



U.S. Department of Energy

Energy Efficiency and Renewable Energy

Bringing you a prosperous future where energy is clean, abundant, reliable, and affordable

Wind Energy Program Technology Portfolio



Low Wind Speed Technology Phase II: Low Wind Speed Turbine Developments in Convoloid Gearing

Genesis Partners LP

Project Description: The involute curve has been used since 1754 to manufacture and improve the load carrying capacity of gearing. The proliferation of computers has exacerbated efforts to substantially increase the “power density” of gears, i.e., more power capacity in less space. Genesis Partners LP has developed and patented a new tooth form that analytically promises major improvements in the power density of gears, especially as applied to wind turbines, while lowering the cost of these devices. This subcontract will support design, shop-tests and field-tests on a limited number of gearboxes with involute and convoloid gears to compare their load carrying capacity. In addition, design scaling of the technology to a much larger wind turbine gearbox is anticipated.

Project Type: Component Development

Total Project Budget: \$1,458,934

Industry Cost Share: \$437,680

DOE Cost Share: \$1,021,254

Planned Project Duration: June 2005–June 2007

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Current Status: Project Underway

A Strong Portfolio for a Strong America • Energy efficiency and clean, renewable energy will mean a stronger economy, a cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.

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Produced for the U.S. Department of Energy by the National Renewable Energy Laboratory, a DOE national laboratory

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DOE/GO-102006-2209
March 2006