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1967

COLORADO RIVER BASIN PROJECT

APRIL 24, 1968.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

Mr. JOHNSON of California, from the Committee on Interior and Insular Affairs, submitted the following

REPORT

together with

SEPARATE AND DISSENTING VIEWS

[To accompany H.R. 3300]

The Committee on Interior and Insular Affairs, to whom was referred the bill (H.R. 3300) to authorize the construction, operation, and maintenance of the Colorado River Basin project, and for other purposes, having considered the same, reports favorably thereon with an amendment and recommends that the bill as amended do pass.

The amendment is as follows:

Strike out all after the enacting clause and insert the following language:

TITLE I—COLORADO RIVER BASIN PROJECT: OBJECTIVES

SEC. 101. That this Act may be cited as the "Colorado River Basin Project Act".

SEC. 102. (a) It is the object of this Act to provide a program for the further comprehensive development of the water resources of the Colorado River Basin and for the provision of additional and adequate water supplies for use in the Upper as well as in the Lower Colorado River Basin. This program is declared to be for the purposes, among others, of regulating the flow of the Colorado River; controlling floods; improving navigation; providing for the storage and delivery of the waters of the Colorado River for reclamation of lands, including supplemental water supplies, and for municipal, industrial, and other beneficial purposes; improving water quality; providing for basic public outdoor recreation facilities; improving conditions for fish and wildlife, and the generation and sale of electrical power as an incident of the foregoing purposes.

(b) It is the policy of the Congress that the Secretary of the Interior (hereinafter referred to as the "Secretary") shall continue to develop,

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after consultation with affected States and appropriate Federal agencies, a regional water plan, consistent with the provisions of this Act and with future authorizations, to serve as the framework under which projects in the Colorado River Basin may be coordinated and constructed with proper timing to the end that an adequate supply of water may be made available for such projects, whether heretofore, herein, or hereafter authorized.

TITLE II—INVESTIGATIONS AND PLANNING

SEC. 201. (a) The Water Resources Council, acting in accordance with the procedure prescribed in section 103 of the Water Resources Planning Act (79 Stat. 244), shall within one year following the effective date of this Act establish principles, standards, and procedures for the program of investigations and submittal of plans and reports authorized by this title. The Secretary, in conformity with the principles, standards, and procedures so established, is authorized and directed to—

(1) prepare estimates of the long-range water supply available for consumptive use in the Colorado River Basin, of current water requirements therein, and of the rate of growth of water requirements therein to at least the year 2030;

(2) investigate and recommend sources and means of supplying water to meet the current and anticipated water requirements of the Colorado River Basin, either directly or by exchange, including reductions in losses, importations from sources outside the natural drainage basin of the Colorado River system, desalination, weather modification, and other means: Provided, That the Secretary shall not, under the authority of this clause or anything in this Act contained, make any recommendation for importing water into the Colorado River system from other river basins without the approval of those States which will be affected by such exportation, said approval to be obtained in a manner consistent with the procedure and criteria established by section 1 of the Flood Control Act of 1944 (58 Stat. 887);

(3) undertake investigations, in cooperation with other concerned agencies, of means for maintaining an adequate water quality throughout the Colorado River Basin;

(4) investigate means of providing for prudent water conservation practices to permit maximum beneficial utilization of available water supplies in the Colorado River Basin;

(5) investigate and prepare estimates of the long-range water supply in States and areas from which water could be imported into the Colorado River system, together with estimates and plans to satisfy the probable ultimate requirements for water within such States and areas of origin for all purposes, including but not limited to consumptive use, navigation, river regulation, power, enhancement of fishery resources, pollution control, and disposal of wastes to the ocean, and estimates of the quantities of water, if any, that will be available in excess of such requirements.

(b) The Secretary is authorized and directed to prepare reconnaissance reports covering the matters set out in subsection (a) of this section, and such reports shall be submitted to the President and to the Congress not later than June 30, 1973, and, as revised and updated, every five years thereafter. For the purpose of providing for the repayment of the reimbursable costs of any projects covered by such reports, the Secretary shall

take into account such assistance as may be available to the States of the Upper Division from the Upper Colorado River Basin Fund (70 Stat. 107), and to the States of the Lower Division from the development fund established by section 403 of this Act.

(c) On the basis of the investigations and studies performed pursuant to this section, and subject to the provisions of subsection (a)(2) and section 203 hereof, the Secretary shall prepare a feasibility report on a plan which shows the most economical means of augmenting the water supply available in the Colorado River below Lee Ferry by two and one-half million acre-feet annually. The recommended plan may include the construction of works and facilities by such successive stages as are estimated to be necessary to alleviate critical water shortages as they occur. The report prepared pursuant to this subsection, along with comments of the affected States and appropriate Federal agencies thereon, shall be submitted to the Congress on or before January 1, 1975.

SEC. 202. The Congress declares that the satisfaction of the requirements of the Mexican Water Treaty from the Colorado River constitutes a national obligation which shall be the first obligation of any water augmentation project planned pursuant to section 201 of this Act and authorized by the Congress. Accordingly, the States of the Upper Division (Colorado, New Mexico, Utah, and Wyoming) and the States of the Lower Division (Arizona, California, and Nevada) shall be relieved from all obligations which may have been imposed upon them by article III(c) of the Colorado River Compact so long as the Secretary shall determine and proclaim that means are available and in operation which augment the water supply of the Colorado River system in such quantity as to satisfy the requirements of the Mexican Water Treaty together with any losses of water associated with the performance of that treaty.

SEC. 203. (a) In the event that the Secretary shall, pursuant to section 201(a)(2) and 201(c), plan works to import water into the Colorado River system from sources outside the natural drainage areas of the system, he shall make provisions for adequate and equitable protection of the interests of the States and areas of origin, including assistance from funds specified in section 201(b) of this Act, to the end that water supplies may be available for use in such States and areas of origin adequate to satisfy their ultimate requirements at prices to users not adversely affected by the exportation of water to the Colorado River system.

(b) All requirements, present or future, for water within any State lying wholly or in part within the drainage area of any river basin from which water is exported by works planned pursuant to this Act shall have a priority of right in perpetuity to the use of the waters of that river basin, for all purposes, as against the uses of the water delivered by means of such exportation works, unless otherwise provided by interstate agreement.

SEC. 204. The Secretary shall submit annually to the President and the Congress reports covering progress on the investigations and reports authorized by this title.

SEC. 205. There are hereby authorized to be appropriated such sums as are required to carry out the purposes of this title.

TITLE III—AUTHORIZED UNITS: PROTECTION OF EXISTING USES

SEC. 301. (a) For the purposes of furnishing irrigation water and municipal water supplies to the water-deficient areas of Arizona and

western New Mexico through direct diversion or exchange of water, control of floods, conservation and development of fish and wildlife resources, enhancement of recreation opportunities, and for other purposes, the Secretary shall construct, operate, and maintain the Central Arizona Project, consisting of the following principal works: (1) a system of main conduits and canals, including a main canal and pumping plants (Granite Reef aqueduct and pumping plants), for diverting and carrying water from Lake Havasu to Orme Dam or suitable alternative, which system shall have a capacity of not to exceed two thousand five hundred cubic feet per second; (2) Orme Dam and Reservoir and power-pumping plant or suitable alternative; (3) Buttes Dam and Reservoir, which shall be so operated as not to prejudice the rights of any user in and to the waters of the Gila River as those rights are set forth in the decree entered by the United States District Court for the District of Arizona on June 29, 1935, in United States against Gila Valley Irrigation District and others (Globe Equity Numbered 59); (4) Hooker Dam and Reservoir or suitable alternative, which shall be constructed in such a manner as to give effect to the provisions of subsection (f) of section 304; (5) Charleston Dam and Reservoir; (6) Tucson aqueducts and pumping plants; (7) Salt Gila aqueduct; (8) related canals, regulating facilities, hydroelectric power-plants, and electrical transmission facilities required for the operation of said principal works; (9) related water distribution and drainage works; and (10) appurtenant works.

(b) Article II(B)(3) of the decree of the Supreme Court of the United States in Arizona against California (376 U.S. 340) shall be so administered that in any year in which, as determined by the Secretary, there is insufficient main stream Colorado River water available for release to satisfy annual consumptive use of seven million five hundred thousand acre-feet in Arizona, California, and Nevada, diversions from the main stream for the Central Arizona Project shall be so limited as to assure the availability of water in quantities sufficient to provide for the aggregate annual consumptive use by holders of present perfected rights, by other users in the State of California served under existing contracts with the United States by diversion works heretofore constructed, and by other existing Federal reservations in that State, of four million four hundred thousand acre-feet of mainstream water, and by users of the same character in Arizona and Nevada. Water users in the State of Nevada shall not be required to bear shortages in any proportion greater than would have been imposed in the absence of this subsection 301(b). This subsection shall not affect the relative priorities, among themselves, of water users in Arizona, Nevada, and California which are senior to diversions for the Central Arizona Project, or amend any provisions of said decree.

