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Epic Choice:

Do We Want A Centralized or Distributed Electrical Grid?

Imagine a landscape without the visual pollution of electrical lines.

by Chip Ashley Tehipite Chapter ExCom

Watts Valley is ablaze this spring with the finest display of wildflowers in my 50 year memory of the little blue oak woodland valley 25 miles northeast of Fresno.

It is as if nature has chosen her most brilliant colors to weave a tapestry in time as a monument to the last spring-or at least one of the last springs-before Watts Valley is likely to be abruptly defaced with a massive substation and an column of 200 foot lattice towers marching across the foothills, through Kern, Tulare, and Fresno Counties. This defacement is called the Central California Clean Energy Transmission Project, or-if you prefer its frightful technocratic acronym-C3ETP. PG&E promotes C3E-TP as part of the solution to global warming. 'Build thousands of miles of new high voltage transmission lines," beseech the suddenly green demagogues of the Fortune 500, "or be cooked in your own greenhouse gasses!"

By the time you read this, the blazing swatches of Eschscholzia californica (California poppies) in Watts Valley will have been replaced by Clarkia purpurea (farewell to spring) and the hills mostly turned from green to golden. I hope you have a chance to take a drive or bicycle through to see the fabulous display. If not, there may still be time-a year, maybe two, before PG&E's engineers and tractors begin the defacement. But sadly, another spring like this one is unlikely before work on C3ETP begins.

The sacrifice of Watts Valley seems all the more poignant because it comes at a point



500 kilovolt transmission lines in the Mojave Desert

in history when we have a choice. The sad and tragic thing is, unfortunately, not many know of this choice. The media and the government have done little to inform us of it. Motivated by fear, many feel we must act with utmost speed to add to the grid in order to stave off the impending disaster of climate change caused by global warming. Fear, Machiavelli noted, is the politician's (and the CEO's) best motivator. Certainly climate change may be the biggest challenge yet confronted by human kind. And certainly we must act fast, but we must also arrive at the best possible solution.

The choice is between centralized generation and distributed generation (DG)-decentralized generation—as follows:

(Model 1) Centralized Generation: We can add hundreds of huge generators (500 to 2000+ megawatts) which utilize renewable sources such as wind, solar, geothermal and a few others. This solution will require thousands of miles of new transmission lines and take up thousands of square miles of open space.

(Model 2) Distributed Generation: We can add millions of tiny generators to existing or planned construction. This solution doesn't require many new transmission lines or additional open space.

The pros of the centralized system are (1) that it may be somewhat more efficient in that it utilizes optimum renewable sources, wind in the few places where it is very strong and regularly available, and solar where it is most abundant-places like Altamont, Tehachapi, and the Mojave Desert; and (2) that it is-at least at present-somewhat less expensive to the ratepayer. Unfortunately, at this time, along with system reliability, cost to the ratepayer is the primary planning consideration. The authorities do not consider other non-monetary costs.

The major con of the centralized model is that it leaves huge environmental footprints. With current technology, a 1000 megawatt (MW) solar generator takes up about 7000 acres—over 10 square miles! Wind farms take up even more space for a given amount of electrical generation. Some counter that these generators are out in the empty hot desert, so it doesn't matter. Not so. We know as Sierrans, that the desert contains many complex and sensitive ecosystems. Others-those involved in the Regional Energy Transmission Initiative (RETI), for example--argue that desert areas degraded by former agricultural usage will be employed to site these large generators.

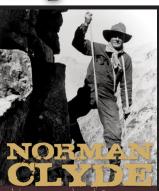
Maybe so, but then there is the additional problem of building transmission lines from remote generators to big cities (so-called "load centers") where most electricity is consumed. This has been an acceptable model since the Collis P. Huntington's (of Big Four railroad fame) nephew Henry Huntington in 1910 exploited a beautiful meadow on Big Creek in eastern Fresno County-now

Chapter General Meeting

Norman Clyde: Legendary Sierra Mountaineer

Wednesday, June 17th at 7:00 pm University of California Center 550 E. Shaw Ave., Fresno - (across from Fashion Fair)

Robert C. Pavlik will discuss his book Norman Clyde: Legendary Mountaineer of California's Sierra Nevada. Clyde (1885-1972) was a mountaineer, nature photographer, and naturalist. H the Sierra and elsewhere



Legendary Mountaineer of Cailfornia's Sierra/Nevada

nature photographer, and naturalist. He made over 100 first ascents in the Sierra and elsewhere.

