

## In This Issue:

More Renewable Energy News	2
Mark Your Calendars	2
Funding Opportunities	3
Website Spotlight	4
Question of the Month	4

*"If we want energy security, then we have to reduce our appetite for fossil fuels. There's no other way. Other issues may crowd the headlines, but this is our fundamental challenge." — Robert Redford*

## Montana Bioenergy Tours Scheduled This Summer

This summer, partners of the Oilseeds for Fuel, Feed and the Future project are co-sponsoring tours at three Montana farms that feature biodiesel and oilseed processing and bio-energy crop production.

The tours offer an excellent opportunity to see on-farm demonstrations of oilseed production and crushing from farmers who make and use their own biodiesel and straight vegetable oil (SVO) fuel.

Farmers and other can learn about the realities of raising camelina and safflower and processing the oilseeds for fuel and other products. The tours are at two diversified grain farms and a guest ranch.

One tour took place in early June. The two remaining tours are:  
**Leonard Stone Farm, Geraldine** (June 24, 10:30 a.m.)

This tour will focus on camelina production on Leonard Stone's farm north of Geraldine. Registration is required by June 19.

This is the fifth year that Stone has produced

camelina as part of his wheat-barley rotation. Camelina is an oilseed crop related to mustard and rapeseed.

This year Stone has 100 acres seeded to camelina, 25 acres of which are fall-seeded. Twenty-five acres of the spring-seeded camelina are on chem-fallow ground. Stone has also planted camelina into 50 acres of barley stubble this spring. As of May 25, the camelina was already flowering and setting pods. He has contracts to sell his seed to Great Northern Growers and the Camelina Company.

The tour includes a free lunch. Call Sandy Courtnage at Montana Farmers Union, 452-6406, for more information and to register.

**Bob Quinn Farm, Big Sandy** (July 22, 10 a.m.)

The afternoon portion of this tour will focus on safflower production and crushing oilseed using a new German crusher. Quinn will demonstrate a system for burning straight vegetable oil (SVO) in

diesels. The tour will also feature Montana State University scientists discussing aspects of the farm's dryland cropping systems, including small grains, oilseeds and legumes.

The \$10 registration fee covers the tour costs and a catered lunch. Pre-registration is required and attendance is limited to 100 people.

For more information or to register, contact Alternative Energy Resources Organization at (406) 443-7272.

The goal of the Oilseeds for Fuel, Feed and the Future project is to increase opportunities and reduce risk for farmers and ranchers who want to participate in an emerging bio-based economy. Partners include NCAT, Montana Farmers Union, Montana Grain Growers Association, Montana Department of Agriculture, Department of Environmental Quality's Air and Pollution Prevention Bureau, and Alternative Energy Resources Organization. The 2009 tours of this project are supported in part by the USDA Risk Management Agency.

### Hybrid Electric Vehicle Benefits

*Hybrid electric vehicles can drive 40 to 70 miles on one gallon of gasoline, much farther than a conventional vehicle.*

*Hybrid electric vehicles are cost competitive with similar conventional vehicles. What cost premiums there are for HEVs can be offset by fuel cost savings and tax incentives.*

*Unlike in electric vehicles, the batteries in HEVs do not need to be plugged in to recharge. They are recharged by regenerative braking and onboard generators.*

*Hybrid electric vehicle emissions vary depending on the vehicle and its configuration. In general, HEVs have lower emissions than conventional vehicles of the same class because the electric motor offsets how much the internal combustion engine is used.*

## Hybrid Bucket Truck Unveiled in Missoula

NorthWestern Energy unveiled its first hybrid bucket truck on June 10. The truck will begin working the streets of Missoula and surrounding communities later this week.

The hybrid technology saves fuel and also allows the truck's diesel engine to be shut down while crews perform line repair and maintenance work relying on the vehicle's batteries to operate the aerial lift. Drawing on the battery power eliminates both noise and diesel exhaust.

"This new hybrid bucket truck costs about \$45,000 more than a standard truck, but will go about twice the

distance before needing to refuel depending on driving and work conditions," said Ron Anderson, NorthWestern Energy's manager of fleet and equipment. "It also produces about half the emissions of a conventional vehicle, which is – quite literally – a breath of fresh air for a work truck."

The 40-foot, 26,000-pound hybrid bucket truck has an aerial lift of 42 feet and replaces an older vehicle that NorthWestern will retire from its companywide fleet of 947 vehicles. The company began adding hybrid service vehicles to its fleet three years ago. It plans to continue replacing service

vehicles with hybrids as appropriate and plans to add another hybrid bucket truck to the fleet later this year.

"While this is the first hybrid bucket truck in the fleet," Anderson said, "we continue to operate our other conventional trucks with safety and environmental responsibility in mind. The crews are mindful of idling trucks only to the extent necessary to do their work safely and we've implemented various operational changes over the years to reduce fuel consumption. We are always looking for new approaches to sustainable and cost-effective fleet management practices."

---

### Mark Your Calendars

Here's a sample of the many upcoming events focusing on energy issues. For a more complete list, see our [Events Calendar](#).

#### [4th Annual Solar Summit](#)

July 9-10, 2009

San Diego, CA

How will the stimulus package shape your decisions for 2009, 2010, and 2011? How will this industry survive the financial crisis? How well prepared are you to harness growth in this industry? Are you up to speed on the latest tax credits and regulatory initiatives? Learn what you need to know now for growth, deal structures, tax credits, product innovations, and more.

