

Transitioning to Renewable Energy

A working model from secondary education

By LISE GODDARD

Though this generation's greatest challenge is to stabilize our planet's climate system while transitioning from fossil fuels to renewable energy, a working set of blueprints for how to do this is hard to come by.

PART 1 OF 2

When faced with the immensity of the problem, the impenetrable economies and sway of the fossil fuel industries, and governments who haven't really gotten behind renewable energy as a bridge to a brighter future, the easiest path is to procrastinate. To hope that one fine morning there will be an elixir - a technological or cost breakthrough that will take some of the sting out of the upfront price tag associated with long-term thinking. Or to fall into despair by thinking that since small steps aren't enough, then why bother taking any steps at all, if we'll meet with the same outcome of global weirding, regardless.

Even among folks outraged by the problem, the path to a brighter future is littered with traps that can ensnare or depress even well-meaning minds. The problem is compounded when the inaction of adults is absorbed by our kids, or the related problem, when our actions and our stories scare our kids, on whose shoulders we have placed a burden we are too weary to lift.

But procrastinating and fatal thinking are not viable options. We need to change the story - its voice, its tone, its tempo, and its plot line. We need to take courageous steps out of the spiral of procrastination, by committing to move in the direction of sustainability always, in increments. We need to show kids that the technology to meet our electricity needs with renewable energy exists today, and help them build the infrastructure, side by side. And we need to realize that if we do it right, we will produce much more than just clean kilowatt-hours. We will produce kids who possess skill sets to continue building, scaling up, and evolving the infrastructure for a sun-, wind-, and water- powered future. We will produce kids who can't imagine procrastinating the way so many adults do. We will produce kids who "get" it.

Midland School in Los Olivos, California is living proof that this vision is possible. Midland is a 9th-12th grade college preparatory

boarding school - rigorous, rustic, and full of heart. Founded at the height of the Depression by Paul and Louise Squibb, Midland has, for eight decades, stayed true to its core values of personal accountability, authentic student leadership, building character through honest work, working to meet basic needs, and distinguishing between needs and wants. Since 1932, Midland students have lived as though we live in a world of limited resources. The genius of the Squibbs was in making our relationships with our resources transparent. Students chop wood to heat their cabins and shower water, help tend Midland's large organic garden, are relatively unplugged, and for almost a decade, have helped build the school's renewable energy infrastructure in annual increments. In 2009, Midland was awarded a Governor's Award for Environmental and Economic Leadership, California's highest environmental honor.

Transparent relationships with our resources are central to Midland's academically rigorous curriculum, and have proven to be a great backdrop for learning real science - the geology and ecology of our native landscapes, the water quality of our local creek, the tight nutrient cycling between food scraps, the compost pile, and the organic garden, and how electrons move through photovoltaic cells.

The great educator David Orr reminds us that all education is environmental education. For better or for worse, kids learn more than academic content in their classes; they learn the values lived by the adults around them. They learn something about their role in the natural world. The question is, whether these lessons are taught intentionally or unintentionally.

Midland has always subscribed to Paul Squibb's belief that, "money, light, heat, and water are not things that flow naturally out of pipes, but are things for which somebody has to spend time and thought and energy... I believe the [student] who has learned not to take the material blessings of life for granted will live a more vivid and interesting life and will be the better citizen." Consuming items of convenience, such as electricity or warm water, by simply flipping a switch makes the true cost of these resources invisible. At Midland, making the invisible visible is a tangible way of teaching

personal accountability. Midland has been fortunate with eight decades of intentional leadership focused on our community meeting our basic needs, avoiding the trend of increasingly isolating our youth from the daily concerns of where our water, food, warmth, and electricity come from. For Squibb, this work was a way of building character. Over the years, it has evolved into a deep environmental ethic, which has set up Midland as an ideal proving ground for kids building a solar-powered future.

Every year beginning with a pilot project in 2003-04, our 10th grade Chemistry students work alongside a professional solar electrician to install a 3-kW PV system on campus, after writing technical reports on how electrons move through PV cells and how to scale up from single cells to arrays that can power households. We have found a model that works for Midland—annual, incremental action which engages all our students while moving steadily in the direction of grid neutrality. A 3-kW array meets about 3% of our campus's communal electricity needs. As of 2011, 20% of our needs are met with solar arrays installed by our 10th graders, and we plan to keep going until all our needs are met by the sun.

Students learn this is something they can do, rather than simply watching the professionals do it. We take cumulatively consequential steps EVERY year, never procrastinating or being paralyzed by the scale of global climate change, while allowing our students to feel ownership of the process. According to the Midland Model—3% a year—it will take a generation to meet all our communal electricity needs with solar. But we will have far more than clean energy; we will have a generation of students who "get" it.

This multi-year project meets the expectation of college preparatory rigor for our students, and we look ahead to a future of iterative projects, in which we build on successes, learn from mistakes, and re-calibrate the message each year to best serve our students, whose secure futures will depend upon solar energy. With Midland monthly solar production recorded back to the spring of 2005, we have the data sets to provide continued opportunities for data analysis.

