

Climate Readiness in the Capital Region

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Powering forward. Together.



SMUD Energy Resources



Solar – 160 MW rooftop, 170 MW groundmount



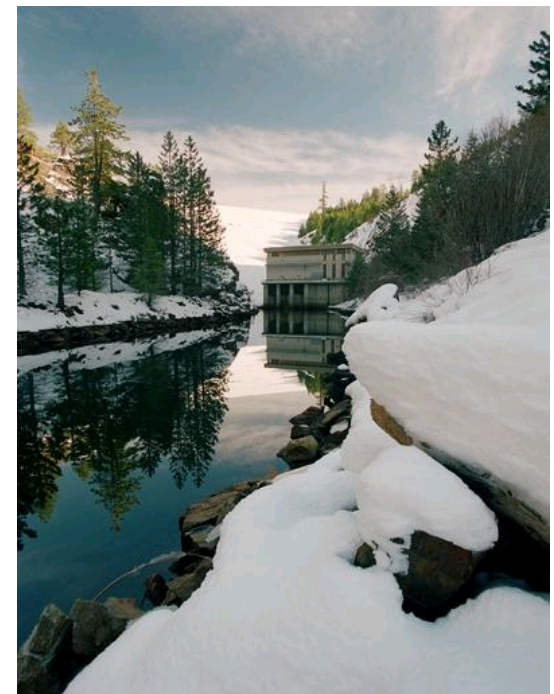
Biomass -203 MW



Solano Wind – 280 MW



COTP Transmission to NW – 1600 MW

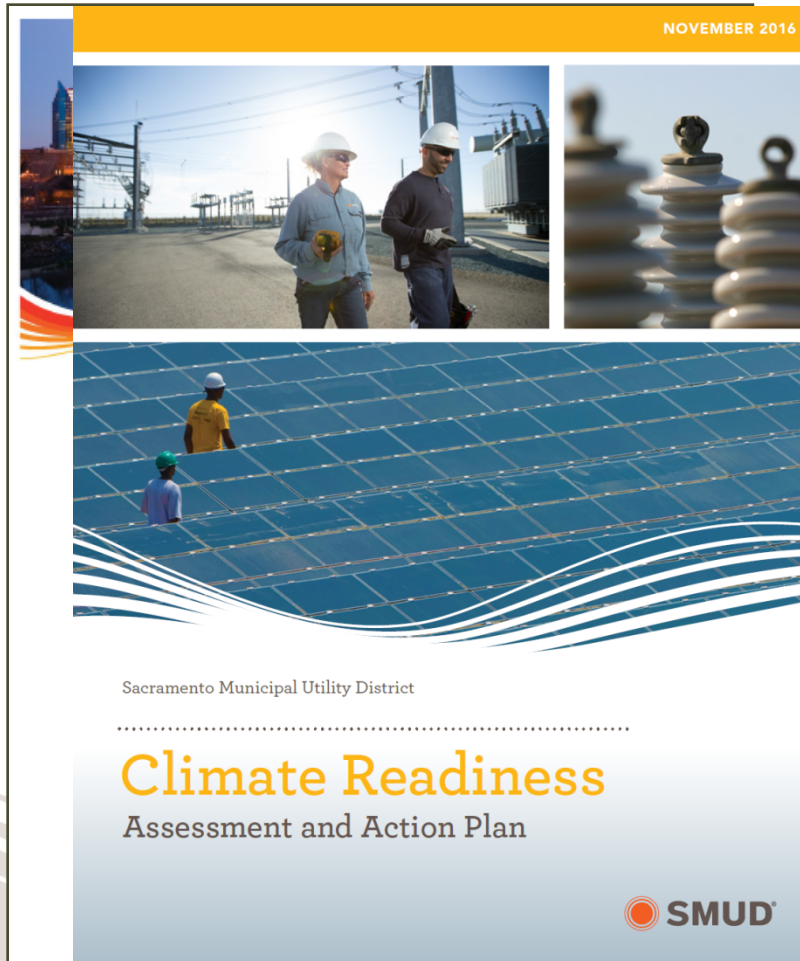


Upper American River Hydro Project – 688 MW



Natural Gas Combined Cycle – 850 MW at 4 locations, NG Peakers 150 MW at 3 loc's

SMUD Climate Readiness Strategy






- Track Climate Changes as an Enterprise Risk
- 4 year science update cycle
- Use findings in all long term planning (>5 years)
- Perform additional research and **support regional readiness efforts**



