SE News V053 12/24/06
Sustainable Energy News
http://www.fivestarconsultants.com
Circulation: 940. Free to subscribe. Spam-free. Inbox friendly.

SE News wishes you and yours peace, joy, happiness, and a better, more sustainable, 2007!

Top SE News Stories of 2006

The mission of SE News is to provide news on the technology and policy that will rapidly and profitably help us reach an abundant and sustainable energy economy. Our choices for the three top SE News stories of 2006 are:

1) The explosion of venture capital's interest in clean tech. Some sources are reporting there may be as much as $2 billion of venture capital flowing into clean tech in 2006.

2) Boulder, Colorado voters pass measure 202 - the nation's first climate action plan tax on electric bills from an investor owned utility. 202 is often referred to as a "carbon tax" and has been covered on the front page of the LA Times and in articles of the New York Times, Washington Post, CNN, and even covered from as far away as Italy and Australia.

3) The waking of the public to the dangers and opportunities facing us from climate change - in part due to An Inconvenient Truth and Al Gore, Superstar.

The biggest non-story of 2006 was that the solar industry would be stalled due to a shortage of purified silicon. This shortage is quite real, but the impact was not the inability of the solar industry to grow. Probably the biggest impact was a fairly small increase in solar electric panel's prices and the reversal of what had been a 30 year slide in price. But the doubling of prices feared by many never materialized. Instead the industry learned to make more panels with less silicon and to use other materials.
http://www.solarbuzz.com/index.asp

The Top Stories of 2007 We Would Like to See

The top SE News stories that we would *like* to see in 2007 include:

Xcel Energy concludes that Comanche 3, their 1/4 finished, super-sized coal-burner in Pueblo, would be climate insanity and a $1.5 billion mistake if completed. Xcel, with support from Colorado's Public Utilities Commission, aggressively pursues energy efficiency and doubles their efforts on renewables to meet growing demand turning Comanche 3 from coal into an innovative combination of concentrating solar power and a natural gas peaking unit. Xcel's decision leads to a domino effect scuttling many other utilities' coal-fired plans.

Tri-State gives up on its plans for 3 super-sized coal-burners (one in Colorado, 2 just 50 miles or so into Kansas from Colorado) in favor of aggressively pursuing renewables and efficiency. Tri-State serves 44 rural electric associations, 19 of them in Colorado.

Zero Energy Buildings, buildings that produce as much energy over a year as they use, and green building will become the focus of customer demand for new and remodeled buildings and begin to dominate the building industry. Customers will demand independent measures of a building's greenness by insisting on LEED certification for all building construction.

Worldwide solar manufacturing will continue its explosive growth with 50+% growth in 2006 and a projected 80% growth for 2007. Prices will stop their slow rise and resume their almost 30 year decline as shortages of purified silicon ease.

Venture capitalists will invest $4 billion into clean tech in 2007.

Colorado will continue being a national leader with a string of legislative and policy victories including:

- Doubling and expanding the reach of Amendment 37 (Colorado's renewable energy standard).
- Natural gas demand side management and energy efficiency bills.
- Support for increasing electricity transmission for renewables.
- A bio-fuels standard.
- A 5-year moratorium on planning and development of new coal fired power plants and transmission for electricity service for Colorado.
- Implementation of a state-wide carbon tax on all fossil fuels.
- Net metering for rural electric associations

While some of this legislation may never see the light of day, 4 of these bills have already been announced at least in part:
http://www.rockymountainnews.com/drmn/energy/article/0,2777,DRMN_23914_5218000,00.html

Time will tell which of these other stories prove real. And now, back to the news.

Contents

From Boulder & Colorado

From Elsewhere

==========

To Submit to SE News – email Regelson@mac.com. Put SE News in the Subject. Suggest a title and a 2 or 3 sentence summary. Include a link to the original article or a web page, or provide your email address, for more information.

SE News is published, edited, and distributed by Five Star Consultants and Ken Regelson. While Boulder and Colorado centric, SE News is now read in many states and 5 countries.

In addition to providing information on moving to a sustainable energy future, SE News serves as the newsletter for BREEE – Boulder Renewable Energy & Energy Efficiency Working Group.
http://www.boulderenergy.org

==========

From Boulder & Colorado:

Pueblo Solar Manufacturing Plant Could Employ Up to 300

Prism Solar Technologies, which could employ up to 300 workers, says it would use the proposed $15 million plant to make solar modules that produce electricity. Unlike traditional photovoltaic panels, Prism Solar would use patented holographic technology, which requires less silicon and operates more efficiently.

http://www.chieftain.com/business/1165348807/4
http://www.denverpost.com/search/ci_4777354

(To put this in perspective, Xcel's Comanche 3 coal fired power plant about 1/4 built in Pueblo will provide jobs for 30 to 40 long-term jobs.)

