

# WATER STRATEGIST

QUARTERLY ANALYSIS OF WATER MARKETING, FINANCE, LEGISLATION AND LITIGATION

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## The Forgotten Economics of Water Trades

As economic rewards from completed water transactions grow in the 1990s, agricultural interests and municipalities must answer a key question: how should water trades be organized? The better organized trading efforts, the more likely transactions can be successfully identified, designed, negotiated and implemented. However, organizing trades is costly. These costs constitute the forgotten economics of water trades.

From the perspective of agricultural interests, the organization of trades must consider the following. Should growers individually pursue trading opportunities with interested buyers? Or, should growers negotiate jointly with buyers? If so, how? If growers are served by a water district, should they rely on the district to negotiate on their behalf? Alternatively, should growers interested in participating in water trades create a separate organization that would work with their district? If so, how may capital be raised for the organization?

In this article, *WS* focuses on these questions. It does so for two reasons. First, some of these questions have been and continue to be the subject of legislation. Second, in *WS*'s view, water trading in the west has been more stymied by the inability of willing sellers than willing buyers to organize effectively.

### ECONOMIC RISKS

From an economics perspective, water trades have the same characteristics as oil exploration: large upfront costs, high risk of failure, and, if successful, significant delay before economic rewards are realized. Each characteristic must be taken into account when organizing water trades.

**UPFRONT COSTS.** Successful water trades do not emerge from thin air. They require expenditure of resources to identify potential trading opportunities, design and negotiate agreements, and monitor implementation. Much of these costs are incurred even before one knows whether a binding agreement can be reached with a buyer, let alone executed.

Before negotiations begin, a strategic plan and implementation strategy must be developed for the contemplated transaction or series of transactions. The potential trading value of water resources with alternative buyers must be assessed. Contractual terms and conditions that are competitive with the alternatives of buyers must be prepared. Otherwise, the wrong buyer or buyers may be approached or, even if the right ones approached, the wrong terms offered. Prudence may also require completion of extensive hydrological investigations of the water resources before negotiations. Otherwise, the buyer may not understand nor the seller able to explain the water resources offered in proposed transactions. If so, this reduces the prospect that the parties may reach an agreement. For similar reasons, prudence may also require extensive analyses of the regulatory and political contingencies that may stand in the way of necessary approvals. Otherwise, effort may be wasted on negotiations with buyers and/or on types of agreements destined for failure.

The accumulation of costs continues during negotiations. The inevitable counterproposals must be developed and evaluated. Economic valuation of the alternatives must be conducted to aid decision-making. Otherwise, concessions may be made or hard positions taken in negotiations without a clear understanding of the stakes. Once an agreement in principle is

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"The Forgotten Economics of Water Trades" examines how the economic risks of water trades should shape the organization of water trades. It concludes that growers should jointly negotiate with buyers through a trading organization funded by private investors.

"The 1992 Annual Bond Market Review" reports on the \$5.36 billion in new money and the \$4.09 billion in refinancings in 1992 for water projects in the western states.

"Finance Update" reviews the results from the 124 bonds that raised \$3.21 billion in the first quarter of 1993.

"Legislative Update" describes the 141 bills tracked by *WS* this year.

"Litigation Update" reviews a Nebraska Supreme Court decision holding that neither a state endangered species act nor the public interest standard for review of permit applications violated the constitutional right to divert unappropriated waters.

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reached, formal agreements must be prepared and presentation materials for decision-makers who must formally approve an agreement but did not participate in negotiations must be developed. Both efforts warrant the investment of significant resources. Otherwise, the formal agreement may not accurately reflect the agreement in principle; this unknowingly sets the foundation for future conflict. Without clear explanations of the inevitably complex terms, the work product of negotiations may not be fully understood by final decision-makers; this increases the risk of rejection.

Rather than the end of a transaction, the signing of an agreement only begins the endgame. Regulatory and/or legal approvals are required. Concerns about third party impacts from the implementation of the agreement must be addressed. Effective planning in the pre-negotiation stage, of course, should minimize these problems. However, addressing third party concerns still requires the investment of time and resources. In fact, the resources devoted to explaining the agreement to third parties may be as much as the amount devoted to reaching an agreement with a buyer.

