

Summary of Chapter 6 – “Funding Water Reuse Systems,” in: *Guidelines for Water Reuse*. US EPA. EPA625/R-04/108. Sept. 2004. (Version 2)

<http://www.epa.gov/ORD/NRMRL/pubs/625r04108/625r04108.pdf>

This chapter examines the costs and benefits of implementing water reuse systems. It also suggests methods for analyzing economic/financial effectiveness of water reuse systems, and methods for water pricing. Following are the main topics:

System Costs:

These include capital improvements, operation, maintenance, administration and replacement costs. These costs are used to calculate a reclaimed water rate (e.g., cost/gallon).

Another cost is the associated decrease in potable water revenues due to a drop in consumption.

Reuse system benefits:

- a) environmental – reduced effluent discharges to surface water
- b) economic – delay/avoidance of new potable water supply and treatment facilities

Decision making tools for analysis:

- a) cost-effectiveness analysis (includes non-monetized/intrinsic benefits),
- b) cost/benefit analysis (includes monetized costs and benefits) and
- c) financial feasibility (includes finance charges).

Sources of system funding:

- a) Externally generated funds:
 - i.) local government tax exempt bonds (e.g., municipal bonds repaid by public)
 - ii.) grants and revolving fund programs (i.e., federal/state/local matching grants), (Sources: Clean Water Act; USDA, Bureau of Reclamation, state programs), and
 - iii.) capital contribution (i.e., private developers share the costs).
- b) Internally generated funds:
 - i.) reclaimed water (RCW) user charges (common, preferred). Allocates cost of reclaimed water among the recipients.
Methods include:
 - proportionate sharing – divides total cost of providing RCW among all users according to their use (preferred)
 - incremental cost – only the additional cost of supplying the RCW to a particular user
 - ii.) operating budget of the utility
 - iii.) local property taxes
 - iv.) public utility taxes

- v.) special assessments
- vi.) impact/connection fees

This chapter states that reuse water fees should be below or competitive with potable water fees. However, reclaimed water is typically more costly than potable, due to treatment, transportation, etc.

But the following factors could be credited to (i.e., subtracted from) reclaimed water costs to make more them more in line with potable water fees:

- a. increased potable water supply - \$300-\$1,000/ ac.ft.
- b. water supply reliability - \$100-\$140/ ac/ ft.
- c. effluent disposal savings - \$200-\$2,000/ac. ft.
- d. downstream effects - \$400-\$800/ ac. Ft.
- e. energy conservation – 0 -\$240 ac. Ft.

It is common for reclaimed water fees to be offered at a discount based upon a percentage of the cost of potable water fees. Here are actual percentages for various California water districts:

Jurisdiction	Reclaimed water price as a percentage of potable water price (%)
Long Beach	53
Marin Muni. Dist.	56
City of Milpitas	80
Orange County	80
San Jose	85
Irvine Ranch	90
Carlsbad	100
East Bay	100
Otay	100

Other case studies, with reference to reclaimed water use incentives:

- 1) Longboat Key, FL – the reclaimed water rate structure was designed so that the system can be financially self-sufficient. End user prices cover the true cost of providing the service.
- 2) San Diego, CA – an incentive of up to \$250/ ac. ft. is offered to reclaimed water users to offset demand for imported potable water.

3) FL reclaimed water utilities summary – utilities vary in their reclaimed water pricing practices with some pricing water to encourage use (i.e., below potable rates), while others set reclaimed water prices to recover full cost associated with reuse facilities.

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