

10<sup>th</sup> May 2021

Out with the old...

A guide to successful inverter replacement

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**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

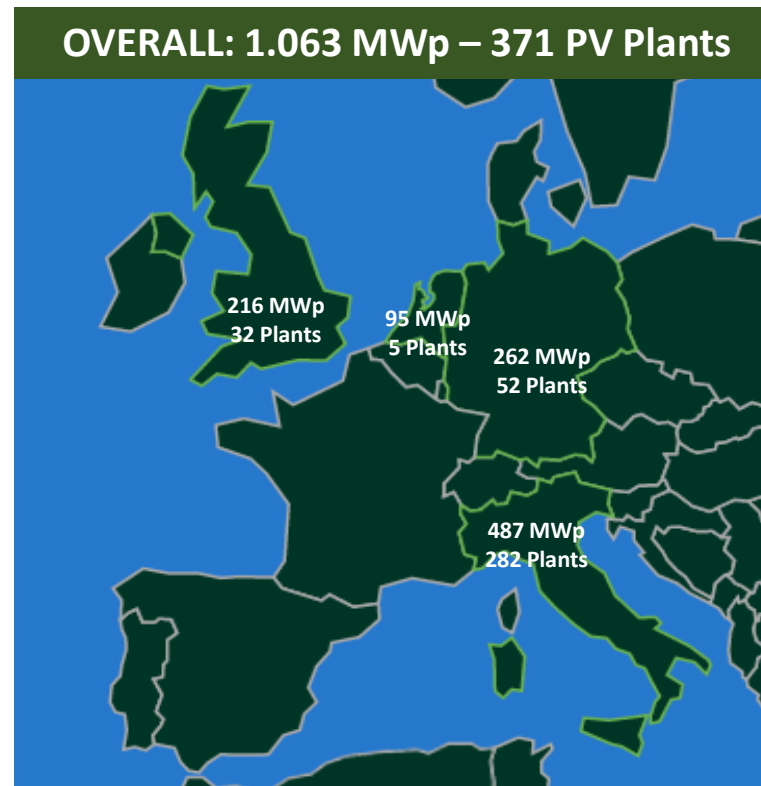
Incl. aerial thermo (550 MWp) etc.



## 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 ...

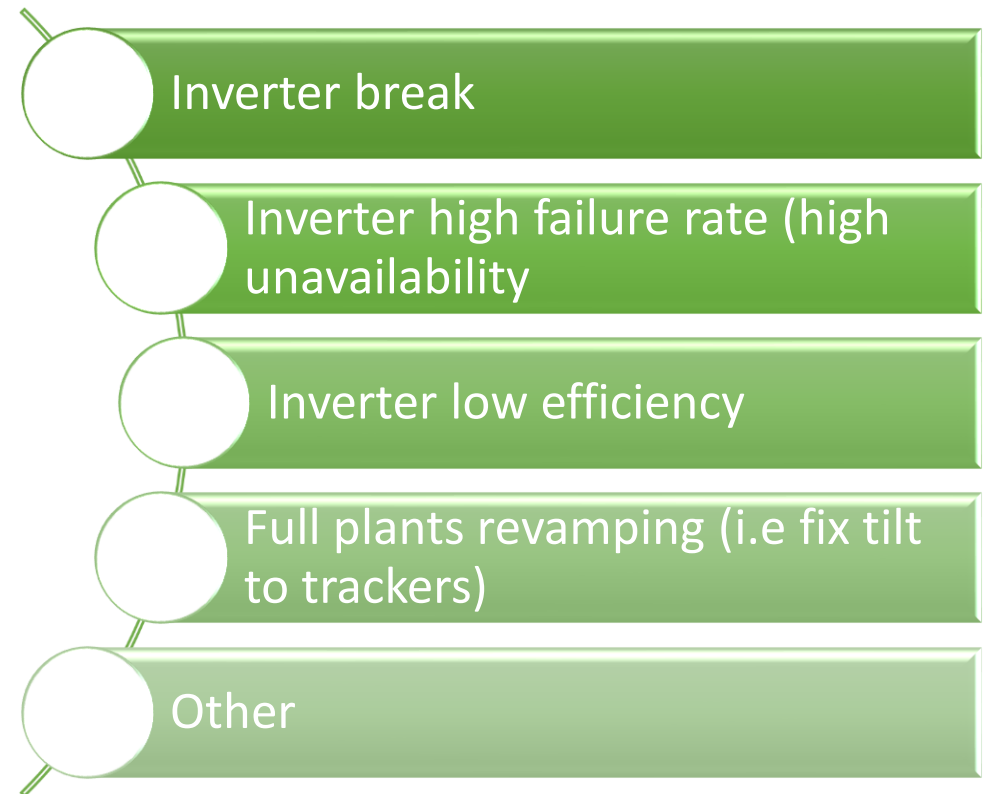
**A dedicated team for revamping designing, within Stern engineering and design unit**

