

Trial and Error

By Alia Ali Busamra

Testing and Pioneering New Technologies

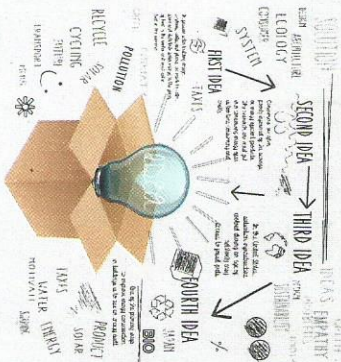
Science and technology are undoubtedly dynamic. There are significant discoveries and new products introduced by vendors every year. Some of these technologies are viable and others are not - some technologies may carry risks in terms of long-term reliability, maintenance and operational costs, and payback periods.

In order to build a resilient basis for evaluating new technologies and products in the field of energy and resource management, ENOC has developed a mechanism to understand and verify the products and technology offered by different vendors during its Energy and Resource Management Technical Committee meetings. This not only ensures the long-term viability of these new products but also promotes a shorter payback period which is a crucial part of sustaining the business.

Pilot studies or field trials are small scale preliminary studies conducted in order to evaluate feasibility, time, costs, adverse events and side effects in an attempt to predict an appropriate sample size and improve upon the prototype prior to instituting a full-scale project.

During ENOC E&RM Technical Committee meetings, vendors are invited to present their products and technologies related to E&RM so that members can learn about the new technologies. Some pilot projects have been successfully implemented and have been rolled out on a mass scale as a result of these presentations. Others have shown shortcomings based on actual field trials as they did not substantiate the vendor's claims of saving energy.

ENOC has conducted various pilot studies and field trials through its business units which has led to successful implementation and verification of the technology. One example is the installation of two Variable Frequency Drives (VFDs) on LPG filling pumps at EMGAS on 1 August 2013. A VFD is a



device used to control the speed of an electric motor by changing the frequency of electricity supply. A reduction of more than 30% in energy consumption was achieved by using VFDs. The average consumption of energy was reduced from 24 KW/hr to 16 KW/hr. This resulted in an estimated annual reduction in energy consumption of a minimum 41,000 KWh, which is quite substantial. These promising results encouraged EMGAS to roll the project out for tanker filling pumps, where the potential savings were expected to be higher, at around 50%.

Another pilot study was conducted on an AircoSaver device at retail site 1066. The AircoSaver is an intelligent retrofit control unit that adds intelligence to simple air conditioning systems and improves their energy efficiency. The objective of the pilot study was to analyse the performance of the AircoSaver in three Package AC units and

one Ceiling Cassette Split Unit (AC Type: split ductable and package units, AC Brand 8 Ton: York 6) at retail site 1066 in Mirfah, Dubai in the G-store. The test was conducted in August and September 2014 and the test results showed that the AircoSaver devices (four devices were installed, each unit costing AED 1,000) reduced the electricity consumption of the AC units by an average of 14.7% with total savings of 461.95 kWh or AED 198.6 over a period of five days.

The indoor temperature could be maintained at a set point. The reduction in compressor run-time was 1.7%. The payback period is estimated to be 100 days and savings of AED 32,000 will be achieved within 3 years.

Since the results of the pilot study were promising, the technical members were urged to implement the same in their sites where and when applicable.

As some members of the ENOC E&RM Technical Committee had doubts about the effectiveness of waterless urinals, a pilot study was conducted in EMGAS and the project was found viable with no complaints received to date. For this pilot study, prior to the change, eight sub-meters were installed for each waterless urinal to monitor consumption.

The ordinary urinals consume 30 l/c per month compared to waterless urinals. The cost of each waterless urinal is around AED 3,500 including installation. The results encouraged all business units to go ahead with such initiatives where and when applicable and practical.

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