



Planning and Investing in a Changing Climate: Implementation of EO B-30-15

Louise Bedsworth
Presentation to ICARP Technical Advisory Council

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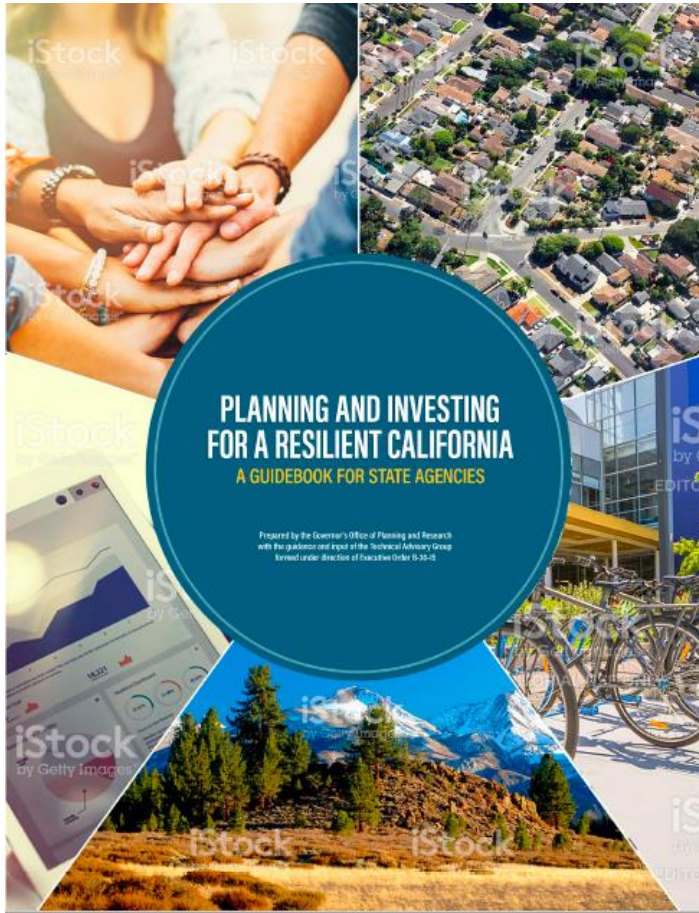
Executive Order B-30-15

- State agencies shall take climate change into account in their planning and investment decisions, and employ full life-cycle cost accounting to evaluate and compare infrastructure investments and alternatives.
- State agencies' planning and investment shall be guided by the following principles
 - Priority should be given to actions that both build climate preparedness and reduce greenhouse gas emissions;
 - Where possible, flexible and adaptive approaches should be taken to prepare for uncertain climate impacts;
 - Actions should protect the state's most vulnerable populations; and
 - Natural infrastructure solutions should be prioritized.
- The state's Five-Year Infrastructure Plan will take current and future climate change impacts into account in all infrastructure projects





EO B-30-15 Technical Advisory Group



- Roughly 50 members
- Met from March 2016-January 2017
- Workgroups:
 - Scenarios
 - Community Development and Equity
 - Infrastructure
 - Metrics
- Product: Guidebook for State Agencies
 - What to plan for
 - How to plan differently



A Process for State Agencies

Step 1:

Identify how climate could affect your project or plan

- Identify impacts of concern
- Identify climate-sensitive planning parameters
- Identify metrics to track performance of plan or investment under changing climate

Step 2:

Select an analytical approach to integrate climate change

- Consider the scale, scope, and context of climate disruption
- Select climate change scenarios and analytical approach for planning and design

Step 3:

Make a climate-informed planning or investment decision

- Evaluate alternatives or design
- Apply resilient decision-making principles

Step 4:

Track and monitor progress, adjust as needed

- Evaluate metrics to track progress
- Implement adaptive management approaches



Understanding Impacts – Quantity and Quality

- Project Lifetime: The useful life of a project is important for identifying climate impacts of concern, considering both changing average conditions, occurrence of extreme events, and the pace of change.
- Scale and Scope of Risk: Consider the criticality or consequence of disruption to understand the scale and scope of the risk posed by changing climate conditions and extreme events.
- Vulnerability and Adaptive Capacity: Identify who and what is affected by climate-related disruptions to determine the vulnerability and adaptive capacity of the people, places and resources affected.
- The Nature of the Risk: Consider how a climate-related disruption will affect the ability of people, places and resources affected to adapt, learn, and prepare for future conditions.



Working Under Uncertainty – Managing Risk

Selection of Climate Scenarios

Optimistic/Adaptive

- RCP 4.5 or 2.6
- Monitor and adjust
- Live with change

Adaptive

- Mid-range RCP
- Pathways

Precautionary

- RCP 8.5
- Sensitivity analysis with higher extremes



Considerations	Consequences of impact or disruption	Low: Minimum disruption, limited scale and scope	Medium: Inconvenience, but limited in scope and scale	High: Unacceptable risk and/or extensive scale and scope
	Nature of disruption	<ul style="list-style-type: none"> • Future flexibility maintained • People or systems readily able to respond or adapt 	<ul style="list-style-type: none"> • Limits future flexibility 	<ul style="list-style-type: none"> • Irreversible • Threat to public health and safety
	Who or what is affected?	<ul style="list-style-type: none"> • Low impact on communities, infrastructure, or natural systems 	<ul style="list-style-type: none"> • Communities, systems, or infrastructure readily able to adapt or respond to change 	<ul style="list-style-type: none"> • Vulnerable populations • Critical infrastructure • Critical natural systems • Areas of economic, historic, or cultural significance
	Economic Impacts	Low	Medium	High



Working Under Uncertainty

Analytical Approach

Simplest

- Straight use of parameters
- Fewer models
- Limited characterization of uncertainty

More Robust

- More GCMs
- Consideration of more scenarios
- Sensitivity analysis

Most Robust

- Larger # GCMs
- More complete characterization of uncertainty



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Resilient Decision Making Principles

- Prioritize actions that promote integrated climate action
- Prioritize actions that promote equity and foster community resilience
- Coordinate with local and regional agencies
- Prioritize actions that utilize natural and green infrastructure solutions and enhance and protect natural resources
- Base all planning and investment decisions on the best-available science.