(c) The limitation stated in subsection (b) of this section shall not apply so long as the Secretary shall determine and proclaim that means are available and in operation which augment the water supply of the Colorado River system in such quantity as to make sufficient mainstream water available for release to satisfy annual consumptive use of seven million five hundred thousand acre-feet in Arizona, California, and Nevada.

SEC. 302. (a) The Secretary shall designate the lands of the Salt River Pima-Maricopa Indian Community, Arizona, and the Fort McDowell-Apache Indian Community, Arizona, or interests therein, and any allotted lands or interests therein within said communities which he determines are necessary for use and occupancy by the United States

for the construction, operation, and maintenance of Orme Dam and Reservoir, or alternative. The Secretary shall offer to pay the fair market value of the lands and interests designated, inclusive of improvements. In addition, the Secretary shall offer to pay toward the cost of relocating or replacing such improvements not to exceed $500,000 in the aggregate, and the amount offered for the actual relocation or replacement of a residence shall not exceed the difference between the fair market value of the residence and $8,000. Each community and each affected allottee shall have six months in which to accept or reject the Secretary's offer. If the Secretary's offer is rejected, the United States may proceed to acquire the property interests involved through eminent domain proceedings in the United States District Court for the District of Arizona under 40 U.S.C., sections 257 and 258a. Upon acceptance in writing of the Secretary's offer, or upon the filing of a declaration of taking in eminent domain proceedings, title to the lands or interests involved, and the right to possession thereof, shall vest in the United States. Upon a determination by the Secretary that all or any part of such lands or interests are no longer necessary for the purpose for which acquired, title to such lands or interests shall be restored to the appropriate community.

(b) Title to any land or easement acquired pursuant to this section shall be subject to the right of the former owner to use or lease the land for purposes not inconsistent with the construction, operation, and maintenance of the project, as determined by, and under terms and conditions prescribed by, the Secretary. Such right shall include the right to extract and dispose of minerals. The determination of fair market value under subsection (a) shall reflect the right to extract and dispose of minerals but not the other uses permitted by this subsection.

(c) In view of the fact that a substantial portion of the lands of the Fort McDowell Mohave-Apache Indian Community will be required for Orme Dam and Reservoir, or alternative, the Secretary shall, in addition to the compensation provided for in subsection (a) of this section, designate and add to the Fort McDowell Indian Reservation twenty-five hundred acres of suitable lands in the vicinity of the reservation that are under the jurisdiction of the Department of the Interior in township 4 north, range 7 east; township 5 north, range 7 east; and township 3 north, range 7 east, Gila and Salt River base meridian, Arizona. Title to lands so added to the reservation shall be held by the United States in trust for the Fort McDowell Mohave-Apache Indian Community.

(d) Each community may, pursuant to an agreement with the Secretary, develop and operate recreational facilities along the part of the shoreline of the Orme Reservoir located on or adjacent to its reservation, including land added to the Fort McDowell Reservation as provided in subsection (b) of this section, subject to rules and regulations prescribed by the Secretary governing the recreation development of the reservoir. Recreation development of the entire reservoir and federally owned lands under the jurisdiction of the Secretary adjacent thereto shall be in accordance with a master recreation plan approved by the Secretary. Each community and the members thereof shall have non-exclusive personal rights to hunt and fish on the reservoir, to the same extent they are now authorized to hunt and fish, without charge, but shall have no right to exclude others from the reservoir except by control of access through their reservations, or any right to require payments by the public except for the use of community lands or facilities.

(e) All funds paid pursuant to this section, and any per capita distribution thereof, shall be exempt from all forms of State and Federal income taxes.

SEC. 303. (a) The Secretary is authorized and directed to continue to a conclusion appropriate engineering and economic studies and to recommend the most feasible plan for the construction and operation of hydroelectric generating and transmission facilities, the purchase of electrical energy, the purchase of entitlement to electrical plant capacity, or any combination thereof, including participation, operation, or construction by non-Federal entities, for the purpose of supplying the power requirements of the Central Arizona Project and augmenting the Lower Colorado River Basin Fund: Provided, That nothing in this section or in this Act contained shall be construed to authorize the study or construction of any dams on the main stream of the Colorado River between Hoover Dam and Glen Canyon Dam.

(b) If included as a part of the recommended plan, the Secretary may enter into an agreement with non-Federal interests proposing to construct a thermal generating powerplant whereby the United States shall acquire the right to such portion of the capacity of such plant, including delivery of power and energy over appurtenant transmission facilities to mutually agreed upon delivery points, as he determines is required in connection with the operation of the Central Arizona Project. When not required for the Central Arizona Project, the power and energy acquired by such agreement may be disposed of intermittently by the Secretary for other purposes at such prices as he may determine, including its marketing in conjunction with the sale of power and energy from Federal powerplants in the Colorado River system so as to produce the greatest practicable amount of power and energy that can be sold at firm power and energy rates. The agreement shall provide, among other things, that—

(1) the United States shall pay not more than that portion of the total construction cost, exclusive of interest during construction, of the powerplant, and of any switchyards and transmission facilities serving the United States, as is represented by the ratios of the respective capacities to be provided for the United States therein to the total capacities of such facilities. The Secretary shall make the Federal portion of such costs available to the non-Federal interests during the construction period, including the period of preparation of designs and specifications, in such installments as will facilitate a timely construction schedule, but no funds other than for preconstruction activities shall be made available by the Secretary until he determines that adequate contracts have been entered into between all the affected parties covering land, water, fuel supplies, power (its availability and use), rights-of-way, transmission facilities and all other necessary matters for the thermal generating powerplant;

(2) annual operation and maintenance costs, including provisions for depreciation (except as to depreciation on the pro rata share of the construction cost borne by the United States in accordance with the foregoing clause (1)), shall be apportioned between the United States and the non-Federal interests on an equitable basis taking into account the ratios determined in accordance with the foregoing clause (1);

(3) the United States shall be given appropriate credit for any interests in Federal lands administered by the Department of the

Interior that are made available for the powerplant and appurtenances;

(4) costs to be borne by the United States under clauses (1) and (2) shall not include (a) interest and interest during construction, (b) financing charges, (c) franchise fees, and (d) such other costs as shall be specified in the agreement.

(c) No later than one year from the effective date of this Act, the Secretary shall submit his recommended plan to the Congress. Except as authorized by subsection (b) of this section, such plan shall not become effective until approved by the Congress.

(d) If the thermal generating plant referred to in subsection (b) of this section is located in Arizona, and if it is served by water diverted from the drainage area of the Colorado River system above Lee Ferry, other provisions of existing law to the contrary notwithstanding, such consumptive use of water shall be a part of the fifty thousand acre-feet per annum apportioned to the State of Arizona by article III (a) of the Upper Colorado River Basin Compact (63 Stat. 31).

SEC. 304. (a) Unless and until otherwise provided by Congress, water from the Central Arizona Project shall not be made available directly or indirectly for the irrigation of lands not having a recent irrigation history as determined by the Secretary, except in the case of Indian lands, national wildlife refuges and, with the approval of the Secretary, State-administered wildlife management areas.

(b)(1) Irrigation and municipal and industrial water supply under the Central Arizona Project within the State of Arizona may, in the event the Secretary determines that it is necessary to effect repayment, be pursuant to master contracts with organizations which have power to levy assessments against all taxable real property within their boundaries. The terms and conditions of contracts or other arrangements whereby each such organization makes water from the Central Arizona Project available to users within its boundaries shall be subject to the Secretary's approval, and the United States shall, if the Secretary determines such action is desirable to facilitate carrying out the provisions of this Act, have the right to require that it be a party to such contracts or that contracts subsidiary to the master contracts be entered into between the United States and any user. The provisions of this clause (1) shall not apply to the supplying of water to an Indian tribe for use within the boundaries of an Indian reservation.

