

A three-phase solar power plant consisting of

- 1) Victron Quattro 48/10000 / 140-100 / 100 3 pcs.
- 2) Fronius Symo 20.0-3-M 1 pc.
- 3) Victron Color Control GX 1 pc.
- 4) BMZ ESS 9.0 3 pcs.
- 5) NIC stabilizers 12 kW 3 pcs.

The stabilizer is used because the input voltage ranges from 180 V ... 260 V per phase. For Victron, this is the allowable voltage, for the load it is not.

Fronius is connected to the Victron output, then the stabilizer and load (see Figure 1).

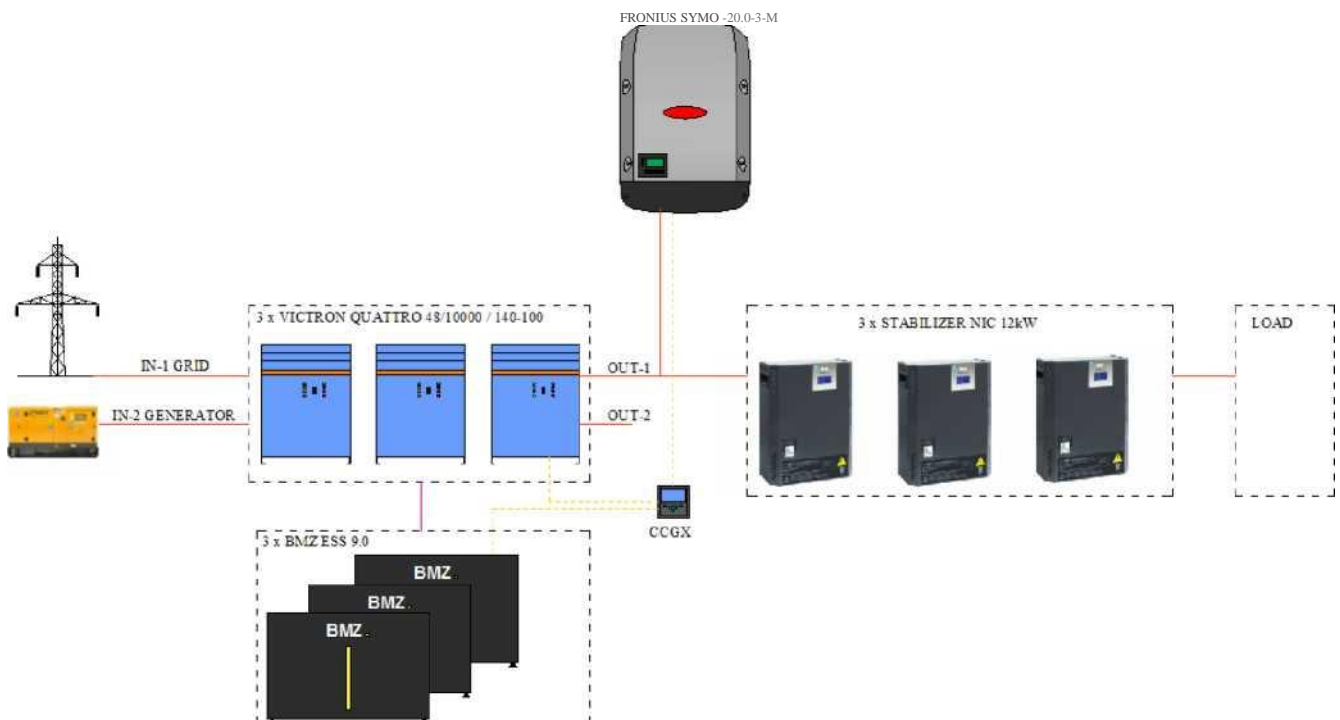


Figure 1 - The current connection diagram on the object

Problems:

1) Fronius generates maximum power, the load is minimal, almost all of the generated energy is transmitted to the network at a green rate.

If the network disappears at this time, then sometimes (rarely) a hardware failure occurs in the load caused by a short-term (second or less) power failure. In this case, the voltage disappears after the inverter or after the stabilizer (it is impossible to fix it). Victron and ESS critical event logs (in the panel) do not record this.

