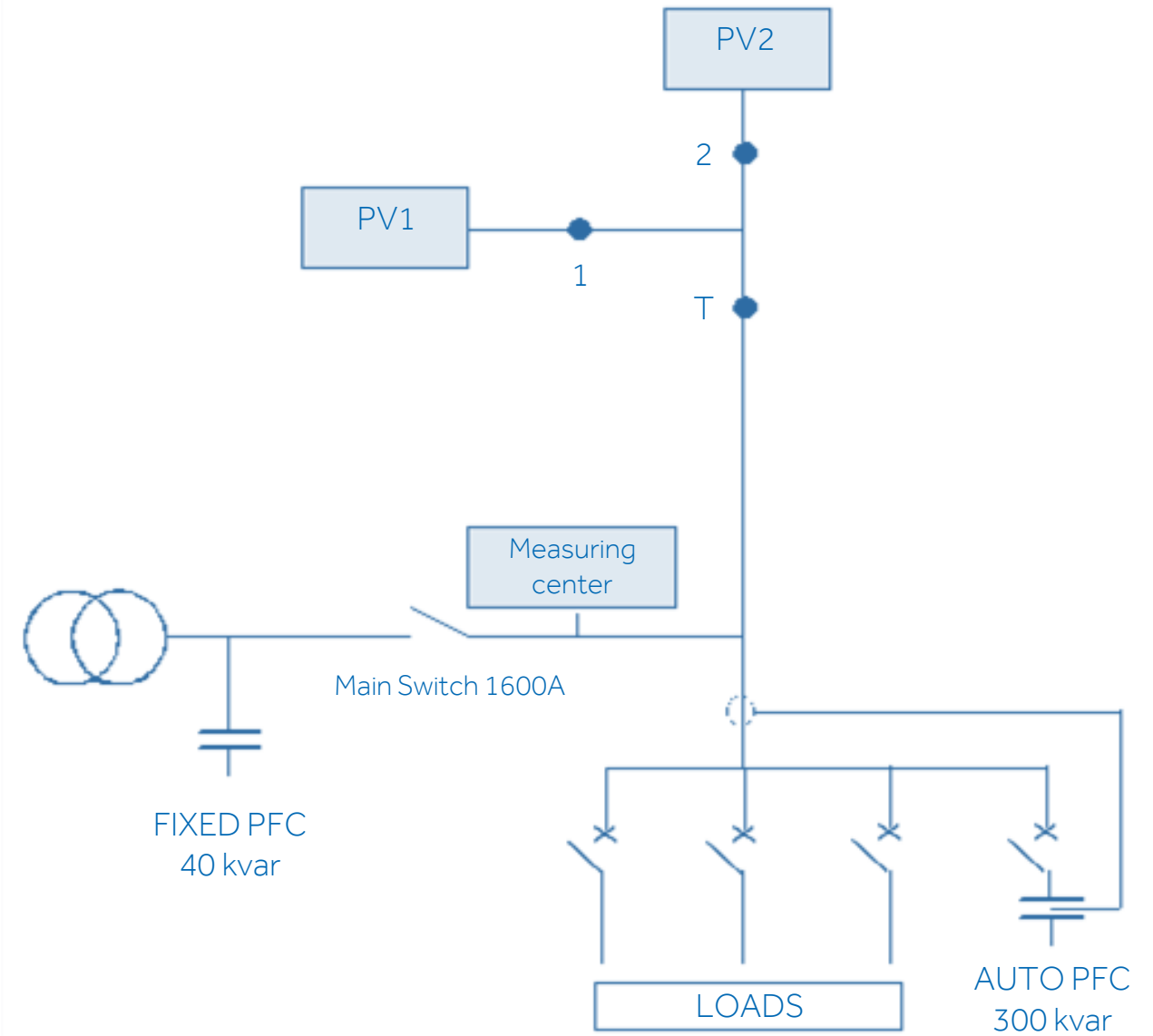
Capacitor Banks when PV system is in place