Opposition to Tri-State's Coal-Fired Plans Grows

Tri-State provides electricity to 44 rural electric associations in 4 states including Colorado. Tri-State is planning 3 new massive coal-burners, 1 in Colorado. 2 just inside Kansas near the Colorado state line.

The attorneys general of California, Connecticut, Delaware, Maine, New York, Rhode Island, Vermont and Wisconsin, said in a Dec. 15 letter to the Kansas Department of Health and Environment that the ... project would undermine their states' efforts to control the emission of greenhouse gases such as carbon dioxide that contribute to global warming.
http://www.topix.net/content/ap/1553863761279833600831248922990184501430?threadid=B5MQJSKUU4DAK7CM

Western Resource Advocates, a nonprofit conservation organization, said Tuesday that the estimated $5 billion Holcomb project would increase Tri-State's wholesale electric rates at least 64 percent in the next five years.

"This is a huge increase for me and other customers to have to swallow for something we don't support," said Chris Calwell, a ratepayer of Durango, Colo.-based La Plata Electric Association.

Western Resources also opposes the plants because it says Tri-State already has adequate electric capacity. And it said the environmental damage caused by coal-fired power may require stronger and costlier regulations in the future.
http://www.kansas.com/mld/kansas/news/state/16231311.htm

Western Resource Advocates just re-released their report on the many problems with Tri-State's plans. Press release and full report:
http://www.westernresourceadvocates.org/media/pdf/Tri-State%20report%20update%201pr.pdf
http://www.westernresourceadvocates.org/media/pdf/WRA_Tri-State_Update_12-11-06.pdf

---

Community Choice Aggregation: A Good Fit for Colorado?

Report on Community Choice Aggregation (CCA - a form of municipalization-lite). CCA allows a city to take control of its electric system from an investor owned utility (like Xcel or PG&E) without going through the massive fight that comes with a full municipalization effort. Five states currently allow CCA. This report describes in detail CCA, provides a summary of completed and pending CCA efforts, and makes recommendations on what it would take to implement CCA in Colorado. This report was written by University of Colorado graduate student Eric Lantz under the guidance of Ken Regelson.

http://www.fivestarconsultants.com/Grad%20Projects.html

(Note that I am looking for grad students to work on a variety of policy, engineering, chemistry, or physics projects - most on some aspect of a sustainable energy economy. These are suitable for semester or longer projects. Please contact me at regelson@mac.com if you are interested - Ken)

Colorado Short Takes

A 1000 MW *on demand* concentrating solar power plant is being proposed by SkyFuel for the San Luis valley. 5000 acres. Solar energy storage for 12 to 18 hours. Uses molten salt as a heat transfer liquid. $1.5 to 2 billion. A prototype is planed for 2007 with construction in 2010.
http://www.alamosanews.com/main.php?story_id=14812&page=39

City of Boulder offers tax rebate for solar electric and thermal systems. *Residents and businesses paying the tax will receive thirty-five percent of the rebates. The remaining sixty-five percent will be used to rehabilitate or install renewable energy systems on affordable housing and site-based non-profit organizations, adding a social benefit to the ordinance.*
http://www.bouldercolorado.gov/index.php?option=com_content&task=view&id=6253&Itemid=169

From Elsewhere

Short Takes

Policies, Programs, Challenges, Campaigns, etc.

Wall Street Journal on soaring investments by venture capital in clean tech. *Kleiner's Green Investment Machine... Clean-tech investments world-wide soared 51% in the first three quarters this year to $761.4 million from $504.1 million at the same period last year... Now we are dealing not with a sector of billions (the internet), but we're dealing with a sector of trillions (clean tech)... This is bigger than the Internet, I think by an order of magnitude. Maybe two... I'm talking the entire energy industry. You can boil it down to two simple contributors. One is transportation fuels... And the other is electricity generation.*
http://online.wsj.com/public/article/SB116606431481949816-yG_B4wt0TFbgp4ntNFP5iWM0DA8_20061222.html?mod=blogs

Spain mandates solar thermal hot water on all new and renovated buildings. *Three years ago Seville, the Andalusian capital, introduced the same measure which the Government now intends to adopt nationwide.*
http://www.timesonline.co.uk/article/0,,3-1350946,00.html

Pacific Gas and Electric (PG&E) in California no longer requires an AC disconnect switch on small photovoltaic systems. This saves a fair amount of money for homeowners and businesses installing solar. *Effective November 21, 2006, customers installing inverter-based systems will no longer be required to include an AC disconnect switch when the facility has a self-contained electric revenue meter (i.e. 0-320 amp socket-based meter or 400 amp K-based meters). This type of meter is used by 98% of all PG&E customers.*
http://www.pge.com/suppliers_purchasing/new_generator/solar_wind_generators/disconnect_switches/

