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"Going green may be the largest economic opportunity of the 21st century. It is the mother of all markets. Going green is the next big thing. And the next generation insists we do it."  
- Venture capitalist John Doerr in Time Magazine  
<http://www.time.com/time/magazine/article/0,9171,1531324-1,00.html>

### **Boulder Action Item**

The 202 campaign needs our help!

Literature Drop. Saturday, Oct. 21 – 8:30-11:30am

Environmental Center of the Rockies (2260 Baseline, SW corner of Broadway)



202 is partnering with the Transit and Trails Initiative 1A. The purpose of the literature drop is to leave information about 202 and 1A at people's doors so no knocking is necessary. Expect to be out walking 2-3 hours. Wear comfortable shoes, bring water and a bag for your literature, and dress for the outdoors.

Contact Adriana at 303-554-1424, [a\\_raud@yahoo.com](mailto:a_raud@yahoo.com)

Also, the campaign still needs cash contributions, people to put up yard signs, etc. Contact Ken [regelson@mac.com](mailto:regelson@mac.com)

This is important, will make a difference, and save Boulder money overall. More info: <http://www.climatesmartboulder.com/>

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Short Takes

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To Submit to SE News – email [Regelson@mac.com](mailto: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.

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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>

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### *From Boulder & Colorado:*

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#### **Short Takes**

Xcel Energy meets Amendment 37 goals 8 years early.

[http://www.bizjournals.com/denver/stories/2006/10/09/daily17.html?f=et61&hbx=e\\_du](http://www.bizjournals.com/denver/stories/2006/10/09/daily17.html?f=et61&hbx=e_du)

Facts on Tri-State's planned expansion (3 new coal fired power plants) in Kansas.

<http://kansas.sierraclub.org/Issues/EnergyFacts.htm>

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#### **Issue 202: Boulder's Climate Action Plan Tax**

Guest editorial by Larry Kinney in the Daily Camera.

[http://dailycamera.com/bdc/guest\\_opinions/article/0,1713,BDC\\_2493\\_4979739,00.html](http://dailycamera.com/bdc/guest_opinions/article/0,1713,BDC_2493_4979739,00.html)



*From Elsewhere:*

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## Short Takes

### Policies, Programs, Challenges, and Campaigns

The Economist's cover story: The Heat is On. Excellent editorial. *The uncertainty surrounding climate change argues for action, not inaction. America should lead the way...Mr Bush has got two years left in the job. He would like to be remembered as a straightshooter who did the right thing. Tackling climate change would be one way to do that.*

[http://www.economist.com/opinion/displayStory.cfm?Story\\_ID=7884738](http://www.economist.com/opinion/displayStory.cfm?Story_ID=7884738)

Walmart, GE, and Compact Florescent Lightbulbs ("swirls"). Long article on how Walmart is going to change the face of lightbulb sales, doubling swirl sales from 100 million to 200 million. *It was a perfect swirl: Katrina, Rita, \$70-a-barrel oil, price-chopping, corporate consciousness-raising, with Oprah's lightbulb club thrown in.*

[http://www.fastcompany.com/magazine/108/open\\_lightbulbs.html](http://www.fastcompany.com/magazine/108/open_lightbulbs.html)

Ann Arbor, Michigan city council issues challenge to install 5000 solar hot water systems.

<http://www.mlive.com/news/aanews/index.ssf?/base/news-19/1157467414319280.xml&coll=2>

Book: Solar Revolution: The Economic Transformation of the Global Energy Industry. ...*in the next two decades, solar will become the cheapest energy source for most applications, and will be widely adopted by consumers in both the developed and developing worlds.* Denis Hayes, Former Director, U.S. National Renewable Energy Laboratory writes of the book: *Everyone who wants to understand the permanent energy answer that can reverse climate change, eliminate oil shocks, and avoid future Chernobyls should read this book. Bradford builds a compelling business case that solar energy is the most disruptive technology in history.*

<http://www.prometheus.org/research/solarrev>

Green chemistry. *The production of chemicals, plastics, and other nonfuel petroleum products consumes 1 million barrels of oil a day, so firms from an array of industries are seeking alternatives to petroleum-based products and wasteful, energy-consuming processes. "If this country doesn't figure out energy, nothing else will matter," said Ken Doxsee, program officer for organic chemistry at the National Science Foundation. "Green chemistry is all about sustainability, and it definitely has a role to play."*