(2) Any obligation assumed pursuant to section 9(d) of the Reclamation Project Act of 1939 (43 U.S.C. 485h(d)) with respect to any project contract unit or irrigation block shall be repaid over a basic period of not more than fifty years; any water service provided pursuant to section 9(e) of the Reclamation Project Act of 1939 (43 U.S.C. 485h(e)) may be on the basis of delivery of water for a period of fifty years and for the delivery of such water at an identical price per acre-foot for water of the same class at the several points of delivery for the main canals and conduits and from such other points of delivery as the Secretary may designate; and long-term contracts relating to irrigation water supply shall provide that water made available thereunder may be made available by the Secretary for municipal or industrial purposes if and to the extent that such water is not required by the contractor for irrigation purposes.

(3) Contracts relating to municipal and industrial water supply under the Central Arizona Project may be made without regard to the limitations

of the last sentence of section 9(c) of the Reclamation Project Act of 1939 (43 U.S.C. 485h(c)), may provide for the delivery of such water at an identical price per acre-foot for water of the same class at the several points of delivery from the main canals and conduits; and may provide for repayment over a period of fifty years if made pursuant to clause (1) of said section and for the delivery of water over a period of fifty years if made pursuant to clause (2) thereof.

(c) Each contract under which water is provided under the Central Arizona Project shall require that (1) there be in effect measures, adequate in the judgment of the Secretary, to control expansion of irrigation from aquifers affected by irrigation in the contract service area; (2) the canals and distribution systems through which water is conveyed after its delivery by the United States to the contractors shall be provided and maintained with linings adequate in his judgment to prevent excessive conveyance losses; and (3) neither the contractor nor the Secretary shall pump or permit others to pump ground water from within the exterior boundaries of the service area of a contractor receiving water from the Central Arizona Project for any use outside said contractor's service area unless the Secretary and such contractor shall agree, or shall have previously agreed, that a surplus of ground water exists and that drainage is or was required. Such contracts shall be subordinate at all times to the satisfaction of all existing contracts between the Secretary and users in Arizona heretofore made pursuant to the Boulder Canyon Project Act (45 Stat. 1057).

(d) The Secretary may require in any contract under which water is provided from the Central Arizona Project that the Contractor agree to accept mainstream water in exchange for or in replacement of existing supplies from sources other than the main stream. The Secretary shall so require in the case of users in Arizona who also use water from the Gila River system to the extent necessary to make available to users of water from the Gila River system in New Mexico additional quantities of water as provided in and under the conditions specified in subsection (f) of this section: Provided, That such exchanges and replacements shall be accomplished without economic injury or cost to such Arizona contractors.

(e) In times of shortage or reduction of mainstream Colorado River water for the Central Arizona Project, as determined by the Secretary, users which have yielded water from other sources in exchange for main stream water supplied by that project shall have a first priority to receive mainstream water, as against other users supplied by that project which have not so yielded water from other sources, but only in quantities adequate to replace the water so yielded.

(f)(1) In the operation of the Central Arizona Project, the Secretary shall offer to contract with water users in New Mexico for water from the Gila River, its tributaries and underground water sources in amounts that will permit consumptive uses of water in New Mexico of not to exceed an annual average in any period of ten consecutive years of eighteen thousand acre-feet, including reservoir evaporation, over and above the consumptive uses provided for by article IV of the decree of the Supreme Court of the United States in Arizona against California (376 U.S. 340). Such increased consumptive uses shall not begin until, and shall continue only so long as, delivery of Colorado River water to downstream Gila River users in Arizona is being accomplished in accordance with this Act, in quantities sufficient to replace any diminution of their supply resulting from such diversions from the Gila River, its tributaries and underground water sources. In determining the amount required for

this purpose full consideration shall be given to any differences in the quality of the waters involved.

(2) The Secretary shall further offer to contract with water users in New Mexico for water from the Gila River, its tributaries, and underground water sources in amounts that will permit consumptive uses of water in New Mexico of not to exceed an annual average in any period of ten consecutive years of an additional thirty thousand acre-feet, including reservoir evaporation. Such further increases in consumptive use shall not begin until, and shall continue only so long as, works capable of augmenting the water supply of the Colorado River system have been completed and water sufficiently in excess of two million eight hundred thousand acre-feet per annum is available from the main stream of the Colorado River for consumptive use in Arizona to provide water for the exchanges herein authorized and provided. In determining the amount required for this purpose full consideration shall be given to any differences in the quality of the waters involved.

(3) All additional consumptive uses provided for in clauses (1) and (2) of this subsection shall be subject to all rights in New Mexico and Arizona as established by the decree entered by the United States District Court for the District of Arizona on June 29, 1935, in United States against Gila Valley Irrigation District and others (Globe Equity Numbered 59) and to all other rights existing on the effective date of this Act in New Mexico and Arizona to water from the Gila River, its tributaries, and underground water sources and shall be junior thereto and shall be made only to the extent possible without economic injury or cost to the holders of such rights.

SEC. 305. To the extent that the flow of the main stream of the Colorado River is augmented in order to make sufficient water available for release, as determined by the Secretary pursuant to Article II(b)(1) of the decree of the Supreme Court of the United States in Arizona against California (376 U.S. 340), to satisfy annual consumptive use of two million eight hundred thousand acre-feet in Arizona, four million four hundred thousand acre-feet in California, and three hundred thousand acre-feet in Nevada, respectively, the Secretary shall make such water available to users of mainstream water in those States at the same costs (to the extent that such costs can be made comparable through the nonreimbursable allocation to the replenishment of the deficiencies occasioned by satisfaction of the Mexican Treaty burden as herein provided and financial assistance from the development fund established by section 403 of this Act) and on the same terms as would be applicable if mainstream water were available for release in the quantities required to supply such consumptive use.

SEC. 306. The Secretary shall undertake programs for water salvage and ground water recovery along and adjacent to the main stream of the Colorado River. Such programs shall be consistent with maintenance of a reasonable degree of undisturbed habitat for fish and wildlife in the area, as determined by the Secretary.

SEC. 307. The Dixie Project, heretofore authorized in the State of Utah, is hereby reauthorized for construction at the site determined feasible by the Secretary, and the Secretary shall integrate such project into the repayment arrangement and participation in the Lower Colorado River Basin Development Fund established by Title IV of this Act consistent with the provisions of the Act: Provided, That section 8 of Public Law 88–565 (78 Stat. 848) is hereby amended by deleting the figure "$42,700,000" and inserting in lieu thereof the figure "$58,000,000".

SEC. 308. The conservation and development of the fish and wildlife resources and the enhancement of recreation opportunities in connection with the project works authorized pursuant to this title shall be in accordance with the provisions of the Federal Water Project Recreation Act (79 Stat. 213) except as provided in section 302 of this Act.

SEC. 309. (a) There is hereby authorized to be appropriated for construction of the Central Arizona Project, including prepayment for power generation and transmission facilities but exclusive of distribution and drainage facilities for non-Indian lands, $779,000,000 plus or minus such amounts, if any, as may be justified by reason of ordinary fluctuations in construction costs as indicated by engineering cost indices applicable to the types of construction involved here and, in addition thereto, such sums as may be required for operation and maintenance of the project.

(b) There is also authorized to be appropriated $100,000,000 for construction of distribution and drainage facilities for non-Indian lands. Notwithstanding the provisions of section 403 of this Act, neither appropriations made pursuant to the authorization contained in this subsection (b) nor revenues collected in connection with the operation of such facilities shall be credited to the Lower Colorado River Basin Development Fund and payments shall not be made from that fund to the general fund of the Treasury to return any part of the costs of construction, operation, and maintenance of such facilities.

TITLE IV—LOWER COLORADO RIVER BASIN DEVELOPMENT FUND: ALLOCATION AND REPAYMENT OF COSTS: CONTRACTS

SEC. 401. Upon completion of each Lower Basin unit of the project herein or hereafter authorized, or separate feature thereof, the Secretary shall allocate the total costs of constructing said unit or features to (1) commercial power, (2) irrigation, (3) municipal and industrial water supply, (4) flood control, (5) navigation, (6) water quality control, (7) recreation, (8) fish and wildlife, (9) the replenishment of the depletion of Colorado River flows available for use in the United States occasioned by performance of the Water Treaty of 1944 with the United Mexican States (Treaty Series 994), and (10) any other purposes authorized under the Federal reclamation laws. Costs of construction, operation, and maintenance allocated to the replenishment of the depletion of Colorado River flows available for use in the United States occasioned by compliance with the Mexican Water Treaty (including losses in transit, evaporation from regulatory reservoirs, and regulatory losses at the Mexican boundary, incurred in the transportation, storage, and delivery of water in discharge of the obligations of that treaty) shall be nonreimbursable. The repayment of costs allocated to recreation and fish and wildlife enhancement shall be in accordance with the provisions of the Federal Water Project Recreation Act (79 Stat. 213): Provided, That all of the separable and joint costs allocated to recreation and fish and wildlife enhancement as a part of the Dixie project, Utah, shall be nonreimbursable. Costs allocated to nonreimbursable purposes shall be nonreturnable under the provisions of this Act.

