Sustainability Roadmap 2018-2019:

Climate Change Adaptation

Progress Report and Plan for Meeting the Governor's Sustainability Goals for California State Agencies

California State Lottery

Edmund G. Brown Jr., Governor

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California State Lottery Sustainability Road Map 2018-2019: Climate Change Adaptation

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Acronyms

AB	Assembly Bill
EHT	Extreme Heat Threshold
DC	Distribution Center
DO	District Office
EO	Executive Order
GCM	Global Circulation Model
GHG	Greenhouse Gas
HQ	Headquarters
HVAC	Heating, Ventilation and Air Conditioning
LEED	Leadership in Energy and Environmental Design
RCP	Representative Concentration Pathway
IT	Information Technology
SB	Senate Bill

EXECUTIVE SUMMARY

In 1984, Proposition 37 amended the California Constitution to authorize the establishment of a statewide lottery. As an initiative statute, the California State Lottery Act of 1984 (Lottery Act) created the California State Lottery Commission (Commission) and gave it broad powers to oversee the operations of a statewide lottery. The purpose of the Lottery Act was to provide supplemental monies to benefit public education without the imposition of additional or increased taxes. The California State Lottery (Lottery) is administered by a five-person commission appointed by the Governor and confirmed by the California Senate. In the 32 years since sales began in October 1985 through June 30, 2017, the Lottery has raised more than $32.5 billion for California public education, including more than $1.5 billion in Fiscal Year 2016-17. We're proud of the contributions we make to California's schools, and we work hard to increase our funding through efficient business practices.

The Lottery operates a portfolio of 12 facilities to support its ongoing statewide operations. Its owned properties include Sacramento headquarters (HQ), the Northern Distribution Center (NDC), the Southern Distribution Center (SDC), the Sacramento District Office (DO), the Santa Fe Springs DO, Fresno DO and the San Diego DO. The Lottery is currently executing its Facilities Master Plan thereby converting the remaining 5 leased facilities to owned facilities over the next couple years. All new buildings are being designed to be Zero Net Energy, Leadership in Energy and Environmental Design (LEED) Certified, and incorporate resilient design when possible.

The Lottery is committed to achieving the goals of both Executive Orders B-18-12 and B-16-12 and will continue to strive to do so.

Sincerely,

Hugo López
Executive Director

SUSTAINABILITY GOALS

The Governor has directed California State Agencies to demonstrate sustainable operations and to lead the way by implementing sustainability policies set by the state. Sustainability includes the following general initiatives:

- Greenhouse Gas Emissions Reductions
- Climate Change Adaptation
- Building Energy Efficiency and Conservation
- Indoor Environmental Quality (IEQ)
- Water Efficiency and Conservation
- Monitoring Based Building Commissioning (MBCx)
- Environmentally Preferable Purchasing (EPP)
- Financing for Sustainability
- Zero Emission Vehicle (ZEV) Fleet Purchases
- Electric Vehicle Charging Infrastructure
- Monitoring and Executive Oversight

The Governor has issued numerous executive orders directing sustainable state operations. The order relevant to climate adaptation is:

Executive Order B-30-15

EO B-30-15 declared climate change to be a threat to the well-being, public health, natural resources, economy, and environment of California. It established a new interim statewide greenhouse gas emission reduction target of 40 percent below 1990 levels by 2030, and reaffirms California's intent to reduce greenhouse gas emissions by 80 percent below 1990 levels by 2050. To support these goals, this order requires numerous state agencies to develop plans and programs to reduce emissions. It also directs state agencies to take climate change into account in their planning and investment decisions and employ life-cycle cost accounting to evaluate and compare infrastructure investments and alternatives. State agencies are directed to prioritize investments that both build climate preparedness and reduce GHG emissions, prioritize natural infrastructure, and protect the state's most vulnerable populations.