Lise Goddard is Director of Environmental Programs at Midland School

Next week: Part 2 on transitioning to renewable energy

Eight Years of Midland Solar Installations, 2003 - 2011



Students at Midland School in Los Olivos, Calif. working on a solar installation project.

Midland's 10th Grade Solar Installation 2011
Number 8, 20% of Campus



Five 3-kW arrays meet ~30% of the electricity needs of Midland's kitchen and dining hall, the library, and the administrative building, or ~15% of the whole campus.

The Epoch Times Classifieds

5 Lines 4 weeks \$50
Contact our Los Angeles or San Diego office now!

Teaching/Training Free Meditation in San Diego Falun Dafa, a powerful practice to improve mind and body. Free Falun Dafa meditation workshops @ San Diego Mission Valley Library, 2123 Fenton Parkway, CA 92108. Workshop dates: 4/5/2011, 5/24/2011 6:30 pm - 7:45 pm. You can also look for free Falun Dafa practice sites in your neighborhood. For more info visit www.FalunDafa.org or call 619-252-5256. www.meetup.com/Falun-Dafa-In-San-Diego	Lost & Found Lost Chinese Passport G3402870 Dong Linlin if someone see please call: 626-573-8117 Real Estate: For Sale Grocery Store For Sale The only oriental grocery store in Cheyenne, Wyoming. 3,000 sf, with annual income \$150K, good management. owner to retire. sell for \$150K. Call 307-634-1686 10am-6pm Mon-Sat.
Radio/Television Sound of Hope International Radio Station for Chinese people all over the world. www.soundofhope.net. SOH Radio "Breaking News" web site http://sohnews.com/category/breaking-news/	Real Estate: For Rent 3101 Sherwood Ave Alhambra CA, 91801 Rent \$1050 Tel: 626-825-2761 House to Share \$300/month, included water, utility, internet. Cooking allowed. Near 99 Ranch Market and WalMark close to highway 60 & 71 (626) 463-8371, (626) 463-8367
Jobs Staff Accountant Review & analyze accounting records to audit and prepare financial statements; plan for & advise on cost-budget balancing. Requirements: Master in Business Administration/Accounting/Finance or the equiv. + 3 months work experience in expense auditing and financial budgeting. \$57,387/yr. (FT) Job & Interview: El Monte, California. Send/email: HR Dept. Am Trucking Inc., 9690 Telstar Avenue, Ste. 224, El Monte, CA 91731 hr@amtruckinginc.com	Real Estate: For Rent 55 and over, located in Pomona, Gated community, new apartment, 1BD/1BA \$695 and up. 2BD/1BA \$975 fridge, central AC, activity center, Spa. Weekly activities: English, art works, dance and compute. Close to FWY. Call (909) 397-0281 (Chinese and English) House to Share Located in West Covina, near to University, supermarket, 10FWY. Convenient location, quiet and safe area, parking space, high speed internet paid. Light cooking (626) 629-8385

Gated in garden setting apartment 1801 W. Garvey, near Monterey Park, convenient location, quiet, romantic garden, bridge, fountain, garden, swimming pool, BBQ area, remote control gates, fireplace, terrace which can be accessed, cable TV, telephone, 1BD/2BD/3BD \$945 and up.	Superior-Looking Storefront Located at busy business center, close to 10/60 Freeways. Easy access to transportation; free air-conditioning, water, and electricity; will supply free advertising board. Good location; first come first served. Address: 9550 Flair Dr. El Monte, CA. 91731 626-376-8778 Vivian
Low Income Senior Apartment 3 bedrooms, 2.5 bath. Looks like new. Close to supermarket, restaurants, 57, 55, 91 Freeways and VILLA Park. Good residential area with good schools. Refrigerator, laundry facility, and microwave oven, clean and comfortable. 714-280-3560 Tsai	Orange County House First month rent free
South Pasadena Office Huntington Drive 2nd floor office building, 1,188 Square feet, 2 story brick building. Three offices plus reception area and kitchen. On site parking. \$1,950. 818-843-3641 ask for Tom.	

The Epoch Times

LOS ANGELES
Call: 1-888-853-4774
scal@epochtimes.com
Fax: 1-626-401-1221 or
Mail to: The Epoch Times
9550 Flair Dr., Suite 503
El Monte, CA 91731-2924

SAN DIEGO
Email: sandiego@epochtimes.com
Fax: 1-888-388-2516 or
Mail to: The Epoch Times
PO Box 26688
San Diego, CA 92196

Ad Copy Deadline:
Monday 6:00 PM for Thursday's edition

The Epoch Times Subscription

Get The Epoch Times delivered to your door!

Online order form is available at:
<http://subscribe.theepochtimes.com>

Southern California/Southwest Weekly Delivery	
Months	Thursday Edition
	Total Amount
3	\$22.50**
6	\$44.99**
One Year	\$89.99**

(Circle an option above based on your preference)

Last Name: _____ First Name: _____
 Street: _____ City: _____
 State: _____ Zip Code: _____ Date: _____
 Phone: _____ Email: _____