



**GREEN CALIFORNIA SUMMIT AND EXPOSITION 2010**

**Case Study: Power Purchase Agreement  
Irvine Unified School District**

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About Irvine Unified School District

- Located in Orange County, California
- 27,000 K-12 students
- 22 elementary schools; 5 middle schools; 4 comprehensive high schools; 1 continuation school
- [www.iusd.org](http://www.iusd.org)

Committed to sustainability

- District wide recycling programs
- Board Resolution on sustainability
- Integrated energy efficiency, water conservation and other green programs in the district into the curriculum (Mark Sontag – Curriculum Coordinator)
- Joe Hoffman, Director of Maintenance and Operations documented 1 ½ years worth of data
- Implemented common sense energy efficiency measures and changed behaviors among teachers, staff and students and reduced district's electric consumption 5.9 percent in the 2008-2009 school year over the previous year - dollar savings of 3.3 percent, or \$132,965 – money that went directly into the general fund
- Overall utility savings, counting electricity (3.3 percent), gas (40.4 percent savings) and water (11.8 percent) of \$286,564
- Initially considered solar installation at one middle school – ended up looking at 2.5 million square feet of roof space in district for solar
- 2009 District Leadership Award at the Green California Schools Summit and Exposition for solar project and all of their "green" efforts

Community and municipal partnerships.

- Energy Coalition - a group of municipalities including Irvine, Brea, Santa Monica, Palm Desert and others; investor owned utilities: Edison, Sempra, PG & E; and the Public Utilities Commission, to work collaboratively on local issues
- City of Irvine; Irvine Chamber of Commerce

- Irvine Company (developers)
- Irvine Valley College; U.C. Irvine
- Edison; Sempra
- Irvine Ranch Water District
- SPG Solar; WindTerra; Siemens Solid Oxide Fuel Cells; Durham School Transportation

#### Research and Planning

- Established subcommittee to study greening the district: two board members, superintendent, maintenance and operations manager, curriculum coordinator and various outside experts
- Established subcommittee to study solar: Board member Michael Parham; Mark Sontag, Math-Science Curriculum coordinator; Lisa Howell, Asst Sup, Business; Gwen Gross, Superintendent

#### Solar Energy Services Provider

- SunEdison – solar energy services provider – finance, install, operate solar power systems
- SPG Solar – installer

#### Projected outcomes

- Generate more than 6.6 million kilowatt hours of solar energy in the first year based on 21 sites (later changed to 34 sites)
- Generate more than 120 million kilowatt hours of solar energy over 20 years – enough energy to power more than 11,000 average homes for one year
- Offset a projected 127 million pounds of carbon dioxide over 20 years – equivalent of removing more than 12,000 cars from the road for one year, based on an average of 12,000 annual miles per vehicle
- Save the district \$17 million in energy expenses over 20 years based on conservative estimates
- Include solar in district curriculum: Internet-based monitoring to track solar energy production and consumption at their schools in real time

#### Power Purchase Agreement

##### Benefits

- Save districts money on their energy costs, in some cases by a substantial margin.
- Installed on district property without significant upfront cost for the district.
- Predictable energy rates
- Reduces carbon emissions
- Third party installation, operation, maintenance, liability

##### Structure

- School district leases portion of district property to solar company for installation of system.

- Solar company installs, operates and maintains the system on district property over a period of time (15-30 years).
- Once the system is generating electricity, the school district purchases the power generated from the system at a discounted rate.
- Several different documents establish the terms and conditions:
  - **Lease Agreement** in which the district leases a portion of school property to the solar company on which the equipment will be installed.
  - **Power Purchase Agreement** setting the terms under which the district purchases electricity for a set amount over a period of time.

### Key Terms

- Price. Obtain advice from knowledgeable consultants since there are so many variables:
  - Local utility prices, historical price increases, future price increases
  - Price/escalation clause and cap
  - Ownership of Renewable Energy Credits or other environmental assets
  - Whether and how much of conventional utility power may be needed to supplement the solar power to meet District's total power needs.
- Energy Production Guarantee.
  - Districts need to make informed decisions about future budgets.
  - Establish a base line of projected energy production and then set the guarantee at some level below the projected output.
  - Amount of power will slightly decline each year as the system ages - rough rule of thumb is about 1-2% a year.
- Protection of System.
  - School districts generally have limited resources and capabilities to safeguard property after hours.
  - Use insurance to cover the risks.
  - Include a warranty on the system itself
  - Include language regarding solar company's maintenance of system
  - Weigh the benefits of the district owning the system
- Construction Provisions. Installation of the system will be done by a third party rather than the school district, but include language in the power purchase agreement documents addressing the following:
  - ✓ Contract between solar company and installer should require installer to post payment bonds/completion bonds
  - ✓ Prevailing wages (may or may not apply)
  - ✓ Approval by DSA
  - ✓ Approval of drawings by District prior to commencement of construction
  - ✓ Protocols for accessing the site, both during school and after hours
  - ✓ Evidence of insurance
  - ✓ Security