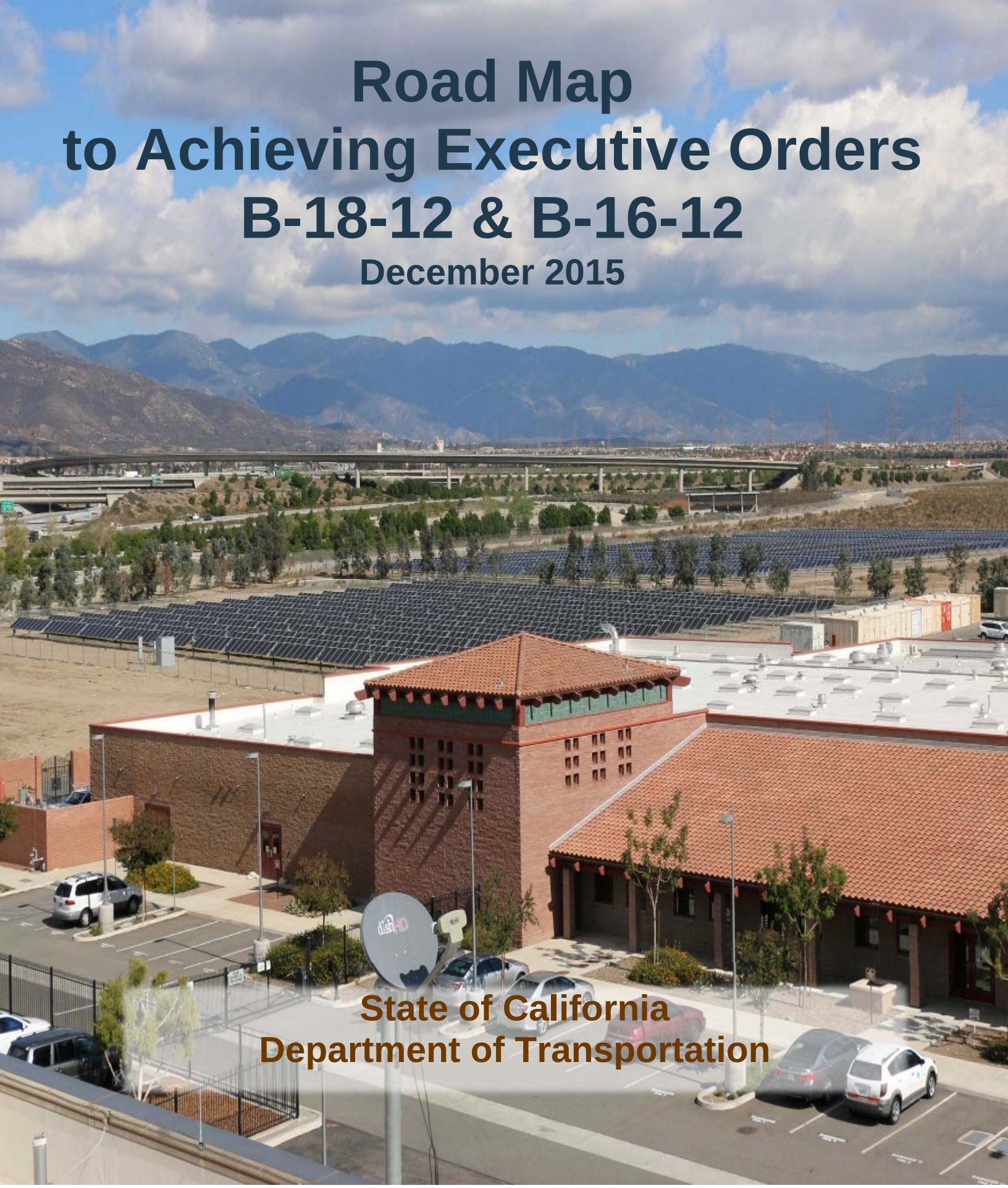
# Road Map to Achieving Executive Orders B-18-12 & B-16-12

**December 2015**



## State of California
## Department of Transportation

*Solar Farm at the Inland Empire Transportation Management Center and Southern Regional Lab Campus in Fontana*

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# ACRONYMS

| | |
|---|---|
| **Admin** | Administration Program (part of Caltrans) |
| **ADR** | Automated Demand Response |
| **ARRA** | American Recovery and Reinvestment Act |
| **BEV** | Battery electric vehicle |
| **BRT** | Bus Rapid Transit |
| **BTA** | Bicycle Transportation Account |
| **CALGREEN** | California Green Building Code (Title 24, Part 11) |
| **Caltrans** | California Department of Transportation |
| **CARB** | California Air Resources Board |
| **CEC** | California Energy Commission |
| **CIP** | Cold in place (asphalt) |
| **CMS** | Changeable message sign |
| **CRIS** | Climate Registry Information System |
| **DBFS** | Division of Business, Facilities and Security (part of Caltrans) |
| **DES** | Division of Engineering Services (part of Caltrans) |
| **DGS** | California Department of General Services |
| **DOE** | Division of Equipment (part of Caltrans) |
| **DOM** | Division of Maintenance (part of Caltrans) |
| **DPAC** | Division of Procurement and Contracts (part of Caltrans) |
| **DWR** | California Department of Water Resources |
| **EO** | Executive Order |
| **Cal/EPA** | California Environmental Protection Agency |
| **EPP** | Environmentally Preferable Purchasing |
| **ESCO** | Energy service contractors |
| **ESPM** | Energy Star Portfolio Manager |
| **EUI** | Energy Use Intensity (kBTU/sq. ft.) |
| **EVSE** | Electric Vehicle Supply Equipment (charging equipment) |
| **FHWA** | Federal Highway Administration |
| **Finance** | Finance Program (part of Caltrans) |
| **GHGe** | Greenhouse Gas Emissions |
| **HEV** | Hybrid electric vehicle |
| **HMA** | Hot mix asphalt |
| **HPS** | High pressure sodium |
| **HVAC** | Heating, Ventilation and Air Conditioning |
| **IEQ** | Indoor Environmental Quality |
| **IT** | Division of Information Technology (part of Caltrans) |
| **kBTU** | Thousand British Thermal Units (unit of energy) |
| **LDV** | Light Duty Vehicle |
| **LED** | Light-Emitting Diode |
| **LEED** | Leadership in Energy and Environmental Design |
| **M&O** | Maintenance and Operations Program (part of Caltrans) |
| **MM** | Management Memo |

| | |
|---|---|
| **MV** | Mercury vapor |
| **OBF** | On-Bill Financing |
| **PG&E** | Pacific Gas and Electric |
| **P&MP** | Planning and Modal Programs (part of Caltrans) |
| **PD** | Project Delivery Program (part of Caltrans) |
| **PHEV** | Plug in hybrid electric vehicle |
| **PPA** | Power Purchase Agreement |
| **PUE** | Power Usage Effectiveness |
| **REV** | Company which provides sustainability training |
| **RHMA** | Rubberized hot mix asphalt |
| **RFP** | Request for Proposal |
| **SAM** | State Administrative Manual |
| **SCE** | Southern California Edison |
| **SCM** | State Contracting Manual |
| **SCM** | Supplementary cementitious materials |
| **SCS** | Sustainable Community Strategies |
| **SDG&E** | San Diego Gas and Electric |
| **SFOBB** | San Francisco Oakland Bay Bridge |
| **SMP** | Strategic Management Plan |
| **SRRA** | Safety Roadside Rest Area |
| **SR2S** | State Safe Routes to School |
| **TAP** | Transportation Alternatives Program |
| **VMT** | Vehicle miles travelled |
| **TMC** | Transportation Management Center |
| **VOC** | Volatile Organic Compounds |
| **WMA** | Warm mix asphalt |
| **ZEV** | Zero Emission Vehicle |
| **ZNE** | Zero Net Energy |

# GREEN INITIATIVES & FOCUSES

## Green Initiatives:

1. **Executive Order B-18-12** and the **Green Building Action Plan** were issued by Governor Brown on April 25, 2012. They outline requirements for state agencies related to reducing environmental impacts of state operations including greenhouse gas (GHG) emissions, energy, and water use, as well as improving indoor air quality, onsite renewable energy, environmentally preferable purchasing (EPP), and developing the infrastructure for electric vehicle charging stations at state facilities. The Green Building Action Plan also established two oversight groups to ensure these measures are met.

2. **Executive Order B-16-12** pushes the state toward the integration of zero emission vehicles (ZEVs) into the mainstream. It directs the state toward establishing an infrastructure that can support increased public and private sector ZEVs. Additionally, it directs state agencies to replace at least ten percent of fleet vehicle purchases with ZEVs by 2015, and at least 25% of fleet vehicle purchases with ZEVs by 2020.

3. **Executive Order B-29-15** directs the state to reduce urban potable water use by 25 % by February 28, 2016, as compared with 2013.

4. **Executive Order B-30-15** establishes a GHG reduction target of 40% below 1990 levels by 2030.

5. **Executive Order B-32-15** orders the development of a statewide Integrated Freight Action Plan by July 2016

## Green Initiative Focus Sections: (summarized in **Appendix A**)

1. Greenhouse Gas Emissions (GHG)
2. Energy – Zero Net Energy (ZNE)
3. Energy – Exceed Title 24 by 15%
4. Energy – Reduced Grid-Based Energy Purchases by 20% by 2018
5. Energy – Demand Response
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# EXECUTIVE SUMMARY

The California Department of Transportation's (Caltrans') 2015 Road Map (Road Map) describes the status of steps to achieve the objectives, targets, and requirements of various Governor's Executive Orders (EOs) designed to protect and enhance California's sustainability, economy, and livability. The 2015 Roadmap is extensively expanded and improved. It now ties to the new Caltrans Strategic Management Plan (SMP) and has been extended from building issues to include all Caltrans' operations. It also incorporates the new California Department of General Services (DGS) Management Memos (MM) which implement the Governor's EOs. And most critically, the Road Map includes target dates and the names of those responsible for accomplishing the actions planned.

The key EOs described in this report start with EO B-18-12, the Green Building Action Plan. EO B-18-12 incorporates green practices into building and highway system operations for energy, water, materials and purchasing efficiencies, enhances indoor and outdoor air quality, reduces greenhouse gas (GHG) emissions, and improves the health and productivity of state employees, all while saving the state money and boosting California's economy. EO B-16-12, the Zero Emission Vehicles (ZEV) Action Plan, encourages the development and success of ZEVs to protect the environment, stimulate economic growth and improve the quality of life in the state. EO B-29-15 continues the Drought State of Emergency, setting aggressive water management goals and adding water use restrictions to protect people and the environment. Governor Brown recently issued EO B-30-15, which further reduces GHG emissions by setting reduction goals for 2030, and calls for additional efforts to improve California's resiliency. EO B-32-15 orders the development of a statewide, integrated Sustainable Freight Action Plan, with a focus on transition to zero-emissions freight technology, freight efficiency improvements and increasing the competitiveness of California's freight system. This Roadmap outlines the EOs' applicable requirements and describes actions Caltrans has taken since the 2013 Roadmap report and those it will take to achieve the EO's requirements.

