Appendix C13
Parameters Assigned to Each Scenario

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In the spring of 2011, the Water Demand Sub-Team developed and refined the demand scenarios. As part of this process, each parameter was assigned a plausible range (e.g., population – low, medium, and high growth). Once these ranges were developed, using the storylines as a guide, the Water and Demand Sub-Team assigned appropriate parameter state for each scenario. Table C13-1 presents the final parameter state assigned to each scenario.

TABLE C13-1
Parameters Assigned to Each Scenario

General Driving Force Categories	Critical Uncertainties[1]	Scenario					
		Current Projected – Growth, development patterns, and institutions continue along recent trends	**Slow Growth – Low growth with emphasis on economic efficiency**	**Rapid Growth – Economic resurgence (population and energy) and current preferences toward human and environmental values**		**Enhanced Environment– Expanded environmental awareness and stewardship with growing economy**	
		A	**B**	**C1 Slower technology adoption**	**C2 Rapid technology adoption and slight increase in social values**	**D1 Current growth trend**	**D2 Higher growth and technology**
Demographic and land use	Changes in population and distribution [4]	Best estimate of population growth	Slow growth: • Increase principally in existing urban areas	Rapid, expansive growth: • Focused in urban centers and "sprawl" to traditionally non-urban areas (likely driven by economic growth)		Same as Current Projected	Rapid, expansive growth: • Focused in urban centers and "sprawl" to traditionally non-urban areas (likely driven by economic growth)
	Changes in agricultural land use (e.g., irrigated agricultural areas, crop mixes, etc.) [5]	Nominal increase in irrigated agricultural lands due to the build-out of currently planned agricultural supply projects: • Varies from state to state, with some natural decreases also occurring	Same as Current Projected	Slightly faster increase in irrigated agricultural lands (varies from state to state) due to the build-out of currently planned agricultural supply projects		Same as Current Projected	
Technology and economics	Changes in agricultural water use efficiency [8]	Continued current trends in agricultural water use efficiency: • Salinity control projects continue to be pursued	Decreased agricultural efficiency resulting from aging infrastructure and minimal capital investment in repair/replacement	Decreased agricultural efficiency resulting from aging infrastructure and minimal capital investment in repair/replacement	Externally driven increases in water saving technology Rapid adoption of new water saving technologies	Same as Current Projected	Externally driven increases in water-saving technology Rapid adoption of new water- saving technologies

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Technology and economics, continued	Changes in municipal and industrial water use efficiency [9]	Water use efficiency is increasing according to current policy and technology: • External factors limiting water use of appliances/fixtures (e.g., federal statutes dictating water use efficiency of fixtures) • Policies in place affecting future—vary by municipality and state	M&I consumer efficiency continues according to current trends: • Aging infrastructure could have effects on water efficiency	M&I consumer efficiency continues according to current trends: • Aging infrastructure could have effects on water efficiency	Diversification of supply portfolios and increased costs leading to increased water use efficiency: • Increased implementation of WaterSense, EnergyStar, efficient landscaping technology, etc.	Diversification of supply portfolios and increased costs, leading to increased water use efficiency: • Increased implementation of WaterSense, EnergyStar, efficient landscaping technology, etc.	
	Changes in water needs for energy generation (e.g., solar, oil shale, thermal, nuclear, etc.) [12]	Water needs for energy expand: • Some expansion of oil shale/fossil fuel development • Some expansion of Thermal Solar development • Existing requirements for renewable energy are applied	Same as Current Projected	Increased water use for energy, including solar, oil shale, and nuclear: • Low technology adaptation • Economic drivers encouraging growth in energy production	Decreases in water for energy based on reduced freshwater for cooling (e.g., dry cooling) or technology improvements: • High technology adaptation • Increased requirements for renewable as a percentage of energy portfolio, with emphasis on dry technologies	Decreases in water for energy based on reduced freshwater for cooling (e.g., dry cooling) or technology improvements: • High technology adaptation • Increased requirements for renewable as a percent of energy portfolio, with emphasis on dry technologies	

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Social and governance	Changes in institutional and regulatory conditions (e.g. laws, regulations, etc.) [10]	No anticipated change in regulations (2007 Interim Guidelines[2] extended through 2060)	Same as Current Projected	Same as Current Projected	• Increased institutional and regulatory conditions • National climate change regulations implemented, (related to greenhouse gas management)	• Increased institutional and regulatory conditions • National climate change regulations implemented (related to greenhouse gas management)	
	Changes in flow-dependent ecosystem needs for Endangered Species Act (ESA)-listed species [13]	No change in currently realized ESA-listed species needs	Same as Current Projected	Same as Current Projected		ESA flow targets for existing listed species are met and recovery is maintained	
	Changes in other flow-dependent ecosystem needs [14]	No change in current planning and/or projections associated with ecosystem needs or practices	Same as Current Projected	Same as Current Projected		Institutional agreements for ecological flows sufficient to ensure a resilient ecosystem (in timing, amount and location)	

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Social and governance, continued	Changes in social values affecting water use [15]	Social values affecting water use are similar to recent past: • Continue along current trend of increased conservation, increased support in parts of the Basin for meeting environmental flows	Societal focus on economic efficiency	Same as Current Projected	Societal values result in greater flexibility of water use for multiple purposes: • Acceptance of water recycling • Social values affecting water use accelerate current trend of increased conservation	Societal values result in greater flexibility of water use for multiple purposes: • Acceptance of water recycling • Social values affecting water use accelerate current trend of increased conservation • Increased support for meeting environmental flows • Tourism economy booms creating more demand for in-stream flows	
	Changes in water availability due to tribal water use and settlement of tribal water rights claims [17]	Tribal water use continues as projected in settlements	Slower implementation of development within the settlements	• Faster implementation of development within the settlements • Additional tribal claims and settlements realized		Same as Current Projected	• Faster implementation of development within the settlements • Additional tribal claims and settlements realized

[1] Bracketed column reflects the number assigned to the 18 driving forces listed in *Technical Report A – Scenario Development,* table A-1.

[2] U.S. Department of the Interior. 2007. *Colorado River Interim Guidelines for Lower Basin Shortages and Coordinated Operations for Lake Powell and Lake Mead*.