

SOLUTION NOTE

RENAULT PHOTOVOLTAIC PLANT

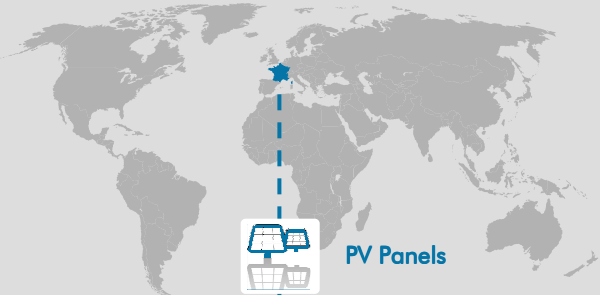
Renault-Gestamp Solar (France)

RENAULT 60 MW PHOTOVOLTAIC PLANT

Renault, in collaboration with **Gestamp Solar**, who took over the project for construction after Eiffage concluded engineering and consulting services, is developing the biggest photovoltaic project in the world for the **automotive industry** by equipping its **6 French factories** with multi-megawatt PV generating systems. The projects are being developed in French localities: Douai, Maubeuge, Flins, Batilly, Sandouville and Cleon. This power upgrade comes as a response to a major increase of energy demand in Renault's installations and a progressive solution for these needs.

Ultimately, it is a 450.000 m² surface of solar panels, which is the equivalent area of more than 63 football fields, for a total installed capacity of **60MW**, the annual electricity consumption of a town with 15,000 citizens.

DUE TO » 2012
CLIENT » Renault-Gestamp Solar
LOCATION » 6 Renault Factories, France
SOLUTION » Complete Distribution Network Solution
SEGMENT » Renewable Energy (RES) - Photovoltaic



ORMAZABAL CMS-17:
 PREFABRICATED CONCRETE SWITCHING SUBSTATION UP TO 36 KV

ORMAZABAL PFU-7:
 PREFABRICATED CONCRETE TRANSFORMER SUBSTATION UP TO 36 KV

ORMAZABAL CGMCOSMOS:
 FIXED MOUNTED, SINGLE BUSBAR, GAS INSULATED SWITCHGEAR UP TO 24 KV

Scope of Supply:
 43 PFU-7 & CMS-17 Substations

ORMAZABAL DISTRIBUTION TRANSFORMER:
 REDUCED LOSSES OIL TRANSFORMER

Switchgear Type: Ring Main Unit (2i Pfa)
 Electric Data: 24 kV – 630 A – 20 kA
 Scope of Supply: 43 Cubicles

Scope of Supply:
 41 Transformers of 1250 kVA and 2 Transformers of 630 kVA

ORMAZABAL PF5:
 9 PREFABRICATED CONCRETE INTERCONNECTION SUBSTATIONS UP TO 24 KV

ORMAZABAL DNS SOLUTIONS:
 LOW VOLTAGE BOARDS
 SANTERNO'S SOLAR INVERTERS INTEGRATION

ORMAZABAL CGMCOSMOS:
 FIXED MOUNTED, SINGLE BUSBAR, GAS INSULATED SWITCHGEAR UP TO 24 KV

ERDF Grid

ORMAZABAL PF4:
 PREFABRICATED CONCRETE SUBSTATION UP TO 24KV

Switchgear Type: According to NFC-13100
 Electric Data: 24 kV – 630 A – 20 kA
 Scope of Supply: 5 Cubicles

Characteristics: Substation connected to ERDF grid for the auxiliary supply of the PV plants
 Scope of Supply: 5 Substations

THE CHALLENGE AND THE SOLUTION

Design and construction of any large scale PV plant is always challenging for all players involved in the process. Equipment manufacturers are expected to provide their customers with safe, reliable and cost efficient solutions in order to full fill their needs. From a technical point of view the complexity and size of this particular installation required Ormazabal to carefully coordinate protection of the electrical system and pay special attention to the ventilation designs due to temperature rise in transformers and inverters. From an operational point of view this project had to be managed according to a **multi-region supplier program**; concrete substations were manufactured in France and Spain, MV switchgears and distribution transformers in Spain, inverters from Italy, solar panels from China while assemblies and factory testing was done in France and Spain.

- **Highly safe and reliable energy supply**
- **Turnkey Project with short delivery deadlines**
- **Tailor made solution based on a broad experience: More than 600 PV stations installed worldwide**