In March 2015, Caltrans published its SMP 2015-2020 to meet Caltrans' Mission, Vision and Goals as part of ongoing efforts to modernize operations and improve performance and accountability. The SMP includes a new Sustainability, Livability and Economy goal detailing targets for greenhouse gas and potable water reduction, among others, to support all of the EOs described above. Caltrans will achieve its mission to provide a safe, sustainable, integrated and efficient transportation system that enhances California's economy and livability with six primary programs: Aeronautics, Highway Transportation, Mass Transportation, Transportation Planning, Administration, and the Equipment Service Center. Caltrans manages more than 50,000 lane-miles of California's highway and freeway system, provides intercity rail services, permits more than 400 public-use airports and special-use hospital heliports, works with local agencies, and supports other transportation modes including aviation, rail, public transit, bicycling and walking.

In 2014, Governor Brown appointed Dr. Steven Cliff as the new Assistant Director for Sustainability, a position created to lead Caltrans' efforts to develop and implement initiatives aligned with California's sustainability goals. Dr. Cliff serves as the focal point for monitoring sustainability actions, represents Caltrans to external agencies on sustainability issues, establishes sustainability policies and ensures integration of sustainability principles in Caltrans' programs.

Caltrans' 2015 Roadmap incorporates cost-effective energy efficiency and conservation measures, and clean energy production strategies from EOs B-18-12 and B-30-15 into transportation planning, project development, design, operations, and maintenance of transportation facilities, fleets, and buildings to optimize the use of fuel supplies and energy sources to ensure efficient business operations. In addition, Caltrans promotes energy and fuel diversity through clean, low carbon fuel sources, fleet

efficiency, and strong technology policy and market mechanisms to encourage innovation and low fossil fuel consumption to reduce emissions from transportation.

Caltrans successfully initiated numerous innovative programs and projects to reduce energy use. In 2015, under a Power Purchase Agreement, Caltrans installed a 19-acre solar farm adjacent to the Inland Empire Transportation Management Center (TMC) and the Southern Regional Laboratory campus to provide 80 percent of its power, with a projected 20-year savings of $1.5 million. Approximately 9,000 Light-Emitting Diode (LED) luminaries installed in 2014 at the Sacramento Headquarters office building will save 50 percent in lighting electrical costs. By the end of 2016, approximately 45,000 more LED's will be installed in District Offices statewide. By the end of 2017, Caltrans will also replace 80,000 high-pressure sodium roadway lights with more efficient LED lights that are 35 to 60 percent more efficient.

During one of the worst droughts in recorded state history, Governor Brown's January 2014 Drought State of Emergency directed state officials to prepare for water shortages and called for a 20 percent reduction in state agency water use. Caltrans set a goal of a 50 percent reduction in water used for irrigation and landscaping in 2014 and committed to examine all ongoing activities for further efficiencies. In April 2015 with EO B-29-15, the Governor mandated that all urban water users reduce water use by 25 percent and extended the mandate into 2016. Caltrans reduced water consumption with "smart' controller upgrades, delaying landscaping projects, streamlined water use tracking, providing employee training and implementing strategic water conservation and drought action plans for buildings and along highways. Caltrans reduced 240 million gallons of potable water by converting to recycle/non-potable for irrigation. Additionally, in April 2015, DGS reported state water use fell from 19.4 billion gallons in 2013 to 14.9 billion gallons in 2014 agencies equating to a 23 percent reduction. Caltrans accounted for more than half the water conserved by all state agencies. In 2015, Caltrans achieved a 53 percent reduction in water use, meeting Caltrans' aggressive goal. Caltrans will continue do its part to reduce water use.

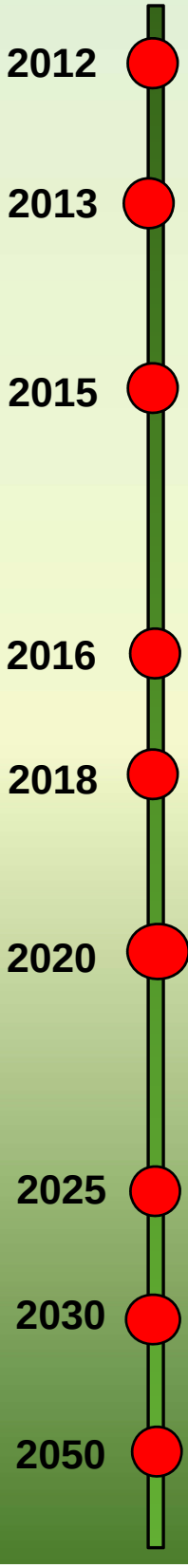
Caltrans is currently exceeding EO B-16-12 ZEV purchasing requirements with 118 plug-in fleet vehicles. To further promote the use of ZEV's, in October 2015, Caltrans issued a memo directing facility managers to encourage employees to use state-owned electric vehicle charging stations. In the future, Caltrans' Division of Equipment plans to look beyond the ZEV plan light-duty fleet requirements to incorporate heavy duty ZEV's in the fleet when available, to increase ZEV adoption statewide, and other strategies to increase the use of low-carbon fuels.

Caltrans continues work to reach the Governor's EO goals that support climate change mandates, renewable power statutes, a "green power" electric grid, energy conservation objectives, Leadership in Energy and Environmental Design (LEED) standards, water conservation mandates, zero emissions vehicles mandates, and improved freight efficiency. Caltrans remains committed to making progress toward achieving these targets and objectives.

For more information or questions, please contact Steven Cliff, Ph.D., Assistant Director for Sustainability at (916) 651-6458 or staff members Desiree Fox, Roadmap Program Coordinator at (916) 654-3395 or Melissa Thompson, Sustainability Program Manager at (916) 869-5738.

MALCOLM DOUGHERTY
Director

# EXECUTIVE ORDER MILESTONES & TIMELINE



**2012**
- EXECUTIVE ORDER B-16-12 & B-18-12 ISSUED
- NEW & RENOVATED BUILDINGS EXCEED T-24 BY 15%

**2013**
- BUILDINGS <10,000 SQ. FT. MEET CALGREEN TIER 1
- BEGIN WATER USE BENCHMARKING

**2015**
- EXECUTIVE ORDER B-30-15 ISSUED
- LEED-EB CERTIF. FOR ALL EXIST. BLDGS >50,000 SQ. FT.
- REDUCE WATER USE 10%
- 10% OF FLEET LDV PURCHASES ZERO EMISSION VEHICLES
- EXECUTIVE ORDERS B-29-15 AND B-32-15 ISSUED

**2016**
- REDUCE WATER USE 25% FROM 2013 TO FEB 28, 2016

**2018**
- 20% ENERGY USE REDUCTION

**2020**
- 50% OF NEW & RENOVATED BUILDINGS ZERO NET ENERGY
- REDUCE WATER USE 20%
- 25% OF FLEET LDV PURCHASES ZERO EMISSION VEHICLES

**2025**
- 100% OF NEW & RENOVATED BUILDINGS ZERO NET ENERGY
- 50% OF EXISTING BUILDINGS ZERO NET ENERGY

**2030**
- 40% GREENHOUSE GAS REDUCTION BELOW 1990 LEVELS

**2050**
- 80% GREENHOUSE GAS REDUCTION BELOW 1990 LEVELS

<table>
<tr><th></th><th>Date<br>Status Completed /or<br>Steps Anticipated</th><th>Caltrans Lead</th></tr>
<tr><td colspan="3">1. GREENHOUSE GAS EMISSIONS (GHG) (including Operations and System for Buildings and Highways)</td></tr>
<tr><td>Target & Timeline</td><td colspan="2">Reduce entity-wide greenhouse gas emissions by 10% by 2015 and 20% by 2020, measured against 2010 baseline. Report baseline and reduction needed to meet both targets.<br>1. 2015--10% reduction from 2010 baseline.<br>2. 2020–20% reduction from 2010 baseline.<br>3. By April 1st each year prepare annual inventory of GHG emissions generated in course of business and enter into Climate Registry’s CRIS database.<br>4. EO B-16-12 orders a reduction of greenhouse gas emissions from the transportation sector equaling 80 percent less than 1990 levels by 2050.<br>5. EO B-30-15 establishes a new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030. This is one strategy to ensure California meets its target of reducing greenhouse gas emissions to 80 percent below 1990 levels by 2050.<br>6. EO B-32-15 orders the development of a statewide, integrated Sustainable Freight Action Plan by July 2016.</td></tr>
<tr><td>Stakeholders</td><td colspan="2">• Sustainability, Steven Cliff<br>• Administration, Cris Rojas<br>• Maintenance and Operations, Steve Takigawa<br>• Planning and Modal Programs, Coco Briseno<br>• Project Development, Karla Sutliff<br>• Finance, Norma Ortega<br>• District Directors</td></tr>
<tr><td>Status</td><td>Climate Registry only (Excludes Pavement and Bridge operational emissions):<br>• Caltrans’ reported GHG emissions to the Climate Registry that reflect a 27.73% reduction in gas emissions from 2010 through 2014, which exceeds the 2020 goal. This includes fuel usage for vehicles, highway/street lighting, building electricity and heating, leased facilities electricity (calculated using an estimation method based on the building’s square footage and utility company, following the process in the Climate Registry “General Reporting Protocol”). See Appendix B: Caltrans emissions summary.<br>The breakdown of Caltrans’ progress towards completing the GHG emissions goals stated in EO B-18-12 is the following:
<table>
<tr><th>Year</th><th>Natural Gas (metric tons)</th><th>Vehicles (metric tons)</th><th>Purchased Electricity (metric tons)</th><th>Total $CO_2e$ (metric tons)</th><th>Annual Percent Reduction since 2010</th></tr>
<tr><td>2010 (Baseline year)</td><td>7,585</td><td>118,042</td><td>89,356</td><td>214,983</td><td></td></tr>
<tr><td>2011</td><td>10,223</td><td>115,118</td><td>85,725</td><td>211,066</td><td>-2%</td></tr>
<tr><td>2012</td><td>5,484</td><td>112,758</td><td>78,373</td><td>196,615</td><td>-9%</td></tr>
</table></td><td>Submitted to CalEPA Climate Registry by April 1, 2015</td><td>Dillon Miner, Planning</td></tr>
</table>