COMAR Condensatori

Save Your **Energy.**

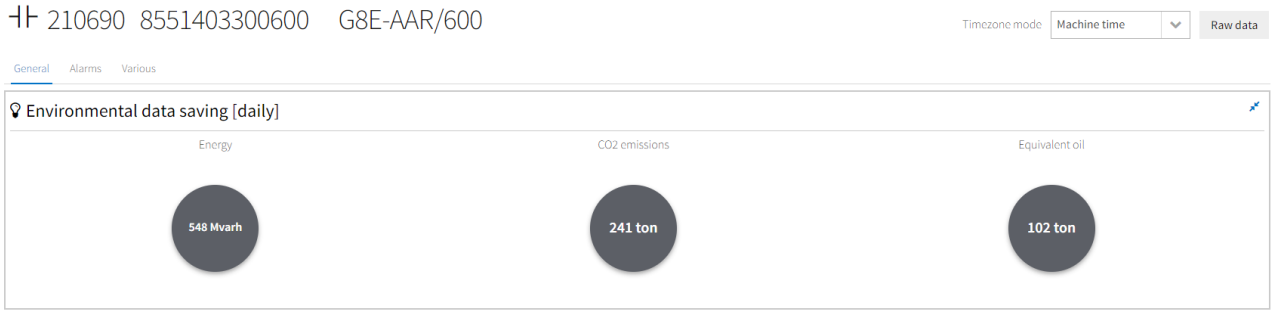
This brief business case wants to analyze the case of a power factor correction intervention, carried out at an Italian company that has several photovoltaic panels installed on two roofs of its factory.

Let's start by looking at the basic layout of the installation:

