

CCBF Nuclear Statement Q & A

Q. Coal is a well-known fuel source, and new technology is making it cleaner to use. Nuclear is very dangerous, as we saw in Fukushima. Wouldn't it be safer to stick with coal?

A. Every fuel comes with a set of benefits and drawbacks.

Nuclear

Nuclear power has been safely and reliably imported from Guangdong to Hong Kong for 17 years. As China pursues its plan to construct new nuclear facilities in pursuit of its low-carbon goals, every effort must be made to ensure that the nuclear power life cycle is managed in the safest, cleanest manner possible -- for our generation and future generations.

With regard to the recent events in Japan, CCBF strongly encourages decision-makers to proactively anticipate and prevent previously unforeseen risks. One such strategy is having secured back-up power systems and other fail-safe contingency provisions, to shut down reactors in a safe and orderly way, should primary systems fail. This should be part of a comprehensive and transparent plan to ensure safety, reliability and emergency response .

Coal

Coal has been a staple fuel source for Hong Kong for over a century. However, mining coal is a dangerous job which kills thousands each year in China alone. And burning coal is a known source of airborne toxins, which contribute to smog, acid rain, global warming and serious health problems. While scientists and engineers are carrying out active research programmes and pilot projects on carbon capture and clean coal technologies, these programmes are still far from being viable on a commercial scale. From a practical viewpoint, their wide application, particularly for existing plants, could still be decades away. Moreover, Hong Kong's site specific geographical conditions will also be a critical factor in determining the success of these technologies in the territory.

To make Hong Kong's coal burning cleaner, CLP and Hongkong Electric have installed flue gas desulphurization and other emission reduction technologies at their power plant facilities. These have succeeded in cutting emissions by 50-90%. Unfortunately, these technologies do little to help reduce carbon intensity.

CCBF will continue to advocate pursuing cleaner fuels for Hong Kong's fuel mix. We support a diversified fuel mix in order to maintain supply reliability and achieve Hong Kong's carbon reduction targets, which includes coal, gas and renewable energy in addition to nuclear. At present, nuclear is the only large-scale power technology with near-zero carbon emissions during operations that could provide stable electricity baseload supply at a competitive cost in Hong Kong.

Q. I'm concerned about nuclear accidents that result from human error rather than technology. How can we ensure that nuclear plants are operated by qualified professionals?

A. Human operation and intervention play an important part in the overall safety of any industrial process. Properly designed technology and operational processes can minimize the need for human intervention to achieve safe performance. Nevertheless, the industry must continue to improve safety. CCBF recommends the following initiatives to continuously monitor and improve the quality and professionalism of nuclear industry personnel:

1. Continue to monitor and strengthen the regulation of the global nuclear industry.

International guidelines should be the reference for national standards. For example, Chinese nuclear regulations are based on international guidelines. They cover the full range of nuclear topics including site selection, safety, operations and maintenance, radioactive waste disposal, emergency preparedness and quality assurance systems for civil nuclear power¹. China's National Nuclear Safety Administration oversees the development and operations of nuclear power plants, including enforcement of laws, regulations, licensing, supervision, monitoring of nuclear power safety and assessment of operational capabilities.

CCBF believes China's regulatory framework must be continually improved upon – as should that

¹ China is a signatory to a number of international conventions, including the International Atomic Energy Agency's Convention on Nuclear Safety in 1996. The Convention aims to legally commit participating parties operating land-based nuclear power stations to maintain a high level of safety by observing international benchmarks. The obligations of the parties cover siting, design, construction, operation, the provision of adequate financial and human resources, the assessment and verification of safety, quality assurance and emergency preparedness. China also signed the Convention on Physical Protection of Nuclear Material, the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency and the Convention on Early Notification of a Nuclear Accident under the IAEA.

of every country - based on developments and/or advancements in international regulation of nuclear power. To help ensure regulators are able to maintain effective control of the national nuclear industry, it is vital that China devote sufficient resources to ensure that domestic regulatory programmes continue to keep pace with the best operating and safety practices of the nuclear power industry.