2) When working without a network and without the sun for a long time, when the batteries are discharged, the generator starts.

If at this time the heat pump motors are switched on in the load, then when the inverter input is connected to the generator, a synchronization failure occurs and the inverter input is turned off again. This is repeated many times. If in this situation, bypass the stabilizer (by pass), then everything works fine. Так как решений этой проблемы в данной схеме не было предложено, то было принято решение переставить стабилизатор на вход Victron.

And in order to realize energy transfer according to the green tariff (for sale of electricity in Ukraine ) when working from the network and to recharge the batteries offline from the sun, it was

decided to make an automatic switch to switch Fronius to the network or to the Victron output (see Figure 2).

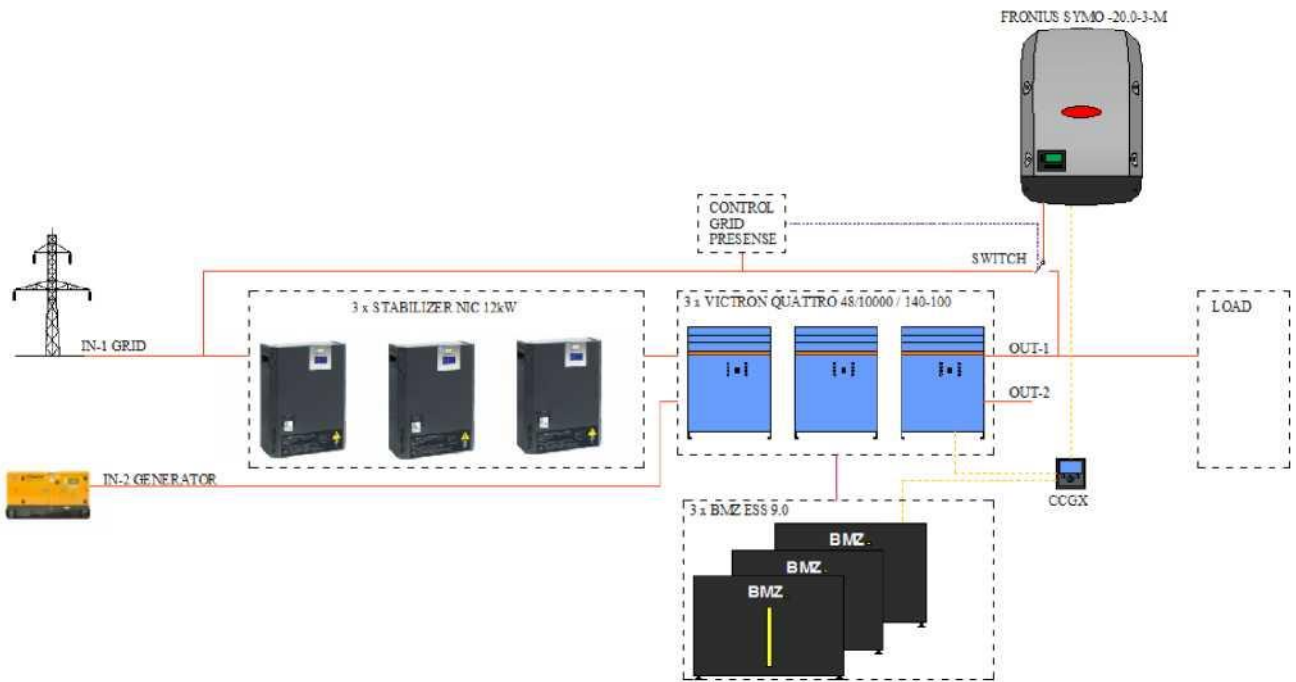


Figure 2 - Alternative circuit with an automatic switch

Given that the ESS program will set Fronius to Victron output mode, the question is:

If Fronius is connected to the network, ESS accepts the presence of Fronius generation, and at the same time the absence of such generation at the Victron output.

Will the ESS consider this situation as erroneous and somehow respond to it?