



2021 Biennial Report for Energy Efficiency in Public Buildings

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State of California

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2021 Biennial Report for Energy Efficiency in Public Buildings

Executive Summary

Government Code (GC) Section 15814.22 requires the Department of General Services (DGS) to develop a multi-year plan to evaluate and implement all practicable and cost-effective energy efficiency measures in state facilities. This section also directs DGS to coordinate implementation efforts and make recommendations to the governor and the Legislature to achieve energy efficiency goals for state facilities.

This report on energy efficiencies in state facilities must be submitted to the governor and the Legislature on a biennial basis. GC Section 15814.28 requires the report be submitted March 1.

Required elements of the report are detailed in GC Section 15814.28:

- (a) The progress made toward implementing energy efficiency measures in state facilities.
- (b) The most common energy efficiency measures being implemented.
- (c) The obstacles preventing further implementation of energy efficiency measures.
- (d) How current efforts and ideas can be incorporated into the governor's five-year infrastructure plan described in GC Section 13102.

DGS continues to lead the state's efforts to meet the energy efficiency standards initially set forth in Executive Order (EO) S-20-04.¹ These standards were rescinded and replaced by Governor Brown's EO B-18-12² and are defined in greater detail in the Green Building Action Plan³ (GBAP).

Standards required in EO B-18-12 and outlined in the GBAP encompass:

- Greenhouse gas emissions

¹ <https://www.library.ca.gov/Content/pdf/GovernmentPublications/executive-order-proclamation/279-280.pdf>

² <https://www.ca.gov/archive/gov39/2012/04/25/news17508/index.html>

³ https://www.ca.gov/archive/gov39/wp-content/uploads/2017/09/Green_Building_Action_Plan_B.18.12.pdf

- Energy
- On-site renewable energy goals
- Building design and construction
- Building commissioning
- Existing buildings
- Indoor environmental quality
- Water efficiency and conservation
- Electric vehicle charging stations
- Environmentally preferable purchasing
- Financing
- Monitoring and executive order oversight

Government Code Section 15814.28 (a)

This section refers to the progress made toward implementing energy efficiency measures in state facilities.

The information provided on the following pages demonstrates progress made to date in the energy efficiency categories specified in EO B-18-12. Excerpts and summations of the EO and GBAP are shown in italics.

Greenhouse Gas Emissions

The state shall reduce entity-wide greenhouse gas emissions by 10% by 2015 and 20% by 2020, measured against a 2010 baseline.

Between 2010-2019, state agencies reduced greenhouse gas (GHG) emissions by 56% (including California Department of Water Resources [DWR] emissions). State agencies reduced GHG emissions primarily due to DWR's divestiture of the Reid Gardner coal-fired power plant. Additional GHG reduction measures that agencies continue to implement include: identifying vehicles for zero-emission vehicle/plug-in hybrid replacement, instituting energy conservation principles, pursuing Leadership in Energy and Environmental Design (LEED) and zero-net energy at existing and new facilities, and participating in green energy purchase programs that supply 50% or 100% renewable energy to state facilities. Currently, 44 state agencies utilize The Climate Registry Information System to report greenhouse gas emissions.

The California Environmental Protection Agency (Cal EPA) is required to coordinate emission reductions of GHG and climate change activity in state government. In addition, the state of California is a member of the Under2 Coalition – the global pact among cities, states, and countries to limit the increase in global average temperature to below 2 degrees Celsius, the level of potentially catastrophic consequences. The Under2 Coalition now includes 220

jurisdictions on six continents that collectively represent more than 1.3 billion people and 43% of the global economy. Cal EPA reports state agencies' annual GHG emissions and the state of California's total annual GHG emissions to the Secretariat of the Under2 Coalition, which is the Climate Group, based in London, United Kingdom. For more information, please visit [The Climate Group website](#).

Zero Net Energy

New state buildings, major renovations, and build-to-suit leases beginning design after October 23, 2017, shall be designed and constructed as zero net energy⁴⁽ⁱ⁾ (ZNE) facilities. State agencies will seek to achieve a 50% ZNE portfolio based on square footage for state-owned facilities by 2025.

All state agencies should now be pursuing ZNE efforts through implementing building efficiencies, on-site renewable energy generation and energy-efficient designs. The Department of Motor Vehicles Fresno field office became the first state facility to achieve and verify ZNE after 12 months of operation. Since then, numerous new buildings and some existing buildings have achieved or are pursuing ZNE.

