

10th May 2021

Out with the old...

A guide to successful inverter replacement



sternenergy

energia allo stato puro



WHO WE ARE Pure energy for your investments

WE'RE AN OPERATOR SPECIALIZED IN DELIVERING TECHNICAL SERVICES TO PV PLANTS

Born in 2008

We've fixed our know-how through more than a **decade of experience** in development, construction, financing and management of several plants owned by us and by third parties.

PV Only

A **deep knowledge** in this sector and of the PV technology allows us to guarantee high quality in asset management, troubleshooting and resolution for complex events.

EU wide

We operate in IT, DE, UK & NL, through a **capillary structure** as to ensure maximum efficiency, effectiveness and transparency of our services.

1 GWp

We provide our services to **international players** in the PV market and we have more than 1 GWp of "Utility Size" PV Plants under recurrent O&M, over nearly 392 single plants and more than 300 MWp of PV Plants revamped.

Quality

Service quality is guaranteed ISO 9001, 14001 and 45001 certifications awarded to Stern since 2019 and our **specific choice to internalize** the most pivotal O&M activities such as: inverter maintenance, plants' remote control, engineering, project and HSE management...

Team & IT

We boast a **highly qualified team** able to effectively manage every aspect of a PV Plant as well as a **robust set of IT solutions** to provide timely reporting to our clients.



EXPERTISE, RESPONSE, TRANSPARENCY AND PASSION: OUR VALUES GUIDE OUR WORK

SERVICES What and where



OPERATION &
MAINTENANCE



REVAMPING, REPOWERING
& EXTRAORDINARY
MAINTENANCE



SPECIALIZED SERVICES

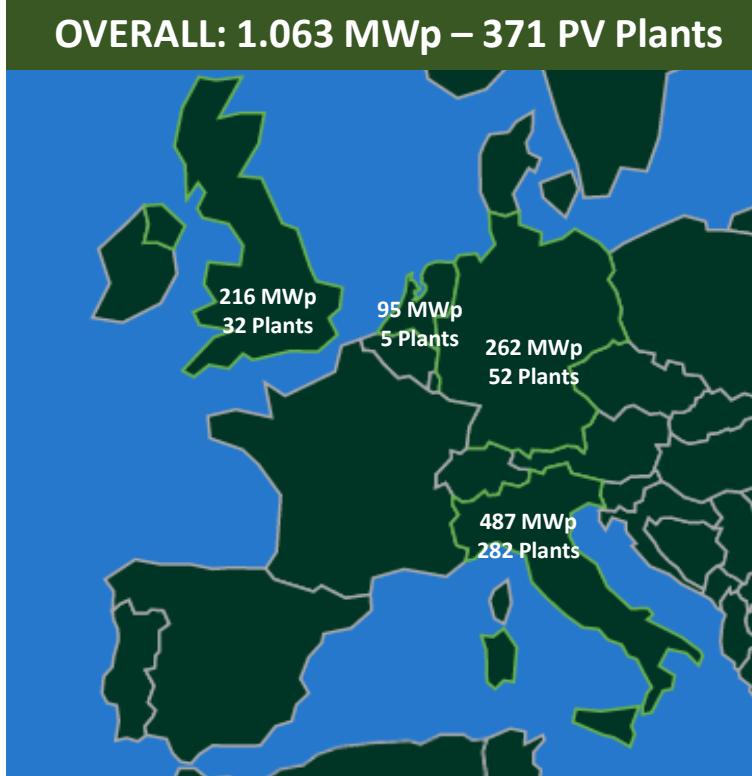
Incl. aerial thermo (550 MWp)
etc.



COMMERCIAL
MANAGEMENT

Proprietary management IT
solution: **Stern M-Suite**

Recurrent O&M Portfolio under management



A strong revamping
track record

- 202 MWp Trafo substitution
- 154 MWp Plants recabling
- 141 MWp Inverter revamping
- 102 MWp Crystalline modules substitution
- 19 MWp Thin film modules substitution
- 9 MWp Tracker revamping
- 44 MWp Other activities

REVAMPING Pure problem solving

A one-stop shop for your revamping/repowering activities

From revamping engineering, to authorization process, site management and execution, commissioning, GSE compliance ...

