

## Why go grid neutral?

### Business Case for Grid Neutral

**Going grid neutral isn't a challenge—it is an opportunity.**

It is an opportunity to lock in electricity costs to provide financial predictability for your district and to lower energy bills. It is an opportunity for cost avoidance for your district. And, if structured properly, it can all be done with no capital costs to your district.

Electricity costs represent the key element of the business case for schools and colleges going grid neutral. Imagine reducing payments to the utility company by 20 to 30 percent and sometimes more. Then imagine what you can do with money not spent on electricity. If a school district pays \$6.2 million to its utility company per year, this might be used to hire more new teachers or purchase more than 104,000 textbooks, or buy 6,200 computers. Any one of these expenditures contributes directly to the district's mission of educating our children.

Now imagine achieving these results with no capital costs. The incentives available for solar energy systems dramatically impact the economics. The federal government offers federal energy tax credits for these systems, as well as accelerated depreciation. Utility companies offer additional incentives. There are also emerging markets for renewable energy credits and carbon reduction credits. Collectively, these incentives and revenues reduce the cost of ownership.

Unfortunately, tax credits and accelerated depreciation cannot be claimed by a community college or school district since they are not taxpayers. Conversely, it is just these incentives that can make a project work economically—this is where third

party power purchase agreements come in. As the name implies, under these agreements a business installs a solar power system at a school site with no upfront cost to the district. The business—as a taxpayer—can take full advantage of the incentives—reducing the cost of ownership. The district purchases power from the provider at set rates usually at or below market rates—locking in predictable electricity costs. Terms of these agreements vary, but many of these agreements conclude with the district owning the system in 10 to 15 years.

As the cost for natural gas increases, the amount a school pays for electricity will increase, as well. In these times of uncertain energy supply, curbing utility costs will reduce the exposure to this financial risk.

The cost of producing electricity on-site can even be lower with energy efficiency and conservation. If a school district plans to become grid neutral,

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**With the solar tax incentives available, we have school districts like Milpitas USD and Los Angeles CCD installing solar with no capital costs by utilizing a third party power purchase agreement.**

—David F. Thorman, AIA  
California State Architect

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### GRID NEUTRAL:

*A site that produces at least as much electricity as it consumes in a year*

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Solar (photovoltaic) panels are installed on a shade structure above a parking structure, Los Angeles Community College District

### Cost Study of Utility at K–12 school in 2006: Elk Grove Unified School District—approximately 62,000 students

In 2007, the Office of Public School Construction approached Elk Grove Unified School District to provide information on their total energy bill for the previous year. It was found that all the campuses consumed 58.2 million kilowatt hours (kWh) of electricity which equated to \$6.2 million dollars at their 2006 rate structure.

How could a grid neutral project affect these energy costs?

Using the steps in this grid neutral workbook and proper long term planning, this district could lower their bill with energy conservation policies and energy efficiency measures. Starting with the low cost, no cost items; then adding retrofits to the lighting and heating/air conditioning systems. These changes have been found to have the highest return on investment and could cut costs by up to 30 percent.

Then, this district could install solar (photovoltaic) panels on their campuses by entering into a public/private partnership utilizing a power purchase agreement (PPA). Dependent on the agreement, the district could have fixed electricity costs that are up to 10 less than before. This could reap immediate savings of up to \$620,000 per year.

Usually in 15 to 20 years and depending on the purchase option in the PPA, the district would be responsible for the solar systems' production. After paying base utility charges and working toward zero net electricity use in a year, a district could then see up to \$6 million dollars freed up for textbooks, teacher salaries, or computers each year.

—Rob Cook,  
Executive Officer of the Office of Public  
School Construction

they must first maximize the buildings' energy efficiency and start conserving energy. This will limit the amount of on-site electricity needed to become grid neutral. There are many financing options available to upgrade existing schools and build new energy efficient campuses, and the return on the investment makes this a good, sound economical decision.

### California Global Warming Solutions Act of 2006

Businesses across the globe are moving forward with plans to cut energy costs, even in difficult financial times. Alternative energy is one of America's few growth industries. This is happening because business leaders have accepted the fact that volatile energy costs can cripple their enterprise. Schools and college districts, acting as enterprise businesses, can protect the community's investment at their campus facilities. Grid neutral is a way to take control of the increase that will occur with utility prices over time. Going grid neutral provides schools and community colleges the opportunity to conserve electricity so their utility bills are lower, to fix their electricity prices so they will not escalate over time, and to benefit from the current incentives and technological opportunities now

available for alternative energy sources.

Planning and implementing grid neutral schools now will prepare schools and community colleges for compliance with the California Global Warming Solutions Act. It is estimated by the U.S. Green Building Council that 39 percent of all carbon (CO<sub>2</sub>) emissions are attributed to buildings; this includes California's aging college and school facilities. The law will require that by the year 2010 school districts must know how much their buildings contribute to carbon emissions and begin efforts to offset their carbon emissions. By 2020, all educational buildings will be required to reduce their CO<sub>2</sub> emissions by 30 percent, based on 1990 levels as established by the California Air Resources Board. In 2050 this will be raised to 80 percent. This is why we need to find out how much energy our buildings use; start work toward more sustainable energy efficient buildings; start producing on-site clean renewable energy. To meet these goals, many school districts have already begun and renewable energy ventures are aligned for success. Now is the time to start planning how to go grid neutral and maintain grid neutrality for the long term.