

State Agency Green Efforts: Energy, Buildings, Procurement, Solar, Public Schools, Fleet & Clean Fuels

OBJECTIVE	PROGRESS TO DATE
Benchmarking	
<p>BENCHMARK ALL STATE FACILITIES FOR ENERGY USE</p> <p>Benchmarking is the measurement and tracking of energy use by facilities. Energy Star is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy for consumers and organizations pursuing energy efficiency improvements.</p>	<ul style="list-style-type: none"> ▪ 100 percent of occupied state-owned facilities have established benchmarking accounts through the use of the energy management tool, Energy Star Portfolio Manager. ▪ Major utilities have completed linking utility accounts to the Energy Star Portfolio Manager database and are uploading utility data on a monthly basis. DGS continues working with state agencies to resolve data issues and to assist agencies in collecting, updating and verifying benchmarking data. ▪ In 2010, DGS completed benchmarking for 1,718 state facilities. Data indicated that although the state building area (square footage) grew by 8.7 percent between 2003 and 2010, overall energy use increased by only 1.8 percent during that same time period, and that energy use intensity (energy used per-square-foot of building area) was reduced by 6.3 percent.
Retro-Commissioning	
<p>RETRO-COMMISSION EXISTING BUILDINGS</p> <p>Retro-commissioning is a building "tune-up" process resulting in the operating systems of existing buildings working as intended and as efficiently as practical given the age, design, and original performance potential of those systems.</p>	<ul style="list-style-type: none"> ▪ Since 2006, 43 DGS retro-commissioning projects have been either completed or are undergoing implementation of recommended measures. ▪ The energy efficiency measures implemented to date have a verified electricity savings of approximately 8.2 percent. Projected electricity savings for measures undergoing implementation is approximately 16.9 percent. Projected natural gas savings is 16 percent.
LEED - Existing Buildings	
<p>ATTAIN LEED EXISTING BUILDING CERTIFICATION FOR ALL DGS STATE OCCUPIED BUILDINGS OVER 50,000 SQUARE FEET</p>	<ul style="list-style-type: none"> ▪ As of April 2012, 31 existing State buildings (10.7 million square feet) have been certified to the U. S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) Rating System for Existing Buildings: 3-Platinum, 13-Gold, 11-Silver, 4-Certified. This includes six leased buildings, and 25 DGS controlled buildings. ▪ 33 additional State buildings registered with USGBC are currently pursuing LEED existing building certification.
LEED - New Construction (NC)	
<p>ATTAIN LEED SILVER OR HIGHER CERTIFICATION FOR ALL NEW AND RENOVATED STATE BUILDINGS OVER 10,000 SQUARE FEET</p>	<ul style="list-style-type: none"> ▪ As of April 2012, 35 newly constructed or renovated State buildings (6 million square feet) have been LEED certified for new construction: 1-Platinum, 13-Gold, 17-Silver, 4-Certified. This includes 13 leased buildings, and 24 DGS controlled buildings. ▪ As of April 2012, 99 new or renovated State buildings are still pursuing LEED certification including: DGS – 81 buildings, Department of Corrections and Rehabilitation – 13 projects, Department of Transportation – 4 buildings, Department of Water Resources – 1 building. ▪ As of April 2012, 18 State buildings or spaces are LEED certified on commercial interiors for their tenant improvements: 3-Gold, 12-Silver, 3-Certified. 15 of these certifications are for leased spaces or buildings.
Commercial Leasing	
<p>NEW AND RENEGOTIATED LEASES SHALL REDUCE ENERGY AND RESOURCE USE TO THE EXTENT POSSIBLE & FEASIBLE</p>	<ul style="list-style-type: none"> ▪ 35 leased buildings or spaces are LEED certified. This number has more than doubled over the past year. ▪ DGS currently manages 102 ENERGY STAR scored leases. ▪ DGS has sent over 2,000 letters to lessors advising them of the ENERGY STAR preference since 2006. 1,160 additional letters/emails have been sent to the general commercial market.
Energy Efficient State Property Revolving Fund	
<p>IDENTIFY AND PURSUE AVAILABLE FINANCING AND PROJECT DELIVERY MECHANISMS TO ACHIEVE STATE ENERGY GOALS</p>	<ul style="list-style-type: none"> ▪ In 2009, DGS received \$25 million from the American Reinvestment and Recovery Act (ARRA) through the Energy Commission (CEC). DGS used the entirety of those funds to provide 12 loans to eight departments to perform lighting retrofits and air conditioning upgrades. ▪ An estimated \$4.2 million in cost savings came from all of the projects as a result of saving 32 million kilowatt hours of electricity and almost 850,000 therms of natural gas use. ▪ The annual repayments from the first year total approximately \$4 million, which DGS will use to fund new projects. ▪ The CEC will transfer an as-yet-unknown additional investment into the loan program by July 2012.