In 2017, DGS issued a policy in the State Administrative Manual (SAM) chapter 1815.31 outlining the state's definition, requirements, strategies, and process to achieving ZNE, as well as providing numerous resources and tools to help agencies in this effort. This policy also details energy efficiency targets for new and existing state buildings pursuing ZNE. Several agencies may have no major capital projects in the planning process but are still adapting existing facilities by upgrading lighting, equipment, and systems through energy service companies and adding on-site renewable power through Power Purchase Agreements (PPAs) or other renewal energy purchases.

Through the end of 2020, DGS has achieved ZNE on 7.8 million square feet (46%) of its targeted building area, and all five of its new buildings under construction will be ZNE when completed. DGS is working with all state agencies to help them

⁴⁽ⁱ⁾ A ZNE facility that generates as much energy as it consumes, depending on the metrics and definition used. Existing buildings will use measures to move toward ZNE by use of best practices and on-site renewable energy sources. Major building renovations will reach ZNE status by incorporating newer, more energy-efficient systems, using best practices and on-site renewable energy sources. New construction will be built based on extensive building modeling, LEED standards, use of best practices, and on-site renewable energy sources.

understand and work toward ZNE on their buildings. Currently, over 8 million square feet of state building area is verified as ZNE, and that number is likely to increase significantly over the coming years.

Leasing

New and renegotiated state building leases will reduce energy and resource use to the extent possible and economically feasible. EO B-18-12 directs DGS and other state agencies to seek out office space leases that allow sub-meters to capture and enter use data into the ENERGY STAR Portfolio Manager⁵ system.

The ENERGY STAR Portfolio Manager collects and compares energy and water efficiency data for use in reporting and analysis. LEED⁶ certification encompasses a broader array of resources, measures, and required actions in its designations. DGS has been requiring LEED certifications for many leased office spaces for several years, and current leases include 71 LEED certified leased spaces or buildings. Currently, 32% of state-leased building square footage is LEED certified.

Reduce Grid-Based Energy Purchases

The state will continue to take measures to reduce grid-based energy purchases for state-owned buildings by at least 20% by 2018, compared to a 2003 baseline, and reduce other non-building, grid-based retail energy purchases by 20% by 2018, compared to a 2003 baseline.

⁵ ENERGY STAR Portfolio Manager is an interactive energy management tool that allows users to track and assess energy and water consumption across their entire portfolio of buildings in a secure online environment. Whether they own, manage, or hold properties for investment, Portfolio Manager can help users set investment priorities, identify underperforming buildings, verify efficiency improvements, and receive Environmental Protection Agency recognition for superior energy performance.

http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager

⁶ LEED (Leadership in Energy and Environmental Design) provides building owners and operators with a framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions. The U.S. Green Building Council oversees LEED. The LEED ascending certification scale is silver, gold and platinum, depending on the level of achievement.

In partnership with other state agencies, DGS is taking steps to reduce grid-based energy purchases through multiple approaches, including the development and implementation of the state ZNE program, developing standards for building operations, formulating policies energy efficiency, LEED certification, on-site renewable energy sources^{7[iii]}, commissioning^{8[iiii]}, energy efficiency retrofit projects, and demand response^{9[iv]} programs.

Statewide total energy use on executive branch state-owned buildings has been reduced 21% between 2003 and 2020, based on data submitted by state agencies, even though the state's total building portfolio has grown 16% during the same period. DGS is leading the gathering and benchmarking of energy use for all state facilities under the executive branch to track state progress toward meeting the energy targets established in EO B-18-12. A website was developed and established that publicly displays energy use and reduction, as well as other sustainability metrics for all state departments that manage state-owned buildings, as well as for individual facilities ([Please visit Green.CA website](#))

Demand Response Programs

The state will participate in demand response programs to obtain financial benefits for reducing peak electrical loads when called upon, in a cost-effective manner that does not affect operations.

^{7[iii]} On-site renewable energy generation can produce significant energy, environmental, and economic benefits by helping local governments and communities reduce emissions of GHGs and other pollutants. <https://energy.gov/sites/prod/files/2018/11/f57/onsiterenewables508.pdf>

^{8[iiii]} Building Commissioning is the professional practice that ensures buildings are delivered according to the Owner's Project Requirements. Buildings that are properly commissioned typically have fewer change orders, tend to be more energy efficient, and have lower operation and maintenance cost.

<https://www.wbdg.org/building-commissioning#:~:text=Building%20Commissioning%20is%20the%20professional,lover%20operation%20and%20maintenance%20cost.>

^{9[iv]} Demand response can be interpreted as incentives designed to induce lower electricity use at times of high wholesale market prices or when system reliability is jeopardized.

http://en.wikipedia.org/wiki/Demand_response

DGS regularly examines demand response programs offered by local utilities to analyze the functional impacts to the building and the financial advantages provided, if any. The main challenges for DGS buildings' ability to participate in automated demand response programs are a lack of adequate technology including modern effective building management systems. DGS buildings respond to the California Independent Systems Operator (ISO) Flex Alert messages, wherein consumers are asked to take additional measures to reduce strain on the grid. DGS buildings make these adjustments manually in response to Flex Alert messages if they do not participate in automated demand response programs.

