

Join Colleagues & Friends for an informal evening of co-learning and lively discussion

Monday, July 10th, 2006

The Commercial Sustainability Network (CSN) of the Central Coast presents...

IT'S NONE TOO SOON FOR SOLAR POWER

New Technologies & Accelerating Market Acceptance Reach a Tipping Point

Panelists:

- ☑ **Anthony Tersol**, Designer/Sales Engineer, Applied Solar Energy, appliedsolarenergy.com, residential systems
 - ☑ **Stewart Wadsworth**, Solar Energy Consultant, www.recsolar.com, commercial systems
 - ☑ **Nick Gralenski**, Chief Scientist, Soleicx (www.solaicx.com); invited
- Moderator: **Daniel Robin**, C3SN Co-founder and managing director, In3 (www.in3inc.com)
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Agenda:

1. Networking: 6:00-6:30pm

2. Introductions: Audience and Panelists: 6:30pm

Brief speaker presentations will be followed by discussion of the issues and opportunities.

What are your interests? Which if these possible topics do you most identify?

- ▶ What new in solar technology? Is there still a role for crystalline silicon panels?
- ▶ What is happening in the marketplace that is changing the way people buy energy? What's happening with energy storage?
- ▶ What should you pay attention to when considering buying solar?
- ▶ Is it profitable yet? How long does it take before you "break even" with residential solar? Commercial? If integrated into a new building?

See below for a full set of themes and discussion questions.

Networking and Refreshment Break: ~7:45-8:00pm

3. Moderated discussion with Nick Gralenski, Chief Scientist, Soleicx (www.solaicx.com)

What's working? What are some examples and why? Where do we go from here? What limitations with solar must be overcome? What is happening here and overseas that can help accelerate reductions in carbon emissions and clean up our dirty energy habits?

WHEN: **Monday, July 10th, 2006; 6:30 - 9:00 PM;**
networking starts at 6:00pm

WHERE: **Elkhorn Slough Research Reserve**
1700 Elkhorn Road, Watsonville, CA 95076,
Telephone: (831) 728-2822
ESNERR Email: esf@elkhornslough.org
Research Reserve Website: www.elkhornslough.org/esnerr.htm



Or register at our website: www.cccsn.net

Cost is \$5 - \$10 sliding scale at the door to defray costs (checks made out to "SBQA"); please bring a snack or beverage to share. We'll take plenty of time for refreshments and networking.

Please [pre-register](#) (**email to register@cccsn.net**), as space is limited.

Detailed Program Description

What will it take for solar power to make a serious dent in our greenhouse gas emissions? Does solar power have the potential? The "inconvenient truth" of our careless use of petroleum is beginning to come home, thanks to the efforts of Al Gore and many, many others. Join us for this exciting update on the state of the solar industry. What's happening in Germany and elsewhere that is creating such market demand and widespread acceptance for solar energy? New, innovative renewable energy solutions are now beginning to reach a hungry market, while incentives and rebate programs make it more affordable than ever ... How can we "afford" *not* to?

Discussion Questions and Themes

- 1. What's new here?** What new technologies are bringing solar back into the competitive energy marketplace?
- 2. What is the current state of the energy market?**
 - What effect has Germany had on world solar markets?
 - Here in California, What kind of incentives and rebates exist for using solar?
 - Is it possible to profit by selling energy back to PG&E?
 - Is energy storage a barrier or limitation to solar success on a massive scale?
- 3. Are conversion efficiencies improving? Will they ever get better than 25%?** What's happening at NREL's high-performance photovoltaic project? Are CIGS solar cells the answer? What the heck is a "multi-junction concentrator" and why should we care?
- 4.** Are there any other **emerging technologies** in solar that could revolutionize the industry? What about thin-film?
- 5. How does utility regulation affect the price consumers pay for energy?** How can we price carbon dioxide and methane into the market so that the externality is "paid for" as well?
- 6. Realistically, can solar make a real difference in the current energy market, or are the high upfront costs too high to reach widespread acceptance and mainstream markets?** What role does government have? See links below for ***Disruptive Technologies***.