Upcoming Meetings

May: No General Meeting

June 17: Norman Clyde (see above)

September 16: Dr. James Kus, Professor of Geography. What's New at Machu Picchu?

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October 21: To be arranged

November: No Meeting due to Thanksgiving

December 16: Helen Gigliotti, topic to be announced

Conservation & Executive Committees

Wednesday, May 13, at 7:00 P.M. University of California Center, 550 E. Shaw Ave., Fresno

Volunteer Corner

Time is running out for Joe Ruff (our treasurer) to train someone new. Do you know someone who might be willing to take on this important job? We cannot remain a chapter without a treasurer. The only other choice is to hire someone. Suggestions? John Flaherty





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<i>Membership</i> open
Publicity
Rod Webster (209) 723-4747
Population open

ANNUAL PICNIC, SATURDAY, MAY 2nd

May is 'picnic month'. Instead of our usual general meet-

Merced

Conservation and Executive Committee Meetings Thursday, May 7th Rod Webster's home, 7:00 P.M. 345 E. 20th St., Merced The conservation meeting is first and lasts 30-40 minutes. Anyone with an interest in local, state, or national conservation issues is welcome to attend. Come just to get informed or get as involved as you wish.

ing on the third Thursday. . . Our annual picnic will be held at the beautiful home of

Cathy and Don Webber on the scenic Merced River in Snelling on May 2nd beginning at 11:00 a.m. All are welcome for a relaxing time chatting up the issues of the day or just monitoring the Sierra snow melt as we watch it roll by. Please bring your favorite potluck item, silverware, plate, and an extra lawn chair if you have one. Ice tea is provided but feel free to bring your own libation. Directions from Merced: Take Highway 59 to Snelling. Go through town. About 1/4 of a mile past the La Grange exit and right before you get to Henderson Park, turn right into the first driveway at 3279 E Merced Falls Road. Look for balloons on the mailbox. HOPE TO SEE YOU THERE!

Save the Date: Western Wilderness Conference 2010 New Aims, New Allies

Vicky Hoover, chair, Sierra Club CA/ NV Wilderness Committee

The Western Wilderness Conference 2010 will take place April 8 – 11, 2010, on the campus of the University of California, Berkeley, California.

Save the date now! For anyone who cares about the wild places of the West—this is one event not to miss!

Although the event will take place in California's San Francisco Bay Area, wilderness organizations and advocates from all twelve western states, including Alaska, are involved, and wild lands advocates from all those states are enthusiastically invited to participate in this grand event.

Who's invited? Wilderness advocates, both professionals and volunteers, new advocates; Native American leaders, land agency personnel, outings leaders, individuals, college students and faculty, representatives of organizations working on quiet recreation and on varied land-preservation efforts, decision makers at different levels of government.

Where will they come from? All over the West! From California, Nevada, Washington, Oregon, Alaska, Idaho, Montana, Utah, Colorado, New Mexico, Arizona and Wyoming. Maybe Western Canada and Mexico. Why attend? Western Wilderness Conference 2010 will:

** inspire interested new advocates, including students, to preserve our nation's remaining wild places;

** re-inspire longtime dedicated wilderness advocates to vigorous new advocacy with renewed motivation;

** offer a forum to discuss and debate timely wilderness-related topics, particularly as they relate to global warming changes;

** explore how to incorporate Native American traditional land-ethic and cultural values into wildlands advocacy;

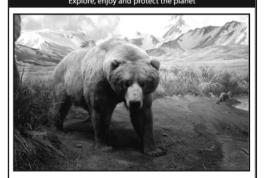
** promote getting children outside into Nature's wild places!

** provide training sessions to help activists become more effective advocates for wild places; preservation.

** and have fun!' Speakers, plenary ses-

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Bear in mind the consequences.

