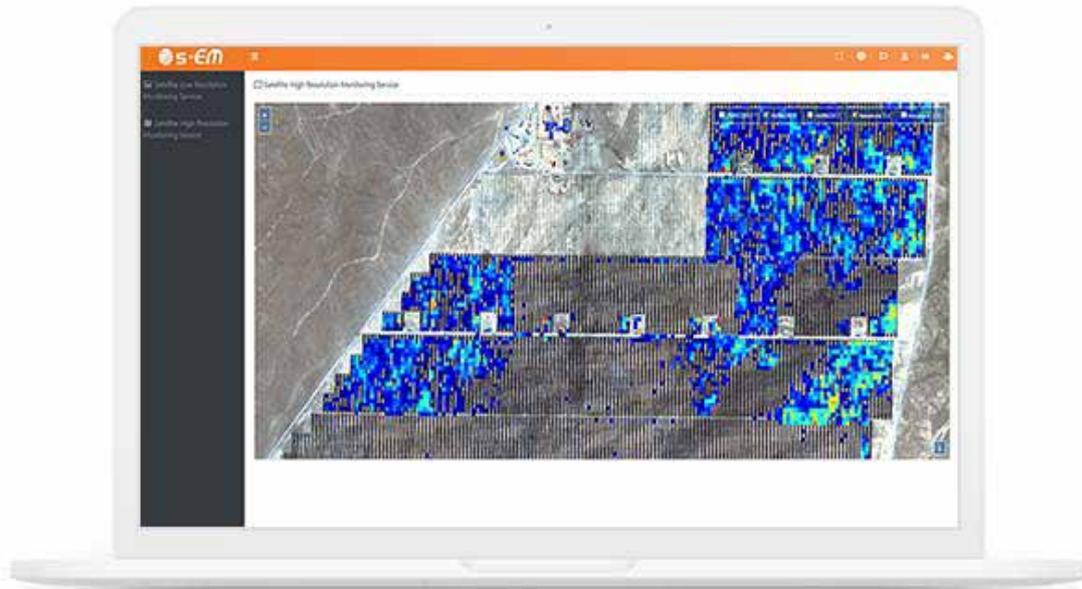
CHALLENGES

i-EM combines the experience in satellite data knowledge, in the PV technical domain, and data science expertise to provide an accurate diagnostics of plant construction



The use of earth observation satellite and drone helps both the construction phase and the monitoring phase





SOLUTION

Satellite Low- and High-Resolution service to monitor plant construction

With Plant Construction Monitoring the ECP can remotely monitor the construction status of the renewable energy plant (in particular for solar photovoltaic plants) and enables users to know the plant status, supporting the decision-making processes.

Exploiting plant images from satellites and videos streaming from drones, for plant diagnostics and predictive analysis, displaying all results in a coherent 4D (space + time) user interface.

The service provides:

- ✓ Satellite Low- and High-Resolution service for monitoring the plant construction status
- ✓ Drone Video Processing for detection of panels, poles, trackers

The information provided exploiting Satellite HR (0.3m – 0.5m at ground) monitoring service:

- ✓ Detection of the areas changed from the last acquisition
- ✓ Construction Process percentage (area completion)
- ✓ Detection of (in percentage respect to the total):
 - Poles installed (error < 5%)
 - Trackers installed (error < 3%)
 - PV panels installed (error < 4%)
 - Cabin Unit (CU) installed (error < 2%)

BUSINESS IMPACT

Monitor the Solar Plant construction status and provide the optimal assessment for the plant commission

- ✓ Cost reduction for plant implementation by means of a better management of the operations
- ✓ Construction reduction in the management of the plant documentation
- ✓ Monitoring of the work progress

“Thanks to this reliable tool, it is possible to comfortably monitor the progress of plant construction remotely, reducing travel costs.”

Head of Construction Technical Support
Enel Green Power

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