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## CHAPTER 6

# PRELIMINARY COST ALLOCATION

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This chapter describes the purpose and process for allocating project costs among purposes and cost-sharing partners. It provides background information, defines terms, and identifies potential methods for allocating costs.

## BACKGROUND AND TERMINOLOGY

Cost allocations are made for Federal water resources projects to derive an equitable distribution of project costs among authorized project uses, or those purposes proposed for authorization, in accordance with existing law. This section presents possible approaches for allocating costs that are believed to follow the current administrative guidelines presented in the P&G and pertinent Reclamation guidance.

This initial analysis provides a preliminary indication of the cost implications of the approaches shown. It does not represent a detailed assessment of the economic effects of costs being borne by different Federal and non-Federal entities, and it does not identify potential non-Federal sponsor(s).

Three basic steps are associated with cost allocation and apportionment:

1. Identify costs to be allocated
2. Allocate costs to project purposes
3. Apportion costs to beneficiaries

### Identifying Costs to Be Allocated

Costs to be allocated include construction costs, other costs (sunk costs), interest during construction (IDC), and annual operation, maintenance, and replacement costs.

- **Construction cost** - Construction costs include the cost to implement all elements of the project necessary to achieve the anticipated benefit. Calculation of construction costs is described in **Chapter 5**.
- **Other costs (sunk costs)** – Sunk costs include costs associated with planning, field investigations, land acquisition, and environmental compliance activities. These costs are often assigned to major project features or project purposes to facilitate allocation.
- **Interest during construction** – Absent an up-front cost-sharing payment, Reclamation requires that repayment for a project be initiated at the completion of construction. IDC accounts for the financial cost of the construction period between the time when construction begins and benefits are derived. IDC was calculated for the alternative evaluated in this report based on a 3-year construction period ending in 2015.

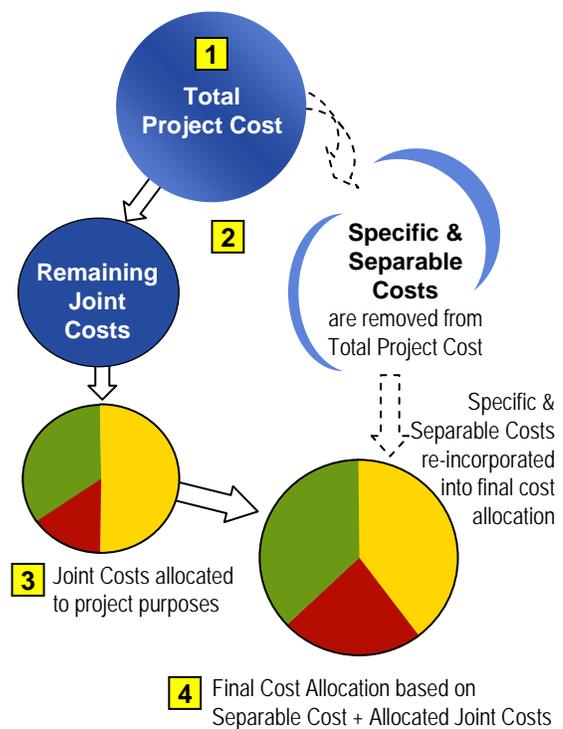
- **Annual operation, maintenance, and replacement costs** – O&M and replacement costs are the costs required to assure continued benefits over the life of the project.

It should be noted that cost allocation is a financial exercise rather than an economic evaluation. Consequently, project costs may be presented differently in a cost allocation than in an NED analysis.

### Allocating Costs to Project Purposes

Once all project costs have been identified, they are allocated to the project purposes, as generalized in **Figure 6.1**. *Specific costs* are for project components that contribute to a single purpose; for example, the cost of recreation facilities around a multipurpose reservoir. *Separable costs* are the costs that are specifically necessary because a purpose is included in a multipurpose project. Separable costs include specific costs and may include a portion of joint costs. They are estimated as the reduction in financial costs that would result if a purpose were excluded from an alternative. Remaining *joint costs* are the costs remaining after specific and separable costs have been removed.

Methods for allocating joint costs generally fall into one of two categories: those that consider benefits, and those that do not. Methods that do not consider benefits may divide joint costs between beneficiaries equally, or based on their share of separable costs. Methods that are based on benefits divide joint costs among beneficiaries proportional to the benefits each receives. The separable costs-remaining benefits (SCRB) method allocates costs among beneficiaries proportional to the benefits remaining after separable costs are removed. Benefits are derived in the economic analysis. Other methods for allocating joint costs based on benefits include the alternative justifiable expenditure method, and the share of total benefits method.