The Yellowstone grizzly bear is an irreplaceable part of America's natural heritage, a symbol of the independence that defines the American character and an icon of all that is wild and free. The Bush administration set forth a proposal that would remove federal protection for the Yellowstone grizzly bear. Help Sierra Club protect our forest friends; they prefer the woods than being on display.

	on display.	
Get grizzly and J	OIN Sierra	Club.
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Join today and receiv a FREE Sierra Club Weekender Bag!		
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Standard	🗆 \$39	□ \$47
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sions, workshops, music, meals, outings! It's all part of the celebration of the West's wild places. Berkeley, California. April 8 - 11, 2010.

Sierra Club, California Wilderness Coalition, and Northwest Parks and Wilderness Conference are the main planning organizations. Check out the conference website: *www.westernwilderness.org.*

Cutting emissions, Not "offsetting" them

By Bill Magavern, Director, Sierra Club California

If a polluter pays someone else to reduce greenhouse gas emissions, should the polluter get credit? Such "offset" projects may include emission reductions in a different local industry, planting trees in a deforested region, or paying a factory in China to stop producing chlorofluorocarbons (CFCs). The logic behind offsets is that carbon reductions anywhere in the world are equally effective at controlling global climate change.

Unfortunately, carbon offsets can be a dicey proposition when it comes to cleaning up our air. They have been compared to the indulgences sold by medieval clerics--by paying some money (which ostensibly will go toward reducing or sequestering emissions somewhere) a polluter is considered to be compensating for its discharges into our atmosphere.

Minimally, offsets need strong safeguards to ensure that the promised emission reductions are real, additional, verifiable, permanent, and enforceable. It may be difficult, though, to oversee offsets, especially in distant places, to ensure that the benefits are real. And, of course, it would be far better to reduce both the carbon discharges in Los Angeles and the CFCs in China, and to save the rainforests, rather than create offsets that allow businesses to choose one or the other.

Further, offsets may interfere with reductions in other forms of pollution. When a facility is modified to lower carbon emissions, typically other pollution is reduced in the process. It may not matter where in the world carbon reductions happen, but to the neighbors of a polluting facility, the location of other kinds of pollution matters greatly. Since unhealthy air is concentrated in some of California's most impoverished communities, some offsets could harm the cause of environmental justice.

Excessive reliance on offsets could open up huge loopholes that undermine the very purposes of a law like California's AB 32 cap on emissions. The Air Resources Board's AB 32 Scoping Plan would allow up to 49% of emission reductions to come from offsets anywhere in the world. Sierra Club California believes that offsets should be much more strictly limited.

Curbing global warming will require a fundamental transformation of our energy economy, a task that cannot be outsourced to other countries. Requiring California's largest polluters to reduce their own emissions will spur technological advances that can be exported to the rest of the world, bringing green jobs to the Golden State. If polluters are allowed to outsource their emission reductions to other sectors and jurisdictions, the clean-energy revolution will be delayed. If big oil and utilities can comply with the law by paying for tree planting in Canada, then they will not have to develop clean technologies to green their own operations and products.

In addition, according to a new study from UC Berkeley, allowing out-of-state offsets would increase emissions of harmful smogforming and toxic pollutants here in California. AB 32 requires the ARB to ensure that its implementation rules "complement, and do not interfere with, efforts to achieve and maintain federal and state ambient air quality standards and to reduce toxic air contaminant emissions." The study found that by limiting offsets to in-state emissionreduction projects, we could slash emissions of six out of eight air pollutants.

A new bill, AB 1404, authored by Assemblymembers Kevin de León and Manuel Perez, would improve environmental justice and air quality in California communities by setting some sensible limits on offsets. The bill would limit the use of compliance offsets to no more than 10% of the emission reductions needed, establish requirements for verifying and tracking compliance offsets to ensure that they are real and do not cause harm to the environment or public health, and require the ARB to prioritize offsets that provide

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•	Outing Ratings				
	Distance	Elevation Gain			
	1) up to 6 miles	A) under 1,000 feet			
	2) 6 to 10 miles	B) 1,000 to 2,000 feet			
	3) 10 to 15 miles	C) 2,000 to 3,000 feet			
	4) 15 to 20 miles	D) 3,000 to 4,000 feet			
	5) over 20 miles	E) over 4,000 feet			

Our Tehipite Chapter Outings Chair is Dave Wallace. Please contact him at wagga@ comcast.net with any questions concerning our outings program. Contact the trip leader directly if you are interested in one of the listed trips.

