

CREATING A VIABLE WATER TRANSFER MARKET IN CALIFORNIA BY ADOPTING A MARKET-BASED APPROACH TO PRICING "NEW WATER"

*Proposed for Implementation Under The
Water Transfer Common Program Element
of the CALFED Bay-Delta Program¹*

DATED: JUNE 28, 1998

INTRODUCTION

To an outsider observer who has not been personally involved in the long running political battles over California's water problems, it appears that by making relatively simple changes in the *structure of the water industry* in California, major progress could be made in solving California's water supply deficit and reliability problems *without* massive taxpayer funding. Unless the water industry is at least partially restructured and opened to private enterprise in a manner similar to the state's natural gas and electricity industry, a viable water transfer market will not be created in California, because the only the buyers, and most sellers, will be public agencies which have built-in conflicts and institutional biases against promoting and engaging in true "market priced" water transfers.² To date, the CALFED WATER TRANSFER WORK GROUP has not addressed the issue of how to create a robust water market by ensuring that a large number of potential buyers and sellers will be willing and able to participate.³

The purpose of this paper is to outline a specific plan for creating a *2.0 million acre-foot per year (maf) water transfer market* as part of the first seven-year stage of CALFED actions by spurring private party transactions that are facilitated and financially supported by CALFED.

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² Restructuring the water industry to promote water transfers as an initial CALFED action will *not* totally solve the state's water supply deficit and reliability problems. However, it will "help ensure realistic evaluations of the cost-effectiveness of any new supply development, helping to avoid premature investment or over investment in supply facilities, such as surface storage." (*California's Bay-Delta: The Problem, The Process and The Potential*, Spring 1998, p. 13). In recent statements, Gov. Wilson, Interior Secretary Babbitt, California business leaders, and 16 members of California's congressional delegation have voiced support for an aggressive water transfer program ahead of building new dams and reservoirs. Nonetheless, it seems some BDAC members who represent the water agencies which would be traditional buyers and sellers of transferred water *oppose* an aggressive long-term water transfer program -- precisely because it may eliminate the need for new publicly financed water supply facilities.

³ At the Fresno meeting, some BDAC members characterized the work product of the Water Transfer Group as "modest" and were concerned that any linkage to future CALFED actions *not* be based on achieving specified transfer volumes because no specific program has emerged. This paper attempts to address this BDAC concern.

This plan is based on, and is consistent with: 1) the six CALFED Solution Principles; 2) Governor Wilson's and Secretary Babbitt's joint statement on June 15, 1998, "CALFED Approach to Developing Preferred Alternative;" 3) Governor Wilson's Water Transfer Principles, in the 1992 Monterey Accord; 4) CALFED's WATER TRANSFER ELEMENT - POLICY FRAMEWORK & CLEARINGHOUSE (June 3, 1998 draft, except this plan proposes a market-maker role for CALFED); and 5) presentations and public comments at the BDAC meeting in Fresno on June 18, 1998.⁴ This paper -- which includes "out of the box" thinking -- is presented to focus discussion on a specific water transfer plan, supported by facts and analyses.

UNDERLYING FACTS AND PREMISES

In addition to the policy and position statements referenced above, the water transfer plan outlined in this paper is predicated on the following facts and premises (for which there may or may not be consensus among BDAC members or in the larger water community):

- ♦ As documented in the official CALIFORNIA WATER PLAN - BULLETIN 160-98,⁵ California's long-term (20 year) water problems center around: 1) having enough reliable supplies in drought years to meet the *critical* needs of all water users; and 2) developing 2.9 maf in net additional average year supplies, which are need primarily to meet the projected 36% increase in urban water requirements (8.8 to 12.0 maf) attributable to population growth.
- ♦ The true cost of new drought-year *critical* water supplies in California --- whether achieved by wastewater recycling, urban conservation, new storage and canals, or desalination -- will range from \$400 to over \$1,600 per af.⁶ Excluding urban conservation (which arguably does not create 'new water' in drought years), the *minimum cost* for new

⁴ The proposed plan incorporates aspects of the *Model Water Transfer Act for California*, as developed and promoted by the California Business Roundtable and other business groups in May 1996. However, the MWTA focuses on short-term transfers; does not provide financial incentives for farmers to become sellers; and does not place the burden for paying for expensive new or transferred supplies received by municipal agencies on new users.

⁵ This is a planning document produced and updated by the California Department of Water Resources every five years. The current version was issued in January 1998. A specific purpose of the plan is to "provide a framework for use in making water resource decisions." All figures used in this paper are taken from Bulletin 160-98.

⁶ Mr. Byron Buck, BDAC representative of the California Urban Water Agencies, distributed a document at the Fresno BDAC meeting showing cost estimates for wastewater recycling to be \$900 - \$1,200 per af *delivered*; urban conservation, \$400 to \$1,600 per af; and new off-stream storage and larger dams/reservoirs (e.g., Shasta), \$130 to \$200 per af. However, the cost estimates for new off-stream storage and larger dams did *not* include the \$1- \$2 billion cross-Delta "isolated conveyance facility" (CALFED Alternative 3) required for new large-scale water projects. In addition, such low figures do not include realistic cost estimates for the environmental mitigation measures that would be required for building new dams and reservoirs (e.g., the cost estimate for new water from Shasta as a "Level II Supply Measure" in DWR's Bulletin 160-93 was \$1,450 per af). Given these considerations, water from new storage and conveyance projects -- *delivered to urban or agricultural users in water-short areas* --- will likely cost over \$600 per af. Even with technological improvements, sea water desalination -- which was omitted from Mr. Buck's chart -- also will cost over \$600 per af within the next 20 years. (The low bid for a for recent privatized 22,000 af per year [20 MGD] municipal water supply desalination project in the Tampa Bay Area was \$750 per af.) Presumably, the "Economic Equivalency Analysis" that CALFED will undertake over the next two years will develop more reliable and comparable cost estimates for various supply augmentation options. However, it is extremely unlikely any options -- on a true "full cost" delivered basis -- will be less than \$600 per af.

supplies in California over the next 20 years -- *delivered to water-short urban and agricultural areas* -- will exceed \$600 per af. (This figure could easily be \$750 per af.)

- ◆ The cost of water for agricultural users in the San Joaquin Valley (defined to include Tulare Lake Basin) is generally \$25 to \$50 per af -- and less than \$100 per af in almost all cases. No matter what crops are grown or how efficiently water is used, irrigated agriculture would be unprofitable in California with water priced much above \$100 per af. Thus, without public subsidies to cover 80% to 90% of actual costs, agricultural users can *not* afford new water supplies. It is hard to imagine how a bond measure to provide an 80% to 90% *cost subsidiary* for new water projects for private enterprise (i.e., farmers) would ever gain a 67% statewide voter approval. This "fact of life" is reflected in Bulletin 160-98, which projects a 2.3 maf *decline* in agricultural water use from 1995 to 2020.
- ◆ In an average water year (e.g., 1995), over 3.0 maf of water supplied from the federal CENTRAL VALLEY PROJECT (CVP) and the STATE WATER PROJECT (SWP) is used in the San Joaquin Valley to grow cotton (i.e., 1.2 million acres at an average use of 2.5 af/acre). Even with CVP and SWP water priced at less than \$50 per af delivered, cotton has become a marginally-profitable-to-unprofitable crop in California, due to foreign competition. Many San Joaquin Valley farmers who predominately grow cotton rely on "deficiency payments" received under the U.S. Department of Agriculture's crop support program to survive. These federal deficiency payments for cotton will terminate in 2002. Cotton farmers are in urgent need of capital to transition to more profitable and less water intensive crops (trees, vines, and vegetables) and to invest in efficient irrigation systems.⁷
- ◆ Agricultural water usage in the San Joaquin Valley (about 25 maf in average years) could be permanently reduced by 8% (i.e., 2.0 maf -- which approximates the amount of water now used to grow cotton *versus* less water-intensive crops) in drought and subnormal years *without* creating significant socioeconomic effects in local communities⁸ -- provided that: 1) farmers who *voluntarily* make the *business decision* to sell some of their contractual CVP or SWP water rights are compensated based on the long-term "market value" of their water rights; and 2) some funds are received up front, so cotton farmers will have the capital to invest in new crops and to install more efficient irrigation systems.⁹
- ◆ Although much attention is focused on agricultural water conservation as a way to help solve the state's water-supply deficit, the truth is: 1) agricultural water conservation has many benefits, but does not create much 'new water'; and 2) any attempt to impose mandatory water conservation measures on agricultural users would be futile due to the complex nature of farm-water management and each farm's unique circumstances.¹⁰

⁷ Personal conversations with cotton farmers in Kern County, June 1998. (After outlining the proposed plan, the only two questions were: How soon can I get my first \$250,000 check? And, Can everyone who wants participate?)

⁸ Prior to 1995, the USDA's deficiency payments required farmers to "set aside" (fallow) a percentage of their base acreage. Historically, set-asides as high as 25% for cotton have been in effect. Even in recent full-water years with no set-aside requirements, farmers typically *voluntarily* fallowed about 5% of their land for agronomic and marketing reasons. Thus, 8% additional land fallowing in drought years would not exceed historical levels.

⁹ The argument here is that using water to grow cotton at no profit is a *non-critical* use of water in drought years.

¹⁰ Highly credible testimony was presented at the Fresno BDAC meeting on both these points, including remarks by Dr. David Sunding (UC Berkeley), Dr. Tom Gohring (US Bureau of Reclamation), and State Senator Costa.

PROPOSED PLAN

By permanently replacing cotton with less water-intensive crops and transferring the saved water to urban users, progress would be made in solving both aspects of California's water problem, namely: 1) reducing drought-year *critical* demand; and 2) overcoming the projected 2.9 maf average-year urban deficit. Thus, a water transfer plan to "buy back" up to 2.0 maf of the CVP and SWP water rights held by San Joaquin Valley farmers at prices reflecting the "replacement value" of new drought-year water supplies (about \$600 per af) represents:^{11 12}

- ◆ the *quickest and least-costly* way to obtain up to 70% of the additional water supply needed to meet increased urban demand over the next 20 years;
- ◆ the *simplest and most effective* way to provide financial incentives and capital to San Joaquin Valley farmers to conserve water and to phase out of cotton; and
- ◆ the *most cost-effective* way to defer (and possibly avoid) the need to build new expensive and environmentally harmful water projects at *taxpayers' expense*

Assuming the above approach is acceptable to agricultural interests and the environmental community, the question becomes -- Who is going to pay San Valley Joaquin farmers over \$1 billion per year over the next 25 years to receive 2.0 maf of their CVP and SWP water?¹³

The answer lies in: 1) restructuring urban water utilities into separate *supply* and *distribution* businesses (similar to the recent restructuring of electric utilities in California); and 2) creating a two-tier pricing system for urban water customers ('old water' and 'new water'). Restructuring the urban water industry in California is essential for creating a dynamic water transfer market in order to have a large number of buyers, including individual customers.

¹¹ The CALFED-backed water rights acquisition and transfer plan proposed herein would only apply initially to San Joaquin Valley (including Tulare Lake Basin) farmers. If and when it is determined that excess "every year" conveyance capacity exists (or is built) across the Bay-Delta, this program could be extended to the Sacramento Valley. Since it appears Imperial Valley farmers will conclude their own water transfer deal with San Diego, it is not expected that this purchase plan would be extended to the Imperial Valley -- or to other regions of the state.

¹² Under the proposed water rights acquisition and transfer plan, the buyer would be the newly formed CALIFORNIA WATER EXCHANGE. The CWE would pay farmers \$500 per af for their water rights, and assume and directly pay all related payment obligations to the CVP, SWP and local water districts. Thus, the financial integrity of these entities would not be harmed. The local districts would institute a monitoring program to ensure that farmers who sell water rights do not increase their use of ground water. To minimize localized impacts, each farmer would be limited to selling 10% of his/her contract entitlements, up to a maximum of 500 af. (The 10% figure was mentioned by Mike Stearns at the Fresno BDAC meeting as being the upper limit for "no significant impact" water transfers within the San Luis Delta Mendota Water Authority.) In years when CVP and SWP deliveries are curtailed, farmers would still have to give up the full transferred amount. Conversely, in wet years, farmers could buy extra water from the projects and not incur any loss of water -- even though they would still be paid \$500 per acre foot. After 25 years, all rights to the transferred water would vest in the CWE (or its assignee).

¹³ In comparison to paying agricultural water users \$1 billion/year in transition payments over 25 years (a present value of about \$12 billion), the three investor-owned electric utilities in the state will receive \$28 billion in up-front transition cost payments. Under this proposed plan, only 'new water' customers will pay the \$1 billion/year in transition costs; whereas, in the case of electricity, *all customers* are paying the \$28 billion in transition costs.

First, all municipal and investor-owned water utilities would be required by state legislation (similar to AB 1890, the electric utility industry restructuring bill) to create separate *PROCUREMENT AND SUPPLY (P&S)* businesses (e.g., entering raw water supply contracts with wholesalers, state agencies, private companies, and the new CALIFORNIA WATER EXCHANGE; and operating existing wells or surface water facilities); and *TREATMENT AND DISTRIBUTION (T&D)* businesses (e.g., building and operating water treatment plants, installing and maintaining water mains, and handling metering, billing and collecting for all customers within its service territory). Urban water agencies would get out of business of developing, building, financing and operating *new* out-of-district water supply projects (e.g., the American River diversion project planned by the East Bay Municipal Utility District.)

Similar to electric power service, each customer's water bill would be itemized into separate P&S and T&D cost components. The P&S cost component for *existing* customers would be based on the utility's *current* water supply sources and costs ('old water') and would be adjusted only to reflect costs increases associated with maintaining the utilities' current supply sources. New customers, and current customers which increase their water usage more than 10% over base-year levels, would be required to pay P&S rates based on the utility's actual incremental costs to obtain new supplies ('new water').¹⁴ New customers would also pay all capital-related charges associated with new facilities that the utility installs to provide them service, including new or expanded pipelines and water treatment plants. Except for charges associated with new or dedicated facilities, all customers would pay the same T&D costs.

Enacting legislation allowing municipal water utilities to segregate their customers into 'old water' and 'new water' accounts would resolve two major financial issues that now hinder the orderly operation and expansion of water utilities serving urban areas experiencing growth. First, municipal water utilities are reluctant to expand their service territories since any new service responsibility they assume will inevitably increase their *average* water cost. This is because 'new water' is typically three to five times as expensive as 'old water'. Thus, by taking on new customers, the utility must *increase* its current customers' rates, and usually *decreases* their supply reliability in drought years. Secondly, due to Proposition 218, water utilities that wish to impose district-wide rate increases to recover capital-related charges to expand their supply capability may have to hold special elections and not get a "majority protest" from current ratepayers. This consent will be difficult to obtain for new supplies and facilities that primarily benefit new customers. These problems would not exist, and municipal water utilities would not be disinclined to expand, if they could charge new customers higher P&S rates to reflect their higher costs for acquiring 'new water' to serve them.¹⁵

¹⁴ The concept of charging different prices for 'new water' and 'old water' is similar to how the natural gas industry was deregulated in the 1970's. When a nationwide natural gas shortage appeared to be imminent, the price for 'new gas' was deregulated and allowed to be set by market forces, while the price of 'old gas' was kept at low regulated prices. This provided price stability for current users and avoided creating windfall profits for producers.

¹⁵ The doctrine of charging "new arrivals" substantially higher costs for basic services has been the basic tenet of California fiscal policy since the passage of Proposition 13 in 1978. If it is not unfair for a person who lives in an identical house as his neighbor to pay property taxes four times higher than his neighbor's, why should it be unfair

Under the proposed plan, a quasi public nonprofit entity -- the CALIFORNIA WATER EXCHANGE (CWE) CORPORATION -- would be established to serve as a market-maker in water rights and to engage in water transfers.¹⁶ To get started in business, the CWE would make an offer to buy up to 1.0 maf of CVP and SWP water rights from San Joaquin Valley farmers for \$500 per acre-feet, plus assumption of all related payment obligations to the CVP, SWP, and local districts.¹⁷ A second tender for up to 1.0 maf will be made once purchase commitments from buyers for 75% of the first 1.0 maf of 'new water' are obtained. To ensure a resale market for the water rights that the CWE acquires quickly materializes, all municipal water utilities that are connected (or are close) to CVP or SWP conveyance facilities would be required to obtain all their 'new water' requirements from the CWE for an initial five-year period.¹⁸

The CWE would be initially capitalized with CALFED funds and would operate with the full faith and credit of the state. Once in business, the CWE would charge transactions fees to recover its costs and expense and be expected to become financially solvent within three years. Similar to the POWER EXCHANGE (which is now operating successfully), any entity with sufficient credit -- e.g., municipal utilities, water companies, businesses, and housing project developers --- would be able to acquire firm, long-term water rights through the CWE. The CWE would maintain a sufficient inventory of water rights to ensure that it is able to meet the anticipate demand for 'new water' throughout the state. (Conceivably, the CWE could also serve as a market-maker, broker, securer of financing commitments, and wholesaler for 'new water' produced by new CALFED storage and conveyance facilities -- if and when needed.)

Under this proposed water industry restructuring plan, any customer of any water utility would have the right and option to make its own water supply deal with a third party (e.g., directly with farmers, the CWE, or private firms, such as Western Water or Cadiz Land Company). This "direct access" option would work just like it does with natural gas and electricity -- i.e., the customer (or its supplier) would be responsible for ensuring that its water is delivered into the "system" and would directly pay all third-party wheeling and transaction charges. The local water utility would deliver the water and charge for providing T&D services at the utility's standard rates. Business customers that desire to obtain "drought-proof" water supplies for key manufacturing facilities will be able to do so using the direct access option.¹⁹ This option would also allow investor-owned electric and gas utilities

for the person to pay water rates that are twice as high as his neighbor's rates? Indeed, isn't this fairer than raising the longtime residents' water rates simply because more and more people keep moving into California even though no water supplies or infrastructure exist to support them

¹⁶ The CWE would be analogous to the quasi public POWER EXCHANGE CORPORATION that was established under AB 1890 to serve as a market-maker and broker for wholesale power sales in California under deregulation.

¹⁷ Since the \$500 price is, admittedly, somewhat arbitrary and may not reflect the actual costs of 'new water', CWE's initial water purchase contracts would contain "favored nations" clause. This means, if CWE enters similar water rights acquisition contracts at a subsequent date with more favorable prices or terms for the seller, then the price and terms of the initial sellers' contractors would be revised to match the more favorable price and terms.

¹⁸ Again, this is analogous to electric deregulation. The three investor-owned utilities in the state are required to buy all their wholesale power requirements from the POWER EXCHANGE for an initial four-year period.

¹⁹ The ability for businesses to obtain their own water rights to ensure a drought-proof water supply for their key operations was a key feature of the MODEL WATER TRANSFER ACT. Businesses will have this ability under this plan.

(e.g., Enron, Duke and Utilicorp) to get into the water business in California so they can offer California businesses 'bundled' national account utility service -- like they do in other states.

Finally, since urban water agencies would get out of the water-supply project development business under the proposed plan, they no long would be compelled to implement *uneconomical* wastewater recycling projects and water conservation measures. Instead, in cases where such projects or measures are economically viable (i.e., the cost of the reclaimed or saved water is less than the cost of 'new water' on the CWE), they would be undertaken by the private sector. If, for public policy reasons, CALFED or some other state or federal agency wishes to promote water recycling and conservation projects that are uneconomical, they could so do by grants or subsidy programs -- similar to the way the California Energy Commission subsidizes "public good" renewable energy R&D and demonstration projects.

