



Department of Civil Engineering  
The University of Hong Kong



Centre for Infrastructure and  
Construction Industry Development

**ARUP**

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## SEMINAR

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**Department of Civil Engineering, CICID and ARUP**

# **THE 4see FRAMEWORK – CHARACTERISING AN ECONOMY BY ITS SOCIO-ECONOMIC AND ENERGY ACTIVITIES**

by  
Dr Simon Roberts  
Associate Director of the Foresight, Innovation and Incubation group  
Arup, London, UK

Date: October 24, 2012 (Wednesday)  
Time: 9:30 a.m. - 10:30 a.m.  
Venue: Room 6-12B, Haking Wong Building  
The University of Hong Kong

### **ABSTRACT**

Understanding how the economic activity of a nation will evolve and react to perturbations is an important requirement for both fiscal and physical planning. Current modeling solutions lack the capability to assess either, or both of, national investment capacity in technical infrastructure, or the systemic economic implications of such investments. The 4see whole-economy framework developed at Arup is a new approach to this problem. The framework harmonises multiple national accounting procedures within the constraints of the internationally accepted System of National Accounts (2008). This structure curates and maintains disparate accounts (economic stocks and flows, energy use, employment, transport etc.) in parallel, but retains their own unique currency and accounting requirements. The data organisation and correction procedures behind the UK model are relatively generic and will allow model development for other countries with relatively less effort. The framework includes capturing data for a historical period of 20 years. Time-series ratios between different accounting currencies give key functional relationships that vary gradually over time, are robust and thus useful to national policy complexities such as decarbonisation, employment and investment. Since 4see is neither an economic, physical or social model, retaining the integrity of each world view through the retention only of its time series data sets, it has the potential to reduce tension between competing models and philosophies of economic development, societal change and environmental refurbishment. Results will be presented for 4see models of the UK and Taiwan.

### **ABOUT THE SPEAKER**

Simon Roberts, BSc, PhD, CPhys, MInstP, is an energy specialist in the Foresight group of Arup, which is charged with maintaining a focus for logical, analytical thought about possible futures that Arup confronts ([www.driversofchange.com](http://www.driversofchange.com)). He is a physicist with an industrial background in manufacturing. He is co-author of "Building integrated photovoltaics" (2009). In 2009 he completed a Code for Sustainable Homes assessment to Level 6 (zero-carbon). He is editor of the report in 2010 of the Industry Taskforce on Peak Oil and Energy Security ([www.peakoiltaskforce.net](http://www.peakoiltaskforce.net)). Dr Roberts' current research focus is on Arup's 4see modeling framework.

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