SEC. 402. The Secretary shall determine the repayment capability of Indian lands within, under, or served by any unit of the project. Construction costs allocated to irrigation of Indian lands (including provision of

water for incidental domestic and stock water uses) and within the repayment capability of such lands shall be subject to the Act of July 1, 1932 (47 Stat. 464), and such costs that are beyond repayment capability of such lands shall be nonreimbursable.

SEC. 403. (a) There is hereby established a separate fund in the Treasury of the United States to be known as the Lower Colorado River Basin Development Fund (hereinafter called the "development fund"), which shall remain available until expended as hereinafter provided.

(b) All appropriations made for the purpose of carrying out the provisions of Title III of this Act shall be credited to the development fund as advances from the general fund of the Treasury, and shall be available for such purpose.

(c) There shall also be credited to the development fund—

(1) All revenues collected in connection with the operation of facilities authorized in Title III in furtherance of the purposes of this Act (except entrance, admission, and other recreation fees or charges and proceeds received from recreation concessionaires), including revenues which, after completion of payout of the Central Arizona Project as required herein are surplus, as determined by the Secretary, to the operation, maintenance, and replacement requirements of said project; and

(2) any Federal revenues from the Boulder Canyon and Parker-Davis projects which, after completion of repayment requirements of the said Boulder Canyon and Parker-Davis projects, are surplus, as determined by the Secretary, to the operation, maintenance, and replacement requirements of those projects: Provided, however, That the Secretary is authorized and directed to continue the in-lieu-of-tax payments to the States of Arizona and Nevada provided for in section 2(c) of the Boulder Canyon Project Adjustment Act so long as revenues accrue from the operation of the Boulder Canyon project; and

(3) any Federal revenues from that portion of the Pacific Northwest-Pacific Southwest intertie located in the States of Nevada and Arizona which, after completion of repayment requirements of the said part of the Pacific Northwest-Pacific Southwest intertie located in the States of Nevada and Arizona, are surplus, as determined by the Secretary, to the operation, maintenance, and replacement requirements of said portion of the Pacific Northwest-Pacific Southwest intertie and related facilities.

(d) All moneys collected and credited to the development fund pursuant to subsection (b) and clauses (1) and (3) of subsection (c) of this section and the portion of revenues derived from the sale of power and energy for use in Arizona pursuant to clause (2) of subsection (c) of this section shall be available, without further appropriation for—

(1) defraying the costs of operation, maintenance, and replacements of, and emergency expenditures for, all facilities of the projects, within such separate limitations as may be included in annual appropriation Acts; and

(2) payments to reimburse water users in the State of Arizona for losses sustained as a result of diminution of the production of hydroelectric power at Coolidge Dam, Arizona, resulting from exchanges of water between users in the States of Arizona and New Mexico as set forth in section 304(f) of this Act.

(e) Revenues credited to the development fund shall not be available for construction of the works comprised within any unit of the project herein or hereafter authorized except upon appropriation by the Congress.

(f) Moneys credited to the development fund pursuant to subsection (b) and clauses (1) and (3) of subsection (c) of this section and the portion of revenues derived from the sale of power and energy for use in Arizona pursuant to clause (2) of subsection (c) of this section in excess of the amount necessary to meet the requirements of clauses (1) and (2) of subsection (d) of this section shall be paid annually to the general fund of the Treasury to return—

(1) the costs of each unit of the projects or separable feature thereof authorized pursuant to Title III of this Act, which are allocated to irrigation, commercial power, or municipal and industrial water supply, pursuant to this Act within a period not exceeding fifty years from the date of completion of each such unit or separable feature, exclusive of any development period authorized by law: Provided, That return of the costs, if any, required by section 307 shall not be made until after the payout period of the Central Arizona Project as authorized herein;

(2) interest (including interest during construction) on the unamortized balance of the investment in the commercial power and municipal and industrial water supply features of the project at a rate determined by the Secretary of the Treasury in accordance with the provisions of subsection (h) of this section, and interest due shall be a first charge.

(g) All revenues credited to the development fund in accordance with clause (c)(2) of this section (excluding only those revenues derived from the sale of power and energy for use in Arizona during the payout period of the Central Arizona Project as authorized herein) and such other revenues as remain in the development fund after making the payments required by subsections (d) and (f) of this section shall be available (1) to make payments, if any, as required by sections 307 and 502 of this Act, and (2) upon appropriation by the Congress, to assist in the repayment of reimbursable costs incurred in connection with units hereafter constructed to provide for the augmentation of the water supplies of the Colorado River for use below Lee Ferry as may be authorized as a result of the investigations and recommendations made pursuant to clause 201(a)(2) and subsection 203(a) of this Act.

(h) The interest rate applicable to those portions of the reimbursable costs of each unit of the project which are properly allocated to commercial power development and municipal and industrial water supply shall be determined by the Secretary of the Treasury, as of the beginning of the fiscal year in which the first advance is made for initiating construction of such unit, on the basis of the computed average interest rate payable by the Treasury upon its outstanding marketable public obligations which are neither due nor callable for redemption for fifteen years from the date of issue.

(i) Business-type budgets shall be submitted to the Congress annually for all operations financed by the development fund.

SEC. 404. On January 1 of each year the Secretary shall report to the Congress, beginning with the fiscal year ending June 30, 1969, upon the status of the revenues from and the cost of constructing, operating, and maintaining each lower basin unit of the project for the preceding fiscal year. The report of the Secretary shall be prepared to reflect accurately

the Federal investment allocated at that time to power, to irrigation, and to other purposes, the progress of return and repayment thereon, and the estimated rate of progress, year by year, in accomplishing full repayment.

TITLE V—UPPER COLORADO RIVER BASIN AUTHORIZATION AND REIMBURSEMENTS

SEC. 501. (a) In order to provide for the construction, operation, and maintenance of the Animas-La Plata Federal reclamation project, Colorado-New Mexico; the Dolores, Dallas Creek, West Divide, and San Miguel Federal reclamation projects, Colorado; and the Central Utah project (Uintah unit), Utah, as participating projects under the Colorado River Storage Project Act (70 Stat. 105; 43 U.S.C. 620), and to provide for the completion of planning reports on other participating projects, clause (2) of section 1 of said Act is hereby further amended by (i) inserting the words "and the Uintah unit" after the word "phase" within the parentheses following "Central Utah", (ii) deleting the words "Pine River Extension" and inserting in lieu thereof the words "Animas-La Plata, Dolores, Dallas Creek, West Divide, San Miguel", (iii) adding after the words "Smith Fork:" the proviso "Provided, That construction of the Uintah unit of the Central Utah project shall not be undertaken by the Secretary until he has completed a feasibility report on such unit and submitted such report to the Congress along with his certification that, in his judgment, the benefits of such unit or segment will exceed the costs and that such unit is physically and financially feasible:". Section 2 of said Act is hereby further amended by (i) deleting the words "Parshall, Troublesome, Rabbit Ear, San Miguel, West Divide, Tomichi Creek, East River, Ohio Creek, Dallas Creek, Dolores, Fruit Growers Extension, Animas-La Plata", and inserting after the words "Yellow Jacket" the words "Basalt, Middle Park (including the Troublesome, Rabbit Ear, and Azure units), Upper Gunnison (including the East River, Ohio Creek, and Tomichi Creek units), Lower Yampa (including the Juniper and Great Northern units), Upper Yampa (including the Hayden Mesa, Wessels, and Toponas units)"; (ii) inserting after the word "Sublette" the words "(including a diversion of water from the Green River to the North Platte River Basin in Wyoming), Ute Indian unit of the Central Utah Project, San Juan County (Utah), Price River, Grand County (Utah), Gray Canyon, and Juniper (Utah)"; and (iii) changing the period after "projects" to a colon and adding the following proviso: "Provided, That the planning report for the Ute Indian unit of the Central Utah participating project shall be completed on or before December 31, 1974 to enable the United States of America to meet the commitments heretofore made to the Ute Indian Tribe of the Uintah and Ouray Indian Reservation under the agreement dated September 20, 1965 (Contract Numbered 14-06-W-194)." The amount which section 12 of said Act authorizes to be appropriated is hereby further increased by the sum of $392,000,000, plus or minus such amounts, if any, as may be required, by reason of changes in construction costs as indicated by engineering cost indices applicable to the type of construction involved. This additional sum shall be available solely for the construction of the Animas-La Plata, Dolores, Dallas Creek, West Divide, and San Miguel projects herein authorized.