Legislative Direction

Several pieces of legislation were signed in 2015-16 that codified several elements of the EO. These include the following:

- Assembly Bill (AB) 1482 (Gordon, 2015): Requires that the California Natural Resources Agency (CNRA) update the State's adaptation strategy, Safeguarding California, every three years. Directs State agencies to promote climate adaptation in planning decisions

and ensure that state investments consider climate change impacts, as well as the use of natural systems and natural infrastructure. (Public Resources Code Section 71153)

- Senate Bill (SB) 246 (Wieckowski, 2015): Established the Integrated Climate Adaptation and Resiliency Program within the Governor's Office of Planning and Research to coordinate regional and local efforts with state climate adaptation strategies to adapt to the impacts of climate change. (Public Resources Code Section 71354)
- SB 2800 (Quirk, 2016): Requires State agencies to take the current and future impacts of climate change into planning, designing, building, operating, maintaining, and investing in state infrastructure. CNRA will establish a Climate-Safe Infrastructure Working Group to determine how to integrate climate change impacts into state infrastructure engineering. (Public Resources Code Section 71155)

State Resources and Guidance Documents

California has invested significant resources in understanding the risks of climate change to the State and actions available to respond to and reduce these risks. These include the following:

- **Safeguarding California**: The State's climate adaptation strategy organized by sector. Each sector identifies risks from climate change and actions to reduce those risks.
- **Safeguarding California Implementation Action Plans**: Directed under EO B-30-15, the Implementation Action Plans outline the steps that will be taken in each sector to reduce risks from climate change.
- **Building a Resilient California**: Prepared under direction of EO B-30-15, this document provides a framework for State agencies to integrate climate change into planning and investment, including guidance on data selection and analytical approach.
- **California's Climate Change Assessments**: California has completed three comprehensive assessments of climate change impacts on California. Each assessment has included development of projections of climate impacts on scale that is relevant to State planning (i.e., downscaled climate projections). These data are available through Cal-Adapt, an online data visualization and access tool.

CLIMATE CHANGE ADAPTATION

Executive Order B-30-15 directs State Agencies to integrate climate change into all planning and investment. Planning and investment can include the following:

- Infrastructure and capital outlay projects
- Grants,
- Development of strategic and functional plans,
- Permitting,
- Purchasing and procurement,
- Guidance development,
- Regulatory activity,
- Outreach, and education.

This template will focus on the first three of these activities, and follows the guidance created by the Technical Advisory Group developed under EO B-30-15 to assist State Agencies to complete this task.

Climate Change Risks to Facilities

For all infrastructure, it is important to assess the risk that a changing climate poses to an asset or project (e.g., sea level rise or increasing daily temperatures). It is also important to recognize the impact that an infrastructure project has the surrounding community and the impacts on individual and community resilience (e.g., heat island impacts).

To determine how to consider climate change for a given project or plan or existing infrastructure, this department will consider the following screening questions.

1. What is the lifetime of the facility, planned project or plan?
2. Could it be affected by changing average climate conditions or increases in extreme events over its lifetime?
3. What is the consequence of that disruption?
4. Will that disruption affect vulnerable populations, critical natural systems, critical infrastructure, or other assets?
5. Will that disruption cause irreversible effects or pose an unacceptable risk to public health and safety?

Lottery buildings are designed and built for a 40-year lifecycle. The design of all Lottery buildings includes energy and water saving features, installation of HVAC and lighting time clocks, thermostat controls, and occupancy sensors. If an issue occurs at a specific Lottery location that would result in building closure, operations can be moved to another Lottery office. All other DO staff work in the field except once a month when they report for their monthly meeting. Signage would direct Lottery winners and retailers to the backup facility and staff would be directed accordingly. Lottery building disruptions would not pose a risk to public health and safety or critical infrastructure due to the nature of the Lottery's business.

Understanding Climate Risk to Existing Facilities

Risk from Increasing Temperatures

Under a changing climate, temperatures are expected to increase - both at the high and low end. As a result, facilities will experience higher maximum temperatures and increased minimum temperatures.

Table 1: Top 5 Facilities Most Affected by Changing Temperature

Facility Name	Annual Mean Maximum Temperature (1961 - 1990)	Annual Mean Maximum Temperature (2031 - 2060)	Annual Mean Max T (2070-2099)	Annual Mean Minimum Temperature (1961 - 1990)	Annual Mean Minimum Temperature (2031 - 2060)	Annual Mean Min T (2070-2099
HQ	72.0	78.0	79.8	49.5	52.9	54.2
Santa Fe Springs DO	77.4	81.3	83.1	53.6	57.3	58.9
Van Nuys DO	77.4	80.8	82.8	50.4	53.9	55.5
Southern DC	77.2	81.3	83.1	49.5	53.5	55.1
Northern DC	74.3	78.3	80	49.5	53.3	54.6

In addition to changing average temperatures, climate change will increase the number of extreme heat events across the State. Extreme events are likely to be experienced sooner than changes in average temperatures.