As of 2020, 10 DGS buildings participate in Sacramento Municipal Utility District's (SMUD) Power Direct Automated Demand Response Program, the only automated demand response program SMUD currently offers. In order to participate, buildings are required to install technology systems that automatically scale back energy use when demand is highest to effectively reduce energy consumption by at least 20 kilowatts (kW) for a minimum of two consecutive hours during peak times. SMUD offers financial incentives for successfully reducing energy consumption during the peak alert days.

On-Site Renewable Energy Goals

New or major renovations of state buildings larger than 10,000 square feet shall use clean, on-site power generation such as solar photovoltaic, solar thermal and wind power generation, and clean backup power supplies (Battery Energy Storage Systems – BESS), if economically feasible.

DGS has developed a solar photovoltaic and wind generation energy program that allows state facilities to procure electricity from on-site generation through power purchase agreements (PPAs) to meet the state's renewable energy goals. Additionally, DGS is developing an Energy Services model to benefit from Battery Energy Storage Systems (BESS) that will manage the electrical load of a host's facility, also under a PPA. Companies receive a no-cost lease from state facilities through which they install, own, and maintain renewables (solar and wind) and storage equipment. The state does not invest any funding in the actual PPA installation. In return, the state facility agrees to purchase all of the electricity the equipment generates for 20-25 years at an electric rate that is typically lower than the rate the facility currently pays its utility provider, or pays an annual fee for the BESS to manage the host's energy and utility costs.

RENEWABLES INSTALLATIONS	INSTALLED
Number of projects	46
Megawatt production	75.6

- DGS' Office of Sustainability has completed renewable energy projects for 16 different state agencies.
- Currently, 15 projects are under contract, worth approximately 36.2 MW of renewables expected to be operational in 2021 and 2022.
- Currently, seven projects (not yet under contract) have been awarded, worth approximately 15 MW of renewables expected to be operational between 2022 and 2024.
- DGS has established a new pool of qualified Energy Service Providers capable of installing renewables and storage projects.
- DGS' Office of Sustainability expects to release Requests for Proposals in 2021 and 2022 for new projects that will include renewables and storage.
- BESS projects will save on host's utility costs by reducing Demand Charges and discharging cheap energy during high-rate periods of the day.

Building Design and Construction

New state buildings, state buildings with major renovations, and build-to-suit leases larger than 10,000 square feet shall obtain LEED "Silver" certification or higher.

LEED – New Construction

Since 2003, 240 state buildings have been LEED certified. Currently, 33% of these LEED certifications are for state-leased buildings. All new building construction or major renovations larger than 10,000 square feet will meet criteria to be certified as LEED Silver or higher.

LEED Certifications of Executive Branch and Leased Buildings and Spaces

LEED Rating	Current leased certified buildings	Current leased sq. ft.	State-owned certified buildings	State-owned buildings sq. ft.	Total owned & leased certified buildings	Total owned & leased buildings sq. ft.
LEED-NC	29	1,206,068	130	9,189,654	159	10,207,111
LEED-EBOM	19	2,536,243	41	12,851,485	60	13,484,489
LEED-CI	27	1,854,526	4	967,680	31	2,642,016
LEED-CS	1	60,989	0	0	1	60,989
TOTAL *	78	5,485,086	162*	13,563,678	240*	22,234,153*

Key: NC = New Construction; EBOM = Existing Building Operation & Maintenance; CI = Commercial Interiors; CS = Core & Shell
 *16 buildings have more than one type of LEED certification (e.g., NC, EBOM). Totals reflect total number of certified buildings, and do not “double count” buildings that have more than one type of certification.

LEED Certifications by Level

LEED certification level	Certified buildings
PLATINUM	18
GOLD	63
SILVER	152
CERTIFIED	24
TOTAL CERTIFICATIONS	257*

Existing Buildings

All existing state buildings over 50,000 square feet shall complete LEED Existing Building (EB) certification by December 31, 2015, (including meeting an ENERGY STAR rating of 75, or alternate energy standard established by the California Energy Commission), to the maximum extent that is cost-effective.

LEED – Existing Buildings

Currently, 62% of DGS-owned buildings consisting of more than 50,000 square feet are LEED-EB certified. DGS-owned building certifications comprise 62% of total executive branch state-owned LEED certified building square footage. DGS buildings that compose approximately 14% of total existing executive branch, state-owned building square footage are LEED certified.

