



## Coolnomix Performance Report for Yamsaard School, Hua Hin

8<sup>th</sup> January, 2014

### Review

As outlined in the Purchase Order Confirmation document of October 18<sup>th</sup>, 2013, a total of 64 Coolnomix AC-01 energy-saving units were installed at Yamsaard School in late October. Initially, it was requested to set the temperature of all units to 26 degrees Centigrade, however this was determined to be 'too warm' in some classrooms and a number of adjustments have been made to comply with the class teachers' requirements.

All air-conditioning systems have remained operational when required during the testing/monitoring period of November and December. In some cases, maintenance of the air-conditioning units (eg. top-up of refrigerant gas) has been identified to improve the cooling performance of the systems. There were no significant 'events' during the testing period that would influence the overall performance of the Coolnomix energy-saving devices, except for 1 day in early November when there was a total power cut in Hua Hin for 8 hours and the school was closed. Otherwise, operationally all proceeded normally.

### Testing Results and Observations

The testing period covered the months of November and December, 2013. It had previously been established that the average monthly cost for electricity was approximately Bt.82,000. Ideally, a comparison should be made between November 2012 and November 2013, however we have not seen the November 2012 electricity invoice, so can only base performance on a comparison with the average.

The November 2013 invoice came to Bt.74,000 which indicates a saving, compared to the monthly average, of Bt.8,000. This is particularly good as there was a considerable price increase for electricity earlier in 2013.

For December, we do have the information from the same month in 2012. For 2012, there was a usage of 13,056 kWh at a total cost Bt.61,011. For 2013, there was a usage of 9,672 kWh at a total cost of Bt.47,888. **Overall**, this represents a saving of 3,384 kWh (**26%**) on power usage and a Bt.13,123 (**22%**) saving on costs.

It is estimated that air-conditioning represents 70% of the total power usage, so actual savings in December for air-conditioning is as follows:

kWH:  $13,056 * 70\% = 9,139$ . Saving 3,384 kWh =  $3,384/9,139 = 37\%$

Cost: Bt61,011 \* 70% = 42,708. Saving Bt. 13,123 = 13,123/42,708 = **31%**

On the same basis, the figure for November is an estimated **15%** saving.

## **Conclusion**

It is clear from the results identified above that the test did demonstrate that energy savings, and therefore cost savings, were achieved. It is clear that electricity usage will fluctuate during the year depending on climatic conditions and school occupancy. Although the results for December demonstrated excellent savings were achieved, a more conservative estimate of a 20% savings overall (30% saving on air-conditioning only) would be fair. This would mean a Return on Investment (ROI) of 17 months for Yamsaard School. If electricity prices were to further increase (likely), the ROI period would be achieved earlier.

## **Proposal**

Coolnomix (Thailand) Co. Ltd proposes that Yamsaard School Hua Hin retains all 62 AC-01 energy-saving units as currently installed and operational which, as we have demonstrated with the testing, will deliver significant energy savings for the future. It is further proposed that should additional air-conditioning be installed at Yamsaard School, we would be delighted to install on these new systems as well. All Coolnomix units are guaranteed for 3 years with full replacement should any Coolnomix fault be detected.

We are aware that Yamsaard have additional schools in the Bangkok area that could take similar advantage of the savings the Hua Hin school is achieving. Coolnomix Thailand Co. Ltd would be happy to discuss this further opportunity as soon as is convenient.

Coolnomix (Thailand) Co. Ltd would like to thank Yamsaard School Hua Hin for the opportunity to test and verify our energy-saving technology, and appreciation for the kindness and friendliness of the staff while we were conducting the installation and testing.

**Footnote:** We have been informed by Yamsaard School that they have continued to achieve excellent energy savings in January, 2014. Compared to January 2013, January 2014 indicated a reduction of 2,000 kWh usage, resulting in a Bt.20,000 reduction (from Bt.70,000 to Bt.50,000) in their electricity bill. This price reduction was achieved in spite of a 20% increase in electricity charges since January 2013.