

A high-speed photograph of water splashing upwards, creating a dense, white, bubbly spray against a light blue background. The water droplets are captured in mid-air, giving a sense of motion and freshness.

Volume 2

Chapter 8 Economic Incentives (Loans, Grants, and Water Pricing)



Economic incentives are financial assistance and pricing policies intended to influence water management. A Proposition 13 grant funded this water storage tank in Tranquillity, a farming community in the Central Valley. The multi-objective project replaced a failing elevated water storage tank constructed in 1920. With a capacity of 500,000 gallons, it provides water supply to area residences and agriculture. (DWR photo)

Chapter 8 *Economic Incentives (Loans, Grants, and Water Pricing)*

Economic incentives are financial assistance and pricing policies intended to influence water management. For example, economic incentives can influence amount of use, time of use, wastewater volume, and source of supply. Economic incentives include low-interest loans, grants, and water pricing rates. Free services, rebates, and the use of tax revenues to partially fund water services also have a direct effect on the prices paid by the water users. In general, higher costs to water users tend to reduce water use. Governmental financial assistance can provide incentives for resource plans by regional and local agencies. Also, government financial assistance can help water agencies make subsidies available to their water users for a specific purpose, (Box 8-1).

Economic Incentives in California

The most prevalent water rate policy is for water agencies to recover costs for such things as planning, operation, maintenance, capital, administrative, and some environmental costs. Water rates are also commonly used to contribute to water agency capital investment accounts for funding anticipated projects. Water rates could be used to recover external costs such as third-party costs. Other means available to recover costs include ad valorem taxes and revenues from bonds not repaid from water rates.

Because of existing policy, some agencies are not required to recover the full cost of development and maintenance. For example, Congress has not required the U.S. Bureau of Reclamation to recover all the costs of supplying water to agriculture. This is an example of a subsidy that was designed to achieve a social goal that affects water use and agricultural development in the West. Urban wastewater treatment also traditionally has not been required to recover the full cost of projects because of substantial federal grant funding through the Clean Water Act.

Other examples of economic incentives include:

- The California Bay-Delta Authority, the Department of Water Resources, and the State Water Resources Control Board administer low-cost loans and grants programs to encourage agricultural and urban water conservation, urban water recycling, agricultural and urban ground water storage, and conjunctive use projects.
- At the wholesale agency level, the Metropolitan Water District of Southern California has recently developed plans to expand its Local Resources Program, which provides a subsidy of up to \$250 per acre-foot to its member agencies for water recycling, groundwater recovery, and seawater desalination. MWDSC's water rates structure includes a "water stewardship charge" to collect revenue to subsidize individual retail agency programs that benefit the region.
- Incentives can include rebate programs for low-flush toilet installation, water audits for residential landscapes and mobile lab services for increasing on-farm water use efficiency at no charge to customers, or other innovative programs.

Box 8-1 State-Managed Grants and Loans

Since 1984 Californians have approved six bonds propositions that provided \$1 billion to fund local water supply and conservation programs (Propositions 25, 44, 82, 204, 13, and 50).

Water rates can take several forms. Water rate structures designed to recover costs can be fixed, uniform, or tiered (see Box 8-2). Both uniform and tiered rates can have a fixed component. Where water use is unmetered, fixed assessments might be necessary. For example, water rates can be based on connection size for urban users or acreage irrigated for agricultural users.

Most urban agencies in California are moving away from uniform rates and toward rate structures based on the amount of water used. Many urban agencies have already adopted tiered rate structures where the unit water charge increases as water use increases; the more units of water used, the higher the charge for each subsequent unit. Some tiered water rate structures may have higher seasonal rates. In 1999, of 326 California urban water purveyors surveyed, about 45 percent had tiered rates, 42 percent had uniform rates, 11 percent had flat or other type rates, and 2 percent had declining block rates¹. Some agricultural agencies, particularly concerned with drainage water management, have adopted tiered rate structures. Most apartment building owners don't individually meter their tenants, removing the effect of volumetric pricing on the tenants' water use.