(b) The Secretary is directed to proceed as nearly as practicable with the construction of the Animas-La Plata, Dolores, Dallas Creek, West

Divide, and San Miguel participating Federal reclamation projects concurrently with the construction of the Central Arizona Project, to the end that such projects shall be completed not later than the date of the first delivery of water from said Central Arizona Project: Provided, That an appropriate repayment contract for each of said participating projects shall have been executed as provided in section 4 of the Colorado River Storage Project Act (70 Stat. 107) before construction shall start on that particular project.

(c) The Animas-La Plata Federal reclamation project shall be constructed and operated in substantial accordance with the engineering plans set out in the report of the Secretary transmitted to the Congress on May 4, 1966, and printed as House Document 436, Eighty-ninth Congress: Provided, That construction of the Animas-La Plata Federal reclamation project shall not be undertaken until and unless the States of Colorado and New Mexico shall have ratified the following compact to which the consent of Congress is hereby given:

"ANIMAS-LA PLATA PROJECT COMPACT

"The State of Colorado and the State of New Mexico, in order to implement the operation of the Animas-La Plata Federal Reclamation Project, Colorado-New Mexico, a proposed participating project under the Colorado River Storage Project Act (70 Stat. 105), and being moved by considerations of interstate comity, have resolved to conclude a compact for these purposes and have agreed upon the following articles:

"ARTICLE I

"A. The right to store and divert water in Colorado and New Mexico from the La Plata and Animas River systems, including return flow to the La Plata River from Animas River diversions, for uses in New Mexico under the Animas-La Plata Federal Reclamation Project shall be valid and of equal priority with those rights granted by decree of the Colorado state courts for the uses of water in Colorado for that project, providing such uses in New Mexico are within the allocation of water made to that state by articles III and XIV of the Upper Colorado River Basin Compact (63 Stat. 31).

"B. The restrictions of the last sentence of Section (a) of Article IX of the Upper Colorado River Basin Compact shall not be construed to vitiate paragraph A of this article.

"ARTICLE II

"This Compact shall become binding and obligatory when it shall have been ratified by the legislatures of each of the signatory States."

(d) The Secretary shall, for the Animas-La Plata, Dolores, Dallas Creek, San Miguel, West Divide, and Seedskadee participating projects of the Colorado River storage project, establish the nonexcess irrigable acreage for which any single ownership may receive project water at one hundred and sixty acres of class 1 land or the equivalent thereof, as determined by the Secretary, in other land classes.

(e) In the diversion and storage of water for any project or any parts thereof constructed under the authority of this Act or the Colorado River Storage Project Act within and for the benefit of the State of Colorado only,

the Secretary is directed to comply with the constitution and statutes of the State of Colorado relating to priority of appropriation; with State and Federal court decrees entered pursuant thereto; and with operating principles, if any, adopted by the Secretary and approved by the State of Colorado.

(f) The words "any western slope appropriations" contained in paragraph (i) of that section of Senate Document Numbered 80, Seventy-fifth Congress, first session, entitled "Manner of Operation of Project Facilities and Auxiliary Features", shall mean and refer to the appropriation heretofore made for the storage of water in Green Mountain Reservoir, a unit of the Colorado-Big Thompson Federal reclamation project, Colorado; and the Secretary is directed to act in accordance with such meaning and reference. It is the sense of Congress that this directive defines and observes the purpose of said paragraph (i), and does not in any way affect or alter any rights or obligations arising under said Senate Document Numbered 80 or under the laws of the State of Colorado.

SEC. 502. The Upper Colorado River Basin Fund established under section 5 of the Act of April 11, 1956 (70 Stat. 107), shall be reimbursed from the Colorado River Development Fund established by section 2 of the Boulder Canyon Project Adjustment Act (54 Stat. 755) for the money expended heretofore or hereafter from the Upper Colorado River Basin Fund to meet deficiencies in generation at Hoover Dam during the filling period of storage units of the Colorado River storage project pursuant to the criteria for the filling of Glen Canyon Reservoir (27 Fed. Reg. 6851, July 19, 1962). For this purpose, $500,000 for each year of operation of Hoover Dam and powerplant, commencing with the enactment of this Act, shall be transferred from the Colorado River Development Fund to the Upper Colorado River Basin Fund, in lieu of application of said amounts to the purposes stated in section 2(d) of the Boulder Canyon Project Adjustment Act, until such reimbursement is accomplished. To the extent that any deficiency in such reimbursement remains as of June 1, 1987, the amount of the remaining deficiency shall then be transferred to the Upper Colorado River Basin Fund from the Lower Colorado River Basin Development Fund, as provided in subsection (g) of section 403.

TITLE VI—GENERAL PROVISIONS: DEFINITIONS: CONDITIONS

SEC. 601. (a) Nothing in this Act shall be construed to alter, amend, repeal, modify, or be in conflict with the provisions of the Colorado River Compact (45 Stat. 1057), the Upper Colorado River Basin Compact (63 Stat. 31), the Water Treaty of 1944 with the United Mexican States (Treaty Series 994), the decree entered by the Supreme Court of the United States in Arizona against California, and others (376 U.S. 340), or, except as otherwise provided herein, the Boulder Canyon Project Act (45 Stat. 1057), the Boulder Canyon Project Adjustment Act (54 Stat. 774) or the Colorado River Storage Project Act (70 Stat. 1053.

(b) The Secretary is directed to—

(1) make reports as to the annual consumptive uses and losses of water from the Colorado River system after each successive five-year period, beginning with the five-year period starting on October 1, 1970. Such reports shall be prepared in consultation with the States of the lower basin individually and with the Upper Colorado River Com-

mission, and shall be transmitted to the President, the Congress, and the Governors of each State signatory to the Colorado River Compact;

(2) condition all contracts for the delivery of water originating in the drainage basin of the Colorado River system upon the availability of water under the Colorado River Compact.

(c) All Federal officers and agencies are directed to comply with the applicable provisions of this Act, and of the laws, treaty, compacts, and decree referred to in subsection (a) of this section, in the storage and release of water from all reservoirs and in the operation and maintenance of all facilities in the Colorado River system under the jurisdiction and supervision of the Secretary, and in the operation and maintenance of all works which may be authorized hereafter for the augmentation of the water supply of the Colorado River system. In the event of failure of any such officer or agency to so comply, any affected State may maintain an action to enforce the provisions of this section in the Supreme Court of the United States and consent is given to the joinder of the United States as a party in such suit or suits, as a defendant or otherwise.

SEC. 602. (a) In order to fully comply with and carry out the provisions of the Colorado River Compact, the Upper Colorado River Basin Compact, and the Mexican Water Treaty, the Secretary shall propose criteria for the coordinated long-range operation of the reservoirs constructed and operated under the authority of the Colorado River Storage Project Act, the Boulder Canyon Project Act, and the Boulder Canyon Project Adjustment Act. To effect in part the purposes expressed in this paragraph, the criteria shall make provision for the storage of water in storage units of the Colorado River Storage Project and releases of water from Lake Powell in the following listed order of priority:

(1) Releases to supply one-half the deficiency described in article III(c) of the Colorado River Compact, if any such deficiency exists and is chargeable to the States of the Upper Division, but in any event such releases, if any, shall not be required in any year that the Secretary makes the determination and issues the proclamation specified in section 202 of this Act.

(2) Releases to comply with article III(d) of the Colorado River Compact, less such quantities of water delivered into the Colorado River below Lee Ferry to the credit of the States of the Upper Division from other sources.

(3) Storage of water not required for the releases specified in clauses (1) and (2) of this subsection to the extent that the Secretary, after consultation with the Upper Colorado River Commission and representatives of the three lower division States and taking into consideration all relevant factors (including, but not limited to, historic streamflows, the most critical period of record, and probabilities of water supply), shall find this to be reasonably necessary to assure deliveries under clauses (1) and (2) without impairment of annual consumptive uses in the upper basin pursuant to the Colorado River Compact: Provided, That water not so required to be stored shall be released from Lake Powell: (i) to the extent it can be reasonably applied in the States of the Lower Division to the uses specified in article III(e) of the Colorado River Compact, but no such releases shall be made when the active storage in Lake Powell is less than the active storage in Lake Mead, (ii) to maintain, as nearly as practicable, active storage in Lake Mead equal to the active storage in Lake Powell, and (iii) to avoid anticipated spills from Lake Powell.