**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.

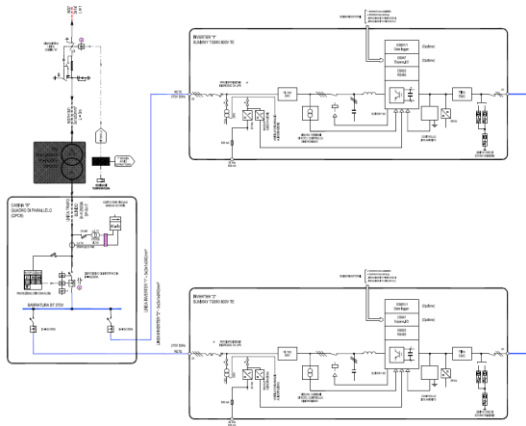
**Reason for the activity:** irreparable failure of the old inverters

**Main challenges:** restore production as soon as possible

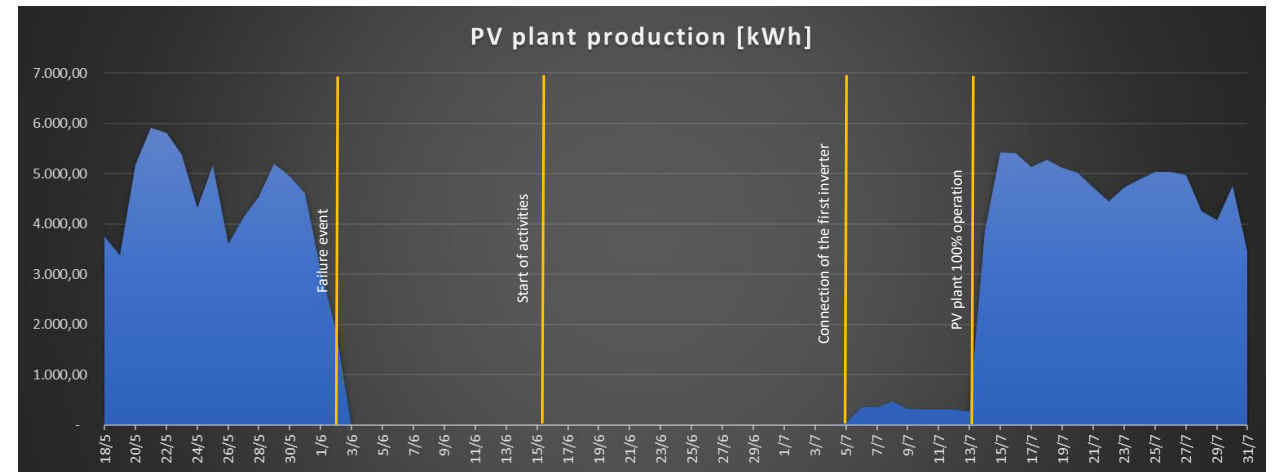
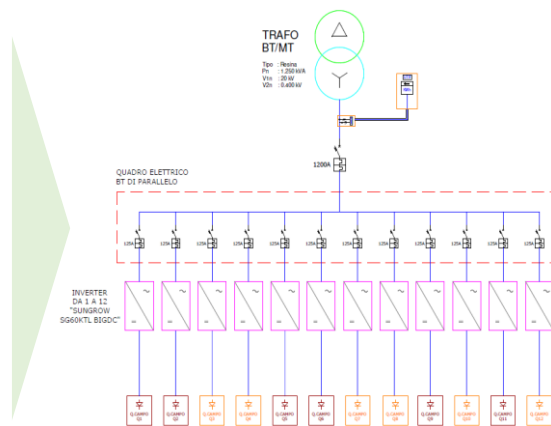
**Timing forecasted for the revamping:** 30 days