ENERGY STAR

Currently, DGS has 140 leases in 68 ENERGY STAR-rated leased buildings totaling 2,934,677 square feet. ENERGY STAR uses a rating system with a scale ranging from 1–100. A rating of 50 indicates average energy performance, while a rating of 75 or better indicates top performance. The average rating for all DGS ENERGY STAR-rated leased buildings is 88.6, and 82.8% of these leases have an ENERGY STAR score of 80 or higher.

Energy Efficiency Retrofits

DGS continues to complete energy efficiency retrofits at state facilities. These projects are comprised of numerous measures that include retrofits and upgrades to lighting and lighting controls, heating, ventilation, and air conditioning (HVAC) systems, mechanical systems and controls, energy management systems, water conservation, and retro-commissioning.

Lighting upgrades continue to be the most common energy efficiency measure due to their quick payback and large energy savings. Lighting retrofits typically generate significant savings at a low implementation cost. Other common measures include the installation of energy management systems and HVAC upgrades. Replacement measures such as replacing HVAC equipment are usually costly, so they generally occur only when they can be bundled with other measures like lighting upgrades, or when agencies contribute part of the upfront cost in addition to financing to buy down the loan.

Under the statutory authority of Public Utilities Code Section 388, DGS establishes pools of ESCOs that are available to do energy retrofits using an energy savings performance contract. GC Section 4217.12 allows state agencies, usually working through DGS, to engage ESCOs to assess their facilities to identify energy savings opportunities, perform investment grade audits that verify costs and savings for financing purposes, implement the energy efficiency measures, and verify the project's results. The performance contract ensures that the anticipated savings will be sufficient to cover the debt service for the contract, and if the savings do not materialize during the validation of the project, the ESCO must pay the state agency the shortfall amount to preserve the budget neutrality of these projects.

Building Commissioning

New and existing buildings shall incorporate building commissioning to facilitate improved and efficient building operation.

Practices for new building commissioning are well established and are being followed. All new building projects are commissioned since this is a requirement

of both LEED certification and the California Green Building Code (CALGreen). For existing building commissioning, DGS and the California Energy Commission (CEC) established threshold targets based on building type and use.

DGS developed and managed a statewide retro-commissioning program from 2006 to 2008. Since that time, the focus of the industry has turned toward Monitoring-based Commissioning (MBCx), which uses software and hardware to capture building data and apply analytics to identify anomalies and deficiencies in the operation of a building. EO B-18-12 sets MBCx targets for the state. In response, DGS implemented MBCx at the CEC building and developed a platform for its statewide portfolio. However, funding has not been provided to implement this.

Note: DGS, working with other state agencies, released a series of management memos (MM) outlining policies and practices to improve sustainable operations and practices in state buildings. These MMs are referenced in the sections that follow. The policies can also be found in the [SAM](#), Section 1800.

Indoor Environmental Quality

The state shall implement relevant and feasible voluntary measures from Divisions A4.5 and A5.5 of the California Green Building Standards Code¹⁰ to ensure healthy indoor environments for occupants.

DGS assisted the Department of Public Health and the Air Resources Board (ARB) in establishing guidelines for improved indoor air quality and lighting in public buildings. MM 14-05: Indoor Environmental Quality: New, Renovated, and Existing Buildings, was released May 21, 2014. The MM was issued as part of an interagency workgroup effort to release statewide policies for existing buildings, as called for in the GBAP to implement EO B-18-12.

Water Efficiency and Conservation

The state shall reduce water use at facilities by 10% by 2015 and 20% by 2020, as compared to a 2010 baseline.

DGS assisted DWR in the establishment of guidelines that meet the requirements of EO B-18-12. Departments were instructed to collect data to establish the 2010 baseline, against which water conservation will be measured. MM 14-02 was published early in 2014 outlining policies for state agencies to reduce water use in state facilities and landscapes. DGS coordinates the gathering of water benchmarking data for state agencies through the ENERGY STAR Portfolio

¹⁰ <https://www.hcd.ca.gov/building-standards/calgreen/index.shtml>

Manager and reports this information to the governor's office each spring. Based on the data submitted by departments, state water use has been reduced by 42.6% between 2010 and 2016, more than doubling the 2020 target.

DGS managed a \$10 million water conservation grant program that, upon completion in 2017, was projected to save 300 million gallons of water annually from 30 state agencies through 165 projects.