(b) Not later than January 1, 1970, the criteria proposed in accordance with the foregoing subsection (a) of this section shall be submitted to the Governors of the seven Colorado River Basin States and to such other parties and agencies as the Secretary may deem appropriate for their review and comment. After receipt of comments on the proposed criteria, but not later than July 1, 1970, the Secretary shall adopt appropriate criteria in accordance with this section and publish the same in the Federal Register. Beginning January 1, 1972, and yearly thereafter, the Secretary shall transmit to the Congress and to the Governors of the Colorado River Basin States a report describing the actual operation under the adopted criteria for the preceding compact water year and the projected operation for the current year. As a result of actual operating experience or unforeseen circumstances, the Secretary may thereafter modify the criteria to better achieve the purposes specified in subsection (a) of this section, but only after correspondence with the Governors of the seven Colorado River Basin States and appropriate consultation with such State representatives as each Governor may designate.

(c) Section 7 of the Colorado River Storage Project Act shall be administered in accordance with the foregoing criteria.

SEC. 603. (a) Rights of the upper basin to the consumptive use of water available to that basin from the Colorado River system under the Colorado River Compact shall not be reduced or prejudiced by any use of such water in the lower basin.

(b) Nothing in this Act shall be construed so as to impair, conflict with, or otherwise change the duties and powers of the Upper Colorado River Commission.

SEC. 604. Except as otherwise provided in this Act, in constructing, operating, and maintaining the units of the projects herein and hereafter authorized, the Secretary shall be governed by the Federal reclamation laws (Act of June 17, 1902, 32 Stat. 388, and Acts amendatory thereof or supplementary thereto) to which laws this Act shall be deemed a supplement.

SEC. 605. Part I of the Federal Power Act (41 Stat. 1063; 16 U.S.C. 791a–823) shall not be applicable to the reaches of the main stream of the Colorado River between Hoover Dam and Glen Canyon dam until and unless otherwise provided by Congress.

SEC. 606. As used in this Act—

(a) All terms which are defined in the Colorado River Compact shall have the meanings therein defined;

(b) "Main stream" means the main stream of the Colorado River downstream from Lee Ferry within the United States, including the reservoirs thereon;

(c) "User" or "water user" in relation to mainstream water in the Lower Basin means the United States or any person or legal entity entitled under the decree of the Supreme Court of the United States in Arizona against California, and others (376 U.S. 340) to use mainstream water when available thereunder;

(d) "Active storage" means that amount of water in reservoir storage, exclusive of bank storage, which can be released through the existing reservoir outlet works;

(e) "Colorado River Basin States" means the States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming; and

(f) "Augment" or "augmentation", when used herein with reference to water, means to increase the supply of the Colorado River or its tribu-

taries by the introduction of water into the Colorado River system which is in addition to the natural supply of the system.

I. LEGISLATION CONSIDERED BY THE COMMITTEE

H.R. 3300 was introduced by Chairman Aspinall. Other bills considered by the Committee were: H.R. 9 (Udall), H.R. 722 (Hosmer), H.R. 744 (Johnson of California), H.R. 1179 (Rhodes of Arizona), H.R. 1271 (Steiger of Arizona), H.R. 5130 (Bell), H.R. 5355 (Utt), H.R. 5625 (Leggett), H.R. 6130 (Bob Wilson), H.R. 6271 (Hosmer), H.R. 6416 (Smith of California), H.R. 6552 (Chas. H. Wilson), H.R. 6603 (Hanna), H.R. 6619 (Roybal), H.R. 6620 (Smith of California), H.R. 6822 (Reinecke), H.R. 6848 (Van Deerlin), H.R. 6931 (Hawkins), H.R. 7008 (Tunney), H.R. 7084 (Holifield), H.R. 7194 (Edmondson), H.R. 7204 (Saylor), H.R. 7558 (King of California), H.R. 7562 (Lipscomb), H.R. 10524 (Teague of California), H.R. 14834 (Johnson of California, for himself and Messrs. King of California, Holifield, Miller of California, Gubser, Moss, Utt, Bob Wilson, Lipscomb, Teague of California, McFall, Bell, Corman, Brown of California, Roybal, Van Deerlin, Don H. Clausen, Del Clawson, Tunney, Rees, Wiggins, Smith of California, Reinecke), H.R. 14835 (Hosmer, for himself and Messrs. Leggett, Hanna, Pettis, Edwards of California, Mailliard, Mathias of California, and McCloskey), H.R. 14994 (Sisk, for himself and Messrs. Hawkins and Charles H. Wilson), and H.R. 15615 (Talcott).

The Committee also had before it, S. 1004, which passed the Senate on August 7, 1967.

II. PURPOSE AND SUMMARY OF LEGISLATION

H.R. 3300, as amended and approved by the Committee, provides for regional and westwide water resources planning to remedy the present and prospective critical water situation in the Pacific Southwest, including the entire Colorado River Basin. The Secretary of the Interior, working under general criteria to be established by the Water Resources Council and in consultion with the affected States, is required to conduct westwide studies to determine how and where to get additional water supplies for use in the Colorado River Basin and to develop a plan for meeting not only present Colorado River water commitments but future water needs throughout the basin as well. However, he is forbidden to recommend importation from areas of surplus without the approval of the States affected.

H.R. 3300 declares that the satisfaction of the water requirements of the Mexican Water Treaty constitutes a national obligation. At the time the Santa Fe Compact was negotiated, it was agreed that in the event there should thereafter be a Treaty with Mexico that the water requirements of that treaty would be furnished from surplus waters. It was at that time anticipated that there would be ample surplus waters available for that purpose. When the Treaty was ultimately negotiated it was still believed that ample surplus supplies were available, although as a precautionary step the Treaty did provide that in the event of extraordinary drought the water allotted to Mexico would be reduced in the same proportion as were the consumptive uses in the United States. The terms of H.R. 3300 make it clear that the Colorado

River Basin States will be relieved of any obligation to reduce their uses in order to supply the water requirements of the Treaty. H.R. 3300 further provides that the cost of such augmentation will be nonreimbursable or, in other words, a cost charged against the entire Nation. Augmentation studies only are authorized in this legislation; augmentation works will not be built until they have been determined to be feasible and have been specifically authorized by the Congress.

H.R. 3300 authorizes additional water resources developments in both the Lower and Upper Colorado River Basins. In the Lower Basin, the Central Arizona Project is authorized for the purpose of providing water for the rapidly expanding metropolitan areas of Phoenix and Tucson by coordinating the use of Colorado River water and local water resources of the Gila River Basin. The project includes the Hooker dam and reservoir in New Mexico or a suitable alternative. In addition to an aqueduct system, regulating reservoirs, and other essential project facilities, the project also includes programs for water salvage and groundwater recovery. The controversial Colorado River dams have been eliminated from the plan. As a means of furnishing the necessary project pumping power, authority is given the Secretary of the Interior to acquire, through a prepurchase arrangement, the right to a portion of the capacity of a large non-Federal fossil fuel thermal generating plant if he determines that this is the best way to obtain such power.

The Central Arizona Project is estimated to cost $779 million, not including irrigation distribution systems for non-Indian lands which may or may not be built or financed by the Federal government. Pursuant to reclamation law and the provisions of this legislation, an estimated $671 million, or more than 86 percent of the project cost, will be repaid over a 50-year period, and the remainder will be nonreimbursable as a Federal payment for recreation, flood control, fish and wildlife, water salvage and wildlife refuge. Irrigation distribution systems for non-Indian lands which are built or financed by the Federal government will be handled by separate contracts on a reimbursable basis. The Central Arizona Project is described more fully in Part X of this report.

The Supreme Court in *Arizona* v. *California*, 373 U.S. 546, left the Secretary of the Interior with certain powers to allocate the waters of the mainstream of the Colorado River in water-short years. However, the Court recognized that Congress can itself make such an allocation, or provide a formula for such an allocation, if it wishes to do so. H.R. 3300 provides a statutory formula to cope with years of water shortage. When the water supply is insufficient to satisfy the annual consumptive use of 7.5 million acre-feet in Arizona, California, and Nevada, present perfected rights (as that term is defined in the Court's decree), the rights of Federal reservations, and existing contract commitments which are backed up by works in place must all be honored before mainstream water is made available to the proposed Central Arizona Project. Protection for California users would, however, be limited to a maximum of 4.4 million acre-feet per year, in accordance with the California Self-Limitation Act. The limitation on diversions by the Central Arizona Project would be inoperative in any year in which the Lower Colorado River has sufficient water to supply the Mexican Water Treaty entitlement plus 7.5 million acre-feet annually

for consumptive use from the mainstream in Arizona, California, and Nevada.