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| | 2013 \| 7,179 \| 108,810 \| 80,841 \| 196,830 \| -9%<br>2014 \| 4,735 \| 105,338 \| 45,538 \| 155,611 \| -28% ✔<br>*2014 Strategy Reduction since 2011* \| *-38%* \| *-11%* \| *-49%* \| *-28%*<br>o *2015 10% reduction target: 193,485 ( ✔Achieved in 2014 for Climate Registry activities).*<br>o *2020 20% reduction target: 171,986 ( ✔Achieved in 2014 for Climate Registry activities).* | | |
| • | Caltrans is currently using telematics to monitor driving patterns which will result in a reduction of idling time and speed (which both increase fuel economy), and a reduction in unauthorized trips (which will reduce vehicle miles travelled [VMT]). | Completed early 2015 | Jeremy Matsuo, Equipment |
| **Operational GHG Emissions *(not included in Climate Registry):*** | | 2015 | Dillon Miner, Planning |
| • | **Tracking of Project Materials:** Caltrans has implemented numerous initiatives to reduce GHG emissions from multiple programs, including highway materials, highway operations and maintenance, and facilities and administration. Plans to include tracking and reporting GHG emissions data from materials used in the construction of pavement and structures, as required by the Caltrans SMP, are still in development. Caltrans first documented operational $CO_2$ emissions in the "Caltrans Activities to Address Climate Change" report, published in April 2013. The tool developed by a consultant in 2011 needs to be validated and responsible parties need to be identified. Additional data for pavement using the tool developed by this report are below (Structures Materials' data are in development): | | |

| **Year** | **Pavement Asphalt Materials** (metric tons) | **Pavement Concrete Materials** (metric tons) | **Structures Materials** (metric tons) | **Total $CO_2e$** (metric tons) | ***Annual Percent Reduction*** *since 2010* |
|---|---|---|---|---|---|
| 2011 (Baseline year) | 67,182 | 47,236 | XX | 114,418 | |
| 2012 | 43,401 | 29,296 | XX | 72,696 | *-36%* |
| 2013 | 26,185 | 77,971 | XX | 104,156 | *-9%* |
| 2014 | 28,079 | 16,929 | XX | 45,007 | *-61%* |
| *2014 Strategy Reduction since 2011* | *-58%* | *-64%* | *XX%* | *-61%* | |

| | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|
| **Strategic Management Plan:** Caltrans added a performance measure in its SMP to reduce pollutants as follows:<br>• Percent reduction of pollutants from Caltrans design, construction, operation, and maintenance of transportation infrastructure and buildings for:<br>o Greenhouse gas (GHG) emissions<br>o Criteria air emissions | SMP Published March 2015 | Pete Spaulding, Strategic Management |
| **System GHG Emissions *(not included in Climate Registry):***<br>Caltrans programs, grants, guidance, and technical assistance that support GHG reductions of the statewide transportation system. | | |
| • Active Transportation Plan (ATP). Consolidates existing federal and state transportation programs, including the Transportation Alternatives Program (TAP), Bicycle Transportation Account (BTA), and State Safe Routes to School (SR2S), into a single program with a focus to make California a national leader in active transportation.<br>o Program Delivery Report (Programmed vs. Allocated). | Report updated after each monthly CTC meeting | April Nitsos, Local Assistance |
| • Class IV Bikeways. The Protected Bikeways Act of 2014 requires Caltrans to establish minimum safety design criteria for Class IV Bikeways, also referred to as cycle tracks or separated bikeways designed to promote active transportation by providing a right-of-way designated exclusively for bicycle travel that is adjacent to a roadway which is protected from vehicular traffic through types of separation including, but not limited to: grade separation; flexible posts; inflexible physical barriers; or on-street parking. | Completed December 2015 | Kevin Herritt, Design |
| • Complete Streets. Design guidelines for Complete Streets that provide safety and access to all users and all modes of transportation.<br>o Complete Streets Implementation Action Plan. | Updated June 2015 | Ann Mahaney, Planning |
| • Intelligent Transportation Systems. Multimodal Integrated Corridor Management.<br>o Operational coordination of multiple transportation networks and cross-network connections comprising a corridor. Optimizes efficiency of all modes along a corridor to reduce congestion and enhance travel choices. | 2015 | Kris Kuhl, Traffic Ops |
| • Multimodal Alternative Analysis. California Transportation Plan.<br>o Analyzes multiple, multimodal transportation scenarios to identify maximum GHG reductions for the statewide transportation system. | 2016 | Gabriel Corley, Planning |
| • Multimodal System Planning.<br>o Long-range planning for interregional transportation, corridor system management, and multimodal statewide travel analysis on the State Highway System (SHS). Provides the basis for identifying current and future deficiencies on the SHS and identifies strategies and projects to address deficiencies and make improvements to meet Caltrans goals. | 2015 | Tracey Frost, Planning |
| • Park and Ride. Supports BRT and carpooling.<br>o Park and Ride Program Resource Guide. | 2010 | Narayan Selwal, Traffic Ops |

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| | o Park and Ride Team Charter - analyzing opportunities to optimize the use of P&R infrastructure. | 2016 | Mitch Baker, Planning |
| | • Regional Transportation Plans and Sustainable Community Strategies (SCS) Review. Incorporates SB 375 into the Regional Transportation Planning Guidelines and reviews Regional Transportation Plans for conformity. | 2015 | Tracey Frost, Planning |
| **Steps to Achievement** | **Climate Registry**: | | |
| | 1.1. **Buildings**: Caltrans has begun enrolling in REV Sustainability Circles. An REV Sustainability Circle is a comprehensive, six-month, peer-learning program that will enable Caltrans to implement sustainability practices. The result is an implementable, customized, five-year action plan, as well as identifiable savings in energy, water, greenhouse gas emissions, waste, and money.<br>**a) Current enrolled district locations include:** | | |
| | District 4 (Oakland). Started in October 2015. | **To be completed by April 2016** | Walter Garcia, District 4 Facilities |
| | District 11 (San Diego). Started in October 2015. | **To be completed by April 2016** | Denella Blount, D11 Facilities |
| | **b) Future locations include:** | | |
| | District 3 (Sacramento). Anticipated in January 2016. | **To be completed by July 2016** | Sue Garibay, D3 Facilities |
| | District 8 (Inland Empire). To begin in February 2016. | **To be completed by Aug 2016** | Brenda Lopez, D8 Facilities |
| | 1.2. **ZEV**: A vehicle replacement plan through 2020 will be developed. DOE will investigate heavy-duty ZEVs when available. | **By June 2016** | Jeremy Matsuo, Equipment |
| | 1.3. **Highway LEDs**: The installation/replacement of high pressure sodium light fixtures with LED fixtures along the highway will result in a 35-60% energy savings. Approximately 50,000 out of 80,000 LEDs have been installed. | **By Dec. 2017** | Gonzalo Gomez, Maintenance |
| | 1.4. **Building LEDs**: In 2014, 9,000 LED luminaries were replaced in the Caltrans Headquarters building. In 2015, approximately 52,000 LED luminaries were purchased and distributed to Caltrans' statewide district headquarters office buildings. Installation of the 52,000 LED luminaries is in progress with 19% installed by December 2015 and a target completion date of December 2016. | **By Dec. 2016** | Paul Little, DBFS |
| | **Operational GHG**:<br>1.5. Tracking of **Project Materials**: Plans to include tracking and reporting GHG emissions data from materials used in the construction of pavement and structures, as required by the Caltrans SMP, are still in development. The tool developed by a consultant in 2011 needs to be validated and responsible parties need to be identified. | **By Feb 2016** | Dillon Miner, Planning |

| | | Date<br>Status Completed /or<br>Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| | 1.6. By 2020, reduce Caltrans' internal **operational pollutants** by District from 2010 levels (from planning, project delivery, construction, operations, maintenance, equipment, and buildings) as follows:<br>a) 15% reduction by 2015 and 20% reduction by 2020 of Caltrans' GHG emissions per EO-B-18-12.<br>Caltrans will be using a wide variety of strategies to achieve this goal. Please find the list of strategies in **Appendix B**. | **By December 2020** | Marilee Mortenson, Planning and Jeremy Matsuo, Equipment |
| | 1.7. By 2020, increase by 20% incorporating **green infrastructure** into transportation projects relative to 2010 levels. A green infrastructure team is working to develop a green-infrastructure scoring tool to incorporate into project selection criteria.<br><br>The incorporation of green infrastructure is an effective and cost-efficient tool for:<br>• absorbing and sequestering atmospheric carbon dioxide ($C0_2$)<br>• filtering air and water pollutants<br>• stabilizing soil to prevent or reduce erosion<br>• providing wildlife habitat<br>• decreasing solar heat gain<br>• lowering the public cost of stormwater management infrastructure and providing flood control<br>• reducing energy usage through passive heating and cooling<br>• reducing energy usage and GHG emissions through the use of recycled building materials<br><br>Green infrastructure is crucial to combating climate change, creating healthy built environments, and improving quality of life. | **By December 2020** | Chris Rossmiller, Design |
| | **System GHG**:<br>The Caltrans SMP includes performance measures for reducing GHG by reducing environmental impacts from the transportation system. Strategies that Caltrans uses to reduce system GHG include encouraging a shift to alternative fuels and alternative transportation modes.<br><br>Caltrans strives to improve the quality of life for all Californians by providing mobility choice, increasing accessibility to all modes of transportation and creating transportation corridors not only for conveyance of people, goods, and services, but also as livable public spaces. | | |
| | 1.8 Caltrans plans to measure the percentage increase of **non-auto modes for bicycle, pedestrian, and transit**. By 2020, Caltrans will increase non-auto modes (triple bicycle, double pedestrian, and double transit). | **By Dec 2020 and Action Plan by Dec 2016.** | Tracey Frost, Planning |

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| 1.9 | Caltrans will develop a statewide bicycle and pedestrian plan that is aspirational, visionary, goal and performance driven, realistic, and constitutes a strategic policy framework for bicycle and pedestrian transportation in California. | **By February 2017** | Scott Forsythe, Planning |
| 1.10 | Caltrans will create an **accessibility score** for transportation corridor planning (to be determined considering, e.g., multimodal transportation proximity to jobs, disadvantaged communities, housing services, transit-oriented communities, etc.). | **By December 2016** | Rahul Srivastava, Planning |
| 1.11 | Caltrans will create a **livability scoring** tool (to be determined considering, e.g., quality of life, noise, safety, public health, localized emissions, and environmental justice concerns, etc.) to be incorporated into project selection criteria. | **By December 2016** | Keith Robinson, Design |
| 1.12 | Caltrans plans to measure the percentage of the top 25 priority **corridor system master plans** completed to enhance the sustainability of the transportation system. (Priority corridors to be determined considering: mobility, freight, highways, transit, rail, bike, pedestrian, aviation, etc.) Caltrans will complete corridor system plans for all state routes by 2017 and top 25 corridor system management plans by 2020. | **By Dec 2017 and Dec 2020** | Melissa Thompson, Sustainability Program |
| 1.13 | Caltrans strives to reduce environmental impacts from the transportation system with emphasis on supporting a statewide reduction of **greenhouse gas emissions** to achieve 80% below 1990 levels by 2050. | **By December 2050** | Marilee Mortenson, Planning and Jeremy Matsuo, Equipment |
| 1.14 | Caltrans will measure **per capita vehicle miles traveled (VMT).** By 2020, Caltrans will achieve a 15% reduction (3% per year) of statewide per capita VMT relative to 2010 levels. | **By Dec 2020** | Melody Friberg, Planning Program |
| 1.15 | Caltrans will measure the percent reduction of transportation **system-related air pollution** for: GHG emissions, Criteria pollutant emissions. Reduce GHG by 15% from 2010 levels, to achieve 1990 levels by 2020. | **By Dec 2020** | Marilee Mortenson, Planning and Jeremy Matsuo, Equipment |
| 1.16 | In response to EO B-32-15, Caltrans will reduce GHG, develop an integrated **freight action plan** by July 2016 that establishes clear targets to improve freight efficiency, transition to zero-emission technologies, and increase competitiveness of California's freight system to achieve 40% below 1990 levels by 2030**.** Caltrans and a multi-agency team will develop a "California Sustainable Freight Strategy" (CSFS) that will include a unified sustainable freight transportation vision and action plan for California. (See **Appendix C** for Q&A Fact Sheet.) | **By Dec 2030**<br><br>**Final CSFS by July 2016** | Karl Dreher, Design |
| 1.17 | **Draft CSFS report**, planned for release in early March 2016 for a 45-day review, will include the following categories:<br>• Engines and Vehicles<br>• Energy and Fuels<br>• Freight Infrastructure and Facilities<br>• Funding and Incentives<br>• Freight System Efficiencies<br>• Economy and Jobs | **Draft in March 2016** | Karl Dreher, Design |