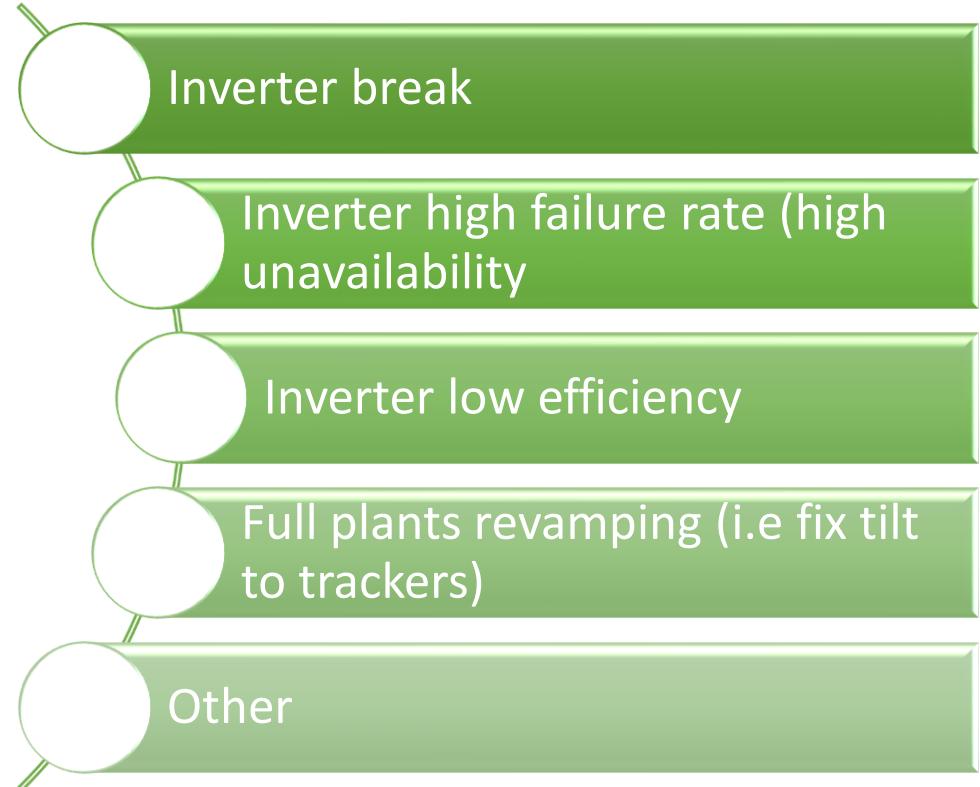
A dedicated team for revamping designing, within Stern engineering and design unit

2 revamping project managers for execution and site management

3 dedicated operational teams mixing internal and external technicians
(this especially for labor intensive activities such as modules replacement)

4 Stern's technicians for commissioning activities
(all of them holding a training by Sungrow for commissioning and service partnering)

Main reasons for revamping



TIME IS KING

REVAMPING: Inverter revamping on 1MWp located in Lecce

Case description

Plant located in Lecce (ITA) - 1MWp: to remove 2 centralized inverters to be substituted with n°12 Sungrow inverters SG60KTL BIG DC.

Reason for the activity: irrepealable failure of the old inverters

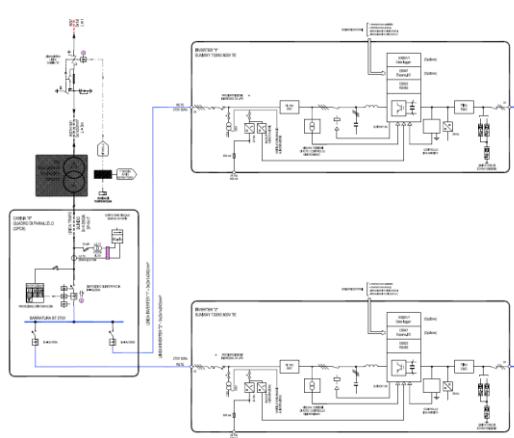
Main challenges: restore production as soon as possible