**FIGURE 6.1 – ALLOCATION OF COSTS TO PROJECT PURPOSES**

### Apportioning Costs to Beneficiaries

The cost allocation process is designed so that costs associated with project purposes can be apportioned to beneficiaries for repayment. Once costs are allocated to appropriate purposes, they can be apportioned to the Federal Government and non-Federal sponsor(s) based on specific project authorization and/or established Federal cost-sharing laws and regulations.

Federal costs are designated as either reimbursable or non-reimbursable. Reimbursable costs are those that, through some form of up-front cost sharing, repayment, or other financial agreement, are repaid to the Government. Non-reimbursable costs are those borne entirely by the Federal Government. Based on existing legislation, costs allocated to water supply, fish and wildlife,

ecosystem restoration, flood control, and hydropower purposes are either fully or partly reimbursable by project beneficiaries. Existing legislation that provides cost-sharing relationships for purposes that may be included in the LVE is summarized in **Table 6.1**.

**TABLE 6.1  
EXISTING AUTHORITIES FOR FEDERAL FINANCIAL PARTICIPATION  
IN MULTIPURPOSE WATER RESOURCES PROJECTS**

<b>Purpose</b>	<b>Pertinent Legislation<sup>2</sup></b>	<b>Description</b>
<b>EWA Replacement Supply</b>	Water Supply , Reliability, and Environmental Improvement Act of 2004 (PL 108-361)	PL 108-361 authorized Federal appropriations for the EWA for 6 years. However, the legislation does not address cost-sharing or repayment for projects related to the EWA.
	Federal Water Project Recreation Act of 1965 (PL 89-72), as amended	The EWA is an environmental program that supports the protection of at-risk Delta fish. A potential authority for Federal participation in fish and wildlife enhancement is provided by PL 89-72. The act provides Federal funding for up to 75% of the costs to plan, design, and construct (including IDC) fish and wildlife enhancement elements, with a minimum 25% non-Federal share due on completion of construction. Up to 50% of the separable construction costs for fish and wildlife enhancement may be deemed non-reimbursable. Up to 50% of O&M and replacement costs could be funded by the Federal Government.
<b>M&amp;I Water Supply</b>	Reclamation Act of 1902, as amended	These acts provide for up-front Federal financing of M&I water supply purposes, with 100% repayment of capital costs (including IDC and interest over the repayment period); 100% of O&M costs are non-Federal.
<b>Water Quality Recreation<sup>1</sup></b>	No applicable Federal legislation specifically pertaining to water quality identified.	
	Federal Water Project Recreation Act of 1965 (PL 89-72), as amended	PL 89-72 provides Federal cost-sharing of up to 50% for recreation elements, including planning, design, and IDC. Up to 50% of the separable costs for recreation elements may be deemed non-reimbursable. Up to 50% of O&M and replacement costs could be paid for with Federal funding.
<b>KEY:</b>	Delta = Sacramento–San Joaquin Delta EWA = Environmental Water Account IDC = interest during construction	M&I = municipal and industrial O&M = operation and maintenance PL = Public Law

Notes:

1. Although recreation is currently not an objective of the LVE, potential exists for an expansion project to provide recreation benefits.
2. The CVPIA was not included in the table because integration with the CVP is not included in current formulation.

## POTENTIAL COST ALLOCATION METHODS

The method of cost allocation used must be consistent with the project being proposed. For the LVE, the proposed project will likely be described as a project to develop EWA replacement supplies and improve Bay Area water supply reliability while providing water quality benefits to Bay Area water users. For EWA replacement supplies, the beneficiaries would likely be Reclamation and DWR. At this time, Bay Area entities that would benefit from the project have not

been identified, but may include CCWD and/or water agencies that receive SWP supplies from the SBA. In the future, beneficiaries will need to be known to properly allocate project costs. In addition, project ownership and operational responsibilities also have an influence on how costs are allocated in a Federal water resources project.

The likely allocation method to allocate joint costs to project purposes is the SCRB method. This would require calculation of the cost of alternative projects with each of the project purposes removed. Numerous methods exist that could potentially be used to subsequently apportion those costs to Federal and non-Federal project beneficiaries. Such methods are discussed below for each of the identified project purposes.

