

## Overcoming ignorance on energy savings

By Dr Hezri Adnan | [hezriadnan@isis.org.my](mailto:hezriadnan@isis.org.my)

Many are still confused on how power is produced and conserved



A student at CQ-TEC College in Gombak explaining the use of an oscilloscope to measure voltage. Malaysians need more information so they can compare costs and save energy.

GLOBAL energy use has grown by a factor of 25 over the past 200 years. Asia is poised to be the main driver of a 40 per cent expansion in global energy demand in the next two decades. According to the 2010 World Energy Outlook report by the International Energy Agency, Southeast Asia's energy demand is expected to expand by 76 per cent in 2007 to 2030, much faster than the world average rate.

Although energy is an important driver of macroeconomic growth, in ecological terms, conventional fossil fuel energy is a major source of environmental stress at local and global levels.

To bring back human activities within the constraints of planetary boundaries, our energy systems need to transform. We must increasingly change our fossil fuel energy system to a non-fossil fuel-based energy system. This entails a shift from a carbon-emitting energy system to a low-carbon energy system, or a transition from a non-renewable energy system to a renewable energy system.

For technological optimists, solutions are readily available. They believe that by using cleaner production systems, eco-design and eco-efficiency, aided by technologies such as nuclear, carbon capture and biofuels, we can decouple economic growth from environmental degradation and eventually reconfigure the production and consumption patterns in the energy sector and beyond.

However, most discussions on impediments and challenges facing "green" energy systems remain deeply centred on economic and technical matters. Less debated are the cultural barriers to energy efficiency measures.

For instance, in a 2006 survey among Geneva households, almost 40 per cent indicated that they didn't know what type of electricity was available to them at home. The average American knew very little about personal energy consumption and energy savings.

A consumer survey by the United States Department of Energy revealed that only 12 per cent could pass a basic electricity-literacy test. Americans overestimate the energy savings of actions like turning off lights but underestimate the energy consumption of other things like using central air conditioning and water heaters.

Malaysians are no exception with regards to such confusion about energy. The apparent disconnection between how energy is produced and how it is socially perceived is evident in two common misconceptions.

First, many Malaysians believe they are entitled to cheap petrol since the country is a net energy exporter with about 14 per cent of our export earnings derived from fossil fuel exports. Second, since Malaysia is blessed with abundant water supply, electricity from hydropower should be made cheaply and readily available, regardless of the fact that hydropower contributed only 5.7 per cent of total energy generation in Peninsular Malaysia last year. Buttressed by these misunderstandings, most past efforts to reform the pricing and subsidy structure of the energy sector were opposed by industrialists and the public alike.

Therefore, any energy policy must demand not only efficient technologies but also energy savings through changes in consumer awareness and behaviour. Consumers must understand energy issues better. They need more information regarding the severity and scale of energy problems, relative energy prices and consumption alternatives in order to compare costs and undertake energy conservation actions.

Policymakers, on their part, need to understand the drivers behind consumption patterns. Collectively, we need to improve our energy literacy in order to change current policies and practices that favour fossil fuel energy sources. An energy-literate individual is one who has a thorough understanding of how energy is used in everyday life. He or she also understands the impact of energy consumption on environment and society, and strives to make choices based on that understanding.

Recent research suggests that energy illiteracy can stand in the way of widespread adoption of energy conservation measures.

Malaysians can start inculcating energy thrift values practically by improving their home energy use. Malaysia's prospect is immense because its residential electricity energy consumption hovers around 19 per cent of total energy consumption.

Universiti Malaya researchers identified the refrigerator-freezer as the main energy-consuming appliance in households, followed by air conditioners, washing machines, fans, rice cookers and irons. In their analysis, they found that by complying with policy measures (such as energy-efficiency standards and by raising thermostat set temperature levels), Malaysia can save 822 gigawatt hour of electricity. This saving is a significant one, given that it is only for appliances such as refrigerators and air conditioning units.

Moving forward, a key to guiding people to make better decisions about their own energy use would be to increase the understanding of how energy flows work at an earlier age in schools. On the part of governments, instead of creating incentives to further increase the efficiency and technical capacity of energy systems, policymakers should shift at least part of their effort away from technical aspects to focus on efforts to increase public understanding of energy systems. We must also challenge deeply entrenched cultural values that are inimical to the energy transition goal.