Tehipite Chapter outings are free and open to the public. All leaders are unpaid volunteers assuming responsibility for a good trip, and your cooperation is mandatory. Please review additional trip and participant requirements at www.tehipite.sierraclub.org/outings.

CST #2087766-40. Registration as a seller of travel does not constitute approval by the State of California. California has established a Travel Consumer Restitution Fund (TCRF) under the California Seller of Travel Act. The TCRF is not applicable to these Outings. The law requires us to advise you that you would not be eligible to make any claim from the TCRF in the unlikely event of default by the Sierra Club. California law also requires certain sellers of travel to have a trust account or bond. The Sierra Club has such a trust account.

air-quality benefits to communities already suffering from disproportionate air pollution—particularly in the same air basin as the offset purchaser, and that provide environmental and public-health benefits to California. Sierra Club California supports AB 1404 as a balanced approach to compliance offsets.

Farewell Tom Janecek

Last month, we were saddened to learn about the passing of Tom Janecek.

Tom was a gifted actor, who played major roles in a number of live theatre productions in our community. No one who saw it will ever forget his outstanding performance as King Lear in last summer's Shakespeare production.

More importantly for us, Tom was an active participant in our Chapter's outings program for many years. He also very capably served as our Tehipite Topics editor for several years, and played a major role in the development of the outstanding newsletter we appreciate today.

Those of us who enjoyed the opportunity to share outings with Tom will all remember his pleasant personality, quick wit and positive, cheerful attitude. We have lost an excellent companion and a wonderful friend, and he will be missed by all of us.

Outings Schedule

Sat. May 30

Yokuts Spring Hike Along the River, Dayhike 1A

This almost monthly 4-mile hike along the Tuolumne River should feature bird activity, new oak and wild grape leaves, and the mild temperatures. Meet at the parking lot by American Legion Hall (1001 S. Santa Cruz Ave., Modesto) at 9 AM. Dogs and children welcome. Info: Yokuts leader Dorothy Griggs, 209.549.9155.

Saturday , May 9, 2009

Dayhike , Easy to Moderate. Dayhike , Easy to Moderate In Squaw Leap area we will hike north above the river to visit Indian grind holes and a big mystery tunnel . Don Redmond (559) 268-1537

Saturday, June 6 , 2009

Dayhike , Moderate. Grant Grove hike to Panoramic Point Don Redmond(559) 268-1537

Other Items of Interest

Georgia O'Keeffe and Ansel Adams

San Francisco Museum of Modern Art

Natural Affinities Exhibition, May 30-September 7 151 Third Street, San Francisco

O'Keefe and Adams are both revered for their ability to capture, in their own unique ways, the essence of natural beauty. The two met for the first time in 1929 while in Taos, New Mexico, and despite a 15-year age gap and differing personalities, they developed a lifelong friendship through their shared admiration of the natural world. O'Keeffe and Adams corresponded over the years, visited one another, and sometimes traveled together to sites that became subjects of their artwork.

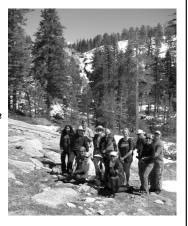
Go to www.sfmoma.org for more inofrmation.

Planet Green

is a new television channel available locally on DircTV channel 286. Planet Green features shows such as "Living with Ed," with Ed Begley, Jr., a cooking show called "Emeril Green," with Chef Emeril Lagasse, and "Focus Earth," with Bob Woodruff.



These photos were taken on a recent hike to Chilnualna Falls led by Carolyn Ordway



TEHIPITE TOPICS April 2009

News from Our National Parks and Forests

Sierra Forest to Revise Travel Plan By Tom Eliason

By federal mandate, the Sierra National Forest must update and revise its management plan for all roads and trails. This affects everyone who uses the forest for hiking, camping, horseback riding, bicycling, or riding a motorized vehicle. About 2400 miles of roads/ trails have been inventoried. A considerable number will be decommissioned on the basis of non-utility or environmental damage, while a number of so-called "use trails" will be added to the system. The Forest will release a Draft Environmental Impact Statement in early May. It will be available on the web at http://www.fs.fed.us/r5/sierra/projects/, or the Forest will issue a printed copy or CD on request. This DEIS will be lengthy, and multiple alternatives will be presented.