Table 2: Five Facilities that Will Experience the Largest Increase in Extreme Heat Events

Facility Name	Extreme heat threshold (EHT)	Average number of days above EHT (1961-1990)	Average number of days above EHT (2031-2060)	Increase in number of days above EHT by mid-century	Avg. # days above EHT (2070-2099)	Increase in Avg. # days above EHT by end of century
HQ	103.4	4.3	19	14.7	28	9
Fresno DO	106.1	4.3	24	19.7	39	15
Sacramento DO	104.1	4.3	17	12.7	25	8
Southern DC	102.9	4.3	15	10.7	24	9
Northern DC	103.6	4.3	16	11.7	23	7

Listed above are the five Lottery facilities that would be most affected by changing climate and increased temperatures. In the Lottery's distribution centers, the warehouse spaces are unconditioned, however office and breakrooms are conditioned. Extreme heat would pose no

risk to the structural integrity of the buildings. However, extreme heat could cause low production levels due to employees requiring more breaks in the air conditioned breakroom. Employees would also be encouraged to drink the filtered refrigerated water available at the drinking fountains.

The Lottery chose the five facilities in Table 1 because they are the most critical of 12 Lottery facilities due to sales volume and work performed at the locations. Work disruption at these locations must be avoided whenever possible. The most critically affected of the five facilities are the two distribution centers, because without them Scratchers® ticket orders could not be distributed to the Lottery's retailers. Lack of distribution would affect the sale of Lottery Scratchers®. The other two offices listed, with the exception of HQ, could function out of different buildings for customer and retailer-related issues. Security staff at those locations could operate out of their assigned state vehicles.

To prevent long-term estimated impacts, the Lottery uses energy-efficient building envelope, including high-efficiency glazing on windows, high r-value insulation in walls and ceilings, and solar panels in the design and construction of its buildings. Daylight harvesting strategies have been incorporated as well.

Risks from Changes in Precipitation

Table 3: Facilities that Will be Most Impacted by Projected Changes in Precipitation

Facility Name	Annual Mean Maximum Precipitation (1961 – 1990)	Annual Mean Precipitation (2031 – 2060)	Percent Change by mid-century	Annual Mean Precipitation (2070 – 2099)	Percent change by end of century
HQ	18.7	21.6	16%	21.3	-1%
Sacramento DO	17.9	20.6	15%	20.4	-1%
Northern DC	17.8	20.7	16%	20.4	-1%

High precipitation would affect the facilities in Table 3 because of their location in a 100-year flood plain. There are two rivers near the HQ and Sacramento DO facilities, and the NDC is located near the port of West Sacramento. Operation would stop at these facilities if they were to flood. The Lottery HQ facility was built with all IT servers installed on the third floor to prevent possible damage if a flood occurred. In a catastrophic flood, operations would follow the Lottery's Business Continuity Program. The Lottery is currently revising its Business Continuity Program in coordination with the Governor's Office of Emergency Services. The program consists of: a Business Continuity Plan (BCP), Disaster Recovery Plan (DRP), Incident Management Plan (IMP), site-specific Emergency Action Plans (EAP) and Crisis Communication Plan (CCP). A risk assessment will be completed to determine the specific event types to be tested.

Risks from Sea Level Rise

Increasing global temperatures are contributing to rising sea levels. Rising sea levels will result in inundation of coastal areas and increased flooding due to storm surges. The California Ocean Protection Council (OPC) has issued guidance for State agencies on what level of sea level rise to consider. The Guidance document provides the following estimates of sea level rise for the California Coast, which are based on a study by the National Academy of Sciences:

Time Period	North of Cape Mendocino	South of Cape Mendocino
2000 - 2030	-4 to 23 cm (-0.13 to 0.75 ft)	4 to 30 cm (0.13 to 0.98 ft)
2000 - 2050	-3 to 48 cm (-0.1 to 1.57 ft)	12 to 61 cm (0.39 to 2.0 ft)
2000 - 2100	10 to 143 cm (0.3 to 4.69 ft)	42 to 167 cm (1.38 to 5.48 ft)

An accompanying OPC resolution recommends that departments base analyses on estimates of sea level rise in the upper two-thirds of the range.

The Lottery does not have facilities that would be affected by sea level rise.

Table 4: Facilities at Risk From Rising Sea Levels

Facility Name
N/A

Natural Infrastructure to Protect Existing Facilities

EO B-30-15 directs State agencies to prioritize the use of natural and green infrastructure solutions. Natural infrastructure is the "preservation or restoration of ecological systems or the utilization of engineered systems that use ecological processes to increase resiliency to climate change, manage other environmental hazards, or both. This may include, but need not be limited to, flood plain and wetlands restoration or preservation, combining levees with restored natural systems to reduce flood risk, and urban tree planting to mitigate high heat days" (Public Resource Code Section 71154(c)(3)).