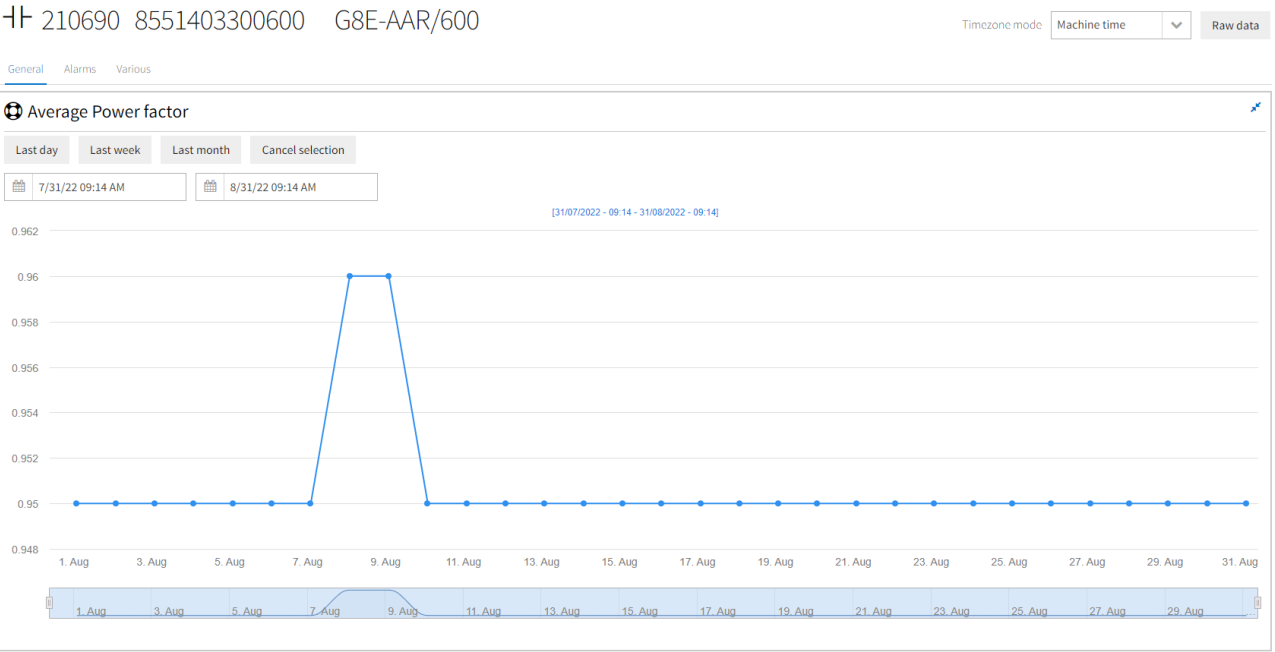


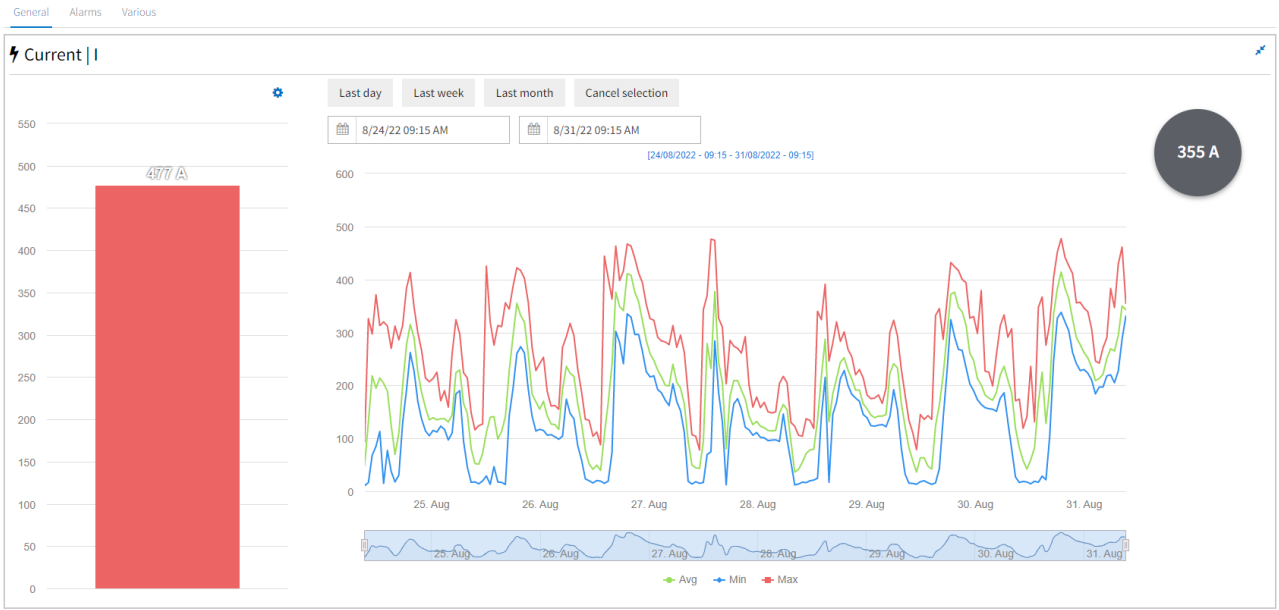
In this case the capacitor bank is an AAR/600, of 300kvar with steps of 25 + 50 + 3x75 kvar, for THD (I) max. = 100% and THD (U) max. = 6% in the network.

The following shows, thanks to the CCS **remote** monitoring service, the savings achieved since the system was commissioned (about 15 months):

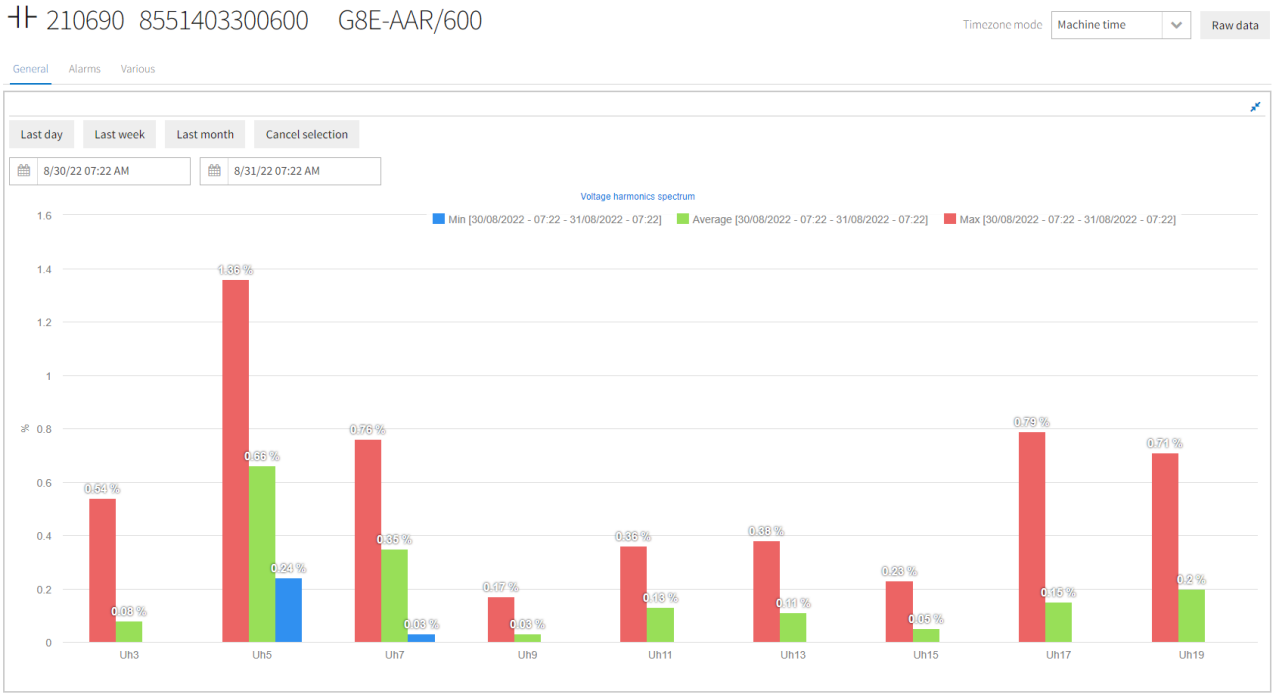


Let's now see the average daily **Power Factor** and the **Current** values:

