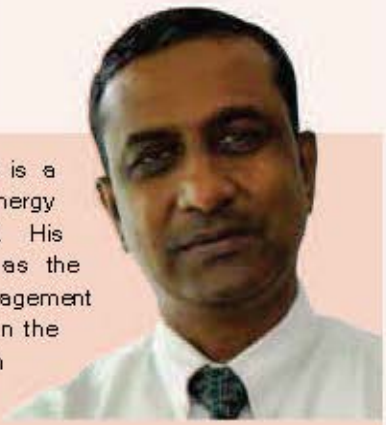
Need For Energy Efficiency Policy And Master Plan

by Ms. CC Tan



IR. Francis Xavier Jacob is a Senior Analyst with the Energy Commission of Malaysia. His immediate last post was as the Director of Energy Management and Industry Development in the Commission. He has been with the Commission and the then Department Of Electricity And Gas Supply since 1991. The Commission, among other things, regulates the electricity and piped gas industries in Malaysia.

Prior to this, he was with the Public Works Department Malaysia, where he was involved with the design and project management of public electrical installations. He was also, for some time, involved in the maintenance aspects of these installations.

Presently, he is the chairman of the SIRIM Technical Committee on Energy Management and a member of various working groups including that which revised the Code of Practice on Energy Efficiency and Use of Renewable Energy for Non Residential Buildings. In ***JURUTERA***'s February issue on Energy, he shares his thoughts on energy efficiency – or the lack thereof – in the country.

Q: How would you rate Malaysia's energy-efficiency-maximising efforts so far?

Jacob: It could have been better. The country has developed various strategies and programmes, which have been incorporated in its 5-year development plans. These incorporate both the 'carrot' and the 'stick' approaches and include

- Five Fuel Policy
- Fiscal incentives
- Regulations
- Demonstration projects
- Integrated complexes/townships
- Demand side management
- Development of related industries and services
- Research and development
- Energy use benchmarking
- Energy rating and labelling
- Incorporation of EE in Uniform Building By Laws
- Courses in learning institutions
- Market pricing for energy
- Regional (ASEAN) corporation.

In terms of regulations, it has implemented the first of its energy efficiency regulations, known as the *Efficient Management Of Electrical Energy Regulations 2008*. These Regulations apply to any installation with a total electricity consumption equal to or exceeding 3 million kiloWatt hours over a six-month period or private generation licensees which generate a similar amount of electrical energy. As I mentioned, only the bigger installations are being target by this set of Regulations.

Eventually it is hoped that smaller installations will also be covered by these Regulations.

Under the Regulations, the installation owner has to employ a Registered Electrical Energy Manager, develop an Electrical Energy Management policy and objectives, have an energy audit done and submit periodical reports.

Provisions dealing with appliance energy efficiency labelling and the implementation of Minimum Energy Performance Standards for electrical equipment have now been incorporated into the Electricity Regulations 1994 on 3 May, 2013.

In terms of fiscal incentives, the government is offering, among others, pioneer status, investment tax allowances and exemption from import duties and sales tax for those implementing energy efficiency and conservation projects.

On the aspect of efficient lighting, Malaysia has, as is done in many other countries, initiated steps to phase out the use of incandescent lamps. This will be carried out in phases, starting with the phasing out of bulbs rated at 100W and above. This will be followed by the phasing out of the other incandescent bulbs.

There will, of course, be exemptions given in situations where there are no proper alternatives for the use of incandescent bulbs. It must also be stated that in implementing such programmes, time must be given to the people to adapt to the new requirements. Retailers and manufacturers will have to be given the opportunity to clear existing stocks and to switch to the manufacturing of more efficient lamps such as compact fluorescent lamps (CFL) and light emitting diode (LED) lighting.

Malaysia has also developed its own green building rating system similar to the *Leadership In Energy And Environmental Design* or LEED, developed by the United States Green Building Council (USGBC). Here it is known as the Green Building Index or GBI.

Q: How can we be better?

Jacob: We could have done better if we had an Energy Efficiency Policy and Master Plan. This would have helped us to have clear targets to achieve and enabled the country to develop and implement energy efficiency strategies and programmes in a more coordinated and effective manner. The National Energy Efficiency Action Plan is being developed and is expected to address such issues.

Q: What do you think is the major roadblock to energy efficiency here?

Jacob: One important impediment as I mentioned earlier, is the lack of a coordinated approach to promote energy efficiency. This is further compounded by the subsidies we have for the energy sector.

Q: I understand that the government is looking at increasing the use of coal in anticipation of oil depletion. What will this do to our current carbon emission levels? (Please provide current and expected emission levels.)

Jacob: As coal replaces natural gas in the electricity generation sector, carbon emissions will increase. The carbon dioxide emission factor for natural gas is about 25.8 tonnes/Tetra Joule, while for coal it is about 15.3 tonnes/Tetra Joule. This represents an emission increase of 69% for the same amount of energy extracted from the primary fuel source.

