Evaluating Consolidated Alts and Portfolios

WSAC Meeting
Santa Cruz

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STRATUS CONSULTING

Objectives

- Foster understanding and guide discussion of the many items included in the Packet

- Help Tee Up Scenario/Portfolio-Building Exercise
  - Providing illustrations

Taking a Closer Look at Several CAs

Running CAs groups through *Confluence*

- How well does a CA function within the overall system? (interaction of CA with other water system components)
- Several very important assumptions and caveats
  - Infrastructure-related constraints assumed away
- How much does a CA help address needs? (How much does it help fill the gap – what is its effective ***yield***?)

Key Terms: Supply versus Yield

- **Supply**: How much water is produced by a CA, at its source (source production)
  - Independent of the rest of the water system
  - E.g., recycled water @3.6 mgd, 365 days => 1.3 BG/year

- **Yield**: How much water does the CA provide toward meeting peak season demand…
  - Integrated with the rest of the water system
  - Contribution to filling supply and demand gap (peak season)
  - Varies by hydrologic year (average vs. worst year yields)

CA Groups Examined

- Winter Flows (CA 9, 16, 18, 19)
  - How much water might actually be available?
  - How much storage and other infrastructure may be required?
- Added treatment (removing turbidity constraint)
  - Ranney collectors or new treatment plant (CA-19)
- Climate-independent options (CA 7, 13, 15, and 10)
  - Reuse variations, or desal

Key Findings: Winter Flows

- ***IF*** all applicable infrastructure and storage constraints eliminated …
- Then winter flows available under existing water rights eliminate future shortages
  - Even under climate change and DFG-5 scenario
  - Addressing "Turbidity Constraint" has little impact
- Key remaining issues:
  - ***Virtual reservoir***: options, feasibility, returns, cost, etc.
  - Examining infrastructure needs – scale, feasibility, cost,…
  - Factoring in CIP
  - Considering risks, diversification

Key Findings: Climate-independent Options (Recycled Water, Desal)

- ***IF*** all applicable infrastructure constraints eliminated …
- Recycled water or desal can eliminate future shortages
  - Absent added storage, few shortages, and none > 15%
  - Even under climate change and DFG-5 scenario
- Adding storage addresses remaining shortages
  - Requires much less storage than winter flow regimes (~1.3 BG vs ~3.0 BG)

Gaps Under Current (Base) System

Base system peak-season shortages			
Worst-year yield gap (mg)		**Average yield gap (mg)**	
Historical	**Climate change**	**Historical**	**Climate change**
1,360	1,150	60	420

CA *Yield* Estimates

Comparison of yields

(if no infrastructure or storage constraints)

	Worst-year yield (mg)		Average yield (mg)	
Consolidated Alternatives	**Historical**	**Climate change**	**Historical**	**Climate change**
Winter flow capture	**1,360**	**1,150**	**60**	**420**
North Coast exchange	**530**	**850**	**45**	**410**
Indirect potable reuse	**1,360**	**1,150**	**60**	**420**
Felton Ranney collectors	**1,360**	**115**	**60**	**290**
C Rec Conservation	**130**	**90**	**25**	**100**
North Coast exchange + C Rec	**640**	**1,120**	**55**	**420**

Other Items Covered in Packet

- *Confluence* assessment of "Program C recommended" (8c)
- Key findings and observations on CAs (8d)
- Technical Summary Templates (8e)
  - Updated version available as handouts
  - Summary Table (1-pagers) available as handouts
- Graywater alternatives (8f)

- Discussion
- Questions?

Thank you!