Three new programmes in energy research to be set up by renowned universities in CREATE

- MIT, University of California at Berkeley and Peking University, are setting up significant energy-related research programmes in Singapore, in collaboration with Singapore scientists under NRF’s CREATE Initiative.

- Research would be carried out in low energy electronic systems, the harvesting of sunlight to produce liquid fuels, and the capture of CO$_2$ and its conversion to useful products.

- CREATE is fast developing into a global research campus with R&D centres set up by eight world class internationally competitive research universities, working on research challenges with global impact.

1. **13 June 2011** Today, the National Research Foundation (NRF) announced 3 more research centres to be set up by top international research universities under its CREATE programme - the Campus for Research Excellence And Technological Enterprise. These centres, which host interdisciplinary research groups (IRG), would carry out research projects in Singapore, in partnership with Singapore universities and research institutes, bringing significant intellectual strength to topics of relevance to Singapore.

2. The first project, “Low Energy Electronics Systems” will be carried out by MIT scientists under the Singapore-MIT Alliance for Research and Technology (SMART) Centre. This is the 5th IRG set up by MIT. The research involves identifying new technologies in semi-conductor electronic systems that greatly reduce energy use and hence lower power consumption as compared to current products. This research will be carried out by teams from both MIT and Singapore, possessing expertise in materials, engineering, and electronic devices and circuits. This research would allow our local semiconductor industry to tap on the scientific expertise of the research team to maintain competitiveness in this technologically-intensive industry.

3. The second project, the “Singapore-Berkeley Initiative for Sustainable Energy” or SINBERISE, seeks to harvest solar energy for conversion into electricity as well as to liquid fuels. It is the second IRG from the University of California at Berkeley under the Berkeley Education Alliance for Research in Singapore.
(BEARS) Initiative which aims to build up a significant research presence for the university in Singapore. This research would help establish Singapore as a vibrant centre for leading edge solar energy research and a preferred location for global solar energy companies.

4. The third project, the “Singapore-Peking University Research Centre for a Sustainable Low-Carbon Future” or SPURc, focuses on carbon dioxide capture and conversion using sunlight as well as photochemical and photosynthetic processes. This is the first IRG set up by a Chinese University in CREATE. This research would extend our knowledge and capabilities in carbon capture technologies and develop applications to mitigate carbon emission from our energy intensive industries.

5. NRF chairman Dr Tony Tan said: “One of the greatest and most pressing challenges for countries right now is ensuring that there is sufficient energy to maintain and power economic growth in a sustainable manner for the long term. This is a major challenge facing Singapore as well, because of our lack of natural resources and our highly industrialised economy. The 3 R&D initiatives announced today are addressing the energy challenge from different perspectives, each seeking to develop technologies and solutions that would have impact on the economy and society. We expect that these projects, drawing on the strong and diverse research expertise of some of the best universities in the world, would result in innovative ideas and technologies in clean energy for Singapore. The presence of scientists from these partner universities will also contribute to the vibrancy of our R&D landscape and build up research capabilities and capacity in Singapore.”

6. Said MIT Prof Eugene Fitzgerald, Lead Principal Investigator of the ‘Low Energy Electronic Systems’ IRG, “This programme brings together MIT, NTU, NUS, and other researchers from Singapore to develop disruptive new semiconductor and integrated circuit technologies that could define innovative paths for the industry. Materials, device, and circuit researchers will innovate together in this unique research program and further improve energy efficiency.”

7. UC Berkeley Professor Ramamoorthy Ramesh, Lead Principal Investigator of SINBERISE said: “Sustainable energy is a global problem which will benefit from global collaboration. SINBERISE is an outstanding example of how academic and research institutions from two countries that share common values can come together to try to solve the key problems that limit the introduction of solar technologies into the marketplace. We look forward to a long and fruitful partnership with colleagues in Singapore”.

8. Prof Zhang Dongxiao, from the College of Engineering at Peking University said: “Climate change is a major global challenge of our time. The SPURc research programme seeks to develop energy efficient and environmentally friendly carbon capture technologies which can be applied in the manufacturing and chemical industries. In particular, the PKU-NTU-NUS team will focus on carbon capture, conversion and utilization in Singapore, which complements PKU's strong capability in carbon storage. Reducing carbon
intensity will not only benefit both countries in terms of cost competitiveness of products made, but also portrays a good image on our national responsibility to achieve a sustainable Earth.”

9. With the latest announcement, CREATE will now be home to the research centres of 8 top universities and 12 inter-disciplinary research groups from around the world – US, Europe, Middle East and Asia. These would all be located at the CREATE research complex at the NUS University Town, which would be completed by the end of the year.