CO_2 emissions under the BAU (Business As Usual) scenario is expected to grow annually at about 3.72 percent from 2000 until 2020, EEC (Energy Efficiency and Conservation) scenario at 3.53 percent, RE (Renewable Energy) scenario at 3.49 percent and the APS (All Plausible Scenario/Alternative Policy Scenario) scenario at 3.2 percent. In 2020, in terms of total CO_2 emissions, the APS scenario will have the least CO_2 emissions at 234,065 Gg, followed by RE scenario at 248,433 Gg, EEC scenario at 251,058 Gg, and BAU scenario at 259,844 Gg.

Q: Is there a cleaner or greener alternative for us?

Jacob: As a first step we have to take more aggressive efforts to increase the efficiency of energy use in our industrial, transport, commercial and even our domestic activities. Simultaneously, we have to increase the share of renewable energy in the energy mix.

Q: In your article for us (in this same issue), you mentioned that "at Copenhagen, in 2009, at the 15th Conference of Parties of the UN Framework Convention on Climate Change, the Malaysian PM has made a commitment to reduce the country's carbon intensity to GDP by 40 pc in year 2020, as compared to its 2005 levels". Are we on track to achieve this?

Jacob: The important greenhouse gas and GDP statistics for this purpose is as shown in the following table:

	Unit	2005 (Baseline)	2020 (BAU)	2020 (40% Intensity Reduction)
GDP	RM billion	449.25	906.64	906.64
Population	million	26.38	34.4	
CO_{2eq} Emission	million tons CO_{2eq}	279.2	375.4	335
CO_{2eq} Emission/ Capita	tons/capita	10.58	10.92	
CO_{2eq} Emission/ GDP	tons/RM thousand	0.621	0.414	0.373

According to the Ministry of Natural Resources and Environment, mitigation options have been identified and quantified in terms of potential emissions reductions and costs with the final draft report produced in December of 2012. The review and feedback from relevant ministries on the efforts being undertaken is ongoing.

Q: What more can be done to ensure/lessen our carbon emission?

Jacob: Apart from what the government is doing, we can also undertake our own efforts towards achieving this goal such as:

- **Upgrading appliances** when appropriate:
  - 5 Star energy efficient appliances
  - Using right size appliances
  - Compared with top loaders, front loader washing machines use less energy. They also use less water and detergent
- **Switching off appliances** when not in use: TV, computer, microwave and even some washing machines have a 'standby' mode which means they're still consume energy even when idle
- **Insulating** the roof or ceiling will help keep the home cooler and save on air conditioning energy bills. This will pay for itself in a relatively short time

- **Using air conditioners** only on really hot or humid days
  - Set at the highest temperature setting at which you still feel cool enough, 23°C to 25°C is usually adequate. Each 1°C increase in the thermostat setting will save about 10% on energy usage
  - Programme use of air conditioners for a few hours. When room is cool, switch to electric fans
- **Ceiling fans** are much cheaper than air conditioning and have less impact environmentally, though they do not cool the air, but only move it about to produce a breeze
- **Computers and IT equipment:**
  - Use a laptop instead of a desktop, if practical
  - Switching off a computer when not in use, extends its lifetime, contrary to popular belief
  - Minimise printing. This will reduce the use of paper – leading to reduced need to cut down trees and forests
  - Laser printers use more electricity than inkjet printers
- **Replace incandescent bulbs** with compact fluorescents (CFLs) or light emitting diode (LED) lamps
  - Compact fluorescents use four times less energy, and last six times longer (6,000h instead of 1,000h) than incandescent light bulbs
  - The extra cost of CFLs and LED lamps can be recovered within short periods from the savings in electrical energy
- **Save water**, as water treatment and delivery consumes much energy.
  - Use efficient shower and tap heads
  - Do not keep taps running when brushing teeth or washing face
  - Use a pail instead of a hose to wash cars
  - Use greywater (waste water from showers, laundry tubs and washing machines) for watering plants
  - Rainwater is also ideal for watering the garden. Learn how to install and maintain a rainwater tank
- **Do not use an electric kettle** for hot water. Use a gas stove to heat water instead
- **Use stairs instead of lifts** for going up one or a few floors. It is also a form of exercise
- **Transport:**
  - Whenever possible, use public transport
  - Whenever possible, walk or use a bicycle
  - Car pool

Q: As the cost of living in the country and around the world continues to spiral upward and subsidies are removed, one might theorise that there would be an increase in the collective consciousness of the country to be more energy efficient with the aim to save. Do you see this happening now or is that still a thing to be seen somewhere in the future when the impact of rising costs of living is felt more acutely?

Jacob: It is generally accepted that in this country, the driver towards energy saving is still the financial factor, that is, savings in terms of costs, rather than climate mitigation considerations. As of now, it seems that energy efficiency measures are still not cost effective enough for them to be undertaken on a massive scale. As the subsidies are removed, energy efficiency improvement measures will become more cost effective and, in my opinion, will become a major driver towards their adoption. ■