In 2020, DGS accomplished the goal of reducing water use by 20% by 2020 as compared to a 2010 baseline. The overall DGS facilities portfolio reduced water use by 28% for 2020 compared to 2010. The 2020 water use reduction is impacted by the reduction of occupants working in state buildings since March 2020 due to the COVID-19 prevention measure of teleworking. Prior to COVID-19 and the increase in telework, the DGS portfolio reduced its potable water use by 18% in 2016 compared with a 2010 baseline. Much of this reduction occurred through permanent water efficiency upgrades to DGS facility fixtures and irrigation systems during the California drought. Indoor water efficiency projects between 2015 and 2017 resulted in 910 toilets, 207 urinals, 1,881 faucet aerators, and 113 shower heads being replaced, efforts that are estimated to save nearly 15 million gallons of water each year.

Electric Vehicle Charging Stations

Electric Vehicle Charger Installations

Since 2017, DGS has followed a five-year implementation plan to install Zero-Emission Vehicle (ZEV) infrastructure at state facilities to accommodate all ZEV fleet vehicles and 5% of all workplace (employee) ZEV charging needs, totaling 6,000 electric vehicle (EV) charging ports. To date, DGS' Office of Sustainability – Transportation Unit has installed a total of 1,801 EV charging ports. These include a combination of Level 1, Level 2, solar-powered Level 2 and Level 3 charging ports. At DGS facilities 1,034 charging ports have been installed. Funding sources include the state's General Fund, funding from special funded state departments as well as rebates and incentives from utilities and legal settlements. In calendar year 2020, 586 EV charging ports were installed statewide.

Policies

In response to the state's ZEV First policy, as of July 1, 2021, DGS' Office of Sustainability – Transportation Unit will be responsible for reviewing all state agencies' Fleet Acquisition Plans. This review will determine whether adequate charging infrastructure is in place to accommodate the procurement of new ZEVs. If adequate charging is not available, the Transportation Unit will work with

each agency or department to install EV charging to accommodate the new ZEVs, if funding allows.

Environmentally Preferable Purchasing

DGS takes measures to reduce environmental impacts and assist the state in reducing its energy consumption through the contracting process. Public Contract Code Section 12400 requires state agencies to purchase and use environmentally preferable products that have a lesser or reduced effect on human health and the environment when compared with competing goods that serve the same purpose, perform well, and are cost-effective.

In an effort to assist building operations and other state agencies in attaining the state's energy efficiency and GHG goals, DGS' Procurement Division has developed purchasing policies, specifications, standards, and contracts that include environmentally preferable purchasing (EPP) certifications, techniques, and requirements to drive the procurement of safer and less toxic products, as well as energy-efficient products. Agencies have access to laws, regulations, and standards that shape environmentally preferable procurement, and direct buyers to green Leveraged Procurement Agreements at [DGS' Buying Green Website](#).

Policy

The following sections from DGS' State Contracting Manual (SCM) direct state agencies to purchase goods and services that meet DGS purchasing standards when procuring under their delegation authority:

- SCM Volume 2, Chapter 3, Topic 11 – Environmentally Preferable Purchasing
- SCM Volume 3, Chapter 3, Topic 11 – Environmentally Preferable Purchasing
- SCM Volume F, Chapter 3, Section B, Topic 2 – Environmentally Preferable Purchasing

DGS purchasing standards, in addition to DGS MMs, specify the environmental attributes required for supporting EO B-18-12 and N-19-19:

- Buy Clean California Act (MM 20-01 and MM 19-01)
- State Buildings and Grounds Maintenance and Operation (MM 15-06)
- Energy Use Reduction for New, Existing, And Leased Buildings (MM 15-04)
- Energy Efficiency in Data Centers and Server Rooms (MM 14-09)

- Indoor Environmental Quality: New, Renovated, and Existing Buildings (MM 14-05)
- Water Efficiency and Conservation (MM 14-02)

Contracts

Statewide contracts assist the state in achieving the goals of EO B-18-12 and N-19-19. In establishing these contracts, DGS' Procurement Division develops specifications that, at a minimum, meet criteria identified in DGS policies. The contracts listed demonstrate progress made to date in supporting energy efficiency, plug-load reductions, indoor air quality and ZEV implementation.

Zero-Emission Vehicles

DGS developed contracts for electric vehicles and chargers, supporting ZEV implementation. Three types of electric charger contracts provide flexibility for maintaining existing equipment and installation of new stations and a multiyear, multi-award vehicle contract increases purchasing opportunities. The vehicle contracts are nimble enough to allow for upgrades—including long-range batteries—and also for year-over-year model updates with the winning dealerships/awardees. DGS anticipates continuing to make available to state departments the latest models that represent ZEV technology in the vehicle classes for which it solicits.