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| | 1.18 Caltrans will improve freight system efficiency to enhance freight competitiveness and support a sustainable, low emissions freight system. By 2020, Caltrans will increase freight system efficiency by 10% with plans to develop a **freight efficiency score** by June 2016 and will be included in the **CSFS final report**. | **By Dec 2020 & Score by June 2016** | Karl Dreher, Design |
| **2. ENERGY--Zero Net Energy (ZNE) (buildings only)** | | | |
| **Target & Timeline** | **1. 2013--State to identify at least three ZNE pilot projects (new, renovated, existing)—completed.**<br>**2. 2020--ZNE on 50% of new construction & major renovations.**<br>**3. 2025--ZNE on 100% of new construction & major renovations.**<br>**4. 2025--ZNE on 50% of total existing building area.**<br>a) Total Caltrans existing building square footage is 7,100,000 (includes conditioned and unconditioned building space).<br>b) Existing building square footage that must be ZNE by 2025 is 3,550,000. | | |
| **Stakeholders** | • Sustainability, Steven Cliff<br>• Administration, Cris Rojas<br>• Maintenance and Operations, Steve Takigawa<br>• Project Development, Karla Sutliff<br>• Finance, Norma Ortega<br>• District Directors | | |
| **Status** | • The recently designed San Francisco-Oakland Bay Bridge (SFOBB) Maintenance Warehouse is anticipated to meet ZNE goals. | Design Completed in June 2014 | Bob Travis, DES |
| **Steps to Achievement** | **New Construction/Major Renovations:**<br>2.1 Future plans for new construction and major renovations consist of a memo to designers that will be included as a supplement to the existing design policies and procedures prior to the 2020 goal. | **December 2019** | Bob Travis, DES |
| | **Existing Buildings:**<br>2.3 Plans for existing buildings include identifying buildings with ZNE potential (a preliminary proposed list of buildings to be recommended can be found **in Appendix D**), and consulting with energy companies for further energy and cost analysis. | **By December 2016** | Desiree Fox, Sustainability Program |
| | 2.4 Program specific plans will be developed to implement ZNE requirements. | **By June 2017** | Desiree Fox, Sustainability Program |
| **3. ENERGY – Exceed Title 24 by 15% (buildings only)** | | | |
| **Target & Timeline** | New buildings and major renovations beginning design after July 1, 2012, shall exceed Title 24 energy requirements by 15% or more. The California Energy Code is part 6 of the California Building Standards Code, which is Title 24 of the California Code of Regulations, also titled The Energy Efficiency Standards for Residential and Nonresidential Buildings. The goal of Title 24 is to ensure that building construction, system design and installation achieve energy efficiency and preserve outdoor and indoor environmental quality. The Standards establish a minimum level of building energy efficiency for both residential and nonresidential buildings. A building can be designed to a higher efficiency level, resulting in additional energy savings. | | |

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| **Stakeholders** | • Sustainability, Steven Cliff<br>• Administration, Cris Rojas<br>• Maintenance and Operations, Steve Takigawa<br>• Project Development, Karla Sutliff<br>• Finance, Norma Ortega<br>• District Directors | | |
| **Status** | • Caltrans is currently 100% compliant on this mandate that requires newly designed buildings to be at least 15% more energy efficient than the Title 24 standard. | 2015 | Bob Travis, DES |
| | • The following buildings began design after July 1, 2012:<br>o Gaviota Safety Roadside Rest Area (SRRA). Crew building exceeded Title 24 by 28%. | Completed February 2014 | Bob Travis, DES |
| | o Lee Vining Maintenance Station. Crew building replacement exceeded Title 24 by 15%. | Completed September 2014 | Bob Travis, DES |
| | o Mojave Maintenance Station. Mechanics' Facility replacement exceeded Title 24 by 15%. | Completed July 2015 | Bob Travis, DES |
| | o Phillip Raine SRRA. LEED Platinum designation. Exceeded Title 24 by 73% | Completed October 2012 | Bob Travis, DES |
| | o SFOBB Toll Plaza. Maintenance Complex (Phase 1) exceeded Title 24 by 52%. | Completed May 2015. | Bob Travis, DES |
| **Steps to Achievement** | 3.1 The Caltrans Division of Engineering Services will use **internal policies and quality control reviews** to meet the goal. Prior to EO B-18-12, facility designs were to be evaluated and achieve an energy savings higher than 10% versus current Title 24. After EO B-18-12, facility designs will meet or exceed the 15% requirement. Projects are to be modeled and evaluated using EnergyPro software. | **2012-ongoing** | Bob Travis, DES |
| **4. ENERGY – Reduce Grid-Based Energy Purchases by 20% by 2018 (buildings/highways)** | | | |
| **Target & Timeline** | Reduce grid-based energy purchases by 20% by 2018, compared with 2003 baseline for state-owned buildings and non-building grid-based energy purchases.<br>1. Verify data entries into Energy Star Portfolio Manager (ESPM), including energy use by facilities and individual buildings (if metered separately) that are owned, or leased space where the state pays utilities.<br>2. Provide access to this energy use data on the ESPM to DGS by March 1st each year, including energy use, individual building square footages (if metered separately), and building types.<br>3. Comply with the California Department of Technology's Basic Policy 4819.31, item 12 (Implementing Power Management Practices).<br>4. Comply with the requirements of Management Memo 14-07 (Standard Operating Efficiency Procedures).<br>5. Comply with requirements of Management Memo 14-09 (Energy Efficiency in Data Centers and Server Rooms).<br>6. Comply with requirements of Management Memo 15-04 (Energy Use Reduction and Reporting for New, Existing and Leased Buildings). | | |
| **Stakeholders** | • Sustainability, Steven Cliff<br>• Administration, Cris Rojas<br>• Maintenance and Operations, Steve Takigawa | | |

<table>
<tr><th></th><th></th><th>Date<br>Status Completed /or<br>Steps Anticipated</th><th>Caltrans Lead</th></tr>
<tr><td></td><td>

- Project Development, Karla Sutliff
- Finance, Norma Ortega
- Information Technology, George Akiyama
- District Directors

</td><td></td><td></td></tr>
<tr><td>Status</td><td>

Buildings/Facilities:

- Plug load energy reduction (Basic Policy SAM Section 4819.31). Caltrans IT currently uses a power management software called Verdiem. It is installed on all workstations and laptops. The software assists with power saving options on the workstations and laptops by managing the power options settings. Most network printers go into sleep mode by default, if not active after approximately an hour.

</td><td>2009</td><td>George Akiyama, IT</td></tr>
<tr><td></td><td>

- Energy use reporting (MM 15-04). Energy usage data are entered into ESPM through automatic upload monthly. Energy usage data are manually entered for buildings serviced by energy companies that do not have automatic upload capabilities annually. 19% of buildings are not uploaded automatically. See Appendix D for the Caltrans Energy Report.

The energy use reported to DGS in 2003 cannot be verified, since the data from the energy companies and Caltrans Accounting can no longer be found. The Caltrans building energy use verified by DGS can be found in the table below:

<table>
<tr><th>Year</th><th>kBtus</th><th># of buildings</th><th>% reduction</th></tr>
<tr><td>Original 2003*</td><td>362,487,225</td><td>Unknown</td><td rowspan="2">14%</td></tr>
<tr><td>2014**</td><td>311,451,468</td><td>442</td></tr>
<tr><td>2018 Target</td><td>289,989,780</td><td></td><td>20% from 2003 baseline</td></tr>
</table>

*Reported to DGS in prior years

**Energy Star report ran by DGS in April 2015

*A reduction of 21,461,688 kBtus is needed to achieve 2018 target of 20% below 2003 baseline.*

The energy use that was verified in Energy Star is found in the table below. For like comparisons, also shown is the Energy Use Intensity (EUI)--an evaluation of energy per square foot of building area:

<table>
<tr><th>Year</th><th>kBtus</th><th># of buildings</th><th>Total Floor Area (sf)</th><th>EUI = kBtus/sf</th><th>% EUI reduction</th></tr>
<tr><td>Revised 2003***</td><td>319,182,158</td><td>253</td><td>4,191,312</td><td>76.15</td><td rowspan="2">40.28%</td></tr>
<tr><td>2014***</td><td>323,503,444</td><td>442</td><td>7,114,752</td><td>45.47</td></tr>
</table>

</td><td>March 2015</td><td>Desiree Fox, Sustainability Program</td></tr>
</table>