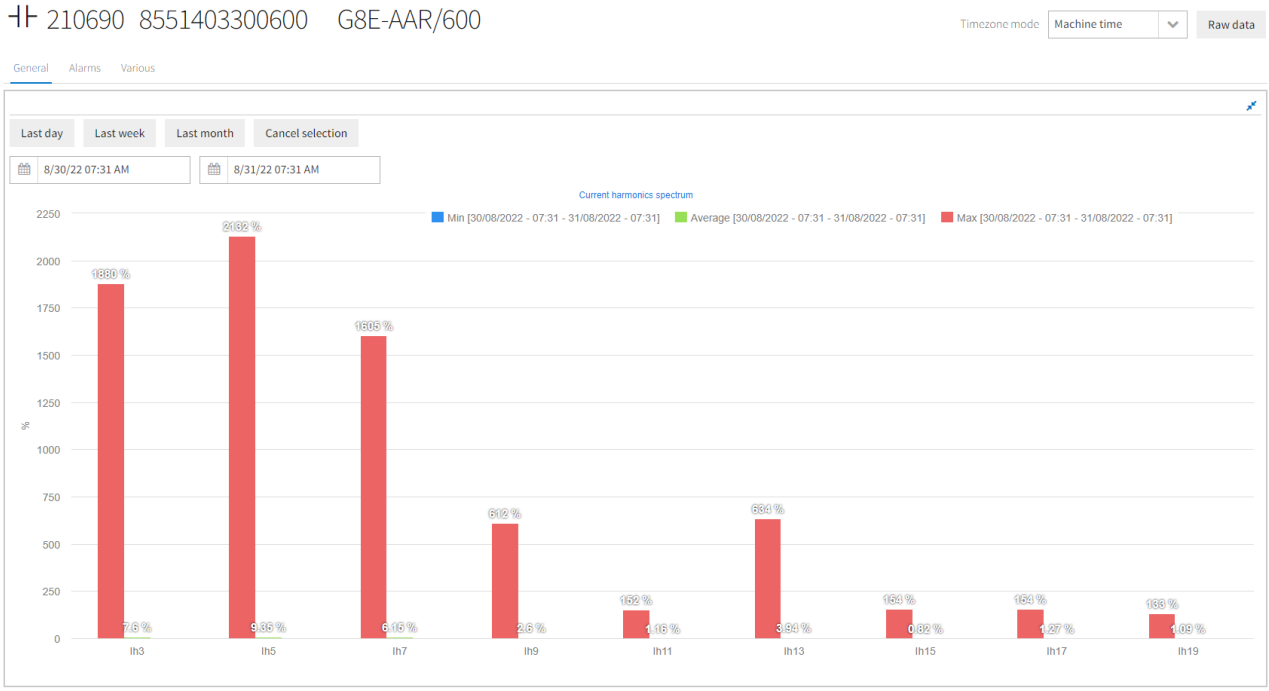




The **Harmonic Spectrum in Voltage** is shown below:



The **Harmonic Spectrum in Current** is shown below when the photovoltaic generates almost all of the current absorbed by the load:



The **COMAR** power factor correction equipment is able to manage the situation, with a timely modification of the P.F. controller (= regulator) to be carried out at the time of commissioning.

The **Active Power** curve is shown below:

As can be seen at certain times of the day, the system becomes a generator and feeds electricity into the national grid.

In addition, we remind you that to feed the energy generated by the solar panels into the grid, the photovoltaic system uses inverters with switching technology which also determines the generation of harmonics that go to stress the capacitors inside the power factor correction equipment.

Therefore, in cases where a photovoltaic system is installed:

- Any existing power factor correction device may be of insufficient power
- It would be necessary to have heavy duty capacitors (e.g. MK-AS DMP)
- We always recommend the use of a power factor correction equipped with metallized polypropylene film capacitors

Finally, we invite you to contact us to verify the need for a new equipment, which is equipped with **blocking reactors**, such as the one in the example shown here.

Do you have any other questions?

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