



# Press Release

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## Virent Awarded Federal Advanced Technology Program Grant

*Novel Pretreatment of Cellulosic Materials Promises to Enhance Use of  
Cellulosic Biomass as a Primary Source of Fuels and Chemicals*

**MADISON, Wis., October 1, 2007** – Virent Energy Systems, Inc., a developer of technologies that can efficiently and economically convert biomass into renewable fuels, announced today that it has been awarded an Advanced Technology Program (ATP) grant from the National Institute for Standards and Technology (NIST), a federal technology agency within the United States Department of Commerce.

The funding will support Virent's efforts to develop effective and economical methods to break down non-food cellulosic biomass into sugars and other chemical intermediates that can then be easily converted into biofuels. Virent's BioForming™ platform technology, and other methods that convert sugars to fuels such as fermentation, currently utilize processed sugars such as sucrose, glucose, or starch as feedstocks. While significant quantities of these feedstocks are grown worldwide, the cellulosic pretreatment technology to be further developed with this grant could dramatically expand the volume of feedstocks available for conversion to energy. The United States Department of Agriculture has estimated that one billion dry tons of biomass, including fuel wood, perennial crops, grains, and wood and crop

residues, could be available annually for biofuel and bioproduct production without impacting food, feed or export demands.

A major hurdle to using cellulosic feedstocks is that they are difficult to break down to usable sugars at a reasonable cost. The grant will specifically fund the development of a catalytic based process that combines carbohydrate hydrolysis with depolymerization to effectively break down cellulosic biomass into sugars and other chemical intermediates. These intermediates can then be easily processed into fuels and chemicals using available biofuel production technologies. Compared to current approaches to biomass pretreatment, Virent's proposed pre-treatment process should be more robust, yielding significantly higher reaction rates and higher product concentrations.

"Virent has already proven its ability to generate universally usable liquid transportation fuels from carbohydrates," said Virent CEO Eric Apfelbach. "With this research grant, Virent now aims to address the fundamental challenge of cost effectively accessing the sugars available in plentiful cellulosic feedstocks. Together, these two processes offer a complete solution for unlocking the energy potential of renewable lignocellulosic biomass. "

The \$2 million competitive grant is the second ATP grant received by Virent. The first, awarded by NIST in 2003, funded development of catalyst and reactor systems to generate hydrogen utilizing Aqueous Phase Reforming of oxygenated compounds. Over its history, Virent has been awarded over \$11 million in federal and state grants.

#### *ABOUT VIRENT ENERGY SYSTEMS*

Virent is an energy technology company that enables the renewable replacement of fossil fuels. Virent's patented BioForming™ platform technology renewably produces transportation fuels, fuel gases, and many chemicals, all products most commonly made from fossil fuels. Based on the innovative Aqueous Phase Reforming (APR) pathway to biofuels and bioproducts, the BioForming process delivers more net energy and offers a scalable, cost-effective alternative to traditional biofuel production routes. Headquartered in Madison, WI, Virent has 57 employees in a state of the art catalytic biorefining development facility. Virent has an exclusive license to the APR process from the Wisconsin Alumni Research Foundation. To learn more, visit:

[www.virent.com](http://www.virent.com).