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Solar and Other Clean On-Site Generation

PURSUE CLEAN ON-SITE GENERATION FOR ALL NEW OR RENOVATED BUILDINGS WHERE EVER PRACTICAL

- DGS was awarded the 2012 Green Technology Leadership Award in the Climate Change category for the DGS Renewable Energy Program that is designed to take advantage of the well-established 3rd party ownership business model within the solar industry and break new ground with the same model for wind, solar thermal and combined heat and power technologies.
- 8 Solar Photo Voltaic (PV) projects were completed under the Power Purchase Agreement (PPA) Phase I effort (2004-2008) totaling 4.5 megawatts (MW) online (Departments of Corrections and Rehabilitation, Mental Health, and Transportation, and California State University). Over 27 MW hours were generated and has resulted in over \$500,000 in energy savings to date. This production saves an estimated 7 million Kilowatt hours annually.
- The Phase II solar PV effort (2008-2012) resulted in the award of 8 projects at Departments of Corrections and Rehabilitation and Mental Health facilities totaling 21.4 MW. 14 MW are currently in operation, and the remaining 5.4 MW are expected to be operational in May or June 2012 and are expected to provide almost 49 million kilowatts of annual energy savings.
- Phase III of the solar project effort (2011-2013) resulted in the recent award of 14 solar PV projects at State facilities (Corrections and Mental Health), totaling 28.5 MW. These projects are currently under construction contract and are expected to provide over 62 million kilowatts of annual energy savings.
- Phase IV – Statement of Qualifications (SOQs) to qualify developers are due to DGS by April 27; Subsequent Request for Offers (RFOs) will be released mid-June (roof, canopy, and ground projects). (Project timeline 2012-2014)
- DGS is currently accepting Request for Qualifications (RFQ) for Wind Energy Production. SOQs are due April 27, and DGS plans to release RFOs within 1 month of qualifying at least 3 developers. DGS will also coordinate with Corrections and Rehabilitation to identify sites with an adequate wind resource.
- An RFQ for Solar Thermal and Combined Heat and Power (fuel cell, cogeneration) applications is currently under development.
- DGS serves as a resource for agencies wanting or needing to develop their own sustainability programs. The DGS Renewable Energy program helps these agencies establish procurement language, develop contract documents, create vendor lists and offers lessons learned.

Buying Green - Environmentally Preferable Purchasing

ENSURE THE ACQUISITION AND PROCUREMENT OF GOODS AND SERVICES THAT HAVE A REDUCED NEGATIVE EFFECT ON HUMAN HEALTH AND THE ENVIRONMENT WHEN COMPARED TO ALTERNATIVES THAT SERVE THE SAME PURPOSE