Article on the pros, cons, and details of buying carbon offsets. *...Expedia.com began allowing consumers to "fly green" at $6 for a short flight to $30 for international travel... EvoGear began allowing customers to add 50 cents to their online purchase to offset the carbon dioxide generated by shipping ski equipment. Carbonfund.org ... says it has offset 220 million pounds of carbon dioxide, the equivalent of taking 20,000 cars off the road, he said. Some people have even offset their entire lives -- which costs about $4,000.*
http://seattlepi.nwsource.com/business/292969_carbonoffsets20.html

Clean Renewable Energy Bonds (CREBs) ...*allow governmental and tax-exempt entities, such as cities and rural electric cooperatives, to finance alternative energy projects at zero interest.* Montana receives $72 million in CREBs for 34 new wind projects. CREBs provide a tax credit in lieu of interest to bond owners.
http://www.agweekly.com/articles/2006/12/06/news/updates/update03.txt

Sobering report on the costs of climate change from the United Kingdom. *Our actions over the coming few decades could create risks of major disruption to economic and social activity, later in this century and in the next, on a scale similar to those associated with the great wars and the economic depression of the first half of the 20th century. And it will be difficult or impossible to reverse these changes. Tackling climate change is the pro-growth strategy for the longer term, and it can be done in a way that does not cap the aspirations for growth of rich or poor countries. The earlier effective action is taken, the less costly it will be. ...costs of extreme weather alone could reach 0.5 - 1% of world GDP per annum by the middle of the century, and will keep rising if the world continues to warm... Heat waves like that experienced in 2003 in Europe, when 35,000 people died and agricultural losses reached $15 billion, will be commonplace by the middle of the century.* The good news is that stabilization (reduction of greenhouse gasses to a stable level) will cost us a small fraction of the costs of our current, business-as-usual, approach - less than 1% of world GDP.
http://www.hm-treasury.gov.uk/media/8AC/F7/Executive_Summary.pdf

The New York Times on the Costs of an Overheated Planet. *Economists like William D. Nordhaus of Yale and Mr. Cooper of Harvard advocate a tax as the clearest price signal to the energy marketplace, and less susceptible to political tampering and market manipulation than a cap-and-trade system. It could also be used to raise revenue to offset other taxes.*
In a recent paper, Mr. Cooper suggested an initial tax around $14 a ton of carbon dioxide emitted, which he calculated would translate roughly into a 100 percent tax on coal and add 12 cents to each gallon of gasoline. Such a tax would raise as much as $80 billion a year in the United States.
... "Every year we delay, we contribute to another year of delay in China, India and elsewhere," said Jason S. Grumet, executive director of the National Commission on Energy Policy, a bipartisan group of energy experts. "The ecological and economic imperative is to start now."
http://www.climateark.org/shared/reader/welcome.aspx?linkid=64932

ThermoEnergy Integrated Power System (TIPS) uses a pure oxygen stream, like Integrated Gasification Combined Cycle (IGCC), to burn coal. TIPS is believed to be more economical and simpler than IGCC when carbon is captured and when low-grade coal is used because of the very high working pressure that is maintained during the process. Many western coals are considered low-grade including coal from the Powder River basin. ThermoEnergy just received a $1.5 million grant to develop a prototype of its technology. Website, report, and article:
http://www.thermoenergy.com/energyTechnology.html
http://www.thermoenergy.com/ClearwaterConferencePaper4-19-05.pdf
http://biz.yahoo.com/bw/061212/20061212005537.html?.v=1
(While this is not a sustainable technology, having efficient methods of coal use while capturing carbon may prove useful, particularly if the technology can be made as a peaking, not baseload supply of electricity - baseload power plants do not provide the support intermittent renewable energy resources need. - Ken)

California Cities Reject Coal-Fired Power. *In an abrupt about-face, Burbank and several other Southern California cities are joining with the Los Angeles Department of Water and Power in abandoning plans to renew long-term contracts for coal-fired electricity from a Utah power plant. "It's a huge change," Burbank Mayor Todd Campbell cheerfully admitted.*
http://www.latimes.com/news/local/la-me-coal22nov22,0,3502095.story?coll=la-home-local

Building Technology

Report: Greening America's Schools. *... review of 30 green schools demonstrates that green schools cost less than 2% more than conventional schools - or about $3 per square foot ($3/ft2) ... enhance student learning, reduce health and operational costs and, ultimately, increase school quality and competitiveness. The financial savings are about $70 per ft2, 20 times as high as the cost of going green. ... Lower energy and water costs, improved teacher retention, and lowered health costs save green schools directly about $12/ft2, about four times the additional cost of going green. For an average conventional school, building green would save enough money to pay for an additional full-time teacher.*
http://www.cap-e.com/ewebeditpro/items/O59F9819.pdf