2. Continue to monitor and strengthen international cooperation on qualification and training of nuclear industry personnel.

The International Atomic Energy Agency (IAEA), an inter-governmental agency, promotes best practices and guidelines for national nuclear regulators and industries. The World Association of Nuclear Operators (WANO), a civil agency, is the worldwide custodian of best practices for the operators of the approximately 400+ nuclear reactor units globally. Daya Bay Nuclear Power Station has participated in IAEA and WANO meetings and reviews for many years. This has helped Daya Bay to improve its safety and operational performance.

CCBF believes it would be useful if such participation were made mandatory for all nuclear power plants in China. More specifically, CCBF believes that the authority of the IAEA could be strengthened to raise the standards for both nuclear plant operators and designers following the Fukushima incident.

Q. Will further nuclear incidents affect CCBF's confidence in nuclear energy?

A. After the March 2011 earthquake and tsunami damage to the Fukushima nuclear power plant, CCBF reviewed its position on nuclear energy. Following this review CCBF will continue to support the Hong Kong Government's proposed fuel mix, on the presumptions that (a) the lessons learned from Fukushima are fully taken into account; (b) the fuel mix is part of a comprehensive, long-term energy strategy that prioritizes human safety and protection of the environment above all else; and (c) enhanced efforts are made to educate the public regarding the risks and opportunities presented by civil nuclear power. As with any position, this stance must also be reviewed regularly and rigorously with a view to meeting the goals of a safe, secure, environmentally acceptable and affordable energy supply.

In order for rational discussions on energy choices to occur in the community, it would be more constructive to ask the question of "how to meet our society's energy and environmental needs" as

opposed to "should we use nuclear (or for that matter any particular form of) energy". The objectives of the HKSAR government's current energy policy, including reliability, safety, security, affordability as well as minimal environmental impact, should be clearly communicated. Any change in long-term energy policy must be developed and implemented in a prudent and transparent manner. CCBF suggests that proposed new energy policies be discussed openly amongst the public with all available information fairly and fully presented. As a non-profit business association dedicated to pioneering Hong Kong's transition to a low-carbon economy, CCBF will play its role to engage with our stakeholders during policy consultations, and provide advisory opinions to the HKSAR Government.

Q. Shouldn't events in Fukushima serve as a warning to Hong Kong regarding the risks of nuclear energy?

A. The events in Fukushima were tragic. CCBF expresses its condolences to the people of Japan for their loss and suffering from this unprecedented disaster.

It is critical that we learn from this tragedy. Any such incident at a nuclear reactor should be seen as an opportunity to glean important lessons and further enhance safety measures, by both the nuclear industry and governments. CCBF notes this approach of continuous improvement is commonly practiced across industries, such as aviation, shipping, construction, military operations, and healthcare.

Through international cooperation in forums such as those provided by the IAEA, the HKSAR Government, Central Government and concerned stakeholders will work towards incorporating the lessons learned through Fukushima with the goal of improving both local and global nuclear safety. The Hong Kong government is presently assessing the need for updating its nuclear contingency plan referring to more recent international guidelines on nuclear safety and emergency preparedness. CCBF encourages both the State Council and the HKSAR Government to carry out these reviews and updates in an open and transparent manner with the public, including the business community.

Q. If Hong Kong were to focus foremost on demand side management of energy, as suggested by CCBF, then would it be necessary to increase nuclear to 50% of the fuel mix?

