

N. Magnisia, Thessaloniki, 19/09/2024

We would like to confirm the positive results of the power quality optimization & electric energy saving project that our company, SIDENOR S.A., assigned to you to execute for the electrical installation of its plant in N. Magnesia, Thessaloniki.

In line of your project, custom-made interventions were designed and installed, taking into account the extremely difficult conditions prevailing in our plant, such as:

- The high levels of current-voltage harmonics and the significant fluctuation of the operating voltage due to furnaces' operation,
- The adverse environmental conditions (extremely high levels of metal dust and ash in many areas where the electrical panels are, high temperatures, etc.).

The equipment installed under your project is of special specifications and includes state-of-the-art materials from the most renowned industrial manufacturers worldwide (ABB, RITTAL, SIEMENS, EPCOS). The project was installed and put into full operation in November 2023. During our collaboration, from the initial design to project execution and commissioning, the supervising engineers of SEM SYSTEMS along with their installation technicians demonstrated exceptional behavior, accuracy, and professionalism. Today, after ten (10) months of operation, project interventions operate reliably, continuously and smoothly.

Furthermore, throughout this period, we have observed the following:

- Due to the improved voltage levels and the significant reduction of current-voltage harmonics, the efficiency of motors and power transformers has been greatly improved.
- A substantial reduction in thermal losses across all cables, electrical panels, and electrical equipment has been achieved.

HEADQUARTERS: 2-4 Mesogion Av., GR- 11527 Athens, Greece, Tel.: (+30)-210-6861111  
PLANT: 12<sup>th</sup> klm Thessaloniki-Veria, GR-57008 Ionia, Thessaloniki, Greece  
Tel.: (+30)-2310-790111, Fax: (+30)-2310-722288

Code No. S.A.: 7947/01/B/86/164 Ministry of Development  
General Commercial Registry Number: 000869901000  
VAT Number: EI094130920, Tax office: KEFODE Athens

- The total power factor of the electrical installation has been optimized both locally (Low Voltage level 0.4kV - 0.55kV & Medium Voltage level 5.5kV) and centrally (High Voltage line 150kV).
- Additionally, it is noteworthy that an important increase in the reserve of the plant's electrical installation has been observed, thus new electric loads can be supplied in the future.

Regarding the result of electric energy saving achieved, this was specified through analyses of the electricity consumption and production data, based on the relevant International Bibliography. For this purpose, it was implemented a mathematical function that correlates the electric energy consumption with the production data of the plant. The calculation of the parameters of the correlation function was made by using regression analysis, taking into account the historical electricity consumption and production data, after checking first their reliability according to the relevant mentions of the International Bibliography. Finally, for the calculation of the saving result, the above correlation function was applied to the three months following SEM SYSTEMS's project implementation, from which it emerged that the final result exceeds the guaranteed electric energy saving goal.

In conclusion, the project you carried out at the electrical installation of our plant is deemed as completely successful, as it exceeded the contractual goal for electric energy saving while leading to optimization of plant operation, as detailed in this letter.

SIDENOR Group



**VASILEIOS PAPANTONIOU**  
Senior Technical Director