



*the best solution
often lies in the
unapparent*

El Dorado Drought Analysis

August 2005 Workshop

Facing the Next Drought

- What level of cutbacks are necessary?
 - Treated Water Customers (urban)
 - Raw Water Customers (agr.)
- What mix of cutbacks meet state mandate yet minimize:
 - Loss of jobs
 - Agriculture crop losses
 - Loss of business
 - Impacts on quality of life (landscapes, behavioral changes, etc.)

Model

“What if” options in the model:

- Starting storage levels
- Climate variability (and resulting runoff)
- Cutback options for Treated and Raw Water Customers
- Impact of private wells
- Drought mitigation options/projects

State Water Code Mandate

“ ... conserve the water supply for the greatest public benefit with particular regard to domestic use, sanitation, and fire protection.”

Calif. Water Code Section 353

How Far Can We Go With Rationing to Meet Shortages

For Treated Water (Urban)
Customers, lets look at the
experience of the "Record"
1976-77 Drought

	<u>GOAL</u>	<u>ACHIEVED</u>
• Alameda County WD	25%	27%
• Contra Costa County WD	30	25
• Daly City	25	31
• East Bay MUD	35	40
• Hayward, City of	25	32
• Marin Municipal WD	57	65 Max.
• North Marin WD	30	37
• San Francisco, City of	25	30
• San Mateo, City of	25	35
• Santa Clara Valley WD	25	30
• Santa Rosa, City of	30	36
• Sunnyvale, City of	25	26
Average (not weighted)		33%

3 Major Lessons

1. Rationing can only be achieved by a voluntary commitment of customers (buy-off)

3 Major Lessons

1. Voluntary commitment
2. Utility must effectively communicate problem and rationing requirements via media and other means

3 Major Lessons

1. Voluntary commitment
2. Effective communication of requirements
3. Utility must effectively communicate how customers (each class) can solve the problem

To Achieve Rationing Success

1. Voluntary commitment
2. Effective communication of requirements
3. Effective communication of solutions

Added Keys to Success

- Employ allotment rationing
- Include drought rate surcharges
- Make clear what condition must occur for rationing and surcharges to end
- In plain English, inform customers weekly on how well they are doing
- Keep your word !

Plan for “Demand Hardening” caused by Long Term Conservation

“The diminished ability or willingness of customers to reduce demand during a shortage.”

California Urban Water Conservation Council

"Base" Long Term Savings

• ULF Toilets *	10.4 gcd
• HE Clothes Washers	5.5
• LF Shower Heads*	2.4
• LF Faucets/Aerators*	<u>1.6</u>
Total	19.9 gcd

* Required by Environmental Policy Act

Potential "Added" Long Term Savings

• Hot Water Demand	4 gcd
• ET Control	<u>11</u>
Total	15 gcd

Long Term Conservation Potential

If "Base" and "Added" long term*
measures become widely practiced,
then long term conservation potential
is about:

35 gpd or

18 % of typical demand

* or other savings

Estimate of Maximum Future Short Term Cutback Potential

Achievable Cutback	55%*
<u>Less</u> Long Term Cons.	<u>18%</u>
Resultant Short Term Cons.	37%

* Note: Marin MWD achieved 65%.

Conclusion

Maximum urban rationing potential will vary from about 50% to 37% depending on the level of long term conservation implemented between now and the time that long term conservation opportunities approach steady state (max out).

Suggestions for Rationing Plan?

- Employ “Life Boat” principal
- Per capita allotments to residents
- Severe % cutbacks for urban “irrigation only” accts
- % cutbacks for non-residential and agr. (will vary)
- “Hot Line” and quick response
- Government must “Lead” and “Go Beyond”

Two samples of “what ifs” the Shared Vision Model can handle.

1. Percentage cutbacks: how do they help meet shortfalls?
2. Do we help those with wells gone dry? Private system users?



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