[http://www.boston.com/business/articles/2006/09/04/making\\_it\\_easier\\_to\\_be\\_green/](http://www.boston.com/business/articles/2006/09/04/making_it_easier_to_be_green/)

Rocky Mountain News: *The shrinking Arctic ice cap is suddenly a hot topic,... All the publicity helped propel the previously low-profile National Snow and Ice Data Center... into the international spotlight.... "Even five years ago, I was kind of a fence-sitter on this whole greenhouse warming thing," Serreze said. "We saw no reason to be raising these huge warning flags. And that's changed. Now we've got the flags at full staff."*

[http://www.rockymountainnews.com/drmn/local/article/0,1299,DRMN\\_15\\_4968574,00.html](http://www.rockymountainnews.com/drmn/local/article/0,1299,DRMN_15_4968574,00.html)

A Utility Mandate for the 21st Century. This is interesting because of the utility-oriented publication it is in.

<http://www.pur.com/pubs/spark/sep06.pdf>

Futerra.org - communicating sustainability. 2 page overview and full report:

<http://www.westsussex.gov.uk/environment/sustainability/communicating-sustainability.pdf>

<http://futerra.org/downloads/WebEN21.pdf>

Futerra.org - *The game is communicating climate change; the rules will help us win it.* Overview and report:

<http://futerra.org/downloads/RulesOfTheGame.pdf>

<http://www.defra.gov.uk/environment/climatechange/pubs/pdf/ccc-rulesofthegame.pdf>

Time: Is Coal Golden? An article on the debate on 11 new coal fired power plants for Texas.

<http://www.time.com/time/insidebiz/article/0,9171,1541270-1,00.html>

### Building Technology

NREL Report: Lessons Learned from 6 High-Performance Buildings.

<http://www.nrel.gov/docs/fy06osti/37542.pdf>

### Renewable Technology

Prototype for making a syngas with significantly more energy than the methane from which it started. Concentrated solar energy is added to methane and steam to produce a gas mixture of H<sub>2</sub> and CO with 40% of its energy from the solar.

[http://www.det.csiro.au/science/r\\_h/solarthermal.htm](http://www.det.csiro.au/science/r_h/solarthermal.htm)

First atlantic ocean crossing planned by solar powered 14 meter-long boat.

<http://www.transatlantic21.ch/index.php?id=106&L=1>

The forecast for PV (solar electric) manufacturing capacity is from 5.5 to 11 gigawatts by 2010. This is up from 1.4 GW in 2005.

<http://www.renewableenergyaccess.com/rea/news/reinsider/story?id=45990>

The Virgin Group pledges to invest \$400 million in green tech over the next 3 years starting with an investment in Cilion - a new bio-ethanol producer. Cilion plans 8 plants by 2008 producing 440 million gallons of ethanol at a cost that is expected to be cost competitive with gasoline on a mile-to-mile comparison when oil is at \$40 per barrel or above.

<http://www.virgin.com/news/default.asp?sy=2003&ey=2006&sm=6&em=9&cid=0&nr=12&p=1&kwd=-&newsId=786>

<http://www.cilion.com/>

Plutonic Power Corporation is planning and building run-of-river hydro projects in British Columbia. They are selecting sites to provide very minimal impact on the rivers they use by a variety of design and placement techniques including having water intakes in non fish bearing parts of the river and powerhouse and tailrace locations located at the upper limits of fish utilization for the rivers they are building in. They are in development of 22 projects totally 1000 MW of capacity.

<http://www.plutonic.ca/s/Home.asp>

Moderate temperature geothermal power plant based on relatively low-cost air conditioning technology. 300 kilowatt installation at Chena Hot Springs in Alaska. 165 degree F water pumped from the ground at 480 GPM. System cooled with 1500 GPM 45 degree F water. Roughly 8% thermal efficiency. One by-product of oil extraction is often hot water just below boiling temperature. One estimate is that using this technology and the hot water just from existing Texas oil wells, we could create 5,000 MW of new geothermal energy.