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| | ***Energy Star report produced by Caltrans in October 2015 | | |
| | • **Grid-based energy purchasing** reduction has been achieved through the installation of LEDs, photovoltaic solar panels, and modernized HVACs in various buildings throughout the state. See Appendix E for specific energy efficiency projects installed since April 2012. | 2012 | Facility Managers |
| | • **Building LED's**: In 2014, 9,000 LED luminaries were installed at the Sacramento Headquarters office building. This will result in a savings of 50% lighting electrical costs over the T-8 and T-12 fluorescent lights. Furthermore the longer useful life reduces replacement costs. | 2014 | Paul Little, DBFS |
| | **Highways:**<br>• **LEDs on the Highway.** Installation/replacement of high pressure sodium fixtures with LED fixtures along the highway. Approximately 50,000 out of 80,000 LEDs have been installed. | 2015 | Gonzalo Gomez, Maintenance |
| **Steps to Achievement** | **Buildings/Facilities:**<br>4.1 **Plug load energy reduction (Basic Policy SAM Section 4819.31).** Dhaani Systems energy-saving software was piloted in 2013 on a total of 64 workstations at 2 different Caltrans buildings. It showed an average of an 88% energy savings with a return of investment of 10 months. The financial savings of $4,400 equates to an energy savings of 61,000 kWh/yr. and GHG emission savings of 25,000 kg of $CO_2$. If applied to all workstations throughout the state (approximately 18,000 workstations), a savings of $2.4 million per year and over 19 million kWh per year should be achieved. There are already energy saving systems currently running on the workstations (Microsoft or other products) that work similar to Dhaani, but those systems do not have the reporting feature that Dhaani has. Dhaani will be presented to the IT Customer Relations Office for review and recommendation. | **By June 2016** | Desiree Fox, Sustainability Program |
| | 4.2 **REV Sustainability Circles (MM14-07).** Caltrans has begun enrolling in REV Sustainability Circles. An REV Sustainability circle is a comprehensive, six-month, peer-learning program that will enable Caltrans to implement sustainability practices. The result is an implementable, customized, five-year action plan, as well as identifiable savings in the areas of energy, water, greenhouse gas emissions, waste and money.<br><br>**a) Currently enrolled district locations include:**<br>District 4 (Oakland) started in October 2015 | **Completed by April 2016** | Walter Garcia, District 4 Facilities |
| | District 11 (San Diego) started in October 2015 | **April 2016** | Denella Blount, D11 Facilities |
| | **b) Future locations include:**<br>District 3 (Sacramento) anticipated to start in January 2016. | **July 2016** | Sue Garibay, D3 Facilities |

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| | District 8 (Inland Empire) which will begin February 2016. | **Completed by Aug 2016** | Brenda Lopez, D8 Facilities |
| | 4.3 **A survey** of District facilities managers' specific efforts to comply with MM 14-07 Standard Operating Efficiency Procedures is planned. | **By June 2016** | Desiree Fox, Sustainability Program |
| | 4.4 **Data Center Energy Efficiency (MM 14-09).** Caltrans has ten buildings with computer server rooms larger than 1,000 square feet, two of which are located in TMCs and the other eight in office buildings. Currently, Caltrans has reported on the "total computer server room input," but has not reported the "computer server room UPS output." The Power Usage Effectiveness (PUE) cannot be determined without the UPS output. Caltrans has almost 250 electricians statewide who can provide this measurement. The Caltrans CIO will work with Caltrans facilities staff to determine how to measure the UPS output to obtain the PUE and develop an action plan in buildings with a PUE greater than 1.5. See **Appendix F** for the list of buildings with computer server rooms. See **Appendix G** for a list for Caltrans PUE reporting. | **PUE data due by December 2015, Action plan due by June 2016** | George Akiyama, IT |
| | 4.5 An **inventory** of incandescent light bulbs and any remaining magnetic fluorescent ballasts in fluorescent light fixtures will be gathered in each building by August 2016 for planning and recommendations of feasible upgrades by December 2016 (MM 14-07). | **By December 2016** | Desiree Fox, Sustainability Program |
| | 4.6 In 2015, approximately 52,000 **LED luminaries** were purchased and distributed to Caltrans' statewide district headquarters office buildings. Installation of the 52,000 LED luminaries is in progress. 19% were installed by December 2015 with a target completion date of December 2016. | **By December 2016** | Paul Little, DBFS |
| | **Highways:**<br>4.7 **LEDs on the Highway.** Installation/replacement of high pressure sodium fixtures with LED fixtures along the highway. Approximately 50,000 out of 80,000 LEDs have been installed. | **By December 2017** | Gonzalo Gomez, Maintenance |
| **5. ENERGY – Demand Response (buildings)** | | | |
| **Target & Timeline** | Participate in Demand Response programs to obtain financial incentives for reducing peak electrical loads when called upon, to maximum extent cost-effective and not materially adversely affecting agency operations **by December 31, 2016**. (MM15-04) | | |
| **Stakeholders** | • Sustainability, Steven Cliff<br>• Administration, Cris Rojas<br>• Maintenance and Operations, Steve Takigawa<br>• Project Development, Karla Sutliff<br>• Finance, Norma Ortega<br>• District Directors | | |
| **Status** | **The following buildings are on Demand Response:** | | |

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| | • In Southern California Edison (SCE) territory the following are currently enrolled in the Critical Peak Pricing Program:<br>o Century South Region Maintenance Station (District 7, Inglewood). | 2015 | District Facility Managers |
| | o Southern Regional Lab (District 8, Fontana). | 2015 | District Facility Managers |
| | o District 8 Headquarters Office (San Bernardino). | 2015 | District Facility Managers |
| | o District 9 Headquarters Office (Bishop). | 2015 | District Facility Managers |
| | • In San Diego Gas and Electric (SDG&E) territory:<br>o The San Diego TMC (District 11) building is currently enrolled in the Critical Peak Pricing Program and the Clean Generation Program. | 2015 | District Facility Managers |
| | • In Pacific Gas and Electric (PG&E) territory:<br>o The District 6 Headquarters (Fresno) Office is currently enrolled in the Demand Bidding Program. | 2015 | District Facility Managers |
| | • An initial survey shows three buildings with Building Management Systems are enrolled in Demand Response Programs. See **Appendix H** for a list of buildings with Building Management Systems. | 2015 | District Facility Managers |
| **Steps to Achievement** | 5.1 A plan for ideal locations to enroll in demand response and load shedding strategy programs will be developed. This plan will consider buildings where demand response would adversely affect operations and include site visits and analyses of the buildings to determine enrollment eligibility. | **By June 2016** | Desiree Fox, Sustainability Program |
| | 5.2 District 4 Headquarters office (Oakland). Caltrans is working with PG&E and Energy Solutions to perform an analysis at the District 4 Headquarters office for a potential project for the PG&E Automated Demand Response Program. | **By December 2016** | Selena Kubota, DBFS |
| **6. ENERGY – On-Site Renewable Energy (buildings/highways)** | | | |
| **Target & Timeline** | 1. New or major renovated buildings over 10,000 square feet shall use clean, on-site power generation and clean back-up power supplies, if economically feasible.<br>2. Facilities with available open land shall consider large scale distributed generation through various financing methods, including third party power purchase agreements (PPA's). | | |
| **Stakeholders** | • Sustainability, Steven Cliff<br>• Administration, Cris Rojas<br>• Maintenance and Operations, Steve Takigawa<br>• Project Development, Karla Sutliff<br>• Finance, Norma Ortega<br>• District Directors | | |
| **Status** | • See **Appendix I** for a list of facilities with onsite renewable energy purchased with Clean Energy Renewable Bonds (CREBs). | Completed in 2013 | Selena Kubota, DBFS |

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| | **New or major renovated buildings over 10,000 square feet:**<br>• SFOBB Toll Plaza - Maintenance Complex (Phase 1). | Completed May 2015 | Bob Travis, DES |
| | **Facilities with available open land:**<br>• District 8 installed a 19-acre solar farm utilizing a PPA on land adjacent to the Inland Empire TMC and Southern Regional Lab campus located in Fontana. This one megawatt solar project with 3,700 solar panels will provide 80% of the power for the Inland Empire TMC and Southern Regional Lab. The projected savings is $1.5 million over 20 years (approximately $50,000 per year). The solar farm went through a commissioning process to save money and to reduce its carbon footprint during its initial activation in November 2015. | November 2015 | Thomas Ainsworth, D8 Traffic Ops |
| **Steps to Achievement** | **Buildings:**<br>6.1. Several Caltrans buildings will have **solar panels installed** using Power Purchase Agreements through DGS before the reduced tax incentive takes effect by December 2016. Under these agreements, the solar provider installs solar power systems using third-party financing, then sells the renewable electricity generated by the solar panels at a competitive cost to the host facility. See **Appendix J** for a list of proposed sites. | **By December 2016** | District Facilities Managers |
| | **Facilities with available open land:**<br>6.2 DOE is considering **solar panel canopies** in parking lots and wind generators at some of the Equipment Shop facilities (contingent on available funding) and will develop a plan. | **By December 2016** | Lisa Kunzman, Equipment |
| | 6.3. DGS issued a Request for Proposal (RFP) in June 2015 for the bidding of an approximately 593 kW **third party-financed PV parking canopy system** at the Caltrans District 3 Marysville office (a DGS-owned building). | **By December 2016** | DGS |
| | **Highway Right of Way:**<br>6.4 Caltrans plans to host a national discussion with Federal Highway Administration (FHWA) and State Smart Transportation Initiative (SSTI) to **advance solar in federally-owned right of way**, such as Safety Roadside Rest Areas and Park and Rides. These discussions will take place in 2016. | **By June 2016** | Desiree Fox, Sustainability Program |
| **7. BUILDING DESIGN & CONSTRUCTION (buildings only)** | | | |
| **Target & Timeline** | 1. New and major renovated state buildings and build-to-suit leases over 10,000 square feet shall obtain Leadership in Environmental Design (LEED) "Silver" certification or higher.<br>2. Buildings smaller than 10,000 square feet beginning design after January 1, 2013, shall meet applicable CALGREEN Tier 1 measures.<br>3. All new buildings, major renovation and build-to-suit leases shall include an Energy Management System (MM15-04 1.g).<br>4. All new leases shall require the use of submeters for gathering energy use data. (MM15-04 3.c). | | |
| **Stakeholders** | • Sustainability, Steven Cliff<br>• Administration, Cris Rojas<br>• Maintenance and Operations, Steve Takigawa | Construction completed in | |

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| | • Project Development, Karla Sutliff<br>• Finance, Norma Ortega<br>• District Directors<br>• DGS | | |
| **Status** | **New buildings:**<br>• SFOBB Toll Plaza - Maintenance Station building (Phase 1) obtained a LEED Gold Certification. | Construction completed in June 2015 | Bob Travis, DES |
| | • Phillip S. Raine Safety Roadside Rest Area (SRRA) located on Highway 99 in District 6 (Tulare County) obtained a LEED Platinum certification (the highest rating available) and is the first LEED-certified rest area in California. | Completed in October 2012 | Bob Travis, DES |
| | • The Division of Engineering Services, Offices of Transportation Architecture and Electrical, Mechanical Water and Wastewater, has established policies on the delivery of new buildings and facilities to meet Caltrans policies, the California Building Code, and the Governors EOs. | 2013 | Bob Travis, DES |
| | **Leases:**<br>• Farmers Market Plaza. The lease was renegotiated in 2015. This project has LEED-<br>• Existing Building (EB) Silver certification and the lessor implemented measures of the CALGreen code related to indoor environmental quality and water efficiency. | 2015 | Lance Hibben, DBFS |
| | • District 6 (3502 N. Blackstone, Fresno). The new lease was signed in June 2015. The effective date of the lease is March 2016. This project is targeted to achieve LEED Silver certification. The lessor will be implementing measures of the CALGreen code related to indoor environmental quality and water efficiency. There is no outdoor watering at this facility. | June 2015 | Lance Hibben, DBFS |
| | • District 5 (2885 S. Higuera, San Luis Obispo). A new lease was signed in March 2015. The lease effective date is July 1, 2016. This project is targeted to achieve a LEED Silver certification. The lessor will be implementing measures of the CALGreen code related to indoor environmental quality and water efficiency. | March 2015 | Lance Hibben, DBFS |
| | • District 12 (Irvine). A new leased site is being proposed pending California Department of Finance approval. Caltrans is working with DGS. The proposed lease project will implement measures of the CALGreen code related to indoor environmental quality, water efficiency and LEED certification, as appropriate. | June 2016 | Lance Hibben, DBFS |
| **Steps to Achievement** | **New buildings:**<br>7.1 SFOBB Warehouse (Phase 2) is expected to achieve LEED Silver. | **Construction completion is estimated for May 2016.** | Bob Travis, DES |
| | 7.2 SFOBB Warehouse (Phase 3) is expected to achieve LEED Silver. | **Construction completion is estimated for March 2018.** | Bob Travis, DES |