Furthermore, in collaboration with ARB, the California Department of Resources Recycling and Recovery (CalRecycle) and the Department of Toxic Substances Control, DGS developed a new enhanced efficiency costing methodology for evaluating contract bids that highlights vehicles with better smog and GHG profiles. This methodology allows for greater reduction in environmental impacts.

- [Cars contracts: 1-18-23-10 \(A-I\)](#)
- [Trucks contracts: 1-18-23-20 \(A-G, I\)](#)
- [Vans & SUVs contracts: 1-18-23-23 \(A-G\)](#)
- [Medium/heavy duty ZEVs contracts: 1-19-23-22 \(A-D\)](#)
- [Zero-emission transit buses contracts: 1-20-23-17 \(A-C\)](#)
- [Electric vehicle supply equipment \(EVSE\) contract: 1-18-61-15 \(A-C\)](#)
- [Mobile solar panel electric vehicle charger system contract: 1-18-61-16](#)

Opportunities continue for ZEV advancement as technology greets the marketplace.

Information Technology Hardware

DGS developed a statewide contract for information technology (IT) and personal computer goods that includes desktops, laptops, monitors and tablets. The contracts comply with DGS bid specifications that include requirements for enhanced energy efficiency, ENERGY STAR or EPEAT (Electronic Product Environmental Assessment Tool) compliance and cost-effectiveness. As a result of reduced plug loads, fewer GHG emissions are generated. Contracts for data enterprise equipment have also been established. DGS was proactive in addressing this challenge by considering energy efficiency from the perspective of the whole data center, initiating the creation of a management memo titled Energy Efficiency in Data Centers and Server Rooms (MM 14-09).

Energy efficiency (IT hardware):

- Desktops contracts: [1-17-70-01 \(A-B\)](#) & [1-17-70-07](#)
- Laptops contracts: [1-17-70-02 \(A-B\)](#) & [1-17-70-11 \(A-B\)](#)
- Monitors contract: [1-17-70-05 \(A-B\)](#)
- Tablets contracts: [1-21-70-08 \(A-G\)](#)

Printers (Multifunctional Devices)

DGS has also developed a statewide contract for printers, also known as multifunctional devices (MFDs). The contracts comply with DGS bid specifications that include requirements for enhanced energy efficiency – i.e., ENERGY STAR and EPEAT compliance – and cost-effectiveness. These MFDs contribute to reduced plug loads and, in turn, fewer GHG emissions are generated.

Energy Efficient (Printers – MFDs)

- Printers contract: [1-21-70-04 \(A-C\)](#)
- Plotters contracts: [1-17-70-04 \(D-E\)](#)
- Copiers contracts: [1-17-70-06 \(A-B\)](#)

Modular Systems Furniture

DGS developed a modular systems furniture statewide contract that meets multiple environmental requirements. This contract offers BIFMA (Business and Institutional Furniture Manufacturers Association) level 3 certified furniture that can potentially contribute toward LEED certification for state buildings. The certified furniture meets stringent indoor air quality standards along with other toxics-reduction criteria. The contract also offers energy-efficient LED desk lights that help reduce plug load.

- Modular system furniture contract: [1-16-71-52](#)

Green Contracts

The DGS EPP program is constantly reviewing the latest advancements in environmentally preferable commodities and third-party environmental certifications. The DGS EPP program currently has over 80 contracts that are considered “green” or environmentally preferable purchases.

Green Buyer

The [Green Buyer](#) website provides a graphical representation on the state's progress toward incorporating EPP into its procurement practices. Information is shown for the combined state effort as well as for individual state departments. Green Buyer is based on spending reported into the Financial Information System for California (FI\$Cal). By purchasing recycled paper and energy-efficient office equipment, the state in 2019 saved:

Energy Saved	Equivalency
5,440 megawatt hours (MWh)	2,355 cars removed from the roads for one year

EPP Training

DGS' Procurement Engineering Branch has developed self-paced online training for state buyers to increase their understanding of EPP. One class was offered through the California Procurement and Contracting Academy (CalPCA) in 2020 and two more in 2021.