While most residential wastewater treatment is currently charged at a flat rate, commercial and industrial users are more likely to be charged by wastewater volume (and, in some cases, the types of constituents in their wastewater).

Potential Benefits from Economic Incentives

A major purpose of economic incentives is to reduce water demands. This may produce environmental or social benefits, or avoid or delay construction of new water supply projects.

When water costs increase, customers have a choice to either pay the higher water bill or find ways to use less water, such as using a broom or blower to clean sidewalks instead of a hose. Residential and agricultural customers might purchase more efficient conservation technologies, such as installing a drip irrigation system, or they may forego some water use, including removing some of their residential landscaping or agricultural acreage from irrigation.

Economic incentives that produce more efficient water management practices can result in benefits or costs to the environment by changing water quality or the timing of diversions. Conversely, water rate policies that lower the cost of surface water during wet cycles can encourage storage in groundwater basins. Water quality improvements resulting from economic incentives can help farmers meet drainage water goals as well as lower treatment costs or provide health benefits to urban users in addition to benefiting the environment.

Marginal-cost pricing is one strategy to promote more efficient water use. With marginal-cost pricing, customer rates would reflect the full cost of the last, and probably the most expensive, source of supply. In a less severe form, marginal-cost pricing for "new" customers — residents of new subdivisions, for example — might reflect the average cost of the additional supply needed for those customers. This price would be higher than that for existing customers.

It is difficult to quantify benefits provided by economic incentives since the incentives influence decisions on other management strategies that produce their own benefits. Economic incentives can be used to influence development of water supply augmentation or demand reduction programs. For example, grant funds from a State agency can reduce the

Box 8-2 Rate Structure Examples

Fixed rate – The water user pays the same amount for water each month regardless of the amount of water use. This is common where water is unmeasured (also known as a flat rate). Example: \$20 water bill each month.

Uniform (or constant) rate – The water user pays the same for each unit of water. This requires measurement of water. Example: \$100 for each acre-foot of water.

Tiered water rate – As use exceeds predetermined amounts, the water user pays a higher or lower rate for each unit of water. This requires measurement of water. Example of a tiered rate with increasing unit costs (also known as an increasing block rate): \$1 for the first 100 cubic feet, \$1.50 for the second 100 cubic feet, \$2 for the third 100 cubic feet, etc.

¹ 1999 California Water Charge Survey, Black & Veatch Corporation.

effect on water rates of water recycling projects. Similarly, a wholesale water agency might make financial assistance available to retail water purveyors to encourage implementation of projects or programs that would benefit the region. Financial assistance can also be used to achieve beneficial changes in water system storage, conveyance, and treatment operations. The willingness of a water agency to participate in water marketing can also be influenced by economic incentives.

Potential Costs of Economic Incentives Policies

The only financial cost of an incentives program to a water agency is the cost of its creation and administration. Other costs would be associated with the adoption of water management strategies or water use behaviors — including foregoing some water use — that may result. The costs of the economic incentives will depend on how the incentives are integrated with other management strategies. As with other management strategies, economic incentives must be specific to the circumstances and water management goals of each individual water agency.

Major Issues Facing Additional Economic Incentives

Selecting Appropriate Water Rates

A major consideration is determining what rates to charge customers while ensuring that costs of delivering the water and treating the wastewater are recovered. Also, managing water rate changes during water shortages can be challenging since incremental costs of supply can both increase dramatically and change rapidly, making it more difficult to recover costs. If regulations against collecting revenues in excess of costs remain in effect, some agencies would have to reduce their lower tier prices in order to charge higher costs at the higher tiers. This would tend to increase use by the lower-tier customers, an undesirable result from a water use management standpoint.