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| **8. BUILDING COMMISSIONING (Cx) (buildings only)** | | | |
| **Target & Timeline** | New and existing buildings shall incorporate building commissioning to facilitate improved and efficient building operation.<br>1. State agencies managing state-owned buildings shall pursue monitoring-based commissioning for facilities over 5,000 square feet with EUI's exceeding thresholds described in Management Memo 15-04.<br>2. New construction or major renovations greater than 5,000 square feet for offices or other energy intensive spaces shall be commissioned. | | |
| **Stakeholders** | • Sustainability, Steven Cliff<br>• Administration, Cris Rojas<br>• Maintenance and Operations, Steve Takigawa<br>• Project Development, Karla Sutliff<br>• Finance, Norma Ortega<br>• District Directors<br>• DGS | | |
| **Status** | **Existing buildings commissioned:**<br>• In November 2012, the Inland Empire TMC (Fontana) completed commissioning and achieved LEED Gold Rating as a result. The current EUI of 231 is still above the threshold. | Commissioned 2012 | Thomas Ainsworth, D8 Traffic Ops |
| | • In 2014, DOE has incorporated commissioning in the Sacramento DOE Headquarters modernized HVAC retrofit and the District 11 (San Diego) Equipment Shop lighting improvement projects. EUI is calculated using a full year of data. It is too soon to determine if the current EUI is within the threshold. | Commissioned 2014 | Lisa Kunzman, Equipment |
| | • District 1 (Eureka) Fire Life Safety Modernization Project included building commissioning of the building's mechanical system, completed in July 2015. EUI is calculated using a full year of data. | Commissioned 2015 | District 1 Facilities |
| | **New buildings over 5,000 sq. ft. commissioned:**<br>• Phillip Raine SRRA. | Completed in October 2012 | Bob Travis, DES |
| | • San Francisco Oakland Bay Bridge Toll Plaza - Maintenance Station Building (Phase 1). | Completed in June 2015 | Bob Travis, DES |
| **Steps to Achievement** | **Existing buildings commissioned:**<br>8.1 The District 7 (Los Angeles) headquarters office building is in the process of re-commissioning new and existing systems, scheduled completion date of March 2016. | **March 2016** | District 7 Facilities |
| | 8.2 In November 2012, the Inland Empire TMC (Fontana) completed commissioning and achieved LEED Gold Rating as a result. The current EUI of 231 is still above the threshold. Further review and analysis of this building will take place **in 2016**. | **Analysis by Dec 2016** | Thomas Ainsworth, D8 Traffic Ops |
| | 8.3 In 2014, DOE has incorporated commissioning in the Sacramento DOE Headquarters modernized HVAC retrofit and the District 11 (San Diego) Equipment Shop lighting improvement projects. EUI is calculated using a full year of data. It is | **Analysis by Dec 2016** | Lisa Kunzman, Equipment |

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| | too soon to determine if the current EUI is within the threshold. Further review and analysis of this building will take place **in 2016**. | | |
| | 8.4 District 1 (Eureka) Fire Life Safety Modernization Project included building commissioning of the building's mechanical system, completed in July 2015. EUI is calculated using a full year of data. It is too soon to determine if the current EUI is within the threshold. Further review and analysis of this building will take place **in 2016**. | **Analysis by Dec 2016** | District 1 Facilities |
| | 8.5 An analysis of the energy data EUI established that there are 26 buildings that need commissioning based on the requirements of MM 15-04, Table 2. An action plan to address buildings not meeting the threshold will be required **by June 2016**. See **Appendix K** for the EUI data analysis. | **By June 2016** | Desiree Fox, Sustainability |
| **9. EXISTING BUILDINGS – LEED-EB (buildings only)** | | | |
| **Target & Timeline** | All existing state buildings over 50,000 square feet shall complete LEED-EB certification by December 31, 2015 and meet Energy Star rating of 75, or alternate energy standard established by the CEC, to the maximum extent cost-effective. | | |
| **Stakeholders** | • Sustainability, Steven Cliff<br>• Administration, Cris Rojas<br>• Maintenance and Operations, Steve Takigawa<br>• Project Development, Karla Sutliff<br>• Finance, Norma Ortega<br>• District Directors | | |
| **Status** | **Leased:**<br>• The Caltrans District 3 (Marysville) Headquarters office building (a DGS building) achieved LEED-EB Silver certification in 2011. DGS is re-certifying this building under their group certification contract. This building has an Energy Star score of 95. | Contract started August 2015 | DGS |
| | **Owned:**<br>• The District 7 (Los Angeles) Headquarters office achieved LEED-EB Gold certification in 2011 after a commitment to a series of changes to daily practices involving heating and cooling, recycled product purchasing, and the adoption of more sustainable custodial practices. DGS is recertifying this building under their group certification contract and it is currently being analyzed for energy efficiency to determine the Energy Star Score. | Contract started August 2015 | Desiree Fox, Sustainability Program and DGS |
| | • The Caltrans Headquarters Office Building (1120 N Street) is currently under contract to achieve LEED-EB Silver certification. It currently being analyzed for energy efficiency to determine the Energy Star Score. | Contract started September 2015 | Desiree Fox, Sustainability Program and Selena Kubota, DBFS |
| **Steps to Achievement** | **Leased:** | **Completed by November 2016** | DGS |

| | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|
| 9.1 The Caltrans District 3 (Marysville) Headquarters office building (a DGS building) achieved LEED-EB Silver certification in 2011. DGS is re-certifying this building under their group certification contract. LEED-EB certification is scheduled to be completed by November 2016. | | |
| **Owned:**<br>9.2 The District 7 (Los Angeles) Headquarters office achieved LEED-EB Gold certification in 2011 after a commitment to a series of changes to daily practices involving heating and cooling, recycled product purchasing, and the adoption of more sustainable custodial practices. DGS is recertifying this building under their group certification contract. The building is scheduled to be LEED-EB certified by November 2016. | **Completed by November 2016** | Desiree Fox, Sustainability Program and DGS |
| 9.3 The Caltrans Headquarters Office Building (1120 N Street) is currently under contract to achieve LEED- EB Silver certification and is on schedule to be LEED-EB certified by July 2016. | **Completed by July 2016** | Desiree Fox, Sustainability Program and Selena Kubota, DBFS |
| **The following buildings will be under contract for LEED-EB certification review by January 2016:**<br><br>9.4 District 6 Headquarters Office (Fresno) | **Contract by Jan 2016** | Desiree Fox, Sustainability Program, Selena Kubota, DBFS and D6 Facilities |
| 9.5 District 10 Headquarters Office (Stockton) | **Contract by Jan 2016** | Desiree Fox, Sustainability Program, Selena Kubota, DBFS and D10 Facilities |
| 9.6 District 7 Transportation Management Center (Los Angeles) | **Contract by Jan 2016** | Desiree Fox, Sustainability Program and D7 Facilities |
| 9.7 District 12 Transportation Management Center (Irvine) | **Contract by Jan 2016** | Desiree Fox, Sustainability Program and D12 Facilities |
| 9.8 Caltrans Transportation Laboratory (Sacramento) | **Contract by Jan 2016** | Desiree Fox, Sustainability Program and HQ Maint. |

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| | 9.9 Southern Regional Laboratory (Fontana). | **Contract by Jan 2016** | Desiree Fox, Sustainability Program and HQ Maint |
| | **The remaining buildings will have a LEED contract by December 2016**:<br>9.10 District 1 Headquarters Office Building (Eureka) | **Contract by Dec 2016** | Desiree Fox, Sustainability Program, Selena Kubota, DBFS and D1 Facilities |
| | 9.11 District 4 Headquarters Office (Oakland) | **Contract by Dec 2016** | Desiree Fox, Sustainability Program, Selena Kubota, DBFS and D4 Facilities |
| | 9.12 District 8 Headquarters Office (San Bernardino) | **Contract by Dec 2016** | Desiree Fox, Sustainability Program, Selena Kubota, DBFS and D8 Facilities |
| | 9.13 District 2 Headquarters Office (Redding – less than 50,000 square feet) will be prioritized and evaluated for resources and funding. | **Funding needed by Dec 2016** | Desiree Fox, Sustainability, Selena Kubota, DBFS Program and D2 Facilities |
| **10. INDOOR ENVIRONMENTAL QUALITY (buildings only)** | | | |
| **Target & Timeline** | Comply with the requirements of Management Memo 14-05 to ensure healthy indoor environments for occupants for new and major renovated buildings. | | |
| **Stakeholders** | • Sustainability, Steven Cliff<br>• Administration, Cris Rojas<br>• Maintenance and Operations, Steve Takigawa<br>• Project Development, Karla Sutliff<br>• Finance, Norma Ortega<br>• District Directors | | |
| **Status** | The following buildings comply with Cal Green requirements for Indoor Environmental Quality:<br>**New Construction:**<br>• SFOBB Toll Plaza - Maintenance Complex (Phase 1) | Completed May 2015 | Bob Travis, DES |
| | • Phillip Raine SRRA | Completed October 2012 | Bob Travis, DES |