#### [Semicon West 2009](#)

July 14-16, 2009

San Francisco, CA

SEMICON West is the place to see the companies, technologies, and people driving the future of micro- and nanoelectronics design and manufacturing. Learn about the latest developments in semiconductors, MEMS, renewable energy applications, semiconductor test, advanced packaging, wafer processing and more from the industry's leading technologists.

## EIA: Energy-Related Carbon Dioxide Emissions Fell 2.8% Last Year

Despite a 1.1% increase in the U.S. Gross Domestic Product, the nation's carbon dioxide emissions from fossil fuels declined by 2.8% in 2008, according to preliminary estimates by DOE's Energy Information Administration (EIA).

The record decline was caused in part by a 5.2% decrease in emissions from transportation. Sky-high fuel prices in the first part of the year, followed by economic woes in the fourth quarter, contributed to a record-breaking decline in vehicle miles

traveled in 2008 and an upsurge in the use of public transportation. Carbon dioxide emissions from industries also fell by 3.2%, following a five-year trend of falling industrial emissions, according to EIA.

While overall industrial output fell by 2.2% in 2008, the drop in output from energy-intensive industries—such as chemicals, primary metals, and non-metallic minerals—was much larger, in the range of 5.8%-7.8%

While lower energy use in the transportation and industrial sectors partly contributed to the drop in

demand fell by 2.2% in 2008, which is less than the drop in carbon dioxide emissions. That means that some of the energy shifted to a source that produces lower carbon dioxide emissions.

In fact, the electric power sector, which generates 41% of the carbon dioxide emissions in the United States, decreased its power generation by 1% in 2008, but decreased its carbon dioxide emissions by 2.1%. In other words, the power sector decreased its emissions intensity by 1.1% in 2008.

EIA attributes that accomplishment to a decrease in the use of all fossil fuels at power plants, a feat credited in part to an increase in electricity generated from wind power.

Read EIA's press release at [www.eia.doe.gov/neic/press/press318.html](http://www.eia.doe.gov/neic/press/press318.html). Also see the preliminary report at [www.eia.doe.gov/oiaf/1605/flash/flash.html](http://www.eia.doe.gov/oiaf/1605/flash/flash.html)



carbon dioxide emissions, that's not the full story. EIA notes that U.S. energy

This newsletter is a monthly feature of the Montana Green Power website. The website is funded with Universal System Benefits charges paid by all NorthWestern Energy customers.



Visit the website at [www.MontanaGreenPower.com](http://www.MontanaGreenPower.com) for more information on solar, wind, bioenergy, energy efficiency, and other topics.

Have a renewable energy tip or some news you want to share? Send it [info@montanagreenpower.com](mailto:info@montanagreenpower.com).

## Funding Opportunities: Rural Energy for America Program (REAP)

USDA is accepting applications for funding under its Rural Energy for America Program (REAP).

The program provides funding to purchase renewable energy systems and make energy efficiency improvements and to conduct feasibility studies for renewable

energy systems for agriculture producers and rural small businesses in eligible rural areas.

REAP provides loan guarantees and grants or combinations of the two. Grants for feasibility studies are a new feature this year.

Maximum awards are:

- Renewable energy system grants - \$500,000 or 25% of eligible project costs, whichever is less.
  - Energy efficiency grants - \$250,000 or 25% of eligible project costs, whichever is less.
  - Loan guarantees - \$25 million or 75% of eligible project costs, whichever is less.
  - Feasibility studies - \$50,000 or 25% of eligible study costs, whichever is less.
- More information is available at <http://farmenergy.org/news/usda-announces-reap-funding-for-2009>.



**Interstate Renewable Energy Council** is a non-profit organization committed to accelerating the sustainable utilization of renewable energy resources and technologies in and through state, local government, and community activities. IREC offers a range of market-oriented services and products targeted at education, coordination, and procurement; it also operates PV4You, a network of state, local and national groups and communities accelerating the deployment of off-grid and grid-connected photovoltaics.



### Question of the Month

## What are the main elements of passive solar home design?

**Answer:** The following five elements constitute a complete passive solar home design. Each performs a separate function, but all five must work together for the design to be successful.

**Aperture (Collector)**  
The large glass (window) area through which sunlight enters the building. Typically, the aperture(s) should face within 30 degrees of true south and should not be shaded by other buildings or trees from 9 a.m. to 3 p.m. each day during the heating season.

**Absorber**  
The hard, darkened surface of the storage element. This surface-which could be that

of a masonry wall, floor, or partition (phase change material), or that of a water container-sits in the direct path of sunlight. Sunlight hits the surface and is absorbed as heat.

**Thermal mass**  
The materials that retain or store the heat produced by sunlight. The difference between the absorber and thermal mass, although they often form the same wall or floor, is that the absorber is an exposed surface whereas thermal mass is the material below or behind that surface.

**Distribution**  
The method by which solar heat circulates from the collection and storage points to different areas of the

house. A strictly passive design will use the three natural heat transfer modes-conduction, convection, and radiation-exclusively. In some applications, however, fans, ducts, and blowers may help with the distribution of heat through the house.

**Control**  
Roof overhangs can be used to shade the aperture area during summer months. Other elements that control under - and/or overheating include electronic sensing devices, such as a differential thermostat that signals a fan to turn on; operable vents and dampers that allow or restrict heat flow; low-emissivity blinds; and

### Five Elements of Passive Solar Design