**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

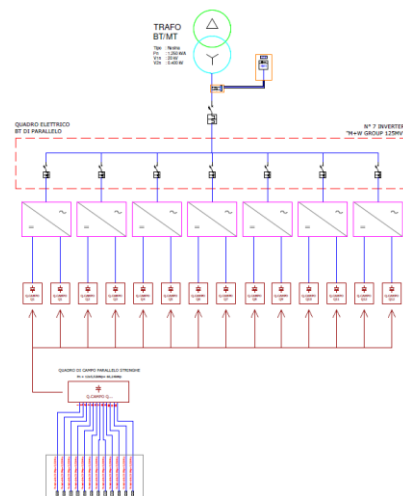
**Reason for the activity:** increase the production of the PV plant due to the high failure rate of the old inverters

**Main challenge:** reduce energy losses during revamping

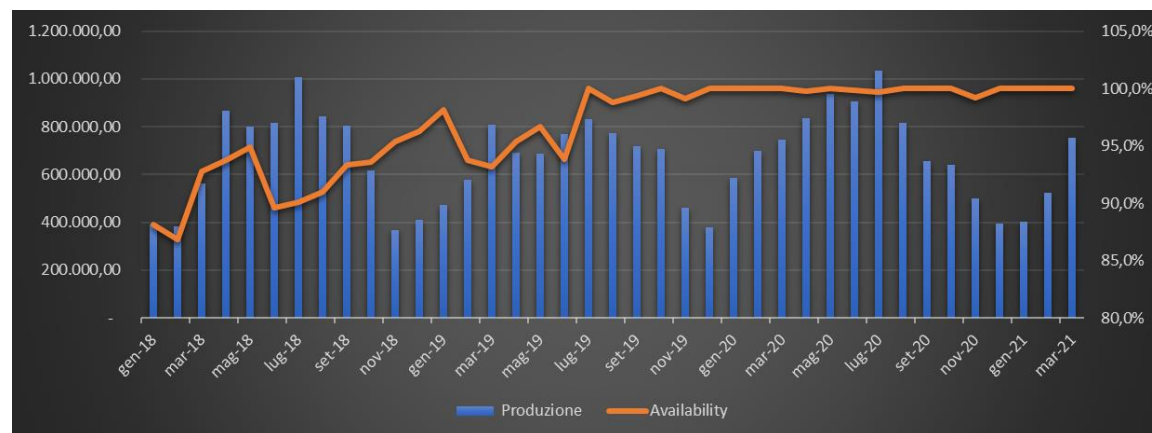
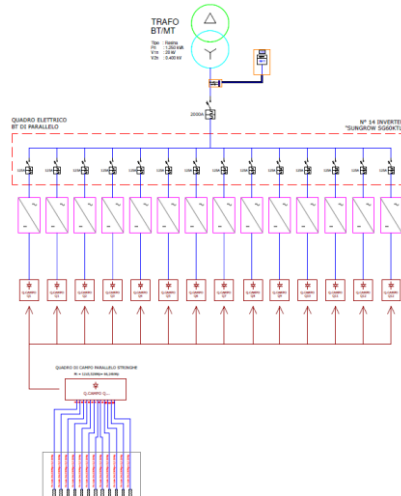
**Timing forecasted for the revamping:** 90 days (incl. strings recabling)

**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

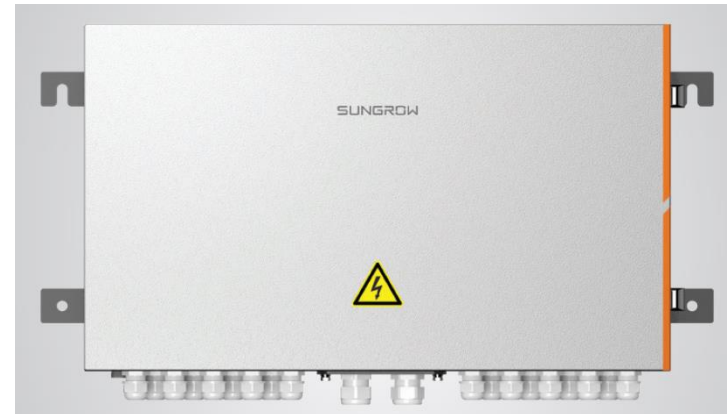
**Plant located in Parma (ITA) of 6MWp:** to remove 2 centralized inverters (revamping on 1 MWp only) to be substituted with 12 Sungrow inverters SG110CX with PVS-18RM combiner boxes.

**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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