**RISK OF FAILURE.** While the upfront costs of a water transaction are certain, success is not. Participants face many hurdles, any one of which may make a transaction impossible. Sellers may not be able to form a consensus on what terms and conditions constitute an acceptable agreement. Even if sellers reach a consensus among themselves, buyers may not find reasonable the sellers' minimum acceptable terms. Or even if buyers are interested in the sellers' water resources, hydrological, legal, economic, or political problems may arise. Transactions which look attractive in theory may not be viable in practice. Participants may find themselves in the position of tossing a coin numerous times. Unless the coin lands on the equivalent of "heads" every time, they may not succeed.

**DELAY.** Not only do parties incur the upfront costs of a transaction and face the risk of failure, they also must wait a significant period of time before rewards are realized. While it may take only months to develop a strategic plan and implementation strategy, it may take years to reach an agreement with a buyer and obtain all regulatory and/or legal approvals. In California, for example, completion of an environmental impact report and related litigation may take up to two years or longer, *once* an agreement with a buyer has been reached.

Because the money used to pay the upfront costs of a water transaction could have earned interest if invested, "delay is money." The economic consequences of delay and the risk of failure are interrelated. In general, the greater the risk of failure, the more onerous the economic burden from delay.

Consider the payout ratio a successful water transaction requires so that each dollar invested in upfront costs yields the same expected return as an investment in a high-yield (*i.e.*,

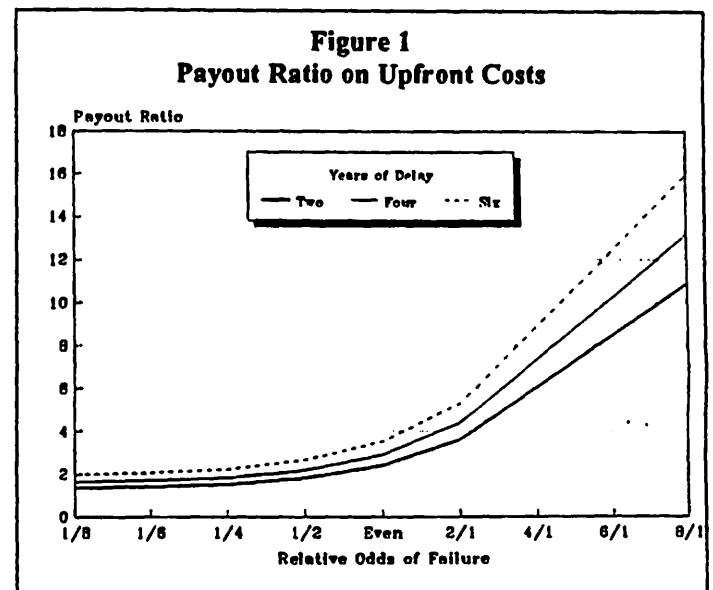
"junk") bond. This payout only represents the required return on upfront costs; it does not include the return earned by growers and other beneficiaries of the transaction, such as districts or the area-of-origin. A payout ratio of 2, for example, means that a successful transaction must return two dollars for each dollar spent in upfront costs. If the individuals who funded upfront costs do not receive this return, their investment would not be economically attractive.

Figure 1 plots the payout ratio as a function of delay and the risk of the transaction as measured by the relative odds of failure. For a transaction as likely to fail as succeed, the relative odds of failure is even money. With two years delay, this transaction must payout \$2.40 per dollar of upfront costs; with four years delay, \$2.90; with six years delay, \$3.50. For transactions with a higher risk of failure (*e.g.*, relative odds of failure are greater than even money), the payout ratios are higher and quite sensitive to delay. For transactions with a lower risk of failure (*e.g.*, relative odds of failure are less than even money), the payout ratios are considerably lower and not as sensitive to delay.

### INDIVIDUAL OR GROUP ACTION?

Given the above risks, how should water trades be organized? For three reasons, growers should jointly negotiate with buyers through a trading organization funded by private investors.

**THE CASE FOR JOINT ACTION.** From the perspective of agricultural interests, there are two major advantages from jointly negotiating with buyers. Together, growers have a



<sup>1</sup> See Rodney T. Smith, "District Control of Water Transfers Likely to Benefit Landowners," in *California Agriculture* (November-December 1992). For a copy, call or write the *WS* publisher.

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Spreads on insured issues (\$15.05) were higher because the costs of insurance are often added directly into the spread. As usual, small issues paid larger spreads than large issues — \$20.07 for issues below \$1 million, \$18.56 for those between \$2.5 million and \$5 million, \$15.37 for those between \$5 million and \$20 million, and only \$9.30 for issues larger than \$20 million.

