

Obama energy secretary Steven Chu flat on battery plants



Steven Chu at UTS to launch a biomedical institute. Picture: James Croucher

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Battery plants will remain too expensive to meet long-term urban power storage needs, Nobel laureate and Obama administration energy secretary Steven Chu has warned.

Professor Chu said the huge lithium-ion battery built in South Australia by Tesla boss Elon Musk had cost about 40 times as much as an equivalent power plant using an existing hydro-electric dam. He said while the costs of building battery plants were likely to halve over the

next decade, the approach would never be cheap enough to accommodate the big seasonal shifts in renewable power production.

He said batteries could prove viable for storing power produced during the day for use during night hours, and “maybe” up to a week later, but not over seasonal timeframes. “You need other new technologies to convert cheap renewable energy into chemical fuel when the sun is shining or the wind is blowing,” he told *The Australian*.

“If you make really cheap hydrogen from renewables and store it underground, then you have something very different.”

Professor Chu shared the 1997 Nobel Prize in physics for work on lasers. As energy secretary from 2009-13, he was the first scientist to hold a US cabinet position.

He now holds twin professorships in physics and cellular physiology at Stanford University, where his research centres on applying nanotechnology — science and engineering at the molecular level — to energy production and medical diagnosis and treatment.



Professor Chu with Barack Obama. Picture: Getty Images

He is in Australia to launch a new biomedical institute at the University of Technology Sydney.

While his research encompasses batteries, he said fuel cells held more promise for urban power storage — particularly those based on liquid hydrocarbon. “We don’t have that technically economical today, but that is also part of my research.”

While power economics would be affected by variables such as carbon pricing and the need to stabilise electrical grids, manufacturing costs for utility-scale storage would need to be below \$US100 (\$123) a kilowatt hour.

“We won’t get there (through batteries), but one is hoping to get well below that through some innovative electrochemistry.”

In November, Professor Chu criticised South Korea’s plan to replace nuclear generation with renewable sources such as solar and wind power, saying the approach was not currently

viable. However, he told *The Australian* that the wide-scale adoption of electric cars was inevitable because of the clean-air benefits and the difficulties of enforcing pollution laws in countries such as China and India.

Claims that battery-powered cars were environmentally unfriendly were a “rear-view mirror” argument forwarded by people intent on maintaining the status quo, he said. Professor Chu said it would be two to three decades before half of the vehicles on the road were electric, and by then electricity generation would be far cleaner.

He said there was a compelling case to switch from fossil fuels to renewables on health-economics grounds: at least 4.5 million people a year were killed by air pollution from energy generation and transport.