



The joint committees of The Australian Institute of Energy Sydney Branch, Engineers Australia Sydney Division, the Academy of Technological Sciences and Engineering (ATSE), Australian Nuclear Association (ANA), Nuclear Engineering Panel of EA (NEP) and Australian Young Generation in Nuclear (AYGN) present:

## “Advanced Nuclear Power Systems for Long-term Energy and Climate Security”

**By Prof. Barry W. Brook** (Ph.D.)

Australian Research Council Future Fellow (Professorial Level 3)

Sir Hubert Wilkins Chair of Climate Change

Director of Climate Science, The Environment Institute, University of Adelaide

**Date:** Thursday March 10, 2011

**Time:** 5:30pm Networking

6:00 – 6:50pm Presentation by Prof Brook

6:50 – 7:45pm Panel Discussion – Prof Brook and eminent energy professionals

**Venue:** Engineers Australia

Harricks Auditorium,

8 Thomas Street, Chatswood

**Cost:** Free – However registration is essential

**Registration:** Please click here to [Register Online](#)

Problems registering please contact Sydney Division Office on 9410 5600 or [jbresolin@engineersaustralia.org.au](mailto:jbresolin@engineersaustralia.org.au)

*Fossil fuels currently supply about 80% of modern society’s primary energy. Given the imperatives of climate change, pollution, energy security and dwindling supplies, and enormous technical, logistical and economic challenges of scaling up coal or gas power plants with carbon capture and storage to sequester all that carbon, we are faced with the necessity of a nearly complete transformation of the world’s energy systems. Nuclear power is capable of providing all the carbon-free energy that mankind requires, although the prospect of such a massive deployment raises questions of uranium shortages, increased energy, environmental and socio-political impacts from mining and fuel enrichment, and so on. These potential roadblocks can all be greatly alleviated or dispensed with, however, through the use of fast neutron reactors coupled to full fuel recycling. The Integral Fast Reactor (IFR), a sodium-cooled, metal-fueled pool design, developed at U.S. national laboratories in the latter years of the last century, can economically and cleanly supply all the energy the world needs without any further mining or enrichment of uranium. **This talk will cover the history and technical basis of the IFR and similar “Generation IV” designs, consider current fast reactor developments in China, India, Russia and elsewhere, and consider realistic timetables for large-scale deployment and the critical synergies with current reactor technologies.***

**Professor Barry W. Brook** (University of Adelaide, Centre for Energy Technology) is a founding member of the Science Council for Global Initiatives (<http://thesciencecouncil.com>), an international nonprofit organization dedicated to informing the public and policymakers about technologies and strategies that can lead to an energy-rich world. SCGI provides a forum for many of the world’s prominent scientists, authors and activists to collaborate and share their knowledge regarding solutions to the world’s energy, resource and environmental problems. It includes some of the world’s leading experts on advanced nuclear power systems, and climate change. Brook’s climate change and energy options blog/website is <http://bravenewclimate.com>. He recently co-authored a paper in the peer-reviewed journal Energy entitled: “How carbon pricing changes the relative competitiveness of low-carbon baseload generating technologies” <http://dx.doi.org/10.1016/j.energy.2010.10.039>

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