A. CCBF believes the first element of the Hong Kong energy strategy must be using less: energy efficiency and conservation. We would like to see a much more aggressive effort from the Government, in collaboration with the business community, to implement energy efficiency. However, shrinking energy demand alone is not enough to meet the long-term needs of a growing population and growing economy. A review of the total electricity consumption since 1990 in the most energy-efficient countries, such as Japan, Denmark, Switzerland and Germany, reveals that electricity consumption continues to grow at a low rate in these developed economies. CCBF believes that in order to achieve carbon reduction targets, Hong Kong must de-carbonize its fuel mix, which means increasing the role of nuclear, gas and renewables and scaling back on coal. It is important to note that nuclear is not new to Hong Kong, but rather Hong Kong has been relying on nuclear power for approximately 25% of its electricity needs for over a decade. We believe it is possible for nuclear power to continue to serve Hong Kong as a safe, reliable and economical energy supply.

Q. How will public education help to strengthen the role of nuclear power going forward? An informed public will not necessarily be agreeable to nuclear.

A. CCBF believes that enhancing public understanding of nuclear energy and related topics will provide a rational basis upon which salient nuclear issues can be deliberated. In fact, transparency and access to reliable information regarding nuclear energy will reveal both the risks inherent in nuclear power generation, and how the industry strives to ensure safety. Only an educated, engaged public can make informed choices about Hong Kong's energy future. We feel that public education should also include government facilitated regular emergency/disaster response exercises, with extensive public knowledge and involvement, to build confidence in Hong Kong's ability to respond to a disaster, nuclear or otherwise. In fact, we were delighted to see mention of such public engagement in the 2011 Chief Executive Policy Address.

From a wider perspective, public education should also include access to information on the imminent threat of climate change. Climate change has already begun to affect Hong Kong, with extreme weather, flooding and drought. CCBF believes that a rational decision on energy choices must weigh the benefits and limitations of each energy type as well as address the climate change issue, and how Hong Kong will contribute to reducing carbon emissions.

Q. How can power companies and the Hong Kong Government secure the general public's right to information about the risks of nuclear power?

A. CCBF believes in the public's fundamental right to access information about all relevant aspects of nuclear energy. We have been encouraged by the efforts (both pre and post Fukushima) of Government, working with industry, to address public concerns regarding nuclear safety. These joint efforts have included the provision of additional information regarding Daya Bay Nuclear Power Station's performance, more frequent educational visits, an updated public website and improved reporting requirements. CCBF will continue to urge Government and industry to work together to improve the public's understanding of nuclear energy including its technology, industry development, benefits, potential drawbacks, safety measures, and emergency response.

Q. How can we be assured that all nuclear reactors in Guangdong are safe?

Guangdong's proximity to Hong Kong makes the disposition of its nuclear power plants especially relevant.

A nation-wide comprehensive safety review of all civil nuclear facilities in operation and under construction has been completed by the PRC Government. One result will be an updated national safety plan. We expect additional safety factors to be incorporated in new plants, from the lessons learnt on withstanding multiple extreme natural disasters.

Nuclear energy in Hong Kong's veritable backyard is inevitable: Guangdong has 6 nuclear reactors currently and more planned. Thus it is of the utmost importance that the HKSAR Government proactively works with Guangdong authorities to ensure that both existing and new reactors operate to the highest level of safety attainable, with regular updates to the community. China's National Nuclear Safety Administration (NNSA) is the designated authority to oversee the safety of nuclear power plants, including enforcement of laws, regulations, permitting, supervision, monitoring of nuclear power plant safety and assessment / verification of its operations' professional qualifications. The HKSAR Government should strive to obtain a seat in the NNSA for direct communication and influence in the oversight process. Moreover, CCBF suggests the HKSAR Government position itself as the voice of Hong Kong public opinion, conveying issues of concern for NNSA consideration.



CCBF recognizes that the Central Peoples' Government has committed to international norms in nuclear safety under the Convention of Nuclear Safety, the Convention on Physical Protection of Nuclear Material, the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency and Convention on Early Notification of a Nuclear Accident under the IAEA. CCBF recommends that China continue to take proactive and appropriate measures at regional, state and international levels to ensure the safe operation of her nuclear power plants.