## UNDERWRITING WESTERN WATER

Dean Witter Reynolds captured first place in the *WS* Underwriter Top 10 for 1992 — it had not even made the list last year. The company underwrote 10 issues with a total volume of \$1.06 billion. They gained an 11.2 percent market share — mainly on the strength of San Antonio's mammoth issue. Dean Witter was the lead underwriter in Texas and Nevada.

Dillon Read was second on the strength of only 3 underwritings that raised a total of \$791 million (most were in a single issue — DWR's \$650 million revenue bond). DR was top in California and Washington.

First Boston was third, down from No. 1 last year. It underwrote a total of four issues raising \$731 million, including Houston's \$647 million issue. It was top in no states — but came a close second in Texas.

Merrill Lynch Capital Markets (and subsidiaries), was fourth (down from 2nd last year) by underwriting 14 issues that were responsible for 7.1 percent of the money raised. Merrill scored with two large underwritings for Los Angeles and Fort Worth, but was top in no state.

Bear Stearns was fifth (\$563 million in 3 issues), Paine Webber and subsidiaries was sixth (\$517 million in 8 issues), and Smith Barney Harris was seventh (\$423 million in 16 issues), managing top place only in New Mexico.

Hardest working underwriters were Rauscher Pierce Refsnes with 37 issues which put them at No. 1 in Arizona (32.5 percent of gross volume), Seattle Northwest with 36 issues (top in no states), and George K. Baum, with 32 issues, placing them top in Idaho and Kansas.

*WS* expects bond markets in 1993 to be strong as low interest rates continue to support high levels of new investment and refinancings. The nascent economic recovery may also stimulate some new projects. But, paradoxically, the promise of a federal boost for public works — offered in President Clinton's jobs package — may slow things down. State and local authorities will wait before breaking ground on new projects while they try to persuade Washington to pay part of the bill. In 1977, Congress passed the Local Public Works Act which led to a precipitous decline in state and local government spending on infrastructure as they jostled for places in the queue for federal dollars. Neither Congress nor the Administration appears to have learned from past experiences. □

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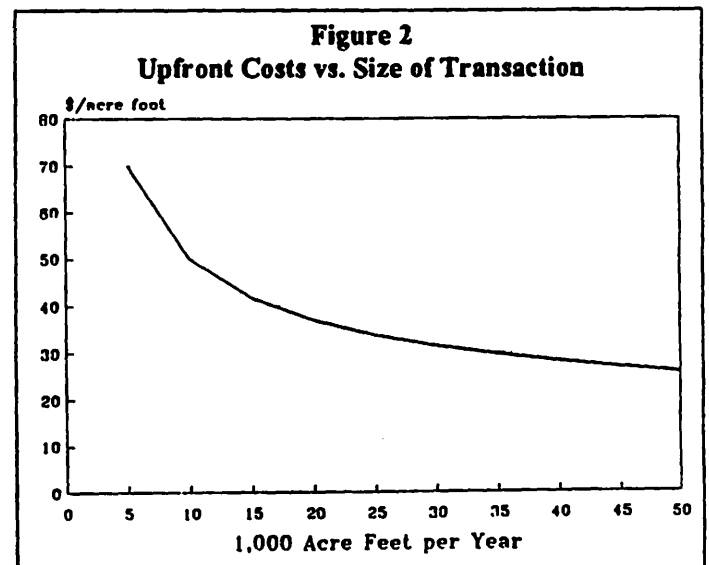
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stronger bargaining position with buyers. Through exclusive control of a potential transaction, the entity representing growers may obtain a higher price than if the growers individually competed in selling their water. For example, one of the *WS* editors recently demonstrated with a case study based on farm survey data that, by vesting exclusive control over the access to agricultural water to a single entity, sellers may increase their gains from a water transaction by as much as 200-fold.<sup>1</sup>

Second, joint action enables growers to exploit the fact that upfront costs of a water trade, per acre foot of water sold, decline with the size of the transaction. Figure 2 plots a representative relation for a transaction involving the long-term leasing of water with modest environmental issues and serious, but not politically explosive, third party concerns. Upfront costs cover all the legal, economic, hydrological, and other efforts required for the preparation of negotiations through obtaining regulatory and/or legal approvals. For a transaction of 5,000 acre feet per year (afa), upfront costs could be \$70 per acre foot (af); for 25,000 afa, \$34/af; for 35,000 afa, \$30/af.

The cost-savings from joint action are substantial. Suppose, for example, that a payout ratio of three is required to make the funding of upfront costs economically attractive (this ratio corresponds to a transaction with four years delay and a relative odds of failure of "even money"). Therefore, transactions must return to the individuals funding upfront costs three times the amounts in Figure 2. For transactions involving 15-year leases of 5,000 afa, 25,000 afa, or 35,000 afa, the annual lease payment needed for the repayment of upfront costs could be \$27.61/af, \$13.32/af, or \$11.67/af, respectively.

**ROLE OF PRIVATE INVESTORS.** For different reasons, neither growers nor a water district may have the financial capability



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## Legislative Update

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electors an amendment to the constitution requiring utilities to make annual payments in lieu of taxes on any property located in other counties. In Nevada, (*SB 125: Committee on Natural Resources*) would change the boundaries of the Carson Water Subconservancy District to include Storey County and exclude Douglas County. (*SB 125: Committee on Natural Resources*) would raise the bonding limit of the Colorado River Commission for certain purposes and repeal it for others. Oklahoma would change the procedure for dissolving a rural water district. Instead of distributing any funds left among members of the district on a pro rata basis, (*HB 1240*) would apportion property and proceeds to an adjoining rural water district or any other political subdivision of the state. No money could be distributed to private interests. Texas, under (*HB 682*), would force the Lower Colorado River Authority to sell, as soon as possible, all the electric power and energy generating facilities it owns, its interests in any jointly owned electric power facilities, all water distributing facilities, all jointly owned water distributing facilities, all vehicles and other personal property it owns, all real property it owns, and use the proceeds to retire its bonds (with any surplus to be deposited in the permanent school fund).

In Washington, (*SHB 1442: Johnson et al*) would create a water resources policy commission to make recommendations by November 1994 for the improvement and implementation of management decisions. The commission grows out of the perception that the proliferating number of water programs and planning requirements at all levels of government is causing inconsistent and conflicting management strategies. (*HB 1573: Pruitt et al*) expresses similar concerns, but would place the burden of coordinating water resource policy on counties. (*SHB 1309: King et al*) and (*SSB 5210: Haugen, Rasmussen*) would impose a tax on the sale of real property of 0.5 percent of the sale price and dedicate the proceeds to the purchase and maintenance of conservation areas.

WS will track these bills and any others introduced during the coming weeks. In our next issue we will describe what passed, what failed, and what has been changed in the process. WIM will provide monthly updates on bills of particular significance for western water policy. □

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to commit the \$500,000 to \$1,000,000 needed to fund upfront costs, bear the risk of failure, and incur the cost of delay for the scale of water transactions discussed above. For growers with pre-existing large debt, they lack any further borrowing capacity. For growers with unused borrowing capacity, they may not wish "to bet the farm" by funding the upfront costs of water transactions.

Water districts may also not have the ability or the willingness to fund transactions. Unless *all* growers want to participate in transactions, the district will find itself torn between the growers who support and the growers who do not support the funding of trading efforts. Especially for failed ventures, the increase of water rates and assessments may prove to be politically divisive.

From an economics perspective, there is a role for equity capital in which investors fund the development and implementation of water transactions in return for a share of the financial proceeds generated by successful transactions. The raising of equity capital requires the creation of a separate trading entity with the exclusive rights to market water. Without exclusive marketing rights, growers will forego the two benefits from joint action—bargaining leverage and savings in upfront costs. In addition, they would increase the share of the financial proceeds private investors would demand because the lack of the exclusive right increases the risk of failure for the trading organization. □

## CONCLUSION

For a decade, advocates of water trading have searched for and removed suspected impediments to water trades. Recently, the role of growers versus districts in water transactions has been at the top of the legislative agendas, in both Congress (see "Aftermath of Congressional Water War," *WS January 1993*) and state legislatures (see "Katz Introduces Water Transfer Bill," *WIM January 1993*).

For sellers, effective water trades require joint action backed with equity capital provided by private investors. Proponents of legislation that promote or at least do not undermine these principles will be successful at providing the framework for water trades. Proponents of legislative reforms that do not may find their efforts unsuccessful. □

*Water Strategist* is published quarterly by Stratecon, Inc. Subscription rates are \$130 per year, \$240 for two years. Single issues are available for \$45. Call for volume and academic discount rates. Please direct all inquiries to the publisher, Lisa Hahn. For \$190 per year, subscribers receive both *WS* and *Water Intelligence Monthly*, a supplement. *Water Intelligence Monthly* provides detailed water marketing data on who is selling and buying, amounts, terms, use, contract provisions, and status of transactions in receiving necessary agency approval. It also reports on key federal agency actions, state actions, environmental and water quality decisions, and Indian water resources.

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