



## AUSTRALIAN SECURITIES EXCHANGE ANNOUNCEMENT

**9 March 2011**

### **Eden's US arm in time and cost breakthrough on catalyst production used for manufacture of super-strong, super-light nano-carbon products**

A new method and process for 15 times faster production of catalysts used in the manufacture of the emerging superstrong, superlightweight technologies known as nano-carbon products, has been developed by the United States-based operational arm of Australia's ASX- listed Eden Energy Limited (ASX: "EDE")

Eden announced today that the breakthrough meant major time, cost and output gains in the current high production costs for the catalysts – an essential manufacturing step to producing such nano-carbon products as carbon nanotubes and nanofibers.

The breakthrough has been achieved by Eden's Colorado-based subsidiary, Hythane Company LLC.

#### **Eden's Executive Chairman, Mr Greg Solomon:**

*"The new process works for a variety of catalyst compositions, reduces the quantity of chemicals needed, is easily scalable for higher production and eliminates the majority of the time and labor needed for previous catalyst production methods."*

*"For the production of nano-carbon with specific structure and physical properties, the composition and atomic-level crystalline structure of the elements in the catalyst is critical."*

*"In addition, the catalyst particle size and surface area can have significant effects on the total nano-carbon production yields and the stability of carbon growth on the catalyst."*

*"With the new catalyst production process, Hythane Company has reduced the particle size range from approximately 100 micron down to about 1 micron. In addition, the bulk densities of the catalyst powders have been reduced by a factor of about five, an indication of the micro-porous structure and much higher surface area created by the new method."*

*"In tests to-date, catalysts made with the new process have increased both multi-wall carbon nanotube (MWCNT) production and carbon nanofibres (CNF) production yields by about 20%. Several published studies of MWCNT production show maximum yields of about 30 grams of carbon per gram of catalyst."*

*“Hythane’s catalysts have demonstrated mass ratios approaching 40 grams of MWCNT product per gram of catalyst. With CNF production we can produce up to 225 grams of carbon CNF per gram of catalyst which is a higher ratio than we have found in any published literature.*

*“This new catalyst production method can also be used for a wide range of other catalyst compositions, not just nano-carbon production but many other chemical processes which use similar catalysts. Our new equipment will be used for research to further refine and optimize the best catalyst composition to make different, specific nano-carbon products, better yields, and faster carbon growth.”*

**Eden says the new catalysts are produced in a simple, one-step reactor, and the total production process has been reduced from six steps to two.**

Previously, catalyst production batches were a two-day process with about 10 hours of labor involved. The new process equipment is semi-continuous and can produce 15 times more catalyst in the same two days, with only 2 to 3 hours of actual labor involved, saving 15% to 20% of the total MWCNT production costs at full capacity.

The current equipment can produce enough catalyst for 20 tons per year of multi-wall carbon nanotube product, or enough catalyst for over 120 tons per year of carbon nanofibres, according to Hythane Company estimates.



**Gregory H Solomon**

*Executive Chairman*

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