The Lottery will plant trees at Lottery locations in urban areas when possible to ease the effects of high heat days.

Understanding the Potential Impacts of Facilities on Communities

Vulnerable Populations

Certain populations are more susceptible to the effects of changing climate conditions, and will have less capacity to recover from changing average conditions and more frequent and severe extreme events. A number of factors contribute to vulnerability, often in overlapping and synergistic ways. These can include a number of social and economic factors, and be determined by existing environmental, cultural, and institutional arrangements. Vulnerable populations can include, but are not limited to, people living in poverty; people with underlying health conditions; incarnated populations; linguistically or socially isolated individuals;

communities with less access to healthcare or educational resources; or communities that have suffered historic exclusion or neglect.

If an extreme event takes place in the communities where the Lottery has offices, the Lottery will adjust staff working hours accordingly. The Lottery District Sales Representatives and Route Service Representatives are required to drive vehicles to Lottery retailer locations for eight hours each day. During extreme heat situations, staff may be allowed to adjust their hours and report for duty in the early morning or late evening. Special consideration would be given to all affected staff.

Disadvantaged Communities

California is required to invest resources in disadvantaged communities (DACs). DACs are identified using CalEnviroScreeen, a tool that ranks census tracts based on a combination social, economic, and environmental factors. While it does not capture all aspects of climate vulnerability, it is one tool that is available, and does include several relevant characteristics. In many cases, disadvantaged communities are more likely to suffer damage under changing climate conditions, including extreme events. The department's facilities located in these communities can contribute or alleviate the vulnerability of these communities.

Table 5: Facilities located in disadvantaged communities

Facility Name	CalEnviroScreen Score	Is it located in a disadvantaged community? Yes/No
HQ	96 - 100%	yes
Fresno DO	66 - 70%	no
Inland Empire DO	96 - 100%	yes
Sacramento DO	51 - 55%	no
San Diego DO	16 - 20%	no
San Francisco DO	81 - 85%	yes
East Bay DO	61 -65%	no
Santa Ana DO	76 - 80%	yes
Santa Fe Springs DO	91- 95%	yes
Van Nuys DO	91 - 95%	yes
Southern DC	81 - 85%	no
Northern DC	46 - 50%	no

Lottery facilities provide access for Lottery customers to submit claims for prizes and obtain information related to gaming, commitments to education, and jackpots, among other things. Also, retailers can come to Lottery facilities for assistance with their ticket orders and invoices. Half of the Lottery's facilities are in DACs as defined. The Lottery does not provide healthcare or social services to the community. The Lottery's facilities cannot be used during an emergency to provide access to information and other resources not pertaining to the Lottery.

The Lottery participates in local job fairs when there are hiring needs for specific jobs. Job fairs help attract a diverse group of potential hires.

Urban Heat Islands

Urban heat islands are areas with localized spikes in temperature, which impact human health, increase pollution, and increase energy demand. Urban heat islands occur during the hot summer months in areas with higher percentages of impervious surface and less vegetation. This is likely in areas with large parking lots, dense development, and lower tree density and shading. Urban heat islands can be mitigated (i.e., reduced) through tree planting and other greening measures, cool roofs (e.g., lighter roofing materials that reflect light), cooler pavements, and other measures.

Table 6: Facilities Located in Urban Heat Islands

Facility Name	Located in an urban heat island (yes/no)
HQ	no
Fresno DO	no
Inland Empire DO	yes
Sacramento DO	no
San Diego DO	no
San Francisco DO	no
East Bay DO	no
Santa Ana DO	no
Santa Fe Springs DO	yes
Van Nuys DO	yes
Southern DC	no
Northern DC	no

Three of the Lottery's 12 facilities are in urban heat islands: Inland Empire DO, Santa Fe Springs DO, and Van Nuys DO. Both the Inland Empire DO and Van Nuys DO have large parking lots which are shared by other occupied office spaces; however, these offices will be relocated in 2018. The new location for the Fresno DO is part of a business park and the Lottery has 40 parking spaces and additional trees have been planted for the property. Santa Fe Springs DO has 30 parking spaces and several trees were planted on the property. The Lottery is planting trees at its facilities within the urban heat islands as allowed by property management and they are maintained by the Lottery's contracted landscaping vendor. The landscaping vendor is required to have an arborist assess all tree issues, including yearly trimming.