- DGS has implemented the use of multi-functional devices and printers. By replacing multiple machines with a single machine that performs multiple functions, DGS has achieved increased energy efficiency through Energy Star rating, improved indoor air quality performance, European Union (EU) Restriction of Hazardous Substances (RoHS¹) compliance, waste reduction through take back options and corporate environmental management responsibility.
- DGS has established an enterprise server contract that has achieved increased energy efficiency and EU RoHS compliance.
- DGS updated the PC goods contract (computers and monitors). Products offered under the current contract meet Silver/Gold EPEAT criteria. Electronic Product Environmental Assessment Tool (EPEAT) is a USEPA developed tool to compare computer desktops, laptops and monitors based on their environmental attributes: energy efficiency, recyclability, reduced impacts to health and the environment. EPEAT certified computers meet Energy Star standards, requiring less energy to operate than other computers and offer cost savings through reduced energy use. EPEAT is a multi-attribute electronics standard that certifies products with higher energy efficiency, less toxins, and are easier to recycle, thus reducing environmental impacts.
- DGS is working with the California Energy Commission and the California Lighting Technology Center, UC Davis to establish LED Street Lighting Statewide Contract Specification, making LED lighting more readily available to government agencies, thus reducing energy costs.
- DGS is partnering with CalRecycle to update the curriculum for the California Procurement Academy (CAL-PCA) and teaches green purchasing practices and environmentally preferred purchasing practices in CAL-PCA course curriculum.
- DGS is leading a multi-agency working group to further green the statewide vehicle contract by widening the pool of alternative fuel and zero emission vehicle types available for state departments to purchase.
- DGS maintains an environmentally preferred purchasing (EPP) web site and best practices manual that is frequently updated and provides information to all departments that participate in procurements.
<http://www.dgs.ca.gov/Default.aspx?alias=www.dgs.ca.gov/buyinggreen>

¹RoHS – European Directive 2002/95/EC restricts the use of certain hazardous substances in electrical and electronic equipment: reducing health, environment and waste problems linked to heavy metal and flame retardants. Reduces waste by increasing the reuse, refurbishment and extension of life of a product.

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Office of Public School Construction – High Performance School Grant Funding	
<p>PROMOTE GREEN DESIGN AND CONSTRUCTION ATTRIBUTES IN K-12 PUBLIC SCHOOLS</p>	<ul style="list-style-type: none"> ▪ DGS' Office of Public School Construction (OPSC) approved 187 School Facility Program projects for High Performance grant funding since 2008. These grants are only given to schools that exceed existing code requirements related to efficiency by designing green components into their buildings. \$39 million in High Performance grant funds were released or approved. ▪ DGS' OPSC has conducted outreach at the Green California Summit and other large conferences, as well as educating school districts and design professionals at County Office of Education meetings Statewide. ▪ DGS' OPSC developed regulatory revisions, which became effective January 25, 2011, to incorporate CalGreen code and increase program participation. ▪ DGS' OPSC is collecting data from grant recipients on costs, savings, and realized benefits from implementing high performance attributes in schools. Such data has been lacking and this new data will be useful in evaluating the current grant program and in developing future green schools programs. ▪ DGS' OPSC is currently implementing recent legislation, which makes High Performance incentive grants available to Career Technical Education Facilities Program projects and allows Modernization grants to be used for solar panels and other green attributes. ▪ DGS' OPSC is coordinating with Energy Commission to launch a webpage of renewable energy and energy efficiency funding resources.
Division of the State Architect - Grid Neutral Schools, Technical Guidelines for Solar Installations, & High Performance School Plan Review	