To help people to navigate the DEIS, the Forest has scheduled a number of public meetings during the forty-five day comment period. Some will involve a formal presentation, while some will be "drop-in" whereby anyone may visit, review the wall maps, and speak to the knowledgeable staff. Public meetings will be held at the Oakhurst Community Center on May 5, 4:30-8:30; Madera Community College, May 6, 4:30-8:30; Mariposa County Government Center, May 11, 4:30-8:30; Clovis Memorial Building, May 12, 4:30-8:30; and Foothill Middle School in Prather, May 13, 4:30-8:30. At each meeting drop-in sessions are from 4:30-6:30, presentations 6:30-7:30, and workshops 7:30-8:30. There are many more meetings and locations. To obtain the complete schedule of meetings, please call the number below.

There is bound to be controversy, but the planners hope to resolve issues by addressing concerns frankly, and by willingness to change details by mutual agreement. As always,

IF YOU CARE, BECOME INVOLVED.

For information, please phone Sierra National Forest Headquarters at 559-297-0706 ex 4804, to reach Sue Exline, information officer.

Giant Sequoia National Monument Management Plan By Rich Kangas

The Giant Sequoia National Monument was created by President Clinton in 2001 with the requirement that a management plan be in place in three years. The first plan was ruled incomprehensible and thus invalid in federal court in 2006.

Now the Sequoia National Forest has begun writing a new plan. The first step in that process should have been the appointment of a Science Advisory Board (SAB) by the Secretary of Agriculture as required in President Clinton's Proclamation that established the Monument. But from the beginning, the Forest Service has not asked for the required guidance of a SAB. Therefore, this process is fundamentally flawed.

The "scoping" step in the plan writing process is now underway. During "scoping" the public is invited to write suggestions for the process and content of the plan. It is hoped that the new plan will be a good one this time.

Tehipite Chapter members are encouraged to write comments to the Forest Service during this scoping period, which ends May 4, 2009. Carla Cloer, Chair of the Sierra Club's Sequoia Task Force, has passed along the following suggestions to be included in scoping comments for this plan:

1. The Sequoia National Forest (SNF) should provide the public a full 90 day commenting time frame for scoping instead of a mere 45 days.

2. SNF needs to form a Science Advisory Board now, before they plan any further. This needs to be a newly formed SAB with a new charter that allows for majority and minority opinions.

3. Every alternative needs to be fully consistent with the Proclamation and at least one alternative must rely primarily on natural processes with tree removal used only as a last resort.

4. SNF must protect all trails in the monument as historical objects and not pave, bulldoze, widen, or destroy the natural character of these trails.

5. Roadless areas must be protected so as to retain the criteria for consideration as future Wilderness areas.

6. Until a valid Plan is approved, no irreversible actions should be planned or approved.

7. No projects should be planned or approved inside groves until the plan is final and projects in groves should be pursuant only to a grove specific management plan and EIS that determines what strategies are needed in that specific grove.

8. Community protection involving removal of trees less than 8" and/or mastication should focus on the immediate 200 feet adjacent to structures. Except for prescribed fire, projects miles from communities are not justified as safety projects.

9. The plan must be a stand-alone plan, not an amendment to other plans.

Send your scoping comments to Marianne Emmendorfer, Project Leader, Sequoia National Forest Headquarters, 1839 South Newcomb Street, Porterville, CA 93257, Attention: Monument Management Plan, or facsimile to (559) 781-4744.

Information for this planning process, including President Clinton's Proclamation, are posted by the Forest Service at: http:// www.fs.fed.us/r5/sequoia/gsnm.html. Once there click on the "Giant Sequoia Management Plan" link in the right hand column to find the planning documents.

New Superintendent at Yosemite

Several Tehipite Chapter members met with Dave Uberuaga, the new Acting Superintendent of Yosemite National Park, on Good Friday at the University of California Merced campus. His openness, sincerity, and concern over some of the problems he has observed in Yosemite are refreshing.

