



# COMMON ASSUMPTIONS

for CALFED Surface Storage Investigations



## *Common Assumptions Review*

### **Water Supply Subcommittee**

*May 17, 2007*



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## ***Common Assumptions Objectives***

- Provide a framework for a defensible basis for collaborative decision making regarding surface storage investigations
- Improve consistency in application of overarching policy decisions
- Identify common water facilities, operations, management, and regulations
- Develop and refine a common analytical framework including tools and methods for integrated hydrologic and economic analyses
- Support application of common policy and analytical framework and ensure quality control



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## *Common Assumptions Evolution*

- Originally developed for surface storage feasibility studies for these purposes:
  - Comply with CEQA, NEPA, P&Gs, CWA/404, ESA, etc.
  - Complete necessary studies and reports
- Influenced by other Delta and Central Valley projects and investigations
- Evolving to be used for other Reclamation and DWR projects and investigations



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## ***Common Assumptions Accomplishments***

- **Facilitated Policy Decisions**
  - Established important dates and timelines
  - Identified likely future projects/programs in 2030
- **Developed Analytical Framework**
  - Common Model Package
  - Application protocols
  - Economic analysis methods and protocols
- **Characterized and Quantified Water Management Actions**
  - Urban water use conservation
  - Agricultural water use efficiency
  - Recycling and desalination
  - Groundwater storage for conjunctive management
  - Water transfers



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## *Common Model Package (CMP)*

- Inputs
  - Information from previous analyses
  - Translated (sometimes simplified) from policies and assumptions matrices
  - Developed through new analyses and sensitivity testing
- Models
  - Anticipated to be used by two or more investigations
  - Add value or are required for analysis
- Protocols
  - Standardized techniques and procedures
  - Accessibility of models and methods
- Metrics
  - Standardized presentation of results
  - Guide quality control



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## *Component Models: Water Resource System*

- CalSim-II statewide California water resource system planning model
  - Central Valley region and Sacramento–San Joaquin River Delta
  - SWP and CVP
  - Infrastructure of water collection, storage, and delivery
- Attributes and areas of interest
  - Land use, and water needs and supplies
  - Water rights, contracts, deliveries
  - Regulatory requirements
  - Facilities' operations criteria and decisions
- Proposed actions
  - CALFED water management actions
  - Surface storage investigations



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## ***Component Models: Economics***

### 💧 Urban

- 💧 LCPSIM: Least-Cost Planning Simulation Model
- 💧 South Coast and South Bay models
- 💧 Prescriptive projection of actions required to balance supplies and demands over planning period
  - With greatest economic efficiency
  - Subject to simplified external policy decisions
- 💧 Projected reduction in regional costs associated with a proposed action

### 💧 Agricultural

- 💧 CVPM: Central Valley Production Model
- 💧 Sacramento Valley, San Joaquin Valley, and Tulare Basin
- 💧 Economic value of supplies based on land use, supply options, and agricultural market conditions



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## ***Component Models: Delta Flow and Salinity***

- DSM2 Delta Simulation Model
- Sacramento–San Joaquin River Delta
  - Delta channels and bathymetry
  - Downstream boundary at Martinez
- Descriptive physical process simulation
  - Hydrodynamic (velocity, stage)
  - Salinity (EC)
- Infrastructure
  - Delta island diversions, drainage, and seepage
  - Project export facilities
  - South Delta channel flow and stage controls



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## ***Component Models: Sacramento River and Salmon***

- **SRWQM: Sacramento River Water Quality Model**
  - Keswick Dam to Red Bluff Diversion Dam
  - Daily hydrologic routing of Keswick Dam releases and tributary inflows
  - Shasta Dam temperature-control device
- **SalMod: Salmon Population Models**
  - Keswick Dam to Red Bluff Diversion Dam
  - Potential salmon production subject to temperature- and flow-based mortality factors
  - Winter, spring, fall and late-fall runs



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## ***Component Models: Power Generation and Use***

- **LTGen: CVP long-term generation model**
  - All major CVP pump and generation facilities
  - Monthly generation, use, and loss
  - Comparative change associated with a proposed action
  
- **SWP\_Power: SWP long-term generation model**
  - All major SWP pump and generation facilities
  - Monthly generation and use
  - Comparative change associated with a proposed action



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## *Next Steps*

- Latest CMP Version 8\* is in use
- Review and acceptance process underway
- Next CMP update, Version 9, spring 2007