### **Costs Allocated to EWA Replacement Supply**

Federal interest in the EWA program was established in legislation enacted in October 2004, which authorized Federal appropriations for the EWA until 2010. However, no laws exist governing how costs might be allocated among Federal and non-Federal partners for projects developing EWA replacement supplies. In the past, the State of California has provided the majority of funding for the existing EWA, and the majority of EWA water supplies have been used to compensate SWP users impacted by Delta pumping curtailments. Reclamation has relied primarily on CVPIA Section 3406 (b)(2) water supplies to avoid impacts related to pumping curtailments and other regulatory actions in the Delta. Over the 5 years that the EWA has been in operation, Reclamation has only financed two EWA purchases (both in 2002). With the limited amount of time the program has been in operation, and uncertainties regarding the future of the EWA and other environmental programs, it is uncertain how Reclamation might rely on the EWA for environmental water supplies in the future.

Numerous potential methods exist for estimating a potential Federal share of costs associated with EWA replacement supplies. These might include (1) dividing costs by a predetermined percentage between existing Federal and non-Federal EWA partners, (2) apportioning costs based on historical Federal versus non-Federal participation in the EWA, or (3) apportioning costs based on anticipated future Federal needs for environmental water supplies. The first method would require an agreement among the Federal and non-Federal entities that would be financing the EWA component of the project regarding their relative financial responsibilities. The second method would be based on historical Federal participation in the EWA, which is limited to the past 5 years and therefore may not be representative of Federal participation over the 100-year life of the project. The third method would require an assessment of CVP and other Federal environmental water supplies and demands over the project life, likely using computer simulations; a comparison of these supplies and demands could then identify any residual need for environmental water that could be met through a program such as the EWA. The volume of this unmet environmental water need that could be met by the proposed project would then be used to establish the Federal cost-share for EWA related elements.

EWA replacement supply costs allocated to the Federal Government might be considered partially or fully non-reimbursable. Federal costs expended to date on the EWA were borne entirely by the Federal Government.

## Costs Allocated to Bay Area Water Supply Reliability

Federal authorization supporting Federal cost-sharing for water supply elements that may be applicable to the LVE is summarized in **Table 6.1**. The existing authorities shown in the table allow for reimbursement to the Federal Government of 100 percent of the costs for construction, IDC, and O&M elements related to the M&I water supply reliability component of a Federal project. Based on existing authorities, such a project would be owned by the Federal Government. It is unlikely that existing CVP cost allocation and cost-sharing procedures could be directly applied to an expansion project, as currently formulated.

## Costs Allocated to Bay Area Water Quality

If facilities or operational changes are included in a multipurpose project specifically to improve water quality, the costs attributable to water quality would need to be determined (likely based on the SCRB method). Because water quality is strongly tied to water supply reliability (the quality of a water supply has a significant influence on its beneficial uses and subsequent ability to improve supply reliability), water quality components of a multipurpose project may be eligible for up-front Federal financing with 100 percent repayment, similar to water supply reliability components. However, there is no established Federal interest in Bay Area water quality would support cost-sharing of joint costs allocated to water quality at this time.

## EXAMPLE COST ALLOCATION

The following provides a simplified example of how the cost of a Federal Los Vaqueros expansion project might be allocated to project purposes, using the alternative identified for evaluation in this report. A rigorous SCRB analysis was not performed, and the following example does not represent a typical feasibility-level cost allocation that would support Congressional decision-making. A more rigorous cost allocation would be required should a plan be recommended for implementation.

For the purpose of this initial analysis, the following simplifying assumptions were made in allocating project costs:

- Construction costs, sunk costs, O&M, and replacement costs were not allocated separately. Instead, total project cost (from **Table 5.4**) was used. This total includes the net present value of annual O&M, replacements, and power. A more thorough cost allocation would allocate these costs separately, typically to account for differences in cost-sharing of implementation costs versus O&M costs, for example.
- A simplified share of total benefits method was applied in the example cost allocation to allocate costs to project purposes. Costs were allocated to EWA replacement supply, emergency water supply, or water quality proportional to the benefits presented in **Table 5.5** for the 2 percent price escalation scenario. Fishery benefits were not allocated as part of this initial economic evaluation.

**Table 6.2** summarizes costs to be allocated and allocation percentages based on these assumptions.

**TABLE 6.2**  
**EXAMPLE COST ALLOCATION**  
**2006 Prices (\$ millions)**

<b>Total Costs to Be Allocated</b> (includes implementation cost and capital value of annual O&M and replacements)		<b>\$ 667</b>
Costs Allocated to EWA Replacement Supply	81% of Net Benefits	540.3
Costs Allocated to Water Supply Reliability	0% of Net Benefits	0.0
Costs Allocated to Emergency Water Supply	9% of Net Benefits	60.0
Costs Allocated to Water Quality Improvement	10% of Net Benefits	66.7
<b>KEY:</b> EWA = Environmental Water Account                      O&M = operation and maintenance		