Home-sized micro combined heat and power (CHP) system produces electricity and heat from natural gas at 90% efficiency. Pays for itself in 3 to 7 years.
http://www.csmonitor.com/2006/1114/p01s02-usec.html

USA Today. Set of articles on many aspects of green building.
http://www.usatoday.com/educate/college/casestudies/20060906-greenbuildings.pdf

Renewable Technology

Suncone and stirling engine combination to generate electricity. ... *Suncone CSP solar concentrating power system can be modified to deliver more than 700° C of solar thermal energy to Infinia's free-piston Stirling engine to generate electricity on a cost-effective basis.*
http://www.greencarcongress.com/2006/11/open_energy_and.html

Concentrating photovoltaic cell passes 40% efficiency. *"This solar cell performance is the highest efficiency level any photovoltaic device has ever achieved."*
http://www.boeing.com/ids/network_space/news/2006/q4/061206b_nr.html

Boulder based inventor working on system to grow algae for biodiesel. The plan includes bubbling coal fired power plant exhaust gasses through sealed units covering large areas to capture carbon dioxide. ...*the algae would produce between a gallon and two gallons of fuel per square meter per year.*
http://dailycamera.com/news/2006/dec/08/inventor-turns-algae-into-fuel/

Google plants solar trees. *Google's Mountain View, California, headquarters is getting a 1.6-megawatt solar system -- enough to power about 1,000 homes -- that will feed about 30 percent of the complex's power demand. About a third of the 9,000 solar panels Google is installing will take the form of overhanging parking shades at the million-square-foot campus in Mountain View. The others will be mounted on rooftops.*
http://www.wired.com/news/technology/0,72292-0.html?tw=wn_technology_2

Energy Storage

Battery technology from Altairnano. ...*safe nano-Titanate battery packs ... two nano-Titanate battery pack configurations: a 35 KWh and a 70 KWh NanoSafe pack. The 35 KWh NanoSafe pack can be recharged in less than 10 minutes, with the appropriate battery charger and provides sufficient power and energy for a fleet vehicle to travel up to 130 miles. The 70 KWh NanoSafe pack can also be recharged in less than 10 minutes, ... (with) energy for a full sized SUV to travel up to 250 miles. Altairnano is on track to deliver ten 35 KWh NanoSafe battery packs in the fourth quarter ...* with more availability in 2007. Very long-life batteries -*10,000 to 15,000 charges vs. 750 for existing batteries.* Press release and website for both Altairnano and Phoenix Cars and more details on the battery technology.
http://biz.yahoo.com/bw/061107/20061107005720.html?.v=1
http://www.altairnano.com/markets_amps.html
http://66.218.37.153/cars.htm
http://www.altairnano.com/documents/NanoSafeBackgrounder060920.pdf

Zebra battery technology. This battery appears to be based on Sodium Chloride (table salt) with Nickel in an Alumina matrix. Operates at high temperature in a vacuum enclosure. Interesting efficiency and energy density characteristics in applications where it will be used regularly (e.g., electric vehicles, active energy storage and management). Not suitable for small applications (cell phones, etc.). Website requires clicking around. Try the “Zebra” link on the left-hand side, then the “more information” link from the following website:
http://www.betard.co.uk/

Why a hydrogen economy doesn’t make sense. Interesting articles and analysis from Germany and Ulf Bossel - a fuel cell expert. Shows that production, distribution, and storage of hydrogen for transportation would be far less efficient than using renewable electricity directly in electric cars. For example, for 100 kWh of source energy, hydrogen would deliver about 20 kWh of useful transportation. In an all-electric approach, 70 kWh of useful transportation would be delivered. Article, report, and presentation.
http://www.physorg.com/news85074285.html
http://www.efcf.com/reports/E13.pdf
http://www.efcf.com/reports/E17.pdf

Transportation

MIT half-sized gasoline spark-ignition engine delivers performance of a full-sized engine with the economy of a hybrid at a very small increase in cost over regular engines. Works by injecting a small amount of ethanol into the combustion chamber to eliminate the knock-limit, allowing much more turbo-charging and much higher compression than a traditional spark-ignition engine allows - this allows higher power and efficiency in a smaller size package. Possible delivery in cars in 5 years.
http://web.mit.edu/newsoffice/2006/engine.html

Toyota diesel hybrid considered in partnership with Isuzu.
http://www.edmunds.com/insideline/do/News/articleId=118788

Package delivery company TNT in London trials all-electric medium-duty delivery truck. 130 mile range. 50 MPH maximum speed. 4 Zebra electric batteries (see above). Electricity costs about 1/4 the cost of diesel for an equivalent amount of driving.
http://www.greencarcongress.com/2006/12/tnt_launches_ne.html

Contributions from Leslie Glustrom, Doug Grinbersg, Sarah Haynes, Kevin Markey, Richard Polk, David Schaller, Ross Vincent, Tim Wagner, Morey Wolfson, and others.