

## **Greenhouse Gas Battle Plan Good for Business**

**By Dr Reese Halter**

Seven western states and four Canadian provinces have joined forces in a plan to limit greenhouse gas emissions. In addition, a host of technology giants are rushing into the worldwide solar play.

In February 2007 California's Gov. Arnold Schwarzenegger, Oregon's Gov. Ted Kulongoski and Washington's Gov. Chris Gregoire formed the Western Climate Initiative. Their mandate was clear: Reduce greenhouse gases.

Last week the Western Climate Initiative grew to include: British Columbia, Manitoba, Ontario, Quebec, Arizona, Montana, New Mexico and Utah; approximately a quarter of the population of North America or 80 million people.

The backbone of their plan relies on a system of cap and trade. It is a system that was successfully devised and implemented in the early 1990s to combat acid rain around the Great Lakes caused by the pollution generated from coal burning power plants.

The cap and trade system reduces pollution by requiring utility and other companies to meet tough emission standards. Under this system, business that cannot cut their emissions because of cost or technical hurdles would be allowed to buy emission credits from companies that have spent the money to clean-up and lower their emissions.

The forward thinking and clear plan of action by the Western Climate Initiative is encouraging businesses. And businesses create jobs; jobs create community stability; in turn, offering a prosperous future for our children.

Since May, semiconductor giants including: Intel, IBM and National Semiconductor have barreled into the solar sector. Every chipmaker on the globe is now firmly committed to the burgeoning solar energy field, and for a good reason – the sun's rays are just waiting to be captured and converted into clean energy.

Solar cells, like computer chips, use silicon or another semiconductor as a basic part. By replicating the chip companies high-volume automated manufacturing, the price of solar energy will become competitive with the current carbon-based grid power much quicker than the industry's current 2010-15 target.

And let's not forget that the solar figures are based on a coal industry in the U.S. that receives \$20 billion in subsidies per annum.

Each chipmaker brings with it exceptional innovations and the race to harness the sun's energy has now shifted into overdrive.

National Semiconductor is implementing its latest technology that boosts energy output in its solar panels by minimizing losses from shade. This breakthrough came from its expertise in power management in cell phones. This innovation will allow cities like London, Seattle and Vancouver, which contend with prolonged over-cast conditions, to also utilize solar panels.

Applied Materials manufactures enormous glass panels for thin-film solar makers. Production and installation costs of thin-film are much lower than the thicker traditional photovoltaic cells. Incidentally, Applied Materials used the same devices to cut flat-panel television costs. By 2010, Applied Materials projects 25 percent of its revenues or about \$2 billion will come from the solar division.

Cypress Semiconductor owns 56 percent of SunPower Corporation, which manufactures high-efficiency silicon solar and solar panels - based on an all-back-contact solar cell. SunPower currently holds the world record for practical scale silicon solar cell efficiency of 23.4 percent, recorded in May 2008. This has translated into SunPower churning out 300,000 solar panels a quarter up from one hundred thousand.

The biggest chipmaker in the world is Intel. In June they spun-off their fledgling solar unit but two weeks later invested \$40 million in a German solar panel maker Sulfurcell.

IBM's latest advancement in the solar field is dazzling. A concentrated photovoltaic system magnifies sunlight 10 times, significantly reducing the number of cells needed to generate electricity. A liquid metal absorbs heat so the semiconductor doesn't melt - a technology IBM developed to cool high-power computer chips.

In addition, IBM has also developed a new technique for thin-film solar - which uses one percent of the semiconductor in standard panels - to cut costs and boost efficiency.

The next ten years will bring the most exciting technological innovations in the history of our species as we begin to follow nature's blueprint, harvest the sun and move beyond petroleum.

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