

LICENSING

Accessing Breakthrough Technologies

DOE Laboratories executed close to 600 licenses and created 25 start-ups, generating over \$40 million licensing income in FY2010. **Benefits to Industry:**

- Jumpstart the development of a new product
- Shorten the R&D timeline for existing products
- Advance in-house R&D without expensive capital investment
- Enable higher quality product offerings at a lower cost

BETTER LED DISPLAYS

Exclusive Licensee: Nanosys, Inc.

Technology

Lawrence Berkeley National Laboratory's semiconductor nanocrystal technologies designed to emit a photon of a particular wavelength enabling LCD manufacturers to accurately match their LED backlight to their LCD color filters for optimum color and efficiency

Outcomes/Impacts

- Brighter, cheaper, better LED displays for HD televisions, tablet PCs or computer notebooks
- Anticipated to be available in the second half of 2012, potentially grabbing a small slice of the \$40 billion LCD display market



Nanosys quantum dot filter yields richer colors. (Source: Nanosys)



FROM ALGAE TO RENEWABLE FUEL

Exclusive Licensee: Genifuel Corporation

Technology

Pacific Northwest National Laboratory's catalytic hydrothermal gasification method for quickly and efficiently (99% gasification) converting algae and other aquatic biomass into renewable natural gas

Outcomes/Impacts

- Renewable source of natural gas for pipelines and power generation
- Genifuel is actively implementing the technology, including growth of the algae and other suitable aquatic biomass



Post harvesting, algae grown in open ponds or raceways is processed for biofuel. Byproducts, such as carbon dioxide, can be recycled and reused in the algae growth ponds creating a sustainable and efficient source of natural gas.



How can companies learn about available technologies?

- Contact the Technology Transfer office at a DOE Lab
- Search the Technology Commercialization Portal (<http://techportal.eere.energy.gov/>) for patents, patent applications, and energy efficiency and renewable energy technologies available for licensing

BUILDING A BETTER ENGINE

Exclusive Licensee: Cummins, Inc.

Technology

Los Alamos National Laboratory's KIVA code, a robust, predictive model of internal combustion engines based on its proven computational fluid dynamics technology

Outcomes/Impacts

- Cummins, Inc., a U.S. engine and engine-related technologies and services company, along with LANL, has refined the code to reduce new product development time and costs by 10 to 15 percent
- Cummins' high-efficiency 2007 ISB 6.7-liter diesel engine offers improved fuel economy while meeting 2010 emission standards and all environmental and consumer requirements



Simulation of an experimental engine with direct overhead cam, quasi-symmetric pent-roof combustion chamber and four valves.



ACCELERATING PLUG-IN HYBRID CAR LAUNCH

Licensees: GM, LG Chem, BASF, TODA, Envia

Technology

Argonne National Laboratory's composite cathode material that allows charging at higher voltages for higher energy storage capacity; extends operating time between charges; and improves the inherent safety of lithium-ion cells

Outcomes/Impacts

- Cathode materials, cells and packs currently used in the Chevy Volt
- One cathode material plant and one under construction for an investment of over \$150 million
- Other related construction in battery and auto plants exceeds \$600 million



Licensed to GM, LG Chem, BASF, TODA and Envia to make cathode materials, cells, and packs – currently used in the Chevy Volt.