Purchasing Standards

DGS purchasing standards provide the minimum criteria purchases must meet to be considered environmentally preferable, aka “green” by the state of California. They establish a mechanism for incorporating performance and environmental requirements that meet the state's environmentally preferable goals into procurement and policy. Currently seven purchasing standards posted to the [Green Buyer website](#) include EPP requirements:

- Janitorial supplies, cleaners
- Paper janitorial supplies
- Paper office supplies
- Office desk lamps
- LED lamps
- Seating
- Televisions

Buy Clean California Act

The Engineering Branch of DGS' Procurement Division is leading the implementation of the Buy Clean California Act (BCCA) authorized by Public Contract Code Section 3500-3505. This requires DGS to establish and publish the maximum acceptable global warming potential (GWP) for building materials that includes structural steel (hot rolled sections, hollow structural sections, and plate), carbon steel rebar, flat glass, and mineral wool board insulation. These materials must have a GWP that does not exceed the limit set by DGS. BCCA full implementation will become effective July 1, 2022, by which time DGS will have:

- Published the GWP limit for eligible materials.
- Developed the report describing the methodology used to establish the GWP maximum limit and submitted it to the Legislature.
- Collaborated with industry and awarding agencies to define scope of eligible materials affected by the BCCA.
- Collaborated with awarding agencies to beta test BCCA project and EPD database collection software, which will allow project metrics development.

Sustainable Food Acquisition

Due to Executive Order N-19-19, the DGS Procurement Division's Food Acquisitions Unit is working closely with the California Department of Corrections and Rehabilitation and other state agencies that acquire food for state facilities. Reduction of carbon emissions associated with food purchases is a high priority and foods as well as production processes with highest carbon emissions have been identified. PD Food Acquisition is collaborating with California Department of Corrections and Rehabilitation (CDCR) to roll out meal menus that contain substitute for high carbon emission foods.

Financing

The state shall identify and pursue available financing and project delivery mechanisms to achieve energy efficiency goals set forth in B-18-12 and the GBAP.

For energy retrofit projects, there are multiple financing opportunities available through investor-owned utility on-bill financing, the Energy Efficient State Property Revolving Fund, and the CEC's Energy Conservation Assistance Account. DGS is currently developing financing through the Golden State Financial Marketplace (GS \$Mart) and directly with the energy service companies contracted to do the projects.

Refer to GC Section 15814.28 (c) for information on financing of energy efficiency projects and programs.

Monitoring and Executive Order Oversight

The state shall measure, monitor, report, and oversee progress on measures set forth in B-18-12 and the GBAP.

DGS led the development of EO B-18-12 and has worked closely with the governor's office to coordinate executive oversight and implementation of the EO. This included the formation and leadership of two interagency oversight groups to oversee progress on the EO and to coordinate its implementation:

- Sustainability Task Force – This executive-level, interagency oversight task force met semiannually until June 2019 to monitor and oversee progress on EO B-18-12 and other green initiatives. More than 35 state agencies and departments participated in this group. New executive sponsorship would jumpstart this task force and help boost and renew it.
- Sustainable Building Working Group – This implementation-level working group has been meeting monthly since 2013 to coordinate statewide efforts to implement the Green Building Action Plan that accompanies EO B-18-12, and other sustainability policies outlined in the State Administrative Manual (SAM) chapter 1800. More than 50 state departments and agencies and five utilities participate.

Government Code Section 15814.28 (b)

Outlined herein are the most common energy efficiency measures being implemented:

DGS received funding through the State Energy Program administered by the California Energy Commission (CEC). To extend the impact of the funds, the American Recovery and Reinvestment Act legislation encouraged the creation of long-term funding mechanisms such as revolving loan funds (RLF). As a result, DGS received an initial endowment of \$25 million and a subsequent augmentation of \$2.7 million (refer to the Energy Efficiency Retrofits section on page 7 of this report) to establish an RLF, and began to issue loans in 2010.

Lighting upgrades continue to be the most common energy efficiency measure due to their quick payback and large energy savings. Lighting retrofits typically generate significant savings at a low implementation cost. Other common

measures include the installation of energy management systems and HVAC upgrades. Replacement measures such as replacing HVAC equipment are usually costly, so they generally occur only when they can be bundled with other measures like lighting upgrades, or when agencies contribute part of the upfront cost in addition to financing to buy down the loan.

Government Code Section 15814.28 (c)

Outlined herein are the obstacles preventing further implementation of energy efficiency measures:

The greatest obstacle to implementing renewables projects is lack of funding. For renewables projects, there is no source of funds to procure these systems. For that reason, DGS has employed the use of PPAs as described below. At this time, DGS has had to pass on several renewables projects because they did not break even over the course of the project and the host agency did not have funding to cover the overage.

Loans

The Department of Finance authorized the use of GS \$Mart financing, a program that provides third-party financing that meets the standard requirements of municipal lease financing, ensuring that the loans are not considered state debt and that they satisfy tax-exemption, securities disclosure, and contract validity concerns for energy retrofits. For the current projects in the pipeline, DGS plans to use GS \$Mart lenders for a majority of the energy savings projects. This funding mechanism is not available for facilities that carry bond encumbrances. More information about the GS \$Mart program is available at [State Financial Marketplace](#).