Having come to Yosemite after 25 years at Mount Rainier, Mr. Uberuaga sees Yosemite's problems from a perspective which seems lacking in many administrators. He is a great listener, willing to listen respectfully to all sides. We believe he hears Nature and Yosemite too, and that he will pay special heed to these wild voices. He clearly sees these lands as being sacred and deserving of special care.

We look forward to building a mutually satisfactory relationship with Mr. Uberuaga, and hope that he is appointed to fill the position of Superintendent on a permanent basis.

Mr. Uberuaga's Management Assistant, Elexis Mayer, also participated in the meeting. Although a native of Yosemite, she is relatively new to the National Park Service. She, too, is always direct and open and shows much promise.

LETTER TO THE EDITOR: Is Nuclear Electrical Generation a Recipe for Disaster?

By Brian Cohen, Tehipite Chapter ExCom

Some have recently suggested that new nuclear power plants should be part of our clean energy future. Before committing massive government subsidies, tax breaks and full liability shields to the nuclear industry I want to be sure that I understand the recipe. It's a simple recipe with only two ingredients. Please let me know if I miss anything.

First, trust the most dangerous and toxic stuff on earth to profit seeking big business. After all, free enterprise can't fail us. Just ask Lehman Brothers, Wachovia Bank and AIG. If in doubt, we can always bail them out. Of course, big industry would never let our rivers burn, create places like Love Canal or spew its' poison into our water and onto our lands. Big busi-

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filled by Huntington Lake—to run his big red trolley cars in Los Angeles. Inevitably these long lines run afoul of environmentally sensitive areas, and their siting often requires eminent domain law to force the sale of private lands. Since most public lands are protected, new projects will be built almost exclusively on private lands, the least expensive of which in our area are located in the Sierra foothills—grasslands, chaparral, and oak woodlands that contain perhaps the greatest biodiversity of any ecosystem in California and ironically have never been adequately protected.

The major pro of the DG model is that it creates very little in the way of environmental footprint. To be sure, solar voltaic production creates toxic chemical waste, but there are always trade-offs, and there are ways to deal with this waste that do, admittedly, add cost. However, since most distributed generators would be very small, this model requires very little in the way of additional open space taken up solely for generation. Distributed generators 40 kW or smaller do not require additional transmission lines or other facilities. They can be tied directly into the existing distribution system-the lines you see around the neighborhood and countryside mostly supported on wooden utility poles. Since distributed generators do not require

ness is policing itself and, well, taking care of business. You can trust them.

Second, have the government fully regulate nuclear power. After all, government has done a bang up job at keeping the Valley's air pristine. Hurricane Katrina is another fine example of government at its best. We don't need all of our cities anyway. Besides, everyone knows that commercial nuclear power plants are less complicated and easier to take care of than maintaining a levee or two. No doubt government is up to the job. They've never misled us in the past. Vietnam, Watergate, arms for hostages, "Read my lips, no new taxes," "I did not have sex with that woman," Iraq. Our government and its leaders have never lied to us. Nope, never!

Finally, mix ingredients thoroughly with a reality check. Of the 104 commercial nuclear power plants operating in US only 41 have had shut-downs lasting a year or

much additional real estate, they are much less costly in terms of quality of life issues. Simply put, they do not add to the visual pollution we call the grid. Imagine a landscape free of utility lines. It will eventually happen if we take the road less traveled of distributed generation.

The major con of the DG model is expense. According to some, the cost of solar (or other renewable generation) sold back into the grid by owners of small-scale generators may be as much as four times as expensive per kilowatt hour as electricity generated at gas-fired or hydro plants. But costs for rooftop solar are coming down rapidly and will soon be on parity with costs for the most inexpensive sources of energy-coal, natural gas, and hydro, all of which have their own serious environmental impacts. Besides, the numbers for costs are "all over the place" and unreliable. Often costs of building transmission are not figured into the cost of building the large remote generators to which they connect. Moreover, those responsible for crunching the numbers-the California Public Utilities Commission, the Independent System Operator, and the Energy Commission-are not exactly non-partisans. Most of these people are part of the energy "good old boy" network. So cost estimates are notoriously unreliable and must be carefully scrutinized.

