



## CLIMATE TAKE BACK CASE STUDY

# NEW SKY ENERGY

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### Using innovative chemistry to transform industrial waste into valuable resources

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#### WHAT IS IT?

New Sky Energy's CarbonCycle is an internationally patented process that captures chemical waste products and converts them into clean chemicals.

#### HOW DID IT DEVELOP?

Physicist and CEO Deane Little moved to Boulder, Colorado, in 2006 with the idea of starting a company. Whilst doing a PhD at Florida State University he had learned that sodium hydroxide (a.k.a. caustic soda or lye) could be used to capture CO<sub>2</sub>, but that the process was far from sustainable, producing more CO<sub>2</sub> than it captured and as much harmful chlorine as a byproduct. Knowing the market

implications for truly sustainable carbon capture were sizable, Deane set to work on solving this.

His breakthrough came when he invented a technology that used water electrolysis to turn water, carbon dioxide and inexpensive salts into hydrogen, oxygen, sulfuric acid and sodium hydroxide. It was a truly carbon negative process that also produced big commodity chemicals. A win-win for sustainability and the business.

After refining the technology and the business model, Deane brought on carbon trading expert Mike Ashford as the Vice President of business development in 2008.

#### HOW DOES IT WORK?

New Sky Energy's proprietary process converts CO<sub>2</sub> and waste salt water into carbon-negative chemicals. Its reactor

splits salt water into a base that can be combined with captured CO<sub>2</sub> from the air, flue gas or other exhausts, converting it into safe, stable solids that are widely used in industry and agriculture. The process can be carried out onsite.

These clean chemicals have many uses. For example, New Sky's CO<sub>2</sub> negative soda ash can be used in glass manufacturing and reduces carbon emissions by up to 33% compared to conventional soda ash. The sodium bicarbonate produced through this process can also be sold to local industries.

#### HOW EFFECTIVE IS IT?

The company's customers – including a global oil and gas company, a California water agency and two global glass companies – certainly seem to think this way of managing their industrial waste is effective. By providing waste management solutions to such customers, New Sky uses innovative chemistry to create a

new kind of sustainable industry: manufacturing that treats CO<sub>2</sub> and other waste materials as resources rather than pollutants.

### **WHAT ARE THE END PRODUCTS?**

Depending on the inputs, the end products can be a range of clean chemicals including soda ash, sodium bicarbonate, acids used for brewing, sulfur, and carbonates for use in building materials.

### **WHO BENEFITS?**

New Sky Energy's customers are also their suppliers, benefiting from onsite conversion of their industrial waste products into clean chemicals. The outputs are comparable in price to the conventional chemicals they replace, enabling customers to reduce waste, save money, and cut their carbon footprint.

### **HOW CREDIBLE IS THIS?**

Since its inception in 2007, New Sky Energy has grown significantly, and continues to secure funding for new projects – including customers in the oil and gas, mining and minerals, and water treatment industries.

The company has also won several awards, including first prize in the 2013 South by Southwest Eco Showcase, National Finalist in the 2009 Cleantech Open and the 2011 Imagine H2O Prize.

### **WHY WE LOVE THIS**

The Climate Take Back plan encourages us to 'love carbon', and there are few other companies that show us so clearly how this can be done.

What's particularly refreshing about New Sky Energy is that its customers are also its suppliers, receiving clean chemicals in exchange for their industrial waste – a closed loop in action.

 [HTTP://WWW.NEWSKYENERGY.COM](http://www.newskyenergy.com)

# CLIMATE TAKE BACK

At Interface, we're convinced a fundamental change needs to happen in our global response to climate change. We need to stop thinking about how to merely limit the damage caused by climate change – and start thinking about how to create a climate fit for life.

**Our new mission is called Climate Take Back – and we invite you to join us.**

Find out more at our website [here](#)

**Interface®**

## LIVE ZERO

Aim for zero negative impact on the environment

## LEAD THE INDUSTRIAL RE-REVOLUTION

Transform industry into a force for the future we want

## LOVE CARBON

Stop seeing carbon as the enemy, and start using it as a resource

## LET NATURE COOL

Support our biosphere's ability to regulate the climate