<table>
<tr><th></th><th></th><th>Date<br>Status Completed /or<br>Steps Anticipated</th><th>Caltrans Lead</th></tr>
<tr><td></td><td>Leases:<br>• Farmers Market Plaza. The lease was renegotiated in 2015. This project is LEED-EB Silver certification and the lessor implemented measures of the CALGreen code related to indoor environmental quality and water efficiency.</td><td>2015</td><td>Lance Hibben, DBFS</td></tr>
<tr><td></td><td>• District 6 (3502 N. Blackstone, Fresno). The new lease was signed in June 2015. The effective date of the lease is March 2016. This project is targeted to achieve LEED Silver certification. The lessor will be implementing measures of the CALGreen code related to indoor environmental quality and water efficiency. There is no outdoor watering at this facility.</td><td>June 2015</td><td>Lance Hibben, DBFS</td></tr>
<tr><td></td><td>• District 5 (2885 S. Higuera, San Luis Obispo). The new lease was signed in March 2015. The effective date of the lease is July 1, 2016. This project is targeted to achieve LEED Silver certification. The lessor will be implementing measures of the CALGreen code related to indoor environmental quality and water efficiency.</td><td>March 2015</td><td>Lance Hibben, DBFS</td></tr>
<tr><td>Steps to Achievement</td><td>10.1 The Division of Engineering Services, Offices of Transportation Architecture and Electrical, Mechanical Water and Wastewater, use specifications that meet the requirements of building codes, including indoor environmental quality, for all transportation-related facilities.</td><td>Since 2012-ongoing</td><td>Bob Travis, DES</td></tr>
<tr><td colspan="4">11. WATER EFFICIENCY (buildings/highway)</td></tr>
<tr><td>Target & Timeline</td><td colspan="3">1. Agencies to reduce water use at the facilities they operate by 10% by 2015 and by 20% by 2020, as measured against a 2010 baseline benchmark (EO B-18-12).<br>2. Reduce potable urban water use by 25% between 2013 and February 28, 2016 (EO B-29-15).</td></tr>
<tr><td>Stakeholders</td><td colspan="3">• Sustainability, Steven Cliff<br>• Administration, Cris Rojas<br>• Maintenance and Operations, Steve Takigawa<br>• Project Development, Karla Sutliff<br>• Finance, Norma Ortega<br>• District Directors</td></tr>
<tr><td>Status</td><td>Beginning in February 2014, following the implementation of the Drought State of Emergency Proclamation, Caltrans implemented the following actions to reduce water consumption to meet the Governor’s 20% reduction mandate while maintaining the viability of and the public’s investment in highway planting:</td><td></td><td></td></tr>
<tr><td></td><td>Highway Landscape:<br>• Set a 50% reduction goal for highway roadside water use.</td><td>2015</td><td>Keith Robinson, Design</td></tr>
<tr><td></td><td>• A 32% reduction was achieved between the 2013 and 2014 calendar years, and a 61% reduction was achieved comparing 2010 with 2014. Comparison of water consumption during <u>first three quarters 2013-2015</u>:<br><br><table><tr><th>Year</th><th>Gallons</th></tr><tr><td>2013</td><td>5,562,314,035</td></tr></table></td><td>2015</td><td>Keith Robinson, Design</td></tr>
</table>

| | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|
| 2014 3,743,732,411<br>2015 2,089,692,893 | | |
| • Implemented a comprehensive statewide Drought Action Plan. | 2014 and 2015 | Keith Robinson, Design |
| • Revised design, construction and maintenance policies to improve water conservation. | 2015 | Keith Robinson, Design |
| • Implemented an evaluation protocol to ensure any planting installed during the declared drought was “essential” as required by the proclamation. | 2015 | Keith Robinson, Design |
| • Stopped irrigating in severe drought areas. | 2015 | Keith Robinson, Design |
| • Evaluated and modified water application practices for maximum efficiency statewide. | 2015 | Keith Robinson, Design |
| • Repaired and upgraded irrigation systems utilizing SMART technology at over 2300 locations. | 2015 | Keith Robinson, Design |
| • Trained district field staff in effective irrigation practices. | 2015 | Darold Heikens, Maintenance |
| • Analyzed and updated Caltrans accounting system to more accurately document and report actual water use. | 2015 | Keith Robinson, Design |
| • Created water manager positions in each district. Districts 4 (Bay Area) and 7 (Los Angeles) have two water managers each because of the high number of landscaped acres. Water managers will actively manage water application to ensure conservation practices continue. | 2015 | Keith Robinson, Design |
| • Replaced 39,000 sprinklers with more efficient sprinklers. | 2015 | Keith Robinson, Design |
| • Replaced 368,000 linear feet of damaged irrigation pipe. | 2015 | Keith Robinson, Design |
| • Installed theft deterrence measures at 969 locations to reduce the possibility of vandalism which could damage irrigation systems and cause excessive water use. | 2015 | Keith Robinson, Design |
| • Installed pipelines to carry non-potable or “recycled” water to Caltrans roadside planting sites. Non-potable usage is approaching 20 percent. | 2015 | Keith Robinson, Design |
| • Through the Director’s Orders, Caltrans has (or will soon accomplish):<br>o Achieved 25,196 of 26,425 acres of irrigated landscaping to be under Smart Controller management, almost doubling the acreage prior to the orders. The remaining 1,229 acres of landscaping were not appropriate for Smart controllers (due to solar powered controllers already in place, temporary irrigation systems, etc.). | 2015 | Keith Robinson, Design |

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| | o Converted irrigation systems to recycled or non-potable water from potable water, resulting in a reduction of 240 million gallons annually of potable water used to irrigate landscape.<br>o Installed 2,838 Smart controllers (78 percent) of all irrigation controllers. | | |
| | • Because of these efforts, Caltrans met the Governor's 20% reduction mandate and met Director Dougherty's 50% water consumption reduction goal. | 2015 | Keith Robinson, Design |
| | • In 2014, Caltrans used 4.99B gallons of water for roadside irrigation. This represents a 28% reduction in consumption from 2010 usage and a 33% reduction from 2013 usage | 2014 | Keith Robinson, Design |
| | • The 2015 Drought Action Plan focuses on identifying and managing the current infrastructure and creating statewide policies and procedures to improve the monitoring and conservation of water. The plan also focuses on implementing a goal of using non-potable water for 80% highway planting acreage. Current non-potable water usage covers 24% of landscape inventory. | December 2015 | Keith Robinson, Design |
| | **Facilities:**<br>• Farmers Market Plaza. The lease was renegotiated in 2015. This project has LEED-EB Silver certification and the lessor implemented measures of the CALGreen code related to indoor environmental quality and water efficiency. | 2015 | Lance Hibben, DBFS |
| | • District 6 (3502 N. Blackstone, Fresno). The new lease was signed in June 2015. The effective date of the lease is March 2016. This project is targeted to achieve LEED Silver certification. The lessor will be implementing measures of the CALGreen code related to indoor environmental quality and water efficiency. There is no outdoor watering at this facility. | June 2015 | Lance Hibben, DBFS |
| | • District 5 (2885 S. Higuera, San Luis Obispo). The new lease was signed in March 2015. The effective date of the lease is July 1, 2016. This project is targeted to achieve LEED Silver certification. The lessor will be implementing measures of the CALGreen code related to indoor environmental quality and water efficiency. | March 2015 | Lance Hibben, DBFS |
| | • Caltrans has achieved water efficiency through the installation of water efficient plumbing and irrigation fixtures and landscape planting in multiple buildings throughout the state. | 2015 | HQ and Dist Facilities Managers |
| | • 1,361 building fixtures (faucets, toilets, etc.) have been replaced with more efficient models. | 2015 | HQ and Dist Facilities Managers |
| | • In 2014 Caltrans facilities used 182 million gallons of water. This represents a reduction in consumption of 5.63% from 2010 usage of 193 million gallons and an 8.39% reduction in consumption from 2013 usage of 199 million gallons of water. See **Appendix L** for the Caltrans Water Conservation projects. See **Appendix M** for the Facilities Water Fixture Inventory. See **Appendix N** for the Facilities Water Usage Report. See **Appendix O** for Facilities Water Usage Analysis. See **Appendix P** for Highway Landscape Irrigation Water Use by District. | 2014 | HQ and Dist Facilities Managers |
| | | | |

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| **Steps to Achievement & Schedule** | **Facilities:**<br>11.1 Wash Rack Improvements in District 3 at South Lake Tahoe Maintenance Station to reduce water consumption by 20% or more. | **By June 2016** | District 3 Maintenance Facilities |
| | 11.2 District 1 will complete a district wide water fixture retrofit at all of their facilities. | **By June 2016** | District 1 Maintenance Facilities |
| | 11.3 **REV Sustainability Circles.** A REV Sustainability circle is a comprehensive, six-month, peer-learning program that will enable Caltrans to implement sustainability practices. The result is an implementable, customized, five-year action plan, as well as identifiable savings in the areas of energy, water, greenhouse gas emissions, waste and money.<br>**a) Current enrolled district locations include:**<br>District 4 (Oakland started in October 2015 and will complete by April 2016. | **April 2016** | Walter Garcia, District 4 Facilities |
| | District 11 (San Diego) started in October 2015 and will complete by April 2016. | **April 2016** | Denella Blount, D11 Facilities |
| | **b) Future locations include**<br>District 3 (Sacramento) anticipated to start in January 2016 and run through July 2016. | **July 2016** | Sue Garibay, D3 Facilities |
| | District 8 (Inland Empire) which began February 2016 and will run through August 2016. | **Aug 2016** | Brenda Lopez, D8 Facilities |
| | **Leases**:<br>11.4 New and re-negotiated leases will encourage water efficiency measures. | **Dec 2016** | Lance Hibben, DBFS |
| | **Benchmarking**:<br>11.4 Analyze benchmarking data and determine the best water efficiency strategies to adopt going forward. | **April 2016** | Desiree Fox, Sustainability Program |
| | **Facilities landscape:**<br>11.5 Sub-meters for landscape irrigation (for buildings with landscaping) will be considered where economically feasible. | **Dec 2016** | Facilities Managers |
| **12. ELECTRIC VEHICLE CHARGING STATIONS – Employee Parking (buildings only)** | | | |
| **Target & Timeline** | Identify and pursue opportunities to provide electric vehicle charging stations and accommodate future charging infrastructure demand at employee parking facilities in new and existing buildings (EO B-18-12) (Green Building Action Plan). | | |
| **Stakeholders** | • Sustainability, Steven Cliff<br>• Administration, Cris Rojas<br>• Maintenance and Operations, Steve Takigawa<br>• Planning and Modal Programs, Coco Briseno<br>• Finance, Norma Ortega<br>• District Directors | | |