<http://www.yourownpower.com/Power/>

<http://www.yourownpower.com/Power/grc%20paper.pdf>

[http://www.utcfuelcells.com/fs/com/bin/fs\\_com\\_Page/0,9235,03400,00.html](http://www.utcfuelcells.com/fs/com/bin/fs_com_Page/0,9235,03400,00.html)

<http://geo-energy.org//publications/pressReleases/Alaska%20Opens%20Its%20First%20Geothermal%20Power%20Plant.pdf>

*Evergreen Solar ... a manufacturer of solar power products with its proprietary, low-cost String Ribbon(TM) wafer technology, today announced the signing of a previously announced polysilicon supply agreement that will be sufficient to allow its EverQ partnership to increase solar module production capacity from about 30MW this year to approximately 300MW by 2010 and possibly as early as the second half of 2009. Note that this works out to almost 100% manufacturing growth per year.*

<http://phx.corporate-ir.net/phoenix.zhtml?c=123321&p=irol-newsArticle&ID=910841&highlight=>

An article comparing silicon vs. CIGS (copper indium gallium selenide) photovoltaic cells. Goal in both cases is to bring the cost of electricity down below that provided by utilities.

[http://news.com.com/Silicon+vs.+CIGS+With+solar+energy%2C+the+issue+is+material/2100-1008\\_3-6121488.html?tag=st.prev](http://news.com.com/Silicon+vs.+CIGS+With+solar+energy%2C+the+issue+is+material/2100-1008_3-6121488.html?tag=st.prev)

Methanol and solid oxide fuel cell manufacturer in Broomfield, Colorado.

<http://www.mesoscopic.com>

Sunpower announces new 315 watt, 22% efficient panels.

<http://investors.sunpowercorp.com/releasedetail.cfm?ReleaseID=214653>

## Energy Storage

Flow battery purchased for Ireland wind-farm. \$6.3 million, 12 megawatt-hour, 1.5 megawatt, vanadium electrolyte. Increase capacity by increasing size of tanks. Possible solution for firming up wind and solar, coping with distribution bottlenecks, etc. *Pump the electrolyte in one direction and the energy is discharged as electricity. Reverse the flow and you start charging up the battery. Hence, the term flow battery... the VRB system doesn't degrade as a result of repeated deep discharging and maintains its performance even after 10,000 charge/discharge cycles. It can also be charged just as quickly as it can be discharged,*

[http://www.thestar.com/NASApp/cs/ContentServer?pagename=thestar/Layout/Article\\_Type1&c=Article&cid=1157321706744&call\\_pageid=968350072197&col=969048863851](http://www.thestar.com/NASApp/cs/ContentServer?pagename=thestar/Layout/Article_Type1&c=Article&cid=1157321706744&call_pageid=968350072197&col=969048863851)

<http://www.vrbpower.com/>

## Transportation

Plug-in Hybrid Electric Vehicles (PHEV) now a reality. Order yours today from a company in Boulder, Colorado. 15 miles electric only operation for \$24,000 rapidly dropping in price until (by their estimates) it “starts making economic sense” in 2011 (see their FAQs page. scroll down about half way).

<http://hybrids-plus.com>

An electric motorcycle. 152 MPH. 350 horsepower. Note that the “KillaCycle” uses the same batteries from A123 Systems as the PHEV conversion above.

<http://www.killacycle.com/>

<http://www.a123systems.com>

Street legal, drag-racing (100 MPH in 1/4 mile track), 1972 Datsun electric vehicle. ... *race a street legal electric powered car to over 100 mph in the quarter mile, clocking in at 100.76 mph with an ET of 13.004 seconds. And at the same time beating a 375 HP V-8 Camaro in the next lane.*

<http://www.nedra.com/wayland.html>

Butanol as a bio-fuel? 4 carbon alcohol (as compared to one and two carbon methanol and ethanol). Direct replacement for gasoline in unmodified vehicles. Similar BTU per gallon content of gasoline.

Online video presentation making the case for plug-in diesel cars. Biomass to liquid (BTL) to make bio-diesel. Speaker believes plug-ins are 85% of the “solution”, diesel as 15% of the “solution”.

<http://video.google.com/videoplay?docid=363807137347714545&hl=en>

*Firefly's carbon-graphite foam-based battery technology can deliver a unique combination of high performance, extremely low weight and low cost, all in a battery which utilizes the best aspects of lead acid chemistry while overcoming the corrosive drawbacks of this same chemistry. This product technology delivers to battery markets a performance associated with advanced battery chemistries (Nickel Metal Hydride and Lithium), but for one-fifth the cost, and can be both manufactured as well as recycled within the existing lead acid battery industry's vast infrastructure.*

<http://www.fireflyenergy.com/FireflyEnergyR&D.pdf>

<http://www.fireflyenergy.com/BatteriesFromTheGrave.pdf>

Contributions from Dave Newport, Leslie Glustrom, Steve Burman, Ross Vincent, and others.