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Is Malaysia ready for nuclear power?

Borneo Post (KK), Malaysia



Page 1 of 2

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Addressing public concerns and misconceptions

IN recent years, nuclear power has become a hot topic of discussion or debate in Malaysia. This interest is growing at a time when the global energy landscape is increasingly uncertain. Fluctuations in oil prices, influenced by geopolitical developments in major energy-producing regions, have reminded many countries of the importance of having a stable and secure energy supply.

Energy is a basic requirement for national development. It supports industries, transportation systems, households, healthcare, and education. When global energy prices rise, the effects are felt across the economy. Electricity becomes more expensive to generate, transportation costs increase, and the prices of goods and services may also rise.

Although Malaysia is an oil and gas producing country, it is still linked to the global energy market. This means that international developments can influence domestic energy prices. For this reason, energy security has become an important national priority. Energy security refers to having a reliable, affordable, and continuous supply of energy under all conditions.

At present, Malaysia's electricity generation system is based on a mix of natural gas, coal, hydropower, and solar energy. This diversified energy mix has supported national development for many years. Each source plays an important role in maintaining supply stability. However, each also has its own limitations.

Natural gas is an important domestic resource, but it

must be carefully managed to ensure long-term availability. Coal provides stable power generation but is influenced by global price movements and import dependence. Solar energy is clean and renewable, but it depends on sunlight and cannot generate electricity at night. Hydropower is reliable but depends on rainfall patterns and suitable geographical conditions.

As Malaysia continues to grow, electricity demand is expected to increase steadily. Industrial expansion, urban development, and digital transformation will require a more stable and continuous supply of electricity. This creates the need to consider additional energy sources that can provide long-term reliability.

Nuclear energy is being considered as one of these options because it offers several important advantages. One of its key strengths is its ability to provide continuous electricity generation. Nuclear power plants can operate 24 hours a day, regardless of weather conditions. This makes nuclear energy a strong source of baseload power, which is essential for maintaining grid stability.

Another advantage of nuclear energy is its high efficiency. A small amount of nuclear fuel can produce a large amount of electricity. This reduces fuel transport requirements and allows fuel to be stored for long periods, improving energy security during times of global uncertainty.

Modern nuclear technology has also developed significantly in recent years. One of the most important innovations is the Small Modular Reactor (SMR).

These reactors are smaller in size, designed with advanced safety features, and can be built in phases according to national energy needs. SMRs offer greater flexibility in planning and investment, making nuclear energy more adaptable to future demand.

From an economic perspective, nuclear energy can support Malaysia's long-term development. A stable electricity supply is essential for industries such as manufacturing, digital services, and data centres, all of which require uninterrupted power to operate efficiently. A reliable energy system also strengthens investor confidence and supports national competitiveness.

Nuclear energy can also contribute to human capital development. It creates demand for highly skilled professionals, including engineers, scientists, technicians, and safety specialists. This encourages the development of advanced education and training programmes, strengthening Malaysia's technical capabilities over time.

In addition, nuclear energy can complement renewable energy sources. Solar energy provides clean electricity during daylight hours, while hydropower can offer flexible support depending on water availability. However, both sources can be variable. Nuclear energy can provide continuous base-load electricity, ensuring overall system stability. Together, these energy sources can form a balanced, resilient, and sustainable energy system.

As with any major energy technology, nuclear power also requires careful consideration of safety and operational



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Page 2 of 2

management. Modern nuclear power plants are designed with multiple layers of safety systems, including automatic shutdown mechanisms and advanced cooling systems. These features significantly enhance safety performance.

Another important aspect is radioactive waste management. Nuclear energy produces waste materials that must be carefully handled, stored, and monitored over long periods. International best practices ensure that such materials are managed in secure facilities to protect people and the environment.

The development of nuclear energy also requires strong regulatory frameworks, highly trained personnel, and strict operational standards. Emergency preparedness systems must always be in place to ensure rapid and effective response in any unlikely situation. Public understanding and awareness are also important to ensure transparency and confidence in

the technology.

It is also important to note that modern nuclear technology has advanced significantly compared to earlier generations. Today's reactors include multiple safety barriers, automatic control systems, and passive safety features that operate even without human intervention. Small Modular Reactors further enhance safety through simplified design and reduced operational complexity.

In conclusion, Malaysia's consideration of nuclear energy reflects a forward-looking approach to long-term energy planning. In a world where energy markets are influenced by global uncertainty and rising demand, it is important to explore a range of reliable and sustainable energy options.

Nuclear energy offers several important benefits, including stable electricity generation, improved energy security, low carbon emissions, and support for economic development. At the same time, it requires

careful planning, strong governance, and continuous investment in safety, education, and technology.

Nuclear power should be viewed not as an immediate solution, but as a strategic long-term option. With proper preparation and responsible implementation, it can become part of a balanced energy mix that supports Malaysia's stability, growth, and sustainable future.

