



Headline	Build-ing energy efficiency
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# Build-ing energy efficiency

**T**OTAL final electricity consumption in 2000 was 5,262 kilotonne oil equivalent (ktoe) and increased to 10,590 ktoe by 2013. Final Electricity Intensity (gigawatt hour to gross domestic product at 2005 prices in million ringgit) increased from 0.142 in 2000 to 0.156 in 2013. The increase in electricity intensity indicates that the consumption pattern is not moving towards energy efficient consumption.

The 11th Malaysia Plan (11MP) promotes the usage of ISO 50001 Energy Management Certification, which is highly redundant, with ISO 14001. In fact, under the ISO 14000 series, the usage of Life Cycle Assessment (LCA) gives a better output for any industry to move to sustainable manufacturing.

LCA will assist industries to carry out Life Cycle Costing (LCC) to identify the most cost-effective and sustainable manufacturing processes to be deployed. In many cases, LCA did manage to reduce the cost of operation and push the industry to be more sustainable environmentally.

For many large industries, electricity is not the main cost that affects their operation, but the raw material cost does.

One of the demand side management strategies for electricity outlines the need to reduce peak demand. This mechanism will only be effective if full energy efficiency mechanisms have been deployed and optimised. Implementing cost-based methods to reduce peak demand will not work if the root cause (inefficient operation

of commercial and industrial sector) of peak demand is left unattended.

Once inefficient operations of domestic, commercial and industrial sectors are fixed via technical and regulatory approaches, the cost-based method will yield a proper result in reducing peak demand.

Deploying the cost-based approach prior to solving non-energy efficient operations will not achieve a reduction in peak demand. It will end up increasing the base load during non-peak hours and directly increasing the carbon footprint of the electricity generation sector due to running more non-efficient power plant as base load plants.

One of the mechanisms the Association of Water and Energy Research Malaysia (Awer) has suggested was for the Energy Commission to develop a new Building Energy Efficiency Regulation. A different set of sub-regulations for construction of new building and retrofitting existing building is the first step forward.

Some of the components that must be covered by this regulation are heating, ventilation and air conditioning systems, building materials and design.

Adopting insulation materials and their probable application will assist in cost-effective measures. The regulation must also cover the transition period setting, enforcement and guidelines (various building operations and functions).

To keep up with technology development, this regulation must have a mandatory five-year review period. In this way, commercial

buildings and houses can be designed to be energy efficient at the construction stage. There should be a mandatory requirement that the building must be in compliance with the new regulation, in order for it to be allowed to be constructed.

This will also prevent the government from wasting taxpayers' money to retrofit

new buildings (like in Putrajaya) to be energy efficient again.

Development of building and insulation materials which are able to function and operate effectively in local climatic conditions, compared to failed technologies that are imported from overseas, can be developed and marketed. This will allow Malaysia to be technology owner and to market these products to countries with similar climatic conditions to us. Asean is an immediate market we can explore.

There is one stumbling block to build-ing energy efficiency – the Uniform Building By-Law (UBBL). A new Building Energy Efficiency Regulation must be adopted by UBBL to create the paradigm shift in energy efficiency for buildings.

Why should we buy buildings that force owners to use more electricity? Can we see this reality before 2020?

This article was contributed by **Piarapakaran S**, president of the Association of Water and Energy Research Malaysia (Awer), a non-government organisation involved in research and development in the fields of water, energy and environment.