The Upper Basin projects which are included in H.R. 3300 for authorization as participating projects of the Colorado River Storage Project are the Animas-La Plata, Dolores, Dallas Creek, West Divide and San Miguel. Together they are estimated to cost $392 million. These projects will be financed through the Upper Colorado River Basin Fund established in 1956 by the Colorado River Storage Project legislation. The revenue sources for this fund are payments by the water and power users of Upper Basin projects. Of the total cost of these projects, an estimated $370 million, or more than 94 percent, will be repaid in a 50-year period following their completion, and the remainder will be non-reimbursable pursuant to Federal reclamation law. The Uintah unit of the Central Utah Project is also included but its authorization is conditioned upon submission of a planning report to the Congress, certification as to its feasibility and authorization of appropriations for its construction.

A lower Colorado River Basin development fund is established by H.R. 3300 which will financially assist the Central Arizona Project, the previously authorized Dixie project in Utah, and augmentation works which may hereafter be authorized by the Congress. The revenue sources for this fund, in addition to the Central Arizona Project and the Dixie Project, are the Hoover and Parker-Davis projects and that part of the Pacific Northwest-Pacific Southwest power intertie located in the States of Arizona and Nevada. With respect to the revenues accruing to this fund from the Hoover and Parker-Davis projects, only that part derived from the sale of power and energy for use in Arizona will be available for assistance to the Central Arizona Project.

H.R. 3300 also includes provisions for implementing the Colorado River Compact and the decree of the Supreme Court in *Arizona* v. *California*. These provisions establish guidelines for water management throughout the Colorado River Basin and assure equitable treatment of all seven States of the Basin now and in the future.

Finally, this legislation removes that stretch of the Colorado River between Hoover Dam and Glen Canyon Dam from the licensing authority of the Federal Power Commission, reserving decision with respect to any development on this stretch of the river for later action by the Congress.

III. GENERAL CONCLUSIONS AND COMMITTEE RECOMMENDATION

The views and findings of the Committee with respect to the provisions and issues involved in H.R. 3300, as set forth in this report, support the following general conclusions:

(1) One of America's fastest growing regions—the Colorado River Basin—is in danger of economic stagnation unless its presently available water supplies can be augmented. Colorado River water, which is the very life blood of this area, is fast being exhausted. There is more Colorado River water already committed by compacts, contracts, the Mexican Water Treaty, and the Supreme Court decree in *Arizona* v. *California* than will be available from the River. And while all these instruments

include provisions for handling shortages, attempts to do so leads only to controversy—controversy between the Lower Basin and the Upper Basin and controversy between and among states. The answer to the Colorado River controversy is not to try to divide shortages but to provide additional water.

(2) In addition to the fact that the Colorado River is overcommitted, testimony presented to the Committee clearly shows that in the lower Colorado River Basin there is already an imbalance between water requirements and water availability and that this imbalance will continue to grow as (*a*) water requirements increase with the increasing population and expanding industry, and (*b*) water availability decreases as Upper Basin development progresses. It seems to the Committee that this presently thriving, prosperous area of our Nation is clearly on a collision course with economic disaster unless this water gap can be closed by augmentation of the Colorado River basin water supplies.

(3) The question is not whether there is to be augmentation—the question is "by what means." While "in-basin" conservation measures and programs can assist in relieving the critical Lower Basin water situation, and weather modification may contribute additional water some time in the future, it appears to the Committee that the most certain means available to assure augmentation to meet the water demands are either importation from other basins where there is a surplus or desalination. The first step is to initiate immediately studies of all possible means of augmentation and expedite such studies to the greatest possible extent.

(4) The Committee's study of the events and negotiations leading up to the United States-Mexican Water Treaty, along with what has turned out to have been an extremely inaccurate forecast as to the amount of water that might be expected from the Colorado River, has convinced the Committee that there is justification for relieving the Colorado River Basin States of any obligation of meeting the Mexican Treaty water burden if such an obligation does, in fact, exist, and making the obligation a national one by providing that the cost of the augmentation necessary to satisfy the Treaty water requirements shall be nonreimbursable. The Committee notes that the only way the States can furnish the Mexican Treaty water is with water they—with the approval of the United States—apportioned among themselves by compact; it cannot be furnished with water which is surplus to compact amounts as had been anticipated at the time the Compact and the Treaty were agreed to.

(5) The Committee concludes that the matter of building mainstream dams on the Colorado River between Hoover Dam and Glen Canyon Dam should be postponed for later decision by the Congress on the basis of further study and further determination with respect to need.

(6) The Committee concludes that, the State of Arizona having established its right to a substantial portion of the Colorado River water by the decision of the United States Supreme Court, construction of this rescue project should be permitted to proceed under the conditions set out in this legislation, including those for the protection of existing Federal and non-Federal projects, but

that no project water should be used to bring into production any new agricultural lands and that the authorization to construct should be accompanied by the immediate initiation of meaningful studies to find new sources of water.

(7) The Committee concludes that the five Upper Basin projects which are authorized in this Act are needed and will greatly enhance the economies of the areas which they will serve. They have been found to be economically and physically feasible under the provisions of both this Act and the Colorado River Storage Project Act and they meet all of the standards and criteria established by the Committee and the Congress for authorization.

(8) The Committee believes that the criteria for reservoir operations on the Colorado River which are set out in Title VI of this act are equitable to both the Upper and Lower Basins and will contribute to efficient and reasonable reservoir management. The Committee wants it to be clearly understood that the right of the Upper Basin States to utilize the water apportioned to them for consumptive use under the Colorado River Compact must never be reduced or prejudiced by the temporary use of any unused waters elsewhere in the Colorado River Basin.

(9) This bill constitutes another important step in the broad national program devised by Congress to develop and utilize wisely the resources with which the Nation is endowed. Numerous similar water development programs have been undertaken throughout the Nation: in the Central Valley in California, along the Columbia River, throughout the valleys of the Tennessee and Missouri Rivers, and even on the Colorado itself—to mention just a few. These massive developments require a considerable Federal investment, but from all of them the rewards and benefits far exceed the costs, both economically and physically. This particular water development program has added urgency because of the desperate water supply situation existent throughout the Colorado River Basin.

On the basis of the foregoing conclusions, and after very careful and studied consideration of the issues and problems involved in this legislation, the Committee on Interior and Insular Affairs has redrafted H.R. 3300 and recommends its enactment as amended by the Committee.

IV. HISTORY AND LAW OF THE COLORADO RIVER

Introduction

The Colorado River rises in the high snowcapped mountains of Colorado and flows in a southwesterly direction for approximately 1,400 miles through Colorado, Utah, and Arizona and along the Arizona-Nevada and the Arizona-California boundaries until it empties into the Gulf of California in Mexico. On its way to the sea, waters are added by tributaries which originate in the States of Wyoming, Colorado, Utah, Nevada, New Mexico, and Arizona.

The river and its tributaries drain a vast area of approximately 242,000 square miles—about one-twelfth the area of the continental United States, excluding the State of Alaska. Most of this large basin is so arid that it is largely dependent upon controlled and managed

use of the waters of the Colorado River system to make it productive and inhabitable. There is an additional area of 7,800 square miles, which includes the Imperial and Coachella Valleys in southern California, which is considered to be a part of the Lower Colorado River Basin. The basin is divided into the Upper Basin, where waters naturally drain into the Colorado River above Lee Ferry, and the Lower Basin, where waters drain into the river below Lee Ferry.

Archeological evidence indicates that as long as 2,000 years ago the Hohokam people constructed, operated and maintained irrigation canals near the location of the present city of Phoenix, Arizona. Other Indians were practicing irrigation in that region when the first white men arrived. In the second half of the 19th century, people in the Imperial Valley of California devised plans to divert water from the Colorado River to make the parched soil of the valley productive. Throughout the latter part of the 19th and the first part of the 20th centuries, with California and Arizona taking the lead, the people in all seven of the basin States continued to seek ways to meet their water needs.

