



Nov. 30 , 2014

To: SCIENTIFIC ENERGY MANAGEMENT DMCC [SEMAN]  
INDIGO ICON, JLT, OFFICE 1704  
POBOX 309081, DUBAI, UAE

*Attention: Dr. K.J. Satsios, President of SEMAN Group*

*Copy: Mr. Ioannis Karapatakis, CEO of SEMAN DMCC*

Dear Sirs,

After your relevant request, we have the pleasure to submit you our conclusions regarding the Power Quality Improvement and Saving Project that was carried out by SEMAN in our factory Al Assemah factory in Jeddah, which applied SEMAN latest energy technologies and equipment that conform to international standards.

The SEMAN project, concerned the power quality improvement by current-voltage harmonics reduction, the improvement of motors' and power transformers' efficiency and the minimization of the reactive currents in the inner of the factory's electrical installation. The total installed power of the interventions for the voltage-current quality improvement and energy saving was 7.8 MVA. The interventions were installed at all different voltage levels, according to the kind of the loads, namely in the Low Voltage Loads (at 380V, 480V and 600V) and in the Medium Voltage Loads (at 3300V), even in the departments of the factory where difficult conditions are prevalent, like extremely hot and dusty places. The above interventions included also proper

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electronic controllers for the adaptation of their characteristics to the variations of the electric loads.

The project was embarked as its design leads to the improvement of electric motors' and power transformers' efficiency, as well as to the significant reduction of thermal losses in the entire electrical installation of the plant. The above benefits resulted in higher electric energy saving with respect to the initially guaranteed rate of 10.15%.

Installation of the energy saving equipment was performed in July 2013. Project results evaluation was also performed with instant live measurements of the rms values of total currents of the plant's electrical installation feeding subpanels, with and without project interventions in operation. In detail, said measurements were realized during two time periods:

1. During 28 to 30 of July 2013. Based on this set of measurements, the average reduction (weighted average) of the rms values of total currents of feeding subpanels of the electrical loads at the plant electrical installation was equal to 16.70%.
2. During 22 to 24 of October 2013 (three months later). Based on this set of measurements, the average reduction (weighted average) of the rms values of total currents of feeding subpanels of the electrical loads at the plant electrical installation was equal to 14.77%.

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The average saving (-15.74%) in both cases was greater than the guaranteed (-10.15%). Therefore, the initial energy saving target was achieved, and this would lead to a shorter pay-back period.

Consequently, taking into account all the above, we would like to congratulate you for the Power Quality Improvement and Saving Project, which was executed to our plant facilities with absolute success, in line with your offer and scientific know-how.

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Best regards,

Ahmad M. Al-Amoudi  
VP- Jeddah Operations