<p>ENCOURAGE PUBLIC SCHOOLS AND COMMUNITY COLLEGES TO BE RESOURCE AND ENERGY EFFICIENT</p>	<ul style="list-style-type: none"> ▪ DGS' Division of the State Architect (DSA) added a new webpage to its sustainability programs in January 2012 titled "Solar Installations at Schools" to assist solar vendors/installers and districts. This information defines what type of photovoltaic projects are exempt from a DSA plan review and features technical guidelines for solar installation code requirements. ▪ DSA participates in roundtables at various conferences to facilitate outreach and provide information to ease the plan review process for solar installations at schools and to discuss the DSA technical guidelines. ▪ DSA is working on the Efficient Solar Permitting initiative, which is developing code criteria for solar structures and a Statewide Solar Permitting Guidebook. ▪ DSA staff structural engineers chair the Structural Engineers Association of California's subcommittee developing study reports to be used for proposed code criteria on solar systems including standards for wind tests on flat roofs and nonstructural anchorage methods. ▪ DSA reviews new school and community college campuses for compliance with the California Green Building Standards code to ensure all new schools are in compliance with green building practices. ▪ The State Architect is co-chair with Superintendent of the California Department of Education in the advisory board for the Green Technology's Green Schools/Community Colleges Summit 2012 on September 27-28, 2012. This event is an outreach to school districts seeking to create sustainable facilities that use less energy and promote green educational curriculum. ▪ The DSA High Performance Section verifies compliance with the High Performance Incentive (HPI) Grant program which supports site sustainability, water and energy efficiency, healthy indoor air quality, and green construction materials at California funded K-12 schools. ▪ The State Architect is co-chair of the California Advisory Board to the Collaborative for High Performance Schools (CHPS) – a national non-profit organization promoting sustainability and healthy in K-12 schools. ▪ The DSA Grid Neutral Initiative was published in a guidebook in February 2009 to encourage schools and community colleges to be resource and energy efficient.
State Publishing	
<p>CONSERVE RESOURCES AND REDUCE WASTE IN STATE PUBLISHING EFFORTS</p>	<ul style="list-style-type: none"> ▪ Since 1997, DGS' Office of State Publishing (OSP) has ensured that at least 50 percent of all newsprint used is made from "recycled-content newsprint". In 2011, OSP used almost 1,800 metric tons of recycled-content newsprint. ▪ OSP recycles nearly 95 percent of its production paper waste stream which also offsets OSP's operational costs. ▪ To reduce waste and improve efficiencies of its primary publication press, OSP increased the standard paper roll size from 40 inches to 50 inches diameter. OSP also added an electronic color control and registration management system. These combined efforts have resulted in an annual use reduction of 1,218 rolls of paper, which equals almost 72 million linear feet of 35" wide paper. ▪ OSP recently relocated its satellite Billroom Annex facility within the existing main plant, thereby reducing costs and environmental impact through elimination of travel between the two facilities and lessening its footprint. ▪ OSP was the first California printer to use roller and blanket washes with a VOC (volatile organic compound) content that is under the South Coast Air Quality Management District (SCAQMD) compliance rule of 100 grams per liter (g/l) VOC limit. OSP is also fully compliant with all Hazardous Air Pollutant (HAP) standards. ▪ OSP uses zero or low VOC fountain solutions, reducing air pollution and promoting a healthier work environment. Fountain solutions are a necessary item in offset printing. ▪ All inks used by OSP are agri-based, which use non-toxic soy, or vegetable oils instead of petroleum-based inks that have a higher VOC content. ▪ OSP uses inline sheet-fed inks that have a VOC composition of under 3 percent and consist of a 70 percent minimum bio-derived renewable content. This practice earned OSP a National Association of Printing Ink