Early Development

In the Lower Basin, the diversion of water from the Colorado River for agricultural purposes started, on a large scale, around the turn of the century. Works to divert water into the Imperial Valley were completed in 1901 as a private undertaking. That same year, large diversion works were also begun in the Palo Verde Valley. The limited and erratic nature of the river flows from year to year and season to season, together with physical impediments, including deep canyons and long distances, and other engineering and economic problems prevented local entities and the States from constructing the necessary storage dams, canal systems and other expensive facilities required for a dependable year-round water supply. The Fall-Davis report in 1922 (S. Doc. No. 142, 67th Cong., second sess.), speaking of the Colorado River says, "Its problems are of such magnitude as to be beyond the reach of other than a national solution." It thus became inevitable that if the erratic and often destructive flows of the Colorado River were to be transformed into the controlled water supply so desperately needed in the seven States, the Congress would be called upon to authorize the Federal government to undertake the necessary construction works.

After the passage of the Reclamation Act of 1902, investigations were immediately started to determine the feasibility of large irrigation projects. The Yuma project was authorized in 1904 and the first water was delivered in 1907. By 1920, irrigation works constructed primarily by private enterprise had expanded to such an extent that the unregulated flow of the Colorado River was completely utilized during periods of low flow so that further expansion was dependent upon construction of storage reservoirs on the river.

By 1920, this rapidly expanding use of Colorado River water in the State of California was viewed with increasing alarm by officials in the Upper Basin States. As a consequence of their concern the League of the Southwest was organized to promote the orderly development and equitable division of the waters of the entire Colorado River.

Congress approved legislation that same year (41 Stat. 600) directing the Secretary of the Interior to make a full and comprehensive

study and report on the possible diversions and use of waters of the Colorado River. The report, presenting engineering data on water supply, irrigated lands, irrigable lands, water requirements, potential power developments, and needed flood protection, as well as possible reservoir sites in both the Upper and Lower Basins, was completed and submitted to Congress in 1922. It was the recommendations in this report which led to the introduction, on April 25, 1922, of the first bill to authorize the construction of the Boulder Canyon Dam (now Hoover Dam).

Before construction of Hoover Dam, the lower reaches of the Colorado River were subjected to severe annual floods. This menace was fully realized in 1905 when the Colorado, swollen by floodwaters, broke through a cut 4 miles below the international boundary and, for 16 months poured its entire flow into the fields and communities of the Imperial Valley. The outpour enlarged the Salton Sea to a lake 488 square miles in area and threatened to engulf the entire valley. The break was finally closed with great difficulty and expense but only after 30,000 acres of arable land had been inundated, farms ruined, homes destroyed, highways washed away, and railroad tracks destroyed. This tragic occurrence, indicating the need for flood control on the Lower Colorado River, became a motivating reason for the construction of the Hoover Dam.

Colorado River Compact

During the period when the studies by the Secretary of the Interior were being conducted, negotiations were underway for an interstate agreement on the waters of the river—negotiations which led to the Colorado River Compact. While it was recognized that storage on the Colorado River was essential, the Upper Basin States faced the possibility that water conserved by storage would be put to use in the Lower Basin more rapidly than the Upper Basin could utilize its share of the normal flow; thus, some agreement was essential to reserve water that would later be needed in the upper basin.

As a result of the negotiations among the States, it was agreed that an interstate compact would be the best means for establishing an equitable apportionment of the water and protection of the Upper Basin. Prior to that time, an interstate compact had never been used for the allocation of the waters of an interstate stream. Congress consented to the negotiations by legislation enacted in August 1921 (42 Stat. 171) and the Colorado River Compact Commission convened for its first meeting in January 1922. The Commission held 27 meetings before reaching a final agreement on the Compact which was signed in Sante Fe, N. Mex., on November 24, 1922. (The text of the Compact can be found at 70 Congressional Record 324 (1928).)

The Compact has several main provisions:

1. It divides the Colorado River Basin into two parts—Lower and Upper Basins.
2. It apportions from the Colorado River system, in perpetuity, 7,500,000 acre-feet of water a year to each of the two Basins for beneficial consumptive use.
3. It authorizes the Lower Basin to increase its beneficial consumptive use by 1 million acre-feet a year.
4. It provides that if (as has proved to be the case) the United

States recognizes the right of Mexico to a share of the waters of the Colorado, that share shall first come out of water surplus to the allocation of 16 million acre-feet to the two Basins. It also provides, however, that if sufficient surplus waters are not available, for Mexico's allotment, the Mexican deficiency is to be met equally by the Upper and Lower Basins.

5. It enjoins the States of the upper division "not [to] cause the flow of the river at Lee Ferry to be depleted below an aggregate of 75 million acre-feet for any period of 10 consecutive years * * *."

Between January and April 1923 all of the States of the Basin, except the State of Arizona, ratified the Compact. In 1925, numerous conferences were held in Arizona, California, and Nevada in an effort to obtain ratification by Arizona of the Colorado River Compact and to negotiate a three-State Compact dividing the waters allocated to the Lower Colorado River Basin; however, the States never reached agreement on either issue.

In 1927, the Governors of the seven Colorado River Basin States held a series of meetings in Denver in a further effort to settle the division of the Lower Basin water supply and to bring about a seven-State ratification of the Compact. The Governor's conference proposed that the average annual 7.5 million acre-feet of water delivered by the Upper Basin States at Lee Ferry be divided 300,000 acre-feet to Nevada, 3 million acre-feet to Arizona, and 4.2 million acre-feet to California. This proposal was found unsatisfactory by both Arizona and California.

The failure to bring about a seven State ratification of the Compact and to settle the differences in the Lower Basin delayed action by the Congress on legislation authorizing the construction of the Hoover Dam. Finally, in December 1928, after years of delay and consideration of many different versions of the legislation, the Boulder Canyon Project Act was enacted (45 Stat. 1057) notwithstanding the failure of Arizona to ratify the Compact and the inability of the States of the Lower Basin to agree on the division of their allocation of Colorado River water.

Boulder Canyon Project Act and California Limitation Act

In the Boulder Canyon Project Act, Congress consented to the Compact and waived the Compact requirement of seven-State approval. It provided, however, that, in the absence of seven-State approval, the Compact would become effective only when approved by California and at least five of the other States; and it further provided that California would be required to limit its consumptive use of Colorado River water.

California met the requirement imposed on it by passing the California Limitation Act (California Statutes, 1929, p. 38) on March 4, 1929. By its Act, California thus accepted the terms of the Boulder Canyon Project Act and its limitation of 4.4 million acre-feet per year from the 7.5 million acre-feet apportioned by Article III(a) of the Compact allocated to the Lower Basin plus one-half of the surplus or excess water available. The Project Act, with this limitation on California, thus not only reserved Lower Basin water for the States of Arizona and Nevada but it provided protection to the Upper Basin

States against California's proceeding with unlimited development and assurance that the Compact would not be nullified.

The Boulder Canyon Project Act again invited the Lower Basin States to come into agreement on the division of water by the inclusion of a provision authorizing the three States to enter into an agreement apportioning the Lower Basin share between them as follows:

(1) Nevada, 300,000 acre-feet annually;

(2) Arizona, 2.8 million acre-feet annually plus one-half of any surplus waters unapportioned by the Compact and exclusive beneficial consumptive use of the Gila River and its tributaries; and

(3) California, 4.4 million acre-feet annually plus one-half of any surplus waters unapportioned by the Compact.

This tri-State apportionment proposal, however, was never agreed to by the three States involved.

The Boulder Canyon Project Act was declared to be effective on June 25, 1929, by President Hoover and construction of Hoover Dam was initiated in 1930. Notwithstanding Arizona's refusal to approve and ratify the Colorado River Compact and its unsuccessful legal attempts to stop construction of the dam, the dam started to impound water in February 1935.

Mexican Water Treaty

Mexico began pressing for a permanent and assured share of Colorado River water prior to the time of the Colorado River Compact, and discussion of water for Mexico occupied a prominent part of the negotiations for the Compact. As has been mentioned, the Compact recognized that an allocation to Mexico might be required in the future. In 1925, Congress authorized negotiation of a treaty with Mexico with respect to the waters of the Colorado River and negotiations were accordingly attempted in 1930, but without success. The negotiations which ultimately led to the consummation of the treaty on February 3, 1944 (59 Stat. 1219), were initiated in 1941 and continued through 1942 and 1943. Under the treaty, Mexico is allotted 1.5 million acre-feet of water annually. It was further provided that in times of surplus the United States would endeavor to deliver up to 1.7 million acre-feet of water and, in the event of extraordinary drought, the 1.5 million acre-feet would be reduced in proportion to the reduction of consumptive uses in the United States.

There is a difference of opinion between the Upper Basin and the Lower Basin as to the requirements under the Compact for delivering this water to Mexico. The question is whether or not the Lower Basin tributaries should be taken into account in computing the amount of the surplus which, under the Compact, is to be used so far as possible for meeