

# Chapter VI

## EVALUATION OF ALTERNATIVES

As previously discussed in Chapter II, the issue of CVP cost allocation was the subject of a special study completed in the 1940s while the first stages of the project were still under construction. In that study, which was never officially sanctioned, a combination of methods was used to allocate CVP costs. In completing the first official allocation of CVP costs in 1946, Reclamation also faced the issue of selecting a cost allocation method from among competing methods and utilized two different approaches – AJE and use of facilities – and averaged the results.

According to Document No. 146, 80th Congress, 1st Session, in which the 1946 allocation performed by Reclamation was published, the AJE and use of facilities were the two methods for which a reasonable claim to validity existed in application to the costs of the CVP. That the two methods produced results with few differences was accepted as proof of the approximate validity of each. Since it was thought that there was no sure way to choose between them, the final result was an average of the two.

As noted in Chapter II, the issue of the appropriate allocation method for use in Federal water resource projects was the subject of several investigations in the early 1950s, and in 1954, the COE, the Federal Power Commission, and the Department of the Interior announced that they would all consistently employ the same approach for cost allocations. The SCRB was considered preferable, but the AJE and use of facilities methods would also be permitted under special circumstances. Beginning with the first reallocation of CVP costs in 1956 and extending through the most recent reallocation study in 1975, Reclamation has followed this policy and used the SCRB method.

As a result, the allocation method applied to the CVP has become accepted as well as the water rates that stem from it. Although the various reallocation studies since that time utilized new data on benefits and costs and new facilities were included as construction was completed, the allocation method itself was never re-examined. In this cost allocation study, however, the appropriateness of the existing cost allocation has been raised as an issue. As described in Chapter IV, it is being addressed through the development of two new alternative allocation methods and the selection of one of them or the existing method as the recommended alternative.

In the sections that follow, criteria by which to evaluate alternative allocation methods are developed and applied to the alternatives. A recommended alternative is selected.

### EVALUATION CRITERIA

During this study Reclamation has consulted several sources for guidance on criteria to be used to evaluate the cost allocation alternatives. Discussions with staff in other Reclamation regions, publicly owned utilities, and water districts confirmed that a cost allocation method is typically selected and usually applied during the planning phase of a project. For Reclamation the SCRB continues to be the preferred method for any new projects and the Commissioner's office approval must be obtained to use an alternative method. Major changes in cost allocation methodology are generally not contemplated following completion and long-term operation of major project features. As a result of the early cost allocations made for the CVP, different user groups were assigned a share of project costs. Long-term water and power contracts, and water

user expectations, are generally based on the original allocation of costs and on that same method being used to allocate additional costs. As additional costs are incurred by a project, such as major repairs or rehabilitation of existing facilities or additional facilities, there is likely an expectation and understanding that such additional costs will be treated in a similar manner unless otherwise specified in legislation. Usually, these periodic updates of the cost reallocation apply techniques similar to those used in previous cost allocations of the same project, and the issue of alternative methods is not raised. Thus, little if any, previous experience in developing evaluation criteria for the reallocation of major water projects is available for consideration.

The circumstances involved in this cost allocation study also differ from those typically encountered in cost allocation studies, which are conducted during project planning and development. At the start of project planning, no allocation exists, and the problem is that of developing one, including choice of the appropriate allocation method. For this study, an allocation does exist so that the relevant question is whether one or both of the alternative allocation methods presented in Chapter IV have characteristics that provide a compelling reason to change the existing method. The evaluation criteria applied in this study were formulated to address that question, and if the answer were affirmative for both alternatives, to provide guidance in the selection of one of them as the recommended method. The criteria were applied to determine whether the alternatives met the basic requirements for an interim cost allocation and to highlight differences between the existing allocation method and the alternatives. A summary of evaluation criteria is provided in Table VI-1.

## **APPLICATION OF EVALUATION CRITERIA TO ALTERNATIVES**

The criteria described in Table VI-1 form the basis to evaluate the advantages and disadvantages of the existing allocation and the two alternatives considered in this study. The following sections describe the application of

the evaluation criteria to the alternatives and their ability to meet the criteria. For each criterion, alternatives are assigned an evaluation rating of “meets,” “does not meet,” or “partially meets” depending on the degree to which the criterion is met by the alternative.

### **Criterion 1 – Allocate Joint Costs Based on Project Benefits**

A benefits-based allocation method links the allocation of costs and repayment responsibility of an entity to the level of accomplishments or services received by that entity. This approach is consistent with guidance applicable to Federal water projects across agencies, as referenced earlier.

As described Chapter III, the Existing Allocation uses joint cost allocation factors that were developed using the SCRB method in 1975. The 1975 reallocation study was prepared as a “short form” allocation that was based on the major 1970 reallocation, and the joint cost allocation factors from the 1975 study have been in use for nearly 25 years. These factors were established based on consideration of project benefits and costs for single purpose alternatives. Therefore, the Existing Allocation is assigned an evaluation of “meets” this criterion.

The Proportional Alternative allocates joint costs in proportion to the allocation of specific costs among project purposes, not on the basis of project benefits. Therefore, it is assigned an evaluation of “does not meet” this criterion.

The Contractors’ Proposal recommends use of the joint cost factors from the 1970 reallocation study rather than those from the 1975 study, which are used in the Existing Allocation. Issues raised by the Contractors’ Proposal concerning the use of the 1975 factors focus on the formulation of the single-purpose power alternative and the treatment of flood control benefits.

**TABLE VI-1**  
**CRITERIA TO EVALUATE**  
**COST ALLOCATION ALTERNATIVES**

CRITERION	DISCUSSION
1. Allocate joint costs based on project benefits.	The allocation of joint costs for multi-purpose projects should be based on a methodology that quantifies benefits for each purpose. This approach is consistent with guidance applicable to Federal water projects across agencies – guidance that identified the SCRIB as the preferred method for the allocation of joint costs. Alternatives that allocate joint costs based on benefits would be ranked higher than alternatives that do not allocate joint costs based on benefits.
2. Adjust repayment in response to changes in project operations.	This criterion evaluates the ability of an alternative to reflect changes in repayment in response to changes in project operations. Alternatives that adjust repayment in response to changes in water system operations would be ranked higher than alternatives that do not.
3. Apply accepted cost allocation standards.	The selected cost allocation alternative should utilize accepted cost allocation standards. Alternatives that apply accepted cost allocation standards would be ranked higher than alternatives that do not.
4. Consistency with past methods to allocate CVP costs and potential suitability for use in the final allocation.	This criterion is intended to identify potential effects of adopting an interim allocation that would cause abrupt changes in repayment responsibility that may be reversed at some future time. This criterion also considers the potential application of a method for the final cost allocation. Methods that are more consistent with past allocations or less likely to cause abrupt changes would be ranked higher than those that do not.
5. Consistency with applicable laws, regulations, and Reclamation cost allocation guidance.	The selected method should comply with all governing laws and regulations regarding cost allocation for Reclamation projects in general and for the CVP in particular. Alternatives that comply with laws and regulations, and are consistent with Reclamation cost allocation guidance will be ranked higher than alternatives that do not.
6. Adaptive and able to accept new project features.	The CVP has not yet been deemed complete and additional project features are likely. As new project features are added, their costs must be allocated among project purposes.  This criterion evaluates the effects that the costs of new project facilities would have upon the allocation of existing facilities. Alternatives that allow the addition of facilities that have new costs that are specific to only a single feature or features without leading to the reallocation of existing joint costs would be ranked higher.
7. Simplify the cost allocation process and allocation of joint costs.	This study is being undertaken, in part, in response to a GAO recommendation that the cost allocation process be simplified and streamlined. This criterion assesses whether an alternative would result in more streamlined updates than the allocation process in place at the time of the GAO review.
8. Implementation process	The selected alternative will be forwarded to the GAO. Some alternatives may require Congressional approval before implementation. This criterion describes the approval process that would be required for each alternative and is provided for information purposes. Since the implementation process is determined by existing laws and policies, no weight is assigned to this criterion.

In the 1970 study, a fossil fuel powerplant was used as the single-purpose alternative while the 1975 study used a nuclear plant. In both studies the Federal Power Commission provided energy and capacity values. The Contractors' Proposal notes that Reclamation's choice of nuclear power as the single-purpose alternative, in part, led to these changes in the values of the joint cost factors, particularly those for power and flood control. The single-purpose alternative should represent the most likely alternative that would have been constructed in the absence of a Federal hydropower project, and at the time the 1975 study was prepared, nuclear power was viewed as a viable power source. The Contractors' Proposal recognizes this situation. However, the proposal goes on to point out that events in the power field did not develop as assumed in the allocation study. Nevertheless, at the time of the study, nuclear power was considered viable. All energy costs were increasing in the early 1970s, including those of fossil fuels, so that it was to be expected that the cost of the single-purpose power alternative in the 1975 reallocation would be considerably greater than that used in the 1970 reallocation. This would serve to increase the joint cost allocation for power regardless of the nature of the single-purpose alternative used in the 1975 reallocation study. As described in Chapter IV, the justifiable expenditure for power more than doubled from the 1970 to 1975 study while the separable cost increased about two-thirds. The result was a significant increase in the remaining justifiable expenditure for power with a slight decline in the justifiable expenditure for flood control. Accordingly, the joint cost allocation for power increased and that for flood control fell somewhat while the joint factors for other project purposes experienced relatively minor changes.

Only a complete, new reallocation study that estimated project benefits, costs of facilities in service, and single-purpose alternatives could produce joint cost factors that would represent current conditions. And, even if one were performed, it would still leave questions as to how to integrate the results with past uses of project facilities and historic allocations used for repayment to date.

The Contractors' Proposal also notes that in the 1975 reallocation study, benefits and costs were brought to a common date of 1975, with the exception of flood control benefits. Flood control benefits were neither re-evaluated nor indexed to the 1975 price level. This is one reason why the joint cost allocation factor for flood control fell from 1970 to 1975 and, the Contractors' Proposal contends, therefore becomes a reason for advocating a return to the use of the 1970 joint cost allocation factors. However, historical communication from the COE indicates why a higher value was not used and was likely not justified. As a part of the 1975 reallocation study, Reclamation requested updated flood control benefits from the COE. The COE responded to Reclamation by letter of February 27, 1975, (included as Appendix C). In its letter the COE stated that it appeared that the effect of new hydrology developed since the previous flood control study, price level increases, and increased economic development would increase previously computed flood control benefits. However, in the same letter, the COE also stated that the guideline framework for COE flood control benefit studies had undergone extensive changes and that the effect of the changes would be to appreciably decrease (emphasis added) the benefits. The COE further stated that it had concluded that the net effect of the changes taken together would mean that "current flood control benefits would be at least equal to those previously supplied you in April 1969, but might not significantly exceed them." The COE letter recommended that Reclamation use the flood control monetary benefit values supplied by the COE for its 1970 reallocation study without any indexing. Reclamation did as the COE recommended, accepting the balancing of the two offsetting factors, and so flood control benefits were neither re-evaluated nor indexed.

In Chapter IV, it was noted that the Contractors' Proposal adopted Reclamation's approach to the allocation of Friant Dam and Reservoir used in its 1975 reallocation study by allocating Friant's costs only to water supply and flood control with no allocation to power since Friant has no power-generating facilities. It should also be noted that in all three allocation

alternatives under consideration some of the costs of the Trinity River Division are allocated to flood control, but Public Law 84-386, dated August 12, 1955, which authorized the division, did not include flood control as one of its authorized purposes. The appropriateness of such an allocation would have to be re-examined in any completely new reallocation study of the CVP.

The Contractors' Proposal includes the use of allocation factors that were developed in a SCRB analysis and is therefore assigned an evaluation of "meets" this criterion. As described in Chapter IV, joint cost allocation factors developed in a SCRB analysis reflect the distribution of justifiable expenditures to project purposes in proportion to the remaining justifiable expenditure after separable costs calculated for each purpose have been removed. It should be noted that the Contractors' Proposal uses less recent estimates (1970) than the Existing Allocation (1975), but it was still assigned an evaluation rating of "meets" this criterion.

### **Criterion 2 – Adjust Repayment in Response to Changes in Project Operations**

This criterion evaluates the ability of an alternative to reflect changes in cost allocation and repayment in response to changes in project operations. All three alternatives distribute costs allocated to water supply and power to irrigation, M&I, and commercial power for the repayment of reimbursable costs. For water supply, repayment responsibilities are based on total historic and projected deliveries throughout the lifetime of the CVP until the end of the repayment period, thereby allowing long-term trends to be recognized without imposing abrupt short-term changes in water and power rates. All three alternatives use the same factors to determine the repayment responsibilities for the power purpose, but differences appear in determining repayment responsibilities for the water supply purpose between the Existing Allocation and the Contractors' Proposal.

The Existing Allocation and Proportional Alternative determine repayment responsibilities

for the water supply purpose in the same way. They distribute the responsibility for water supply costs in proportion to total water deliveries to the three end uses. The end uses of water supply are irrigation, M&I, and wildlife refuges, and water deliveries are composed of both measured, historic use and estimated future deliveries. Typically, future deliveries are assumed to be either total contract amount or are gradually increased to the total contract amount as demand is anticipated to rise.

The Contractors' Proposal uses the same water deliveries for the three end uses that appear in the Existing Allocation, but adds a fourth category – the environment. As described in Chapter IV, the contractors justify adding the environment as a water use in this alternative to reflect changes in project operations as a result of the CVPIA, ESA, and Bay-Delta Plan. The Contractors' Proposal would establish the environment as an additional water use based on the quantity of water dedicated annually by the CVPIA to restore fish, wildlife, and habitat. The environment would begin as a water use in 1993, and ultimately the assumed use of water for environmental purposes would build up to 800,000 acre-feet per year. For 1999, the addition of this water would raise the total amount of water used to distribute water supply costs from about 260 million acre-feet over the entire repayment period – the value used in the Existing Allocation and Proportional Alternative – to about 282 million acre-feet over the same period in the Contractors' Proposal. The effect of including this water account is to assign a share of water supply costs to the environment.

In the Contractors' Proposal, water supply costs assigned to the environment would be partially reimbursable and partially non-reimbursable. From 1993 through 2006 – the period in the Contractors' Proposal when Stage I of the CalFed environmental restoration actions are planned to be completed – environmental water is considered mitigation, and all of the costs associated with this water supply would be allocated to water and power users and would be totally reimbursable by them. This proposal adopts a gradual buildup in what is labeled environmental water. This assumed schedule is

important because the proposal makes a portion of its cost non-reimbursable starting in 2007, as described below.

As described in Chapter IV and illustrated in Figure IV-1, beginning in 2007 and continuing through 2030, the costs associated with the environmental water account would be partially reimbursable and partially non-reimbursable, using a proposed formula. The formula specified by the Contractors' Proposal is adapted from the repayment requirements for certain other actions required of the CVP – namely, the several actions mandated in section 3406(b) of the CVPIA. Specifically, 37.5 percent of the water would be reimbursable, to be repaid by water and power users, and the remaining 62.5 percent of the water would be non-reimbursable from the perspective of water and power users.

The contractors' rationale for this is that the reimbursable portion (37.5 percent) would be considered mitigation with related costs to be repaid by water and power users while the remaining 62.5 percent of the water would be considered enhancement with related costs to be non-reimbursable from the perspective of water and power users. By the end of the CVP repayment period in 2030, when the environmental water account would have increased to 800,000 acre-feet per year on a schedule provided in the Contractors' Proposal, the costs associated with 300,000 acre-feet, representing 37.5 percent of the 800,000 acre-feet, would be repaid by water and power users and the costs associated with the remaining 62.5 percent would be non-reimbursable.

There are several reasons to reject this line of reasoning. First, section 3406(b)(2) of the CVPIA does not state that any of the dedicated 800,000 acre-feet of water is for enhancement. As noted in Chapter II, the dedicated water is primarily for habitat "restoration" purposes – a term that suggests mitigation, not enhancement. In addition, section 3406(b)(3) of the CVPIA requires implementation of a program to supplement the quantity of water dedicated in section 3406(b)(2). This indicates that the CVPIA did not contemplate that the dedicated water would meet all the environmental goals

enumerated in section 3406(b)(2). Mitigation, protection, and restoration must precede enhancement, and it is unlikely that the 800,000 acre-feet alone could completely mitigate, protect, and restore, and therefore that any portion of it could be considered enhancement. Additionally, the CVPIA does not specify that the cost allocation of the CVP should be modified to accommodate the 800,000 acre-feet dedicated annually by section 3406(b)(2), that a cost should be assigned to this water, nor that some portion of such cost should be non-reimbursable. Rather, the CVPIA treats this water as a required priority use of project water and implicitly an obligation of the water contractors.

It could also be noted that the provisions of the CVPIA from which the repayment formula in the Contractors' Proposal is borrowed do not state that 62.5 percent of the benefits of each measure is considered environmental enhancement and that 37.5 percent is mitigation. And, even if the repayment formula from those sections of the CVPIA were applied, it would require the State to 37.5 percent of the costs, which is not a part of the Contractors' Proposal.

Next, the assumption in the Contractors' Proposal that enhancement would begin in 2007 because the restoration/mitigation actions under Stage 1 of the CalFed program would be complete is not supportable. CalFed actions do not equate to CVPIA actions, and it cannot be assumed that actions taken by CalFed would fully satisfy CVP-specific mitigation, protection, and restoration needs articulated in the CVPIA. Furthermore, CalFed in its Programmatic Record of Decision, dated August 2000, makes no claims that its Stage I actions would, or are intended to, provide complete mitigation or that subsequent environmental actions would constitute enhancement. Finally, Stage I restoration/mitigation actions may not be completed by 2006.

Third, while the distribution of water supply costs in the Existing Allocation and the two alternatives allows changes in project uses to be reflected in the cost allocation, the Contractors' Proposal's treatment of the environment as a

new water use is not justified for other reasons. The three water supply functions in the Existing Allocation are all end uses – M&I users, irrigators, and wildlife refuges. The “environment,” on the other hand, as used in the Contractors’ Proposal, is not an end use in the same sense that M&I, irrigation, and wildlife refuges are end uses. Environmental water released from CVP reservoirs for instream environmental benefits could also be used for other beneficial purposes, including irrigation or M&I uses, farther downstream. In such cases, the Contractors’ Proposal would double count the use of water.

Underlying the Contractors’ Proposal are the assertions that form the basis for proposing the environment as a water use, namely, that the authorized purposes of the CVP have been greatly expanded and that the CVPIA established the environment as a new project purpose. Fish and wildlife considerations, however, have long been a responsibility of water projects developed by Reclamation and other Federal agencies as a result of the Coordination Act and its various amendments. The original act, passed in 1934, required that projects impounding water consider use of project water for fish culture and migratory bird habitat, and provision of fish passage past dams. The 1946 amendment to the act required that agencies impounding or diverting water consult with the Service with the view to preventing loss of and damage to wildlife resources, and that consistent with the primary project purposes, provide for conservation, maintenance, and management of fish and wildlife and their habitats. In recognizing the importance of fish and wildlife resources and increasing public interest, the 1958 amendment provided that wildlife conservation should receive equal consideration and be coordinated with other project features through effectual and harmonious planning, development, maintenance, and coordination of wildlife conservation.

Authorizations of components of the CVP and reauthorizations of the entire CVP have also addressed consideration of fish and wildlife and their habitats. Public Law 83-674, dated August

27, 1954, reauthorized the CVP to include the use of CVP water for fish and wildlife purposes, subject to priorities contained in previous authorizations, via development and maintenance of waterfowl management areas. The Trinity River Division authorizing legislation required adoption of appropriate measures to insure the preservation and propagation of fish and wildlife. Public Law 87-874, dated October 23, 1962, reauthorizing the New Melones Project, also required the adoption of appropriate measures to insure the preservation and propagation of fish and wildlife. The authorization of the San Felipe Division by Public Law 90-972, dated August 27, 1967, included the conservation and development of fish and wildlife resources in accordance with the Federal Water Project Recreation Act.

In summary, the Coordination Act required provision for fish and wildlife resources in connection with the development and operation of water projects such as the CVP as far back as 1934. Various CVP authorizations and reauthorizations have expressed the intention to promote the preservation, propagation, and development of fish and wildlife resources. Major fish and wildlife mitigation measures implemented in the CVP prior to enactment of the CVPIA include the Coleman National Fish Hatchery, minimum flow specifications for the Trinity River, Clear Creek, and lower American River, prescribed operation of the gates at the Red Bluff Diversion Dam, fish spawning channels within and adjacent to the Tehama-Colusa Canal, and a fish salvage facility at the Tracy Pumping Plant.

In addition to Federal law, Reclamation operates the CVP in accordance with State law. However, for a considerable period of time there was a disagreement concerning exactly how this responsibility was to function. It was the Federal position that Reclamation projects were operated pursuant to Federal law and that it was a matter of comity that Reclamation had applied for water rights from the State. Reclamation also held that it operated the CVP to meet water quality standards that were implicit in the objectives of the project pursuant to Federal law

and that State water law had no authority over a Federal project. In *U.S. vs. California*, the U.S. Supreme Court in 1978 held that Reclamation projects are subject to State water law absent a clear Congressional directive to operate otherwise. Section 3406(b) of the CVPIA reinforced this by requiring the Secretary to operate the CVP to meet all obligations under State and Federal law and all decisions of the SWRCB establishing conditions on applicable licenses and permits of the project. Section 3406(a)(4) of the act amended the 1937 CVP authorization by adding the following language, “Nothing in this title shall affect the State’s authority to condition water rights permits for the Central Valley Project.” Decisions of the SWRCB have made it clear that all CVP water rights are junior to inbasin needs, including needs within the Delta itself, and that the CVP can only export water from the Delta that is surplus to inbasin needs. Over time, the levels of Delta outflow considered necessary to protect fisheries and the environment have increased and higher instream flow regimes have been adopted or agreed to by Reclamation, imposed by the SWRCB, or required via species listings under the ESA. These actions have influenced not only CVP operations in the Delta, but also the nature of CVP water rights, obligations of CVP contractors, and obligations of other water users.

Seen in this context, the CVPIA reinforced the obligation of the CVP to protect the environment by re-emphasizing the priority of meeting environmental needs, but did not add the environment as a new project purpose.

In summary, all three alternatives utilize a similar approach to adjust the repayment of water and power costs as water and power uses change. The Existing Allocation and the Proportional Alternative are based on measurable water deliveries to end uses and are assigned an evaluation of “meets” this criterion. By contrast, the Contractors’ Proposal’s inclusion of the environment as an additional water use – the 800,000 acre-feet of water dedicated by section 3406(b)(2) – introduces a very questionable element to the allocation computations from several perspectives,

including long-standing historical mandates in Federal legislation and State water rights rulings. Therefore, the Contractors’ Proposal is assigned an evaluation of “partially meets” this criterion.

### **Criterion 3 – Apply Accepted Cost Allocation Standards**

The Existing Allocation uses joint cost factors based on the SCRB method, which is the established and accepted cost allocation approach for Federal multi-purpose water projects. Therefore the Existing Allocation is assigned an evaluation of “meets” this criterion. The Proportional Alternative allocates joint costs in proportion to specific costs. This approach has not been applied to multi-purpose water projects for the reasons described below.

In the Proportional Alternative, joint costs are allocated in proportion to the costs of single-purpose facilities in the constructed project, i.e., the specific costs – a method very similar to cost accounting methods used by private business. A key disadvantage to this alternative is that no single-purpose facilities have been constructed for three of the authorized purposes of the CVP – flood control, navigation, and water quality. Therefore, if followed to the letter, this method would allocate no costs to flood control, navigation, or water quality. To partially address this deficiency in the Proportional Alternative, for the purpose of evaluation in this study, an estimate of “specific” costs for flood control was made based on the proportion of total reservoir storage authorized for flood control as described in Chapter IV. No attempt was made to identify specific costs for navigation or water quality. Even with this assumption, however, the Proportional Alternative results in a lower allocation to flood control than either the 1970 or 1975 cost allocations that were based on the SCRB method.

The Proportional Alternative is not well suited to accept future additions of single-purpose project features. Under this alternative, future additions of single-purpose facilities, the costs of which are specific costs, would affect the allocation of joint costs of existing facilities.



This would occur even if the new facility resulted in no change in those project benefits, which stemmed from the joint facilities. Further discussion of these effects is found under Criterion 6 below. Because the Proportional Alternative would radically change the methodology to allocate joint costs, it “does not meet” this criterion.

The Contractors’ Proposal uses accepted SCRB-derived joint cost allocation factors, but introduces the environment as a water user to provide a surrogate estimate of benefits. As discussed under Criterion 2, the environment, apart from water delivered to wildlife refuges, is not an end use of the 800,000 acre-feet of water used in this alternative, and “environmental protection” is not a new use of project water. As also noted under Criterion 2, the Contractors’ Proposal could result in double counting of water in those cases where some of the water satisfying environmental purposes is used further downstream for M&I and irrigation.

This establishment of the environment as a water user to allocate project costs is not based on standard practices. Therefore, the Contractors’ Proposal “partially meets” for this criterion.

#### **Criterion 4 – Consistency with Past CVP Cost Allocation Methods**

The selection of an allocation method should consider consistency with past methods used to allocate CVP costs and the potential to cause abrupt changes in annual repayment responsibilities over the remainder of the repayment period. As described in Chapter II, the CVP has been in operation for over 50 years. During this time, water and power users have made numerous financial and management decisions based on actual and anticipated costs. An abrupt change in repayment requirements, resulting from a significant change in the cost allocation method, could create unintended consequences, such as dramatically changing water and power rates. The adoption of an allocation method that causes these consequences, particularly one that may have to be modified at some future time if the changes to

the cost allocation method were reversed, is not preferred. Continuation of the Existing Allocation clearly would not cause abrupt changes in repayment responsibilities and would allow future changes to be made without having to reverse a change implemented at this time. Therefore, the Existing Allocation “meets” this criterion.

As described under Criterion 3, the Proportional Alternative introduces a radically different approach to the allocation of joint costs from that based on a SCRB allocation. In this alternative, joint costs would be allocated in proportion to the costs of single-purpose facilities in a manner similar to cost accounting methods used by private business. Because the Proportional Alternative would radically change the methodology to allocate joint costs, and would subject allocation of existing joint costs to changes in future specific costs it “does not meet” this criterion.

The Contractors’ Proposal would provide some consistency with past practices but also introduce two changes. First, the adoption of joint cost allocation factors from the 1970 allocation would significantly lower the repayment obligation for commercial power and increase the allocation of costs to flood control, which is non-reimbursable. As stated in the discussion under Criterion 1, there were good reasons for not making these changes. It is not known if the flood control and power benefits from 1970 are more accurate today or over the years between 1975 and today than the benefits developed for these purposes in 1975. An updated estimate of project benefits for all project purposes would be required to make such a determination and even after such a determination were made, it would still leave questions as to how to integrate the results with past flood control and power benefits, past allocations, and past repayments.

The second area of concern regarding the Contractors’ Proposal is the addition of the environment as a water use in the determination of repayment obligations for costs allocated to water supply. As described under Criterion 2, the Contractors’ Proposal would establish up to

800,000 acre-feet per year for environmental uses and defines the percentages of that water that are considered reimbursable (37.5 percent) and non-reimbursable (62.5 percent), percentages not applied by the CVPIA to this dedication of water. The annual quantities for irrigation, M&I and wildlife refuges are based on historic and projected deliveries. Each year water deliveries for those purposes are updated to reflect the conversion of one year of projected to historic deliveries and incorporate any changes in projected deliveries. The Contractors' Proposal, however, fixes the percentages applied to the environmental water to determine reimbursability while the quantities and reimbursability of the other water can change from year to year. Furthermore, the proposal assumes the Stage I CalFed mitigation actions would be completed by 2006, but does not address how the repayment of costs for environmental water would be adjusted if mitigation were not complete by then. Thus, it is likely that additional unknown, and possibly unanticipated, changes to this approach would be necessary in the future, creating potential instability in the application of this method.

