

**-- Kern Fan Groundwater Storage Project --
Roadmap To Calculation of
Federal Wildlife Refuge Benefits And Funding Request
(December 2, 2020)**

The Federal Wildlife Refuge Incremental Level 4 water supply benefits for the Kern Fan Groundwater Storage Project is \$6.4 million (in 2018 dollars), which is equal to approximately 2% of the total project benefits of \$427.5 million. The total construction cost of the project is \$246 million.

Using the total project construction cost of \$246 million, the proportionate project benefits are allocated to the costs. Therefore, the proportional allocation of the construction costs to the Federal Wildlife Refuge Water Supply benefit is \$246 million x 2% = \$4.4 million. These are 100 percent non-reimbursable federal costs. As such, the project is eligible for \$4.4 million in WIIN Section 4007 funding for the Federal Wildlife Refuge Incremental Level 4 water supply benefits. This \$4.4 million is substantially below 25 percent of the total construction cost of the project.

Feasibility Report and Addendum 5

The Feasibility Report for the Kern Fan Groundwater Storage Project was originally submitted to Reclamation in October 2019 and updated and resubmitted in April 2020. Several Addenda were prepared in response to requests from Reclamation, the most recent of which is Addendum 5, dated November 9, 2020.

A cross reference to the tables in the Feasibility Report and updates to those tables in Addendum 5 is provided below. The Table number references are from the Feasibility Report. ES refers to Executive Summary. The cross-reference also lists the key information provided in the tables and identifies the supporting attachments and excel files.

Cross Reference to Feasibility Study, Addendum 5 and Supporting Documentation

Feasibility Study	Addendum 5	Information Provided	Supporting Attachments or Excel Worksheet	Worksheet Tab
Table 4-13 (and ES-2) Annual Economic Benefits and Cost of Alternative Alignment (Million \$)	Page 3	Annual Benefits and Costs Total Costs Benefit/Cost Ratio	Rev Appendix A Updated Tables Feasibility Report_110920.xlsx	Benefit Summary

Table 5-4 Construction Cost Allocated to Each Kern Fan Project Purpose and Benefit (Million \$)	Page 4	Proportionately Allocates Benefits to Costs	Rev Appendix A Updated Tables Feasibility Report_110920.xlsx	Total Cost Allocation
Table 5-6 Percentages for Assigning Federal and Non-Federal Costs	Page 5	Percentages for Assigning Costs	Rev Appendix A Updated Tables Feasibility Report_110920.xlsx	Initial Cost Assignment
Table 5-7 (also Table ES 3) Kern Fan Project Costs Assigned to Beneficiaries (Million \$)	Page 6	Assigns Costs to Beneficiaries	Rev Appendix A Updated Tables Feasibility Report_110920.xlsx	Initial Cost Assignment
Attachment F	Attachment C	Technical Memo regarding economic Benefits and Supporting Excel file	Appendix C Tech Memos Econ Benefit Evaluation Final.pdf IRWD_WIIN_Econ Benefits_092220.xlsx	Annual Benefits Summary of Total Benefits

Roadmap to Calculations of Benefits and Funding:

Below is a more detailed roadmap to the benefits and funding calculations included in the Feasibility and Addendum that walks through the specific calculations and supporting documentation.

Benefits:

The initial economic calculation of the project benefits prepared by M.Cubed was provided as Appendix F to the Updated Feasibility Report (submitted to Reclamation in April 2020), and did not include Federal Wildlife Refuge Water Supply Benefits. The economic analysis was updated to include the additional federal wildlife refuge water supply benefits and submitted to Reclamation as **Appendix C to Addendum 5** (*Appendix C Tech Memos Econ Benefit Evaluation Final.pdf*), which describes how the benefits were calculated. The total benefits for the project, including the \$6.4 million in 2018 dollars for the federal wildlife refuge water supply are shown on **Page 2, Table 1 of Appendix C**.

The associated excel file (*IRWD_WIIN_Econ Benefits_092220.xlsx*) providing all of the supporting calculations was also submitted to Reclamation. The net present value of the federal wildlife refuge water supply is shown in 2015 dollars on the Annual Benefits worksheet tab in Cell CP4 as **\$5,901,347**. This was updated to 2018 dollars on the Summary of Total Benefits

worksheet tab in Cell C22 as **\$6,441,852**. The average annual benefits are also provided in Column K of the Summary of Total Benefits. Cell K22 calculates the annual benefits from the Federal Wildlife Refuge Water Supply as **\$282,591**.

Costs and Federal Funding Request:

The supporting calculations for the apportionment of the project benefits to beneficiaries and allocation of funding is provided in the excel worksheet, *Rev Appendix A Updated Tables Feasibility Report_110920.xlsx*. The Benefits worksheet tab shows the total benefits and annualized benefits from the economic benefits analysis discussed above. Total benefits for the Federal Wildlife Refuge Water Supply are **\$6,441,852, equal to approximately 2% of the total project benefits of \$427,498,998**. The annualized benefits for Federal Wildlife Refuge Water of \$282,591 are copied into the worksheet tab Total Cost Allocation and rounded to \$0.3 Million in Cell B13. Again, the percentage of the total benefits is calculated as approximately 2% in cell B20.

The **total cost of the project is \$246 million**. These costs are detailed in worksheet BV Conc Lined – 5 yr Esc 2% and totaled in that worksheet in cell G622.

Using the total project cost of \$246 million, the **proportional allocation of construction costs to the federal refuge benefit is then calculated as \$246 million x 2% = \$4.4 million**, shown in cell B22 of the Total Cost Allocation worksheet. This is carried forward to the Initial Cost Assignment worksheet tab, which assigns the costs to various cost types and identifies whether they are federal non-reimbursable or non-federal costs. Cell C6 identifies that 100% of the construction costs are federal non-reimbursable costs. There are no non-federal cost shares. Therefore, Cell C21 in the Initial Cost Assignment worksheet shows that **100% of the \$4.4 million is eligible for federal funding**.