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| **Status** | • Caltrans has installed 38 charging stations. Director Malcolm Dougherty issued a memo directing Caltrans facility managers to encourage employee use of state-owned electric vehicle charging stations. See the memo in **Appendix Q**. | October 2015 | Jeremy Matsuo, Equipment |
| | • DOE has a list of Caltrans EV charging stations available to employees for use when travelling to other Caltrans offices. | 2015 | Jeremy Matsuo, Equipment |
| **Steps to Achievement** | 12.1 66 charging stations will be installed by summer of 2016. 19 additional charging stations are pending dates of installation at pre-determined locations. | **September 2016** | Jeremy Matsuo, Equipment |
| | 12.2 Plans are still in development to evaluate new and existing state-owned parking structures and parking lots to install plug-in electric vehicle charging infrastructure where most cost-effective and appropriate. See **Appendix R** for a list of dates for EV charger installations. | **July 2016** | Jeremy Matsuo, Equipment |
| **13. ELECTRIC VEHICLE CHARGING STATIONS – State Owned Vehicles (buildings only)** | | | |
| **Initiative** | State agencies shall work with DGS and outside entities to develop an electric vehicle charging station infrastructure plan including the following:<br>1. Evaluate existing state-owned parking structures and parking lots and install plug-in electric vehicle charging infrastructure where most cost-effective and appropriate.<br>2. Plan for and install appropriate cost-effective levels of plug-in electric vehicle charging infrastructure in the new construction of state-owned parking structures and parking lots.<br>3. Complete the Infrastructure Plan by 2015, when the agencies are required to purchase ZEV. | | |
| **Stakeholders** | • Sustainability, Steven Cliff<br>• Administration, Cris Rojas<br>• Maintenance and Operations, Steve Takigawa<br>• Planning and Modal Programs, Coco Briseno<br>• Finance, Norma Ortega<br>• District Directors<br>• Glenn Connor (DGS) is lead on statewide effort – glenn.connor@dgs.ca.gov. | | |
| **Status** | • There are 118 Plug-in vehicles in the fleet. | 2015 | Jeremy Matsuo, Equipment |
| | • There are 38 charging stations currently installed on Caltrans property. There are 85 charging stations planned to be installed. See **Appendix R** for a list of the charging station locations. There are also currently 4 solar electric vehicle charging stations and 7 additional locations will be installed within fiscal year 2015-2016. See **Appendix S** for a list of solar electric vehicle charging stations. | 2015 | Jeremy Matsuo, Equipment |
| | • Caltrans has 118 Plug-in vehicles in the fleet. Caltrans is currently exceeding the EO requirement. Caltrans has 60.5 ZEV (43 BEV and 17.5 PHEV) credits, with the current 10% requirement that is enough credit to purchase 605 light duty passenger fleet and not have to purchase an additional EV. | 2015 | Jeremy Matsuo, Equipment |

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| **Steps to Achievement** | **Charging Stations & Infrastructure:**<br>13.1 Infrastructure and two dual charging stations will be installed at the Sacramento Transportation Laboratory (Translab). The contract to build the infrastructure for charging stations has been resurrected and will be reviewed by an architectural engineer. | **By June 2016** | DES |
| | 13.2 District 12 will install one charging station each at Batavia, Costa Mesa, Toll Road, and San Juan Capistrano Maintenance Stations. | **December 2016** | District 12 |
| | 13.3 District 12 will install one charging station at each Marine Way, Brea, Bolsa Chica, and Stanton Maintenance Stations. | **December 2018** | District 12 |
| | 13.4 Caltrans will send the list of **current and planned infrastructure** to DGS for contribution to the statewide. See **Appendices Q and R** for a list of Caltrans current and future planned infrastructure based on ZEV fleet deployment. | **August 2016** | Jeremy Matsuo, Equipment |
| | Vehicles:<br>13.5 For ZEV and PHEV purchases, see section 17 - ZEV Fleet Purchases. | | |
| **14. ENVIRONMENTALLY PREFERABLE PURCHASING (EPP) (buildings/highways)** | | | |
| **Target & Timeline** | State agencies shall 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 whenever they are applicable, perform well and are cost-effective per Public Contract Code 12400 as described in the Green Building Action Plan. | | |
| **Stakeholders** | • Sustainability, Steven Cliff<br>• Administration, Cris Rojas<br>• Project Delivery, Karla Sutliff | | |
| **Status** | • Caltrans encourages the purchase and use of environmentally preferred products. | 2015 | DPAC |
| | • The Division of Procurement and Contracts (DPAC) has temporarily redirected resources to establish a Sustainable Purchasing Program to increase the acquisition of environmentally preferred products. | August 2015 | DPAC |
| | • DPAC initiated partnership meetings with CalEPA's CalRecycle in October 2015 to identify ways to increase Caltrans' purchase of environmentally preferred paints. | October 2015 | DPAC |
| **Steps to Achievement** | 14.1 Caltrans will continue to encourage the purchase and use of environmentally preferred products. | **Dec 2016** | DPAC |
| | 14.2 Caltrans will conduct an analysis of all its' acquisition activities to identify environmental, social, and economic impacts by purchasing category. The results will enable Caltrans to prioritize strategies to improve sustainable purchasing practices. DGS is performing a spend analysis that will provide an analysis of sustainability purchasing information to be analyzed by each department. DGS's spend analysis excludes purchases under $5,000, Cal-Card purchases and construction contracts. The results will be used to update the EPP strategies.<br>a) Phase 1: Identify product and service impacts from the point of resource extraction to the point at which Caltrans takes possession. | **December 2016** | DPAC |

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| | b) Phase 2: Identify impacts associated with product end-of-life processes. Caltrans is identifying funding for a more comprehensive spend analysis to include all purchasing and contracts to determine additional EPP strategies. | **May 2017** | |
| | 14.3 By June 2016, DPAC will develop strategies to increase the use of environmentally preferred products in at least one (1) of Caltrans' top product categories. | **June 2016** | DPAC |
| **15. FINANCING (buildings/highways)** | | | |
| **Target & Timeline** | State agencies shall pursue and utilize available financing and project delivery mechanisms to achieve these goals including, but not limited to: state revolving loan funds, utility On-Bill Financing (OBF), Power Purchase Agreements (PPA's), GS $Mart, Energy Service Contractors (ESCO's), or other available programs | | |
| **Stakeholders** | • Sustainability, Steven Cliff<br>• Finance – Norma Ortega | | |
| **Status** | • In 2009, Caltrans sold Clean Renewable Energy Bonds (CREBs). This resulted in the installation of roof mounted solar panels at 70 transportation facilities. The goal is for the 70 sites to generate over 2.4 megawatts of energy per year. | Completed installation in 2013 | Selena Kubota, DBFS |
| | • The Sacramento Royal Oaks Warehouse lighting retrofit was funded 100 percent by SMUD, utilizing American Recovery and Reinvestment Act (ARRA) stimulus funds. | January 2012 | DPAC |
| | • The District 8 (Inland Empire) TMC currently has a 20-year contracted PPA for solar power. | November 2015 | Thomas Ainsworth, District 8-Traffic Ops |
| **Steps to Achievement** | 15.1 Caltrans Districts 2, 4, 8, and 12 plan to participate in the DGS **Solar PPA**. Program requirements include completion of a feasibility study to determine viable candidate locations. A list of proposed sites can be found in **Appendix J.** | **By December 2016** | District Facility Managers |
| | 15.2 Caltrans plans to continue to pursue and use available financing and project delivery programs. | **Dec 2016** | Desiree Fox, Sustainability Program |
| **16. MONITORING AND EXECUTIVE OVERSIGHT (buildings/highways)** | | | |
| **Target & Timeline** | State agencies shall measure, monitor, report and oversee progress on measures in this Order as follows:<br>1. Provide executive level oversight through representation of department on Sustainability Task Force which meets quarterly to oversee progress.<br>2. Provide technical representation of department on Sustainable Building Working Group which oversees implementation of initiatives, meets monthly, measure results, and report findings to the Sustainability Task Force.<br>3. Contact DGS for more info if not already participating in oversight groups: sustainability@dgs.ca.gov<br>4. Report annual energy use reduction goals for existing buildings and leases in the annual five-year infrastructure plan.<br>5. Enter building energy and water use into Energy Star Portfolio Manager. | | |
| **Stakeholders** | • Director, Malcolm Dougherty<br>• Chief Deputy Director, Kome Ajise<br>**Sustainability Goal Sponsors:** | | |

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| | • Assistant Director for Sustainability, Steven Cliff<br>• District Director, Bijan Sartipi, District 4<br>• District Director, John Bulinski, District 8<br>• District Director, Ryan Chamberlain, District 12<br>• Deputy Director of Planning and Modal, Coco Briseno<br>• California State Transportation Agency, Kate White | | |
| **Status** | • Caltrans executive management participates in the quarterly Sustainability Task Force Meetings. | Quarterly in 2014 and 2015 | Steven Cliff, Sustainability Program |
| | • Energy/Environmental Sustainability Program Coordinator participates in the monthly Sustainable Building Working Group Meetings. | Monthly in 2014 and 2015 | Desiree Fox, Sustainability Program |
| **Steps to Achievement** | 16.1 Continue to attend regularly scheduled meetings. | **Quarterly and Monthly in 2016 and 2017** | Steven Cliff/ Desiree Fox, Sustainability Program |
| | 16.2 Provide sponsor guidance to teams working on implementation of EOs included in this report and within Caltrans Sustainability, Livability & Economy Goal. | **Quarterly, Monthly and Weekly updates in 2016 and 2017** | Steven Cliff & Sustainability Goal Sponsors |
| | 16.3 Provide Bi-Annual Roadmap updates to the Caltrans Executive Board & Director and monthly updates on various individual items included in this report. | **Monthly in 2016 & 2017** | Steven Cliff & Sustainability Goal Sponsors |
| **17. ZERO EMISSION VEHICLE (ZEV) FLEET PURCHASES (buildings)** | | | |
| **Target & Timeline** | Vehicle fleet to increase the number of its zero-emission vehicles through the normal course of fleet replacement so that at least 10 percent of fleet purchases of light-duty vehicles be zero-emission by 2015 and at least 25 percent of fleet purchases of light-duty vehicles be zero-emission by 2020 (EO B-16-12).<br>1. Does not apply to vehicles with special performance requirements necessary for the protection of public safety and welfare. | | |
| **Stakeholders** | • Deputy Director of Sustainability, Steven Cliff<br>• Maintenance and Operations, Steve Takigawa | | |
| **Status** | • **BEV & PHEV:** In fiscal year 2012-2013, DOE purchased one (1) battery-electric vehicle (BEV) and 35 plug-in hybrid electric vehicles (PHEV) for a total of 18.5 ZEV credits. | June 2013 | Jeremy Matsuo, Equipment |
| | • **ZEV:** DOE developed a 3-year plan for ZEV purchases to meet the short- term requirements of B-16-12. See **Appendix T** for the ZEV plan. | 2013 | Jeremy Matsuo, Equipment |
| | • **BEV & PHEV:** PHEV: During the 2013-14 and 2014-15 fiscal years Caltrans purchased 54 PHEVS and 65 BEVs. (In fiscal 2014-15, 14 PHEVs and 14 BEVs have been received and are being distributed to assignment locations. 5 PHEVs remain pending purchase.) | June 2015 | Jeremy Matsuo, Equipment |

| | | Date Status Completed /or Steps Anticipated | Caltrans Lead |
|---|---|---|---|
| | • **ZEV:** Caltrans has 118 Plug-in vehicles in the fleet. Caltrans is currently exceeding the EO requirement. Caltrans has 60.5 ZEV (43 BEV and 17.5 PHEV) credits, with the current 10% requirement that is enough credit to purchase 605 light duty passenger fleet vehicles and not have to purchase an additional EV. | 2015 | Jeremy Matsuo, Equipment |
| **Steps to Achievement** | 17.1 Caltrans anticipates meeting or exceeding EO B-16-12 in future light duty purchases. In the immediate future, light duty replacement will be decreased because of higher priority needs in heavy duty vehicles and off road equipment (in part due to CARB mandates and other safety mandates). | **Dec 2016** | Jeremy Matsuo, Equipment |
| | 17.2 A vehicle replacement plan through 2020 will be developed. | **By June 2016** | Jeremy Matsuo, Equipment |