As shown in Chapter V, the Contractors' Proposal would result in a reduction in water and commercial power repayment obligations. Because both of the key elements of the proposal – adoption of 1970 joint cost allocation factors and introduction of an environmental water account – are subject to future review, modification, and even potential reversal, it is possible that an abrupt increase in future water and commercial power repayment obligations and repayment rates could occur with the adoption of this alternative. Nevertheless, because the Contractors' Proposal utilizes the SCRIB method, it “partially meets” this criterion.

### **Criterion 5 – Consistency with Laws, Regulations, and Guidance**

As described in Chapter II, the initial phase of this study included a thorough review of the Existing Allocation to assure compliance with all laws, regulations, and guidance. Allocation spreadsheets were modified to reflect these corrections, which have been applied to the 1999

updated allocation. The revised spreadsheets were also used in this study to evaluate the Existing Allocation, the Proportional Alternative, and the Contractors' Proposal. The Existing Allocation “meets” this criterion. The Proportional Alternative and Contractors' Proposal, however, present some conflicts with existing laws, regulations, and guidance.

For projects with multi-purpose features such as the CVP, the SCRIB method is the established and accepted method although other methods, such as AJE, can be used under special circumstances. In an attempt to streamline the cost allocation process, the Proportional Alternative abandons a benefits-based allocation method in favor of a method that relies on more easily determined cost factors alone.

The use of the specific costs of single-purpose facilities in the Proportional Alternative to develop factors to be used to allocate joint costs is not consistent with Reclamation cost allocation policy and guidance, as referenced above. As discussed under Criterion 3, this method introduces a radically different approach to the allocation of joint costs from that used in the SCRIB. Even with assumed flood control benefits based on dedicated reservoir space, the Proportional Alternative results in a lower allocation to flood control than either the 1970 or 1975 cost allocations that were based on the SCRIB method.

The creation of the environment as a water use in the Contractors' Proposal departs from Reclamation cost allocation policy and guidance. As described in Chapter II, the 1970 CVP reallocation study adopted an allocation to water supply with repayment obligation distributions to water use functions based on proportionate historic and projected water deliveries to each function. This approach, which was re-affirmed in the 1975 allocation, was adopted so that adjustments for future changes in project operations could be more readily accommodated. The amount of water assigned to the environment in the Contractors' Proposal is not based on delivered water or on otherwise measured water quantities. Rather, this method adds a somewhat arbitrary amount

to historic and projected water deliveries for the irrigation, M&I and wildlife refuge water use functions. This approach is not consistent with existing Reclamation cost allocation guidance; may result in double counting, as described under Criterion 2; and conflicts with applicable law, as described under Criterion 2 and discussed in more detail below.

The Contractors' Proposal creates an environmental water account based on assumptions concerning or interpretation of the 800,000 acre-foot quantity of water in section 3406(b)(2) of the CVPIA. In the Contractors' Proposal, this quantity starts at 531,000 acre-feet in 1993 and is increased to 800,000 acre-feet annually in the year 2030. In the proposal, the costs of 100 percent of this amount of water is treated as reimbursable between the present and 2006, on the rationale that this water is used entirely for mitigation until that time. Starting in 2007, the proposal designates 62.5 percent of this water as non-reimbursable and 37.5 percent as reimbursable, and, in effect, treats 62.5 percent of the water as being for environmental enhancement and 37.5 percent for mitigation. As described under Criterion 2, the CVPIA does not specify that the cost allocation for the CVP should be modified to reflect the dedication of the 800,000 acre-feet of water, that a cost should be assigned to this water, nor that some portion of any such cost should be considered non-reimbursable. Rather, the CVPIA treats this water as a required priority use of project water and implicitly an obligation of the water contractors. This is similar to the way in which the CVPIA treats the costs of purchasing additional water to help meet the same environmental objectives. Surcharges of \$6 and \$12 per acre-foot (indexed each year) are to be paid by water contractors, and preference power customers are also levied a surcharge in their power rates. The fact that additional water is to be purchased also means that the 800,000 acre-feet of water is not sufficient to satisfy all of the mitigation, protection, and restoration requirements of the act by the year 2007.

It is also noteworthy that, although the CVPIA is specific on allocations for costs in other sections, it makes no mention of cost

allocation or reallocation under section 3406(b)(2). Nevertheless, the contractors' interpretation of this section is that Reclamation should make an allocation of costs to this water and that some of the costs should be non-reimbursable, according to the following formula.

As discussed under Criterion 2, the Contractors' Proposal assumes that the repayment formula of 37.5 percent reimbursable and 62.5 percent non-reimbursable that appears in many of the actions required by sections 3406(b)(4)-(22) of the CVPIA should be applied to the 800,000 acre-feet of water. Reclamation has concluded that if Congress had intended that a cost be assigned to the 800,000 acre-feet of water and that a portion of that cost be non-reimbursable, then specific language to that effect would have been provided in the legislation.

Section 3406(b)(1) of the CVPIA states, "... That the programs and activities authorized by this section shall, when fully implemented, be deemed to meet the mitigation, protection, restoration, and enhancement purposes established under Section 3406(a) of this title." Many of the provisions included in the referenced section (3406) include specific repayment formulae. Since no such cost assignment or reimbursement formula was provided for the 800,000 acre-feet in section 3406(b)(2), its use is considered mitigation and any costs attributable to it are considered reimbursable in total. The creation of the environment as a water use therefore introduces into the cost allocation an element that is insupportable either in existing Reclamation cost allocation procedures or law.

In summary, although the Proportional Alternative complies with laws and regulations, it uses an allocation method that is not consistent with Reclamation cost allocation guidance. Therefore, the Proportional Alternative "partially meets" this criterion. In light of the above-described inconsistencies with historic and recent laws, regulations, and guidance, the Contractors' Proposal "partially meets" this criterion.