ATTRIBUTES OF PROPOSED PLAN

By creating a robust, "open-to-all" water transfer market in California, market forces -- rather than political gamesmanship and institutional logrolling -- can be used to establish the need, price, and payment responsibility for new water infrastructure facilities in the second phase of CALFED actions. Moreover, as summarized below, this plan relies on economic incentives, rather than unpopular mandatory programs, to achieve conservation and efficient water use.

- ♦ San Joaquin Valley farmers will have strong incentives to conserve water because any water they save (up to 10% of their entitlements), they can sell for a net profit of \$500 per af. For farmers who agree to sell the maximum of 500 af, this would be a guaranteed \$250,000 per year payment stream for 25 years -- against which the farmer could borrow funds to plant less water-intensive crops and install more efficient irrigation systems.
- ♦ Since 'new water' will be priced at the true incremental cost for new supplies, 'new water' users will have strong financial incentives to design and build water-efficient buildings and housing developments.²⁰ Grey-water systems in new buildings would become economical, and xeriscape landscaping would be preferred by home-buyers in new developments.
- ♦ The private sector will be able to participate in the develop and financing of new water supplies measures for urban areas (e.g., arranging transfers, building wastewater recycling facilities, and financing conservation measures) and thereby provide price competition for the CWE, as well as any proposed new taxpayer-financed water infrastructure projects.

All key stakeholders in California's water industry stand to gain from this proposed plan:

Agriculture

- Irrigated agriculture in the San Joaquin Valley will get the opportunity to receive over \$1 billion per year in transition payments for a 25-year period, in exchange for decreasing their drought-year water use by 8% -- savings that can be achieved simply

²⁰ Average urban water prices in California range from \$600 (California Water Co.) to \$1,500 (Contra Costa Water District) per af. Average P&S costs for raw 'old water' range from \$150 to \$400 per af. Thus, if P&S costs for 'new water' is \$600 to \$1,000 per af, new customers will pay rates 70% to 210% higher than current average rates.

by replacing an unprofitable crop (cotton) with less water-intensive, profitable crops. This offer will be made, and if accepted, these funds spent to help farmers and give a 5% boost to the San Joaquin Valley economy *before* CALFED money is spent elsewhere on concrete for dams or multibillion-dollar wastewater recycling plants.

- The financial integrity of local water districts will be maintained since they will experience no revenue loss; localized impacts will be limited by the 10% per-farm cap

Urban Water Users

- Municipal water utilities will not be required to implement uneconomical wastewater recycling projects that may end up becoming a financial burden on ratepayers
- Municipal water utilities would be able to expand their service territories and take on new customers without adversely affecting their existing customers
- The CWE would give urban utilities an assured source for new supplies at "least costs"

Environmental Interests

- The proposed plan would meet the environmental stakeholders' position that "the full cost of the impacts of new storage and conveyance facilities [if built] must be fully accounted for and borne by the users who will benefit from these facilities."²¹
- The proposed plan would achieve most objectives set out in *Agricultural Solutions: Improving Water Quality In California Through Water Conservation and Pesticide Use Reduction* and NRDC's September 10, 1997 letter, although little real water savings would be achieved and only a slight increase in land fallowing would occur
- The proposed plan could be considered "the least environmentally damaging practical alternative" for new urban water supplies, under Section 404 of the Clean Water Act

Businesses

- Sufficient water supplies would be made available (albeit, at higher costs than current urban water costs) to support growth in the state's population, job base, and economy
- Individual businesses would be able to obtain "drought-proof" water supplies
- Housing project developers would be able to obtain water supply commitments needed for complying with SB 901 (water supply assessments) without protracted delays

Tax/Ratepayers

- Taxpayers would not be put into a position where, by approving water project bonds, they are in fact agreeing to new taxes to subsidize private enterprise (farmers)
- Ratepayers would not be required to pay higher water bills to pay for new development

²¹ Draft BDAC Meeting Summary, March 19 and 29, 1998, p. 17