Timing forecasted for the revamping: 30 days

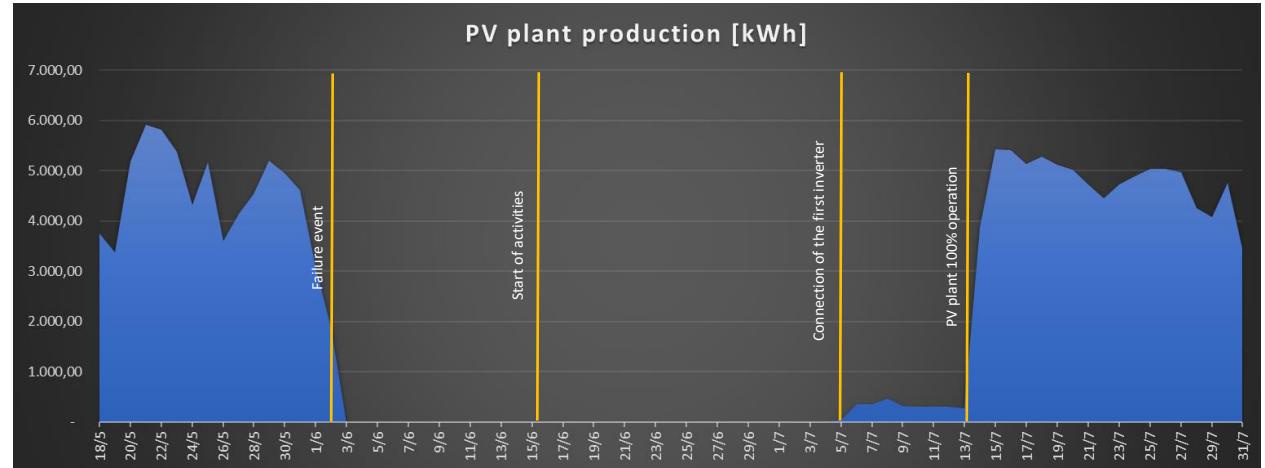
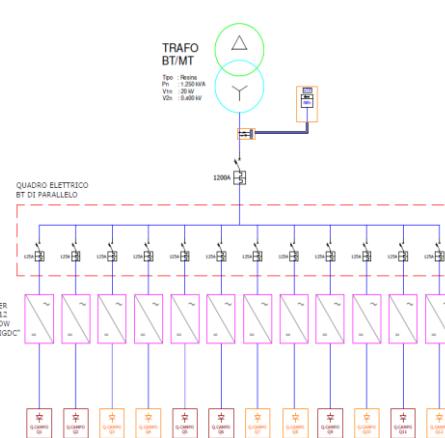
Work started: on 15/06/2019 => 100% back in operation on 14/07/2019



Single line diagram: Before



After



REVAMPING: Inverter revamping on 4,7MWp located in Brindisi

Case description

Plant located in Brindisi (ITA) of 4,7MWp: to remove 35 inverters to be substituted with 70 Sungrow inverters SG60KTL BIG DC

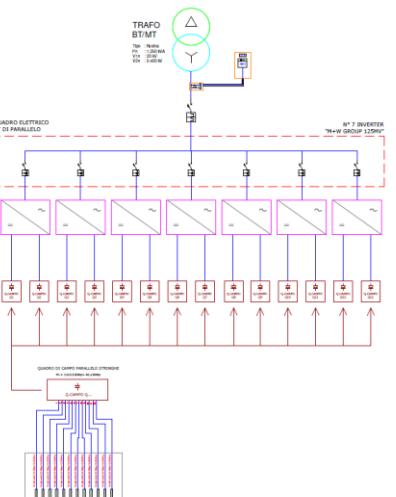
Reason for the activity: increase the production of the PV plant due to the high failure rate of the old inverters

Main challenge: reduce energy losses during revamping

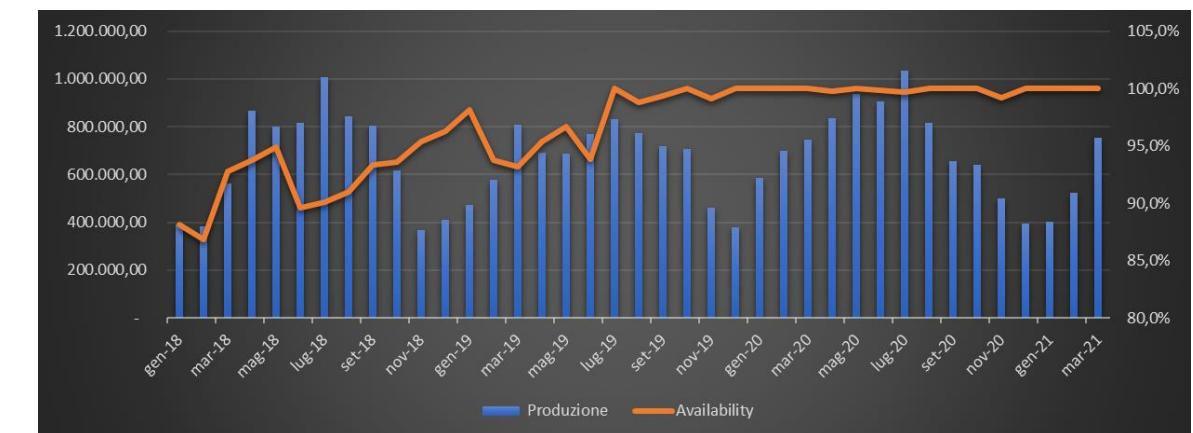
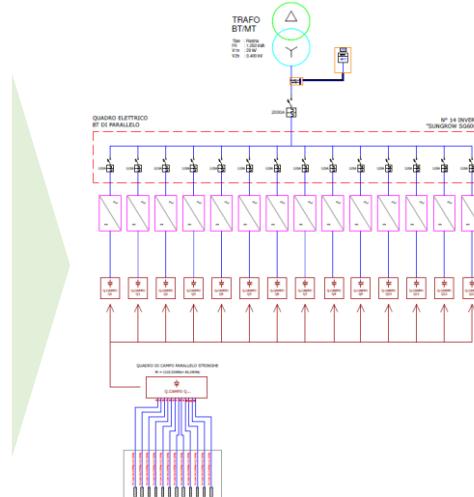
Timing forecasted for the revamping: 90 days (inc. strings recabling)

Work started on 02/05/2019 => 100% back in operation on 31/07/2019 => 90 days

Single line diagram: Before



After



REVAMPING: Other examples from scheduled activities

Case description

Plant located in Macerata (ITA) of 4,3MWp: to remove 34 inverters to be substituted with 34 Sungrow inverters SG110CX with PVS-18RM combiner boxes.

Reason for the activity: increase the production of the PV plant due to the high failure rate of the old inverters

Main challenge: reduce energy losses during revamping

Timing forecasted for the revamping: 45 days

Work scheduled from 17/05/2021 => **100% back in operation** on 30/06/2021



Case description

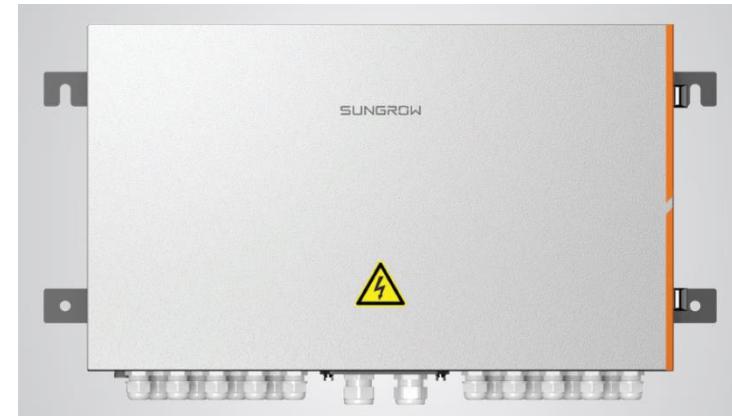
Plant located in Parma (ITA) of 6MWp: to remove 2 centralized inverters (revamping on 1 MWp only) to be substituted with 12 Sungrow inverters SG110CX with PVS-18RM combiner boxes.

Reason for the activity: increase the production of the PV plant due to the high failure rate of the old inverters and to collect spare parts from the removed inverters

Main challenges: reduce energy losses during revamping

Timing forecasted for the revamping: 21 days

Work scheduled from 07/06/2021 => **100% back in operation** on 25/06/2021



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