### **Criterion 6 – Adaptive and Able to Accept New Project Features**

The CVP is not complete, and additional project features are likely to be added in the future. This criterion evaluates the effects that the costs of new project facilities would have on the allocation of existing facilities.

The Existing Allocation is based on a feature-by-feature analysis that has been developed over the past 40 years. The allocation has been frequently updated and in some cases modified to accommodate the addition of new facilities, changes in repayment policies, and to reflect increased capital expenditures for the expansion, replacement, or repair of existing facilities. Each facility, whether it is a single-purpose or multi-purpose feature, is treated individually in the allocation and repayment computations, allowing facility-specific details to be incorporated without affecting the allocation of other features. Therefore, the Existing Allocation “meets” this criterion. The Contractors’ Proposal can also accept new features in a manner similar to the Existing Allocation and therefore also “meets” this criterion.

The Proportional Alternative is not well suited to accept future additions of single-purpose project features. Under this alternative, future additions of single-purpose facilities, the costs of which are specific costs, would affect the allocation of joint costs of existing facilities. This would occur even if the new facility resulted in no change in those project benefits which stemmed from the joint facilities.

As an example, if major rehabilitation or replacements were made to a canal (water supply) or powerplant (power), such as replacing a lining or rewinding a turbine, the total investment in these single-purpose facilities would increase. Although costs would be incurred simply to maintain or restore existing capacity, the increase in specific costs allocated to the purpose in question would change the percentage distribution of specific costs among all project purposes, and since joint cost allocation factors are derived from the

distribution of specific costs, they too would change. For instance, major rehabilitation on the Madera Canal, a single-purpose facility conveying irrigation water only, would cause an increase in the allocation of specific costs to the entire water supply purpose. In turn, although no other specific costs would have changed, the altered percentage distribution of specific costs to all project purposes would change the allocation of joint costs; namely, the percentage of joint costs allocated to water supply would increase and the percentage allocated to all other purposes would decrease.

In this hypothetical example of rehabilitation of the Madera Canal, the allocation of costs and repayment obligations for all CVP multi-purpose facilities, such as Shasta Dam and Reservoir, would change. The allocation to the water supply purpose would increase, as would the repayment obligations of all water supply functions; the costs allocated to all other purposes sharing joint costs would decline. It would appear unreasonable to expect expenditures on the Madera Canal to increase the repayment obligation of M&I water users and decrease the repayment obligation of commercial power customers when nothing had been done to any facilities they directly utilize. By contrast, under both the Existing Allocation and the Contractors’ Proposal, an increase in the costs of the Madera Canal would increase only the allocation of costs to the water supply purpose. The conveyance component of the irrigation repayment obligation would increase by the full amount of the increase in cost.

Since the addition of single-purpose project facilities would alter the allocation of costs for all facilities with joint costs, the Proportional Alternative “does not meet” this criterion.

### **Criterion 7 – Simplify the Cost Allocation Process**

As stated in Chapter I, this study is being undertaken, in part, in response to recommendations from the GAO that the cost allocation process be simplified and streamlined. The development and use of updated allocation tools under the existing method has significantly

reduced the effort and time needed to complete annual updates. Therefore, this objective has been met, at least in part, by Reclamation. These spreadsheets are applicable to all methods.

This criterion also addresses whether an alternative utilizes a method that simplifies the allocation of joint costs. In both the Existing Allocation and the Contractors' Proposal, the allocation of joint costs is based on previously calculated joint cost allocation factors. These factors would not be changed unless a new benefits-based cost allocation were completed, which would be a time-consuming and labor-intensive effort. The continued use of existing SCRB-derived joint cost allocation factors does not introduce complexity to the annual update process.

The Proportional Alternative would likely involve a recalculation of joint cost allocation factors each year if total capital investment for any project purpose changed (note the discussion of the impacts of adding specific costs under Criterion 6). Although this process has been automated, it might be necessary to describe the detailed derivations of the factors to adequately disclose the causes of changes in the factors. The additional effort to provide this information is considered minimal.

The annual effort required to prepare the Contractors' Proposal would be similar to that required for the Existing Allocation under the assumption that the yearly build-up of the environmental water account remains as presented in the proposal. Accommodating any changes in the account based on results of other calculations would require minor effort.

All three alternatives would result in approximately the same effort to complete annual updates of the cost allocation. The Existing Allocation and Contractors' Proposal would require significantly greater effort if and when a new allocation is undertaken although this work would not be initiated by the selection of either of these alternatives. Therefore, for the comparison of the three alternatives considered in this study, each of the three alternatives is

assigned an evaluation rating of "meets" this criterion.

### **Criterion 8 – Implementation Process**

Although the expediency or complexity of the process to implement an alternative does not justify its selection or rejection, each alternative considered in this study may require different levels of approval. These are discussed below, but no weight is assigned to this criterion.

Regardless of the results and recommendations of this study, the report will be forwarded to the GAO to respond to the recommendations contained in its 1992 report. Requirements to submit this study for further approval are provided by the Department of Energy Organization Act. That act requires that any reallocation of joint costs of multi-purpose facilities be subject to Congressional approval of some form.

The Existing Allocation does not involve a change in the allocation of joint costs, and therefore would not require Congressional approval. Both the Proportional Alternative and the Contractors' Proposal involve changes in the allocation of joint costs. Therefore, the selection of either of these alternatives could require Congressional approval in some form.

## **EVALUATION SUMMARY**

As summarized in Table VI-2, the Existing Allocation "meets" all seven criteria; the Proportional Alternative "meets" two criteria, "partially meets" one criterion, and "does not meet" four of them; the Contractors' Proposal "meets" three criteria, and "partially meets" four others. On the basis of the evaluation, Reclamation has determined that the Existing Allocation is the preferred allocation alternative and will continue to use it for CVP plant-in-service allocations.

**TABLE VI-2  
COMPARISON OF COST ALLOCATION ALTERNATIVES**

<b>CRITERION</b>	<b>EXISTING ALLOCATION</b>	<b>PROPORTIONAL ALTERNATIVE</b>	<b>CONTRACTORS' PROPOSAL</b>
Allocate joint costs based on project benefits	<p style="text-align: center;"><b>MEETS</b></p> <p>Benefits-based approach</p> <p>Allocates joint costs based on SCRB completed in 1970 and updated in 1975.</p>	<p style="text-align: center;"><b>DOES NOT MEET</b></p> <p>Not a benefits-based approach for joint costs</p> <p>Allocates joint costs in proportion to single-purpose expenditures.</p>	<p style="text-align: center;"><b>MEETS</b></p> <p>Benefits-based approach</p> <p>Allocates joint costs based on SCRB completed in 1970.</p>
Adjust to changes in project operations	<p style="text-align: center;"><b>MEETS</b></p> <p>Water supply and power repayment responds to changes in water deliveries to end users.</p>	<p style="text-align: center;"><b>MEETS</b></p> <p>Same as existing allocation</p>	<p style="text-align: center;"><b>PARTIALLY MEETS</b></p> <p>Water supply and power repayment responds to changes in water deliveries to end users and estimated amount of water dedicated to in-stream environmental purposes.</p> <p>The environmental water use assumes that no more than 3/8 of the 800,000 af is needed to accomplish the mitigation goals of the CVPIA; that mitigation is complete by the year 2007 based on objectives stated in CALFED; and that beginning in 2007, up to 5/8 of the 800,000 af is used for fish and wildlife enhancement and therefore represents a non-reimbursable water use.</p>
Apply accepted cost allocation standards	<p style="text-align: center;"><b>MEETS</b></p> <p>SCRB is accepted method to allocate costs of Federal multi-purpose projects.</p>	<p style="text-align: center;"><b>DOES NOT MEET</b></p> <p>Allocation of joint costs is similar to an accounting technique used to distribute overhead costs.</p>	<p style="text-align: center;"><b>PARTIALLY MEETS</b></p> <p>SCRB is accepted method to allocate costs of Federal multi-purpose projects.</p> <p>Use of environment as water user is not based on standard practices, may double count water use, and is not consistent with the CVPIA.</p>

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CRITERION	EXISTING ALLOCATION	PROPORTIONAL ALTERNATIVE	CONTRACTORS' PROPOSAL
<p>Consistency with past methods to allocate CVP costs and potential suitability for the final allocation method</p>	<p><b>MEETS</b></p> <p>Use of SCRB factors to allocate joint costs is consistent with past CVP allocations.</p>	<p><b>DOES NOT MEET</b></p> <p>Use of an essentially accounting technique introduces radically new methodology to allocate costs.</p>	<p><b>PARTIALLY MEETS</b></p> <p>Use of SCRB factors to allocate joint costs is consistent with past CVP allocations.</p> <p>Creation of environment as water user is departs from established practice of accounting for delivered water only.</p>
<p>Consistency with applicable laws, regulations, and Reclamation cost allocation guidance</p>	<p><b>MEETS</b></p> <p>Method has been analyzed to ensure consistency with applicable laws, regulations, and Reclamation cost allocation guidance.</p>	<p><b>PARTIALLY MEETS</b></p> <p>Use of specific costs to allocate joint costs is not a benefits-based method and is not consistent with Reclamation allocation guidance.</p>	<p><b>PARTIALLY MEETS</b></p> <p>The creation of the environmental as a water user is not consistent with Reclamation guidance provided for the 1970 allocation and reaffirmed in the 1975 allocation. This guidance states that water supply costs are to be sub-allocated among irrigation, M&amp;I and wildlife refuge functions based on historic and projected water deliveries.</p> <p>Assumptions that 3/8 of the 800,000 af is needed to accomplish the mitigation goals of the CVPIA; mitigation is complete by the year 2007; and that up to 5/8 of the 800,00 af is used for fish and wildlife enhancement are not consistent with the CVPIA.</p> <p>The CVPIA does not provide for assigning a cost to the 800,000 af or for allocating such a cost.</p>
<p>Adaptive and able to accept new project features</p>	<p><b>MEETS</b></p> <p>New facilities would be allocated on an individual basis and not affect the allocation of existing facilities.</p>	<p><b>DOES NOT MEET</b></p> <p>The addition of new single-purpose facilities will affect the allocation of existing joint costs.</p>	<p><b>MEETS</b></p> <p>New facilities would be allocated on an individual basis and not affect the allocation of existing facilities.</p>

CRITERION	EXISTING ALLOCATION	PROPORTIONAL ALTERNATIVE	CONTRACTORS' PROPOSAL
Simplify cost allocation process	<p align="center"><b>MEETS</b></p> <p>Recent improvements to cost allocation tools for the CVP have streamlined the annual update process, dramatically reducing the time and effort required.</p>	<p align="center"><b>MEETS</b></p> <p>Utilizes improved tools developed for existing allocation method.</p>	<p align="center"><b>MEETS</b></p> <p>Utilizes improved tools developed for existing allocation method.</p>
Implementation Process	<p>Forward report to GAO</p> <p>Congressional approval is not needed to continue use of existing joint cost allocation factors.</p>	<p>Forward report to GAO</p> <p>Report to Congress on results of GAO-recommended study would summarize findings.</p> <p>Change in joint cost allocation factors would require Congressional approval in some form.</p>	<p>Forward report to GAO</p> <p>Report to Congress on results of GAO-recommended study would summarize findings.</p> <p>Change in joint cost allocation factors could require Congressional approval in some form.</p>

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