

Sharing the difference CSU Extension makes in people's lives and their communities.

From agricultural audits to clean energy curriculum

A network of clean and renewable energy initiatives is helping individuals and communities learn about and adopt money-saving energy solutions.

Situation

Rising energy prices and energy-related disasters—such as the BP oil spill—and the 2008 economic downturn, have led to an increased interest in clean and renewable energy in Colorado. The state now has one of the country's most aggressive policy targets for renewable energy—by 2020, 30 percent of the electricity generated by Colorado's largest utilities must come from renewable sources. This key driver behind the state's 'New Energy Economy,' seeks to create jobs, make communities stronger and reduce dependence on foreign oil. As a result, individuals, businesses and municipalities have increased their demand for unbiased and reliable information on energy efficiency and renewable energy.

Extension's Response

Colorado State University Extension first responded to this need in late 2008 by establishing a statewide program called the Clean Energy Strategic Initiative Team (CESIT). The initiative addresses consumer knowledge gaps in solar, wind, geothermal, biomass, biofuel and home energy efficiency through regional workshops, newsletters and fact sheets.

A next big step was the May 2010 hiring of clean energy specialist, Cary Weiner, to develop additional educational resources and opportunities for Coloradans across the state. Accomplishments include:

- Partnership with the Governor's Energy Office (GEO) to place Community Energy Coordinators in: 1. Gilpin and Clear Creek counties; 2. Custer and Fremont counties; 3. the Golden Plains Area; and, 4. the San Luis Valley. Coordinators work with advisory boards to develop regional energy strategies and analyze opportunities for clean energy education.
- A pioneering statewide effort to document, analyze and recommend reductions for agricultural energy use. CSU faculty in the College of Engineering and CSU Extension's crop production specialist received grant funding to conduct 14 agricultural energy audits. Extension educators will conduct a series of regional workshops on audit outcomes as well as CSU renewable energy efforts related to biofuels, anaerobic digestion, small hydropower and wind energy.
- Development of a Colorado Energy Master program to certify volunteers who will help individuals and small businesses make wise energy decisions by teaching the costs and benefits of various energy options. The program will launch later this year.
- Creation of a GEO grant-funded, clean energy curriculum for middle and high school students in rural and underserved Colorado communities. The curriculum is tied to state science standards and is being developed with teacher input and 4-H STEM oversight. Teachers attend no-cost trainings to receive the curriculum.



The Bottom Line

- CSU Extension is the state's leading resource for unbiased consumer, agricultural and community energy information.
- CSU Extension is training future energy leaders on the science of energy and energy-related careers.
- CSU Extension is best suited to helping consumers discover whether specific clean energy technologies are an affordable and viable choice.
- CSU Extension is at the forefront of research on agricultural energy use and generation.

Learn More

Extension's clean and renewable energy website offers easy-access to energy questions, outlines current program initiatives, and offers guidance on energy issues and solutions:

www.ext.colostate.edu/energy

Results

Through workshops, clean energy expos and a monthly newsletter, thousands of Coloradans have received unbiased clean and renewable energy information.

CESIT and Weiner's comprehensive group of clean and renewable energy programs provides resources to a broad cross-section of the state's residents, businesses and communities. The design and development of these programs has positioned CSU Extension as a valued partner with nearly 30 statewide agencies and businesses. Together, partners win grants and awards, put on special projects and share the knowledge of the community education coordinators.

For example, in 2010 Weiner contributed his expertise to a team of family and consumer sciences agents who integrated residential energy efficiency education into trainings for human service agencies across the state. The National Extension Association of Family and Consumer Sciences awarded the team a regional and national award for 'Extension Housing Outreach.'

CSU Extension has laid the foundation for great work to come. Moving forward, Weiner and his team, which includes CESIT members and CECs, will begin assessing potential benefits as new clean energy initiatives launch across the state. Projected impacts include:

- Helping producer reduce agricultural energy use by adopting energy saving strategies.
 - Energy costs for common agricultural operations in the western U.S. can range from a little more than 30 percent of total operating costs (sugar beets) to more than 50 percent of total operating costs (wheat). Even a five percent decrease in energy use could save producers thousands of dollars annually.
- Increasing producer bottom lines and generating energy independence with on-farm biofuel production.
 - Extension is researching promising oilseed varieties that could offer producers across Eastern Colorado an limited irrigation and dryland farming alternative.
 - Extension has partnered with farmers to improve on-farm biofuel production. Pilot projects are generating biodiesel in Stratton and biofuel-diesel in Rocky Ford , as well as high protein meal, a byproduct that is sold for use as livestock feed.
- Helping thousands of Colorado consumers, including low-income individuals, save money by providing reliable, fact-based information and hands-on activities on:
 - Upgrading residential energy efficiency;
 - Tapping into rebates and incentives to purchase clean energy technologies.
- Generating economic opportunities through regional energy strategic plans developed by community energy coordinators with guidance from local elected officials, utilities, energy contractors and other stakeholder.
- Educating future leaders. Students can play a more informed role in future decision-making regarding clean and renewable energy policy as well as be exposed to career opportunities by learning the science behind energy technologies.

Recharge Colorado

CSU Extension partners with the Governor's Energy Office to enhance and expand clean and renewable energy programs statewide. Community Energy Coordinators and the development of a clean energy curriculum for Colorado middle and high school students were made possible by GEO funding. Created in 1977, the GEO works to create jobs, spur innovation, preserve Colorado's natural environment, and ensure low cost, safe, and reliable generation, delivery, and consumption of energy. Learn more at www.rechargecolorado.com.

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