Useful Links, Articles, Resources:

- On Disruptive Technologies: Prof. emeritus, Martin Hoffert, physics, New York University:
 - Article: [It's Not Too Late](http://www.technologyreview.com/read_article.aspx?id=17056&ch=biztech) (www.technologyreview.com/read_article.aspx?id=17056&ch=biztech)
 - PBS Interview: "[Beyond Fossil Fuels](http://www.pbs.org/wgbh/warming/beyond/)" (www.pbs.org/wgbh/warming/beyond/)
 - 4/20/06 Interview: [Needed: An "Apollo Program" for Energy – The world's critical energy problems require solutions beyond those that policymakers are exploring now](http://www.technologyreview.com/read_article.aspx?id=16718&ch=biztech) (www.technologyreview.com/read_article.aspx?id=16718&ch=biztech)

- Article: "**Has the solar photovoltaic market finally reached the tipping point?**" See www.in3inc.com/SolarPowerInvesting.pdf
- Article: NREL – National Renewable Energy Laboratory: <http://www.nrel.gov/solar>
- ASES – American Solar Energy Society: <http://www.ases.org>
- US DOE Energy Efficiency and Renewable Energy **Alternative Fuels Data Center** (<http://www.eere.energy.gov/afdc>)
- SEIA – The Solar Energy Industries Association: <http://www.seia.org>

See C3SN or In3 websites for more links and information: www.cccsn.net/events.html, or www.in3inc.com.

SPEAKER AND PRESENTING COMPANY BACKGROUNDS

Anthony Tersol, is a designer/sales engineer for Applied Solar Energy in Pacific Grove, California, as well as a part-time instructor at Monterey Peninsula College, teaching physics, oceanography and programming. He brings with him over 30 years of experience in the applied sciences. He has worked in an eclectic variety of researcher/technician positions, consultancy positions, as well as in multi-media production studios. Tony has been designing solar systems for more than X years.

Stewart Wadsworth, Solar Energy Consultant, adds sales experience and environmental expertise to REC Solar (www.recsolar.com). With a degree in Communication and Resource Management from Cal State Chico, Stewart is passionate about the environmental benefits of renewable energy.

Stewart has worked for a variety of successful companies such as Odwalla Juice Company and Webvan as a business manager for transportation and expansion. As a resident of Santa Cruz, he takes personal pride and care for the local mountains and shares his love for natural resource preservation with his family and friends. Email: swadsworth@recsolar.com; Tel: 408-515-1034.

Nick Gralenski, Chief Scientist, Solaicx (<http://www.solaicx.com>), is considered one of the worlds leading authorities in the fields of chemical vapor deposition (CVD) application and high-temperature furnace technology. He has over 35 years of experience in the field, has authored numerous publications and has been a featured speaker at a numerous industry and scientific symposiums. Mr. Gralenski holds over 35 patents.

Mr. Gralenski was a staff scientist at Watkins Johnson for over 30 years. The company was acquired by Silicon Valley Group, and subsequently acquired by ASML. He designed, developed and brought into production a number of fully conveyor-fed, chemical vapor deposition furnaces, used for the manufacture of digital displays and other thin-film devices. The Watkins Johnson CVD furnaces proved to be the company's most profitable product line.

Mr. Gralenski's education was oriented toward physics, mechanics, chemistry and material sciences. He has strong experience and skills in developing technology produces products that become a practical, profitable reality.

Daniel Robin, C3SN co-founder, brings more than 20 years executive/board, financial and venture development experience to clients. Daniel is principal of Daniel Robin & Associates (ABetterWorkplace.com), a leadership development, process improvement and training firm now celebrating its 20th anniversary. Daniel is also founder and managing director of Integrated Investments International (www.in3inc.com), a "venture catalyst network," specializing in clean and sustainable technology, product and service commercialization. Daniel's cleantech niche has become renewable energy and renewable "bio" materials.

Daniel currently serves on the Board of several In3-funded "cleantech" ventures and acts as Board secretary for the *Sustainability Academy* (sustainabilityacademy.org), an experience-based educational non-profit "do, teach, think-tank" accelerating mainstream practice of innovative solutions for economic success, ecological health and community benefit.

Daniel received his bachelors in Computer & Information Science from University of California at Santa Cruz, completed advanced studies in Marketing and International Business (UC Berkeley), and earned certificates in coaching and conflict resolution, with master's level/trainer certificates in NeuroLinguistic Programming (NLP), ISO 14001 certification, and public speaking. In his spare time, Daniel and his wife Karin Leonard, write film reviews for Bay Area *Connection Magazine*.

C3SN is hosted by [Living Directory Network](#) ... go to <http://www.favors.org/CCCS/> to join, or send this link or flyer to invite others. All members are encouraged to join this network.

Just for fun: Photo of the Week Gallery from Elkhorn Slough Research Reserve:
<http://www.elkhornslough.org/journal/002archive.htm> (since Aug. 2002).

If you have questions regarding these directions or about C³SN,
please call Daniel at (831) 761-0700 or send E-mail to admin@cccsn.net

For **more info** about C³SN visit www.cccsn.net
Register to attend with an email to register@cccsn.net

For information about Special Interest Networks: <http://www.cccsn.net/about.sins.html>
To **join** a Special Interest Network (SIN), go to: www.in3inc.com/joingroup.html

To be added to the reminder list, send email to c3sn_list_add@cccsn.net
To be removed from this list, send an email to c3sn_list_remove@cccsn.net