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Manufacturers certified Bio Renewable Content seal.

Greening the Fleet

MAKE THE STATE FLEET LEANER AND CLEANER

- DGS underwent a 22% fleet reduction in 2009-10. This process reduced the State's light-duty, non-emergency response vehicles by 3,997 and vehicle home storage permits by 2,121. This process disposed of the highest polluting and most fuel inefficient petroleum-fueled vehicles in the State fleet.
- DGS is currently performing a comprehensive analysis of the State's entire mobile fleet including land, air and water assets. This process is targeting all fleet assets that are deemed non-essential or cost ineffective.
- State fleet reduction efforts and reduced State travel have reduced annual greenhouse gas emissions by over 20,000 tons.
- As of 2009, 28 percent of the State's fleet of approximately 50,000 vehicles was composed of alternative fuel vehicles and two percent was hybrid electric vehicles. However, a lack of available infrastructure has seriously hampered the State's ability to actually use alternative fuels in these vehicles. Nevertheless, DGS has required State departments to use alternative fuels wherever they are available.
- California exceeds federal Energy Policy Act (EPAct) requirements for alternative fuel vehicle acquisitions.
- Since 2005, over 90 percent of annual State vehicle acquisitions subject to EPAct have been alternative fuel vehicles.
- DGS is instituting a policy mandating the use of recycled auto parts and synthetic oil in state fleet, leading to reduced costs and decreased automotive waste.
- When it is necessary to replace vehicles, emphasis is placed on the best value, lowest lifecycle cost option.
- DGS' procurement strategy for State fleet vehicles now includes much more than the previous low bid method. Green House Gas emissions (GHG), fuel economy, tail pipe emissions, and alternative fuels are all factors that go into the specifications to help the State obtain the "Best Value" when choosing which type of vehicle to purchase. DGS' vehicle contracts have robust offerings of alternative fuel and hybrid vehicles in numerous vehicle categories that can supplant the traditional gasoline powered vehicles that once dominated the State's fleet.
- Before an agency receives authorization to replace a fleet asset or add an additional asset to its fleet, a rigorous evaluation is conducted by DGS staff to ensure that the asset is truly needed. In keeping with the Public Resources Code (25722.5 et seq.), all light-duty, non-emergency response vehicles entering the fleet are predominately alternative fuel or hybrid vehicles. These actions are creating a greener, more fuel efficient fleet as the older, gasoline-centric vehicles are replaced.
- DGS Developed a Statewide data warehouse known as the Fleet Asset Management System (FAMS) in FY 2008-09 where all departments can input data to DGS regarding their vehicle fleets and allow for quick and accurate monitoring of the state's fleet and fuel use.
- DGS is improving tracking, validate data, and make improvements/additions to the Statewide Fleet Asset Management System, including: Develop a Statewide contract for an electronic card reader system for State entities to use for the purchase and installation on State-operated fuel pumps to more accurately account for bulk fuel use; in order to ensure fuel product code accuracy in electronic reporting, conduct field tests and work with the State's fuel card provider to ensure fuel product code accuracy in electronic reporting; and develop and publicly display historical fuel use data and ongoing "dashboard" metrics to track progress.
- DGS management memo (MM 12-06) issued in May 2012 directs state agencies to use reconditioned, used, or remanufactured auto parts and re-refined or synthetic oil or lubricants, when available, to reduce cost of repairs and reduce the use of petroleum products.
- DGS management memo issued in April 2012 mandates the use of solar reflective colors to reduce fuel consumption for air conditioning in future purchases for the state fleet.(MM 12-03)

Alternative Clean Fuels

REDUCE GREEN HOUSE GAS EMISSIONS, INCREASE ALTERNATIVE FUEL USE, REDUCE PETROLEUM USE

- DGS issued bids for E-85 and bio-diesel fuels and now have both alternative fuels on the State's bulk fuel contracts for State agencies and local governments to purchase from.
- DGS installed an E-85 fuel pump at Sacramento State Garage and began dispensing E-85 fuel in September 2007 and has implemented a policy change to require E85 use in all Flex Fuel Vehicles fueled at the State Garage.
- DGS is initiating an informational outreach and marketing campaign to inform drivers of the high priority to use alternative fuels –promote education on Flex Fuel Vehicles, market the benefits of alternative fuels over petroleum gasoline, and identify locations for E85 fueling stations.
- DGS management memo (MM 12-05) issued in May 2012 directs agencies to implement internal policies to use alternative fuels when possible for bi-fuel-enabled vehicles.
- DGS partnered with Propel Fuels and was awarded a \$1.2 million U.S. Department of Energy (DOE) grant in June 2010 to support the establishment of approximately 75 alternative fueling stations. To date, Propel has completed 15 E85/Bio Diesel fueling locations throughout California.
- DGS developed online resources to promote alternative fuel usage, including a "drive green" You Tube video and interactive E85 fuel station maps. This material is also used in defensive driver training to educate state drivers on how to conserve fuel.
- DGS received grant funding from the CEC to retrofit 50 Toyota Prius hybrids with plug-in hybrid vehicle (PHEV) technology with GPS/Telematics to demonstrate advanced battery electric vehicle technology. These vehicles have

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been deployed throughout the State and were monitored for their fuel efficiency and ability to meet the State's business needs.

- DGS partnered with Coulomb Technologies on their State and federal grants and installed 24 electric charging stations at five DGS parking facilities in Sacramento to enable State employees and the public access to electric charging stations while parked at a DGS parking facility.
- DGS applied to the California Energy Commission for another grant to install nine additional level 2 electric charging stations at the Sacramento State Garage. This will enable DGS to acquire the infrastructure needed to support electric vehicles for the State's rental car fleet.
- DGS collaborated with the Lawrence Berkeley National Labs to test vehicle colors and how they react to fuel consumption in 2010-11. This has resulted in a directive that DGS issued to require State agencies to procure vehicles with solar reflective colors that reduce fuel consumption and lower greenhouse gas emissions.