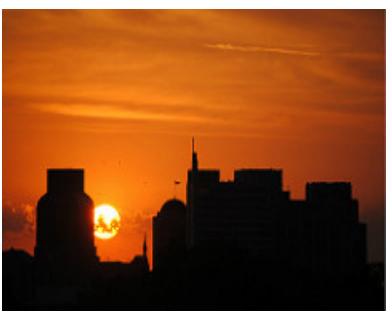


Includes supply chain analysis in addition to power generation contracts

Climate change impacts

	Impact	Projection	Key Strategies
	Wildfires	<ul style="list-style-type: none">• Small burn area increase through 2020, leveling off through end of century	<ul style="list-style-type: none">• Forest Health & Stream Flow Research• Unmanned Aerial Systems Risk Identification Program
	Hydrology	<ul style="list-style-type: none">• 3% reduction in precipitation by 2069 (range +9% to -23%)• 70% reduction in SWE by end of century	<ul style="list-style-type: none">• Forest Health & Stream Flow Research• Hydropower Risk Mitigation Strategies
	Precipitation	<ul style="list-style-type: none">• Increased volume in Winter• Less volume in Spring and Fall	<ul style="list-style-type: none">• Cloud Seeding• SPA County Recycled Water Project

Climate change impacts, cont

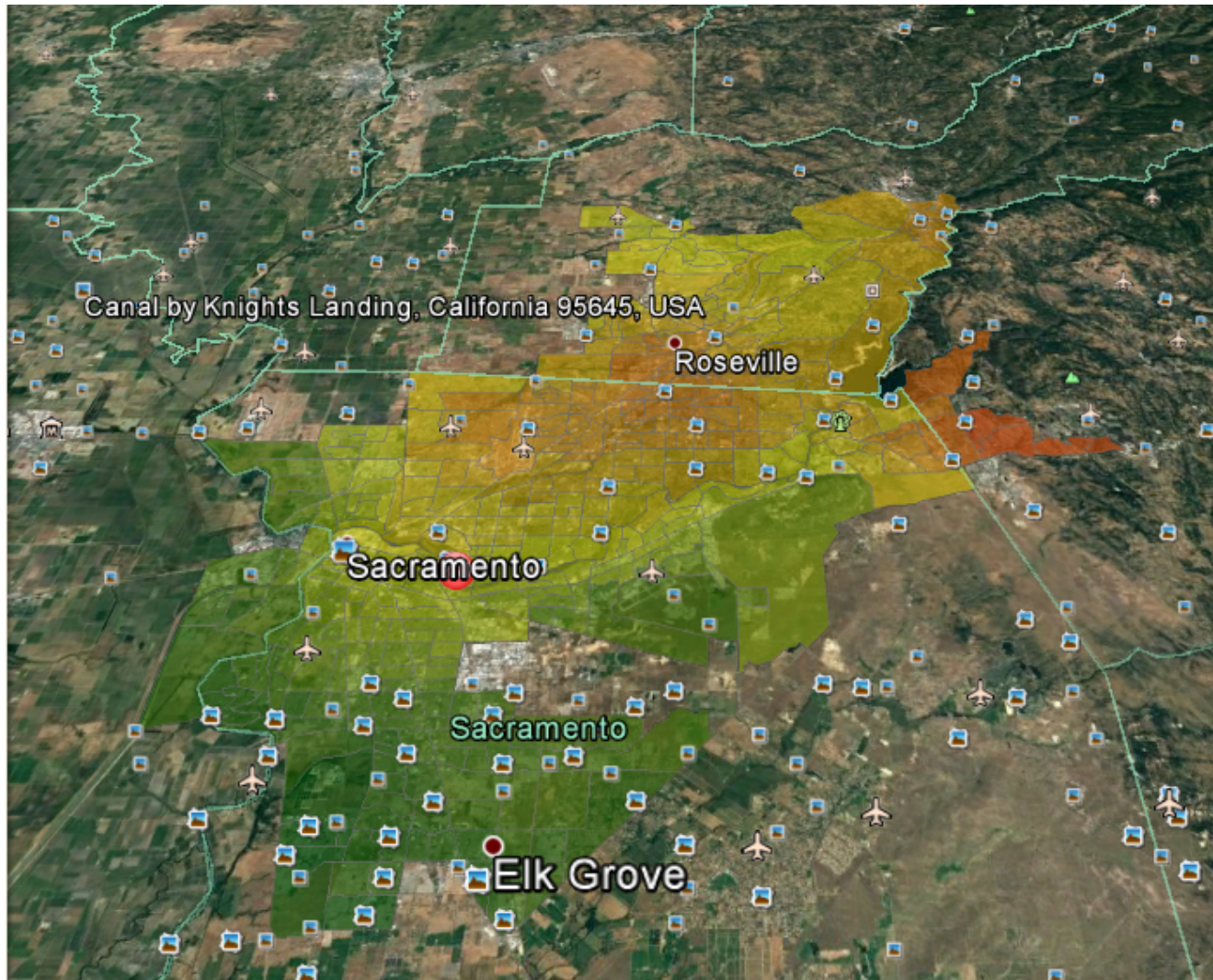
	Impact	Projection	Key Strategies
	Sea level rise and flooding	<ul style="list-style-type: none"> • South of Cape Mendocino: 5-24" by 2050, 17-66" by 2100 • High flood risk in specific areas 	<ul style="list-style-type: none"> • Asset Impact Analysis • Biosequestration Research • Contract Climate Exposure Evaluation • Resilient Grid Initiative