Utility Incentives

Utility incentives can offset varying percentages of energy efficiency project cost, but state departments must have funding available to cover the implementation or purchase expense. Utilities typically do not issue rebates or incentives until after project implementation. Departments are still responsible for the portion of the project not covered by the incentives.

Utility On-Bill Financing

The investor-owned utilities offer loans with minimal fees or loan costs and 0% interest for customers to make energy improvements. The loans are paid through their monthly utility bills, with payback periods typically between one and 10

years. The loan is paid back on projected energy savings, with the savings offsetting the payments.

Energy Efficient State Property Revolving Fund

The revolving nature of the loan fund supplies capital for loans every year when loan recipients make their annual payments. Repayments on existing loans increase the loan fund at a rate of approximately \$2 million to \$3 million per year.

Power Purchase Agreements

DGS is using PPAs to install renewables at state facilities, whereby a private entity provides capital and constructs, owns and operates a generation project on state property and sells all the power to the state. Ideally the price for the power purchased through the PPA is at or below the current utility rates so the net effect of the project is positive for the state facility over the term of the 20- to 25-year PPA agreement. DGS expanded the PPA model to include wind and BESS, but only after the resolution of several problems, including:

- The land and/or buildings of many state facilities are purchased or constructed using tax-exempt bonds. The Internal Revenue Service tax laws require special bond review to ensure that the tax-exempt status of the bonds would not be compromised by the implementation of PPA projects at these facilities.
- Decreasing or expiring investment tax credits will also affect the future price of renewables projects. The lack of state funds combined with decreasing and/or expiring investment tax credits may mean these projects may not be financially feasible and would have to be cancelled without the state receiving the numerous environmental benefits of these projects.
- Language pertaining to renewables projects is outdated and DGS would like to address the language to continue providing these projects to client agencies. For example, Government Code Section 14712, Government Code Section 15814, and Public Utilities Code Section 388.

Government Code Section 15814.28 (d)

This section outlines how current efforts and ideas can be incorporated into the governor's five-year infrastructure plan described in Government Code Section 13102.

DGS incorporates current efforts and ideas into the governor's five-year infrastructure plan on a continuous basis. DGS' contribution to the governor's plan derives from the projects the department will be working on in the upcoming years.

When preparing a capital outlay project, DGS must demonstrate that the proposed project is in accordance with statutes and directives that guide the planning and development of state office spaces. These mandates include, but are not limited to:

[Government Code Sections 4217.10-4217.18 – Energy Conservation Contracts](#)

[Government Code Sections 14660-14684.1 – State Property](#)

[Government Code Sections 14710-14713 – State Building Energy Retrofits](#)

[Government Code Sections 15808-15812 – State Building Construction General Powers](#)

[Government Code Sections 15814.10-15814.29 – Energy Conservation in Public Buildings](#)

[Government Code Sections 15814.30-15814.40 – Energy Efficiency in Public Buildings](#)

[Government Code Sections 65041-65049 – Statewide Environmental Goals and Policy Report](#)

[Public Utilities Code Section 388 – State Agencies](#)

[Public Resources Code Sections 25000-25009 – Energy Conservation and Development, Chapter 1: Title and General Provisions](#)

[Public Resources Code Sections 25410-25422 – Energy Conservation Assistance](#)

[Public Resources Code Sections 25470-25474 – Energy Efficient State Property Revolving Fund](#)

[Public Resources Code Sections 25695-25697 – Energy Technology and Energy Conservation](#)

EO W-18-91 directs the state to consolidate its operations in joint-use facilities where possible and feasible.

EO W-83-94 requires state agencies to maintain five-year energy management plans.

EO D-16-00 establishes a state sustainable building goal to site, design, deconstruct, construct, renovate, operate, and maintain state buildings that are models of energy, water, and materials efficiency.

EO D-46-01 and Management Memo 01-18 provide DGS direction on locating state-owned and leased state offices to promote smart growth policies.

EO S-20-04 (rescinded and replaced by EO B-18-12) called for the state to take the lead in designing, building, and operating its buildings to make them resource- and energy-efficient buildings and directs the state to reduce its grid-based energy purchases for state-owned buildings by 20% by 2015.

EO B-16-12 requires that California's state vehicle fleet increase the number of its zero-emission vehicles through the normal course of fleet replacement.

EO B-18-12 and the accompanying GBAP detail specific goals, schedules and measures to be instituted in the design and operations of state-owned buildings. The measures are intended to reduce greenhouse gas emissions, cut retail energy purchases, increase on-site renewable energy, require more energy-efficient building design, increase water efficiency, and include electric vehicle charging.