



saet



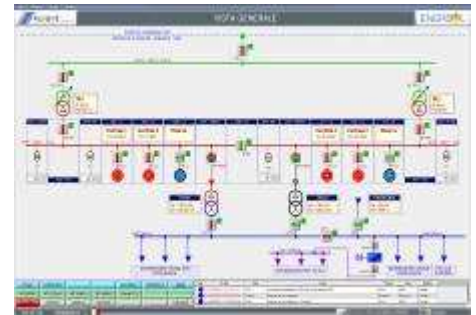
AN 10.10.I060

Application-note

**Integrated turnkey project: " 132 kV TERNA double busbar Station and 132/20 kV Enersol Substation for 48 MWp Canaro Solar Farm (RO)"**



Wide view of TERNA Substation



SCADA Producer Substation Overview

ENERSOL company has realized in the municipality of Canaro (RO) a 48 MWp solar farm, in order to connect the 132/20 kV Substation to the national grid, it was required the construction of a new 132 kV TERNA double busbar station too.

ENERSOL has given in charge to SAET the turnkey project of both the two substations, included civil and electrical engineering and Protection & Control System.

TERNA double busbar Station has been provided with a electromechanical solution based on SF6 hybrid modules, this design in compliance with SET 02 specific.

In order to connect TERNA station with the national grid, SAET has managed and performed too the final work of electromechanical wiring to the high voltage incoming and outgoing power line. The Protection & Control System is according with SAS 2006 requirements: a SCADA workstation based on Ethernet communication network allows measures, protection and alarm management.

The Producer Substation is made with air-insulated equipments and includes 2 transformers 132/20 kV (each from 25 MVA). The 4 Photovoltaic parks, each one of 12 MWp, are connected to MV panels of Producer Substation through MV cables.

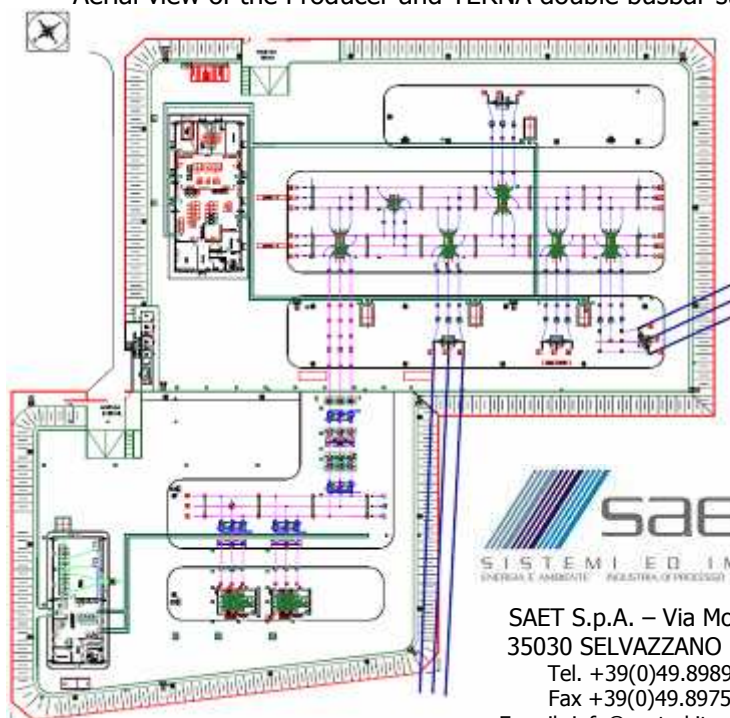
The protection, command and control system, based on Bay Control Units (BCU), is designed with General Electric devices. The Supervision System with SCADA workstation, uses IEC 61850 protocol and is interfaced with TERNA through redundant protocol IEC 60870-5-104.

Since May 2011, the plant is producing successfully photovoltaic energy under the management of SAG Solar, that has acquired the property of the plant in the final stage.

SAET has acquired maintenance and control service; remote control is possible by SAET office, and an emergency SAET staff is organized for on site operations.



Aerial view of the Producer and TERNA double busbar station



Electromechanical plan



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