	Wind Patterns	<ul style="list-style-type: none"> • Highly uncertain, could lower wind capacity • Potential increased peak demand due to Delta breeze impacts 	<ul style="list-style-type: none"> • Focused Climate Research • DER, Savings by Design
	Ambient Temperature Rise	<ul style="list-style-type: none"> • +3.6-7.2°F in summer temperatures by 2069 • +1-9°F UHI • Extreme heat days: 4/yr to 17/yr to 45/yr • 3-days at >104°F 1-2 yr occurrence by 2100 	<ul style="list-style-type: none"> • Regional Heat Pollution Reduction • SMUD Cool Roof Incentive • SMUD Shade Trees

Average days over 101 F

13 > 45 > 85



Capital Region UHI Heat Pollution



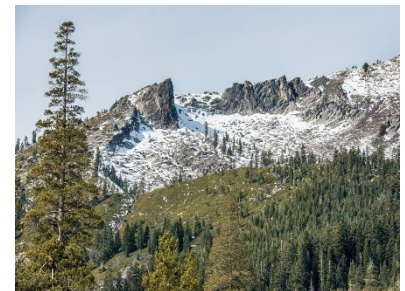
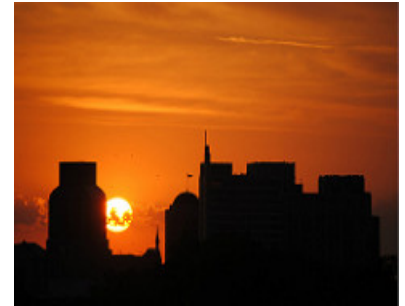
Major Impacts

- Health!
- Electricity Demand
- Outdoor Water Use
- Agriculture
- Recreation & Tourism
- Business & Economic Development

Quality of Life

Resilience and Transportation

- Heat Impacts & Flood Risk
 - Road and parking network - Autonomous Vehicles
 - Electric transportation resilience to extreme events – fuel storage & buffers
- Snowpack, Forest Health & Wildfires
 - Reduced Snowpack impacting hydro storage – availability of hydro as an energy and ancillary service supply
 - Forest health & wildfires impacting transmission, hydro, transportation network (landslides) – opportunity for supporting liquid fuel needs for transport



Thank you!



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