Currently, if a landlord wants to charge tenants based on how much water they use, the landlord would have to comply with many of the same water quality regulations faced by utilities, including testing by experts. The EPA is now seeking a rule change to remove this barrier to individual metering.

Funding for Loans and Grants

The availability of State funding can be intermittent. Funding methods that require direct legislative appropriation or approval of new water bonds could require several years lead time before funds are available.

State Funding for Private For-Profit Purveyors

With few exceptions, State bond-funded grants and loans have only been made available to public agencies and non-profit organizations. In 2004, in response to a query from the Governor's Office, the Attorney General issued a finding that bond funds cannot be awarded to for-profit purveyors unless the bond language specifically makes them eligible. In addition, it was determined that such language could require the issuance of taxable bonds at a substantially higher cost to the State's taxpayers.

Criteria for Loans and Grants Funding Approval

Historically, requests for loans and grants have exceeded available funding. Deciding which strategies and which agencies receive loans and grants requires setting of priorities for funding.

Social Considerations

Economic incentives can affect social equity when those customers incurring the costs of subsidization through higher taxes or fees do not receive a fair share of the benefits that the subsidies are expected to generate. As another example, increasing the costs for agricultural water supplies may increase the efficiency of on-farm water use, but can also induce changes in crop patterns that result in lower farm employment. Communities dependent on farm production may be disproportionately affected. In the urban sector, if water rate changes reduce the use of ornamental landscaping, jobs that depend on establishing and maintaining that landscaping could be lost.

Regulations

Some water agencies are not permitted to collect revenues in excess of costs. Changes in regulations may be needed to implement a water pricing policy that works best for an agency. Some water agencies have regulations that prevent the use of water metering necessary for measuring and pricing volumes of water. Typically, loans and grants are constrained by bond language to strategies that lead to capital expenditures. Most loans and grants may not be used for developing non-capital strategies such as water rate changes.

Recommendations to Help Promote Economic Incentives

The State and water agencies should consider and evaluate economic incentives as an integral part of their package of management strategies. The following recommendations recognize that economic incentives will vary widely throughout California due to differences in local conditions:

1. Institute water rates that support better water management based on the unique conditions in each water district.
 - Implement appropriate measurement of all water uses in California.
 - Use tiered pricing to the extent that it improves water management, including consideration of higher prices for water in excess of agricultural and urban vegetation management requirements.
 - Recover more costs from variable charges and fewer costs from taxes and fixed water charges as is financially prudent.
 - Institute pricing incentives that encourage the sustainable use of groundwater.
 - Institute pricing incentives that reduce excessive deep percolation of water in agricultural drainage problem areas.
 - Agencies adopting new water rates should clearly identify what they mean to water users and provide education, training, and technical assistance to water users to maximize the desired outcome of those policies.
2. Institute loans and grants that support better regional and statewide water management based on the conditions in each water district.
 - Develop ranking criteria for grant and loan awards to water agencies that consider economic, environmental, and equity issues, economic hardship, Public Trust, Environmental Justice, and the regional and statewide distribution of benefits in allocation of subsidy funds.
 - The grant and loan award process should account for the fact that some water agencies have limited funds and staffing to prepare applications.
 - Agencies receiving grants and loans should make information on the success of the programs/projects that they implement available so that the experience can be used to design better subsidy plans.
3. The State should provide technical assistance to local agencies in developing equitable and effective economic incentives to achieve local and statewide water management goals and objectives.
4. The State should develop guidelines and ranking criteria for grant and loan awards to water agencies that consider cost-effective water management, environmental and equity objectives. These guidelines and ranking criteria should account for the fact that some water agencies have limited funds and staffing to prepare applications.
5. The State should explore innovative and equitable ways to provide financial incentives to private for-profit water purveyors that avoid or minimize the perception of share holders unfairly benefiting from public funds.
6. The State should assist local agencies in using planning methods that maximize economic efficiency on a regional and statewide basis.

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