Understanding Climate Risk to Planned Facilities

Table 7: Climate Risks to New Facilities

Facility Name	Annual Mean Maximum Temperature (1961 - 1990)	Annual Mean Maximum Temperature (2031 - 2060)	Annual Mean Minimum Temperature (1961 - 1990)	Annual Mean Minimum Temperature (2031 - 2060)	Annual Mean Maximum Precipitation (1961 - 1990)	Annual Mean Precipitation (2031 - 2060)
Fresno DO	76.7	80.7	82.5	48.9	52.6	54

Table 8: Extreme Heat Events and New Facilities

Facility Name	Extreme heat threshold (EHT)	Average number of days above EHT (1961-1990)	Average number of days above EHT (2031-2060)	Increase in number of days above EHT
Fresno DO	106.1	4.3	24	19.7

The Fresno DO was designed with circulating fans in its large meeting area. These fans provide circulation giving staff a cooling sensation. The building also has five air conditioning units.

The new Fresno DO is not in a urban heat island or DAC.

Table 9: New Facilities and Disadvantaged Communities and Urban Heat Islands

Facility Name	Located in a Disadvantaged Community (yes/no)	Located in an urban heat island (yes/no)
Fresno DO	No	No

The Lottery has an organizational goal for new facilities to achieve ZNE, in line with the Governor's sustainability goals. These properties will all be designed so potential climate change will not affect the full useful life of the facilities. The design will include an energy- efficient envelope, and solar panels. Large fans will be installed for air circulation in the main meeting areas at each location.

Natural Infrastructure

EO B-30-15 also directs agencies to prioritize natural and green infrastructure solutions. Natural infrastructure is the "preservation or restoration of ecological systems or the utilization of engineered systems that use ecological processes to increase resiliency to climate change, manage other environmental hazards, or both. This may include, but need not be limited to, flood plain and wetlands restoration or preservation, combining levees with restored natural systems to reduce flood risk, and urban tree planting to mitigate high heat days" (Public Resource Code Section 71154(c)(3)).

The Lottery does not have buildings in locations where natural infrastructure will be affected. In the future, the Lottery will consider options to preserve natural infrastructure when appropriate.

Full Lifecycle Cost Accounting

EO B-30-15 directs State agencies to employ full life cycle cost accounting in all infrastructure investment. Lifecycle cost accounting includes:

- Considering initial investment costs, as well as lifetime operation and maintenance costs under changing climate conditions, including changing average conditions and increases in extreme events.
- Applying non-market evaluation methods such as travel cost, avoided costs or contingent valuation to capture hard to quantify benefits and costs

The Lottery employs lifecycle accounting when analyzing new investments in owned facilities. The Lottery looks at the annual operating expense of the facility, including estimated maintenance and operational costs, over a 39-½ year depreciation timeline and compares that to existing lease and operating/maintenance expenses when applicable. When analyzing other investments, such as energy upgrades, the Lottery looks at payback timeframes and other lifecycle costs such as maintenance, upkeep, and repair.

Integrating Climate Change into Department Planning and Funding Programs

Table 10: Integration of Climate Change into Department Planning

Plan	Have you integrated climate?	If no, when will it be integrated?	If yes, how has it been integrated?
Lottery Plans	No	N/A	N/A

Table 11: Engagement and Planning Processes

Plan	Does this plan consider impacts on vulnerable populations?	Does this plan include coordination with local and regional agencies?	Does this plan prioritize natural and green infrastructure?
Lottery Plans	No	No	No

The Lottery has not integrated the elements in Tables 10 and 11 into its planning processes.

Table 12: Climate Change in Funding Programs

Grant or funding program	Have you integrated climate change into program guidelines?	If no, when will it be integrated?	Does this plan consider impacts on vulnerable populations?	Does this program include coordination with local and regional agencies?
Lottery Funding Program	No	N/A	N/A	N/A