But while it might cost the ratepayer more, distributed generation would improve

more. The Enrico Fermi Nuclear Generating Plant accident in 1966 was only a partial meltdown. The nation's worst nuclear accident at Three Mile Island Nuclear Generating Station in 1979 was less than a full blown disaster. We'll get it right! We can't let the former Soviet Union have top place in "the world's worst nuclear disaster" category (Chernobyl - 1986) forever! We can be number one! Can we rise to the challenge?

On second thought, this recipe leaves a bad taste in my mouth. If a shady character from big business or the government, wearing a long trench coat comes up to me late at night offering cheap, clean, reliable nuclear power I'll take President Reagan's advice. I'll just say NO!

Be informed. See www.nirs.org or http://www.ucsusa.org/nuclear_power/.

reliability in the system because generation would be spread out among thousands of times as many generators in micro-grids. As it is, the centralized grid is much more vulnerable to cyber and terrorist attacks and other outages. DG is much less vulnerable because it provides work-arounds not possible in the centralized system. If a cyber attack hits one micro-grid, it can quickly be isolated and worked around, preventing a large-scale black-out.

The issue of jobs often comes up when we talk about the grid, particularly now when many people are either out of work or "on the bubble" of possible unemployment. For example, the Repower America Campaign—a powerful proponent of adding to the grid—boasts that their proposals will create thousands of new jobs. However, if we chose to go wholeheartedly into DG as the model for the 21st century, this more progressive model would create many more jobs and small business opportunities than its centralized counterpart. Think of all the workers and businesses that would be needed to build and maintain the millions of tiny generators of the distributed system.

Part of the problem of integrating distributed generation into the system is paying the small businesses and home owners that own the small generators. California law does not now require utilities to pay homeowners when they generate more electri-

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 IERRA TEHIPITE CHAPTER

 OF THE SIERRA CLUB

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city than they use.

The California Public Utilities Commission (CPUC) and Energy Commission (CEC) have been looking into so-called feedin tariffs (FITs), which would require utilities like PG&E and So Cal Edison to pay for small distributed generation up to 1.5 megawatts. Lawmakers and bureaucrats don't seem terribly enthusiastic about it, but California is slowly moving toward integrating DG. In March, the CPUC opened proceedings to consider FITs, and Sierra Club California filed to be a party to these proceedings. Feed-in tariffs have worked well in Germany (lots less sun than California), which now has about 50% of all the rooftop solar in the world because the public utilities are required to pay for the distributed generation that comes to the grid from small distributed generators owned by ordinary citizens.

It is tragic that the U.S. is rushing headlong into building hundreds of new gigantic generators in remote places like the Mojave Desert along with thousands of miles of huge high voltage tower lines just when we are on the verge of developments which will render obsolete this ugly centralized system and its spider web of utility lines. Within a decade or less we will have storage systems which will make it possible to provide electricity round the clock using only the sun. Many storage systems are now available. Breakthroughs are made almost daily in energy storage systems like batteries, flywheels, stored heat, and compressed air. Perhaps the most promising of these new technologies is the hydrogen fuel cell, which is the cleanest and most efficient method of storing energy ever devised. The problem is that hydrogen is expensive to make because it is not found in nature except bound tightly with other elements. Indeed it is this bonding and the energy it contains which make hydrogen such a potentially great fuel. Plants hold the secret key to open the hydrogen lock because they use sunlight in photosynthesis to separate hydrogen from water molecules to make plant tissues and organic compounds like sugar. Scientists still do not understand exactly how this process works. However, an MIT chemist, Daniel Nocera, recently developed a process that mimics photosynthesis and uses energy from sunlight to split water into hydrogen and oxygen. Because his process directly utilizes sunlight as energy, it is not nearly as expensive as other means of splitting water, such as electrolysis. The process has yet to be scaled up, but Nocera is confident that within a decade research on hydrogen fuel cells will lead to breakthroughs that will render the centralized grid and its visual pollution and immense environmental footprints unnecessary.

You can help promote Distributed Generation by writing to your political representatives and to the President of the California Public Utilities Commission and the President of the California Energy Commission. Visit www.savethefoothills.org and http://wattsvalleyinphotographs.blogspot.com/

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