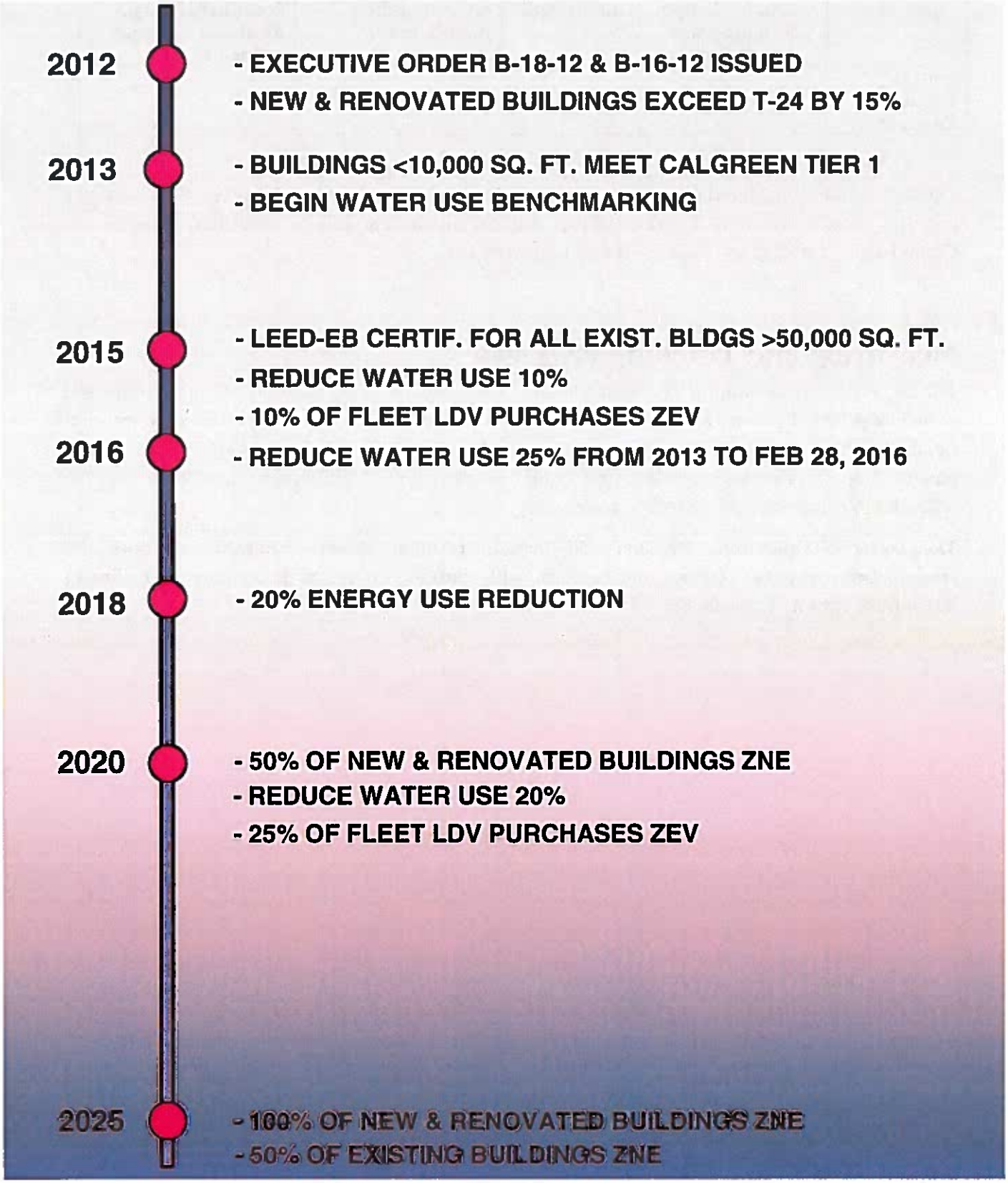
The Lottery has considered grants, rebates, and other funding programs; however, they have not met the criteria necessary for the Lottery. Additional funding will be requested through the Commission, if necessary, to meet design requirements.

Measuring and Tracking Progress

The Lottery plans to monitor changing climate conditions by using CalAdapt Climate tools and Urban Heat Island Interactive maps every 2 years when updating its Climate Change Adaptation Roadmap. If an increase in climate impact is noted, the Lottery will check all critical systems to ensure they are running properly and adjust accordingly. Maintenance schedules may be adjusted to accommodate increased usage.

The Lottery's Operations Division will include resilient design, where appropriate, on construction projects. Operations Division will continue to research training and climate adaptation options as available.

SUSTAINABILITY MILESTONES & TIMELINE



DEPARTMENT STAKEHOLDERS

Understanding Climate Risk at Existing Facilities	
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Understanding Climate Risk at Planned Facilities	
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Integrating Climate Change into Department Planning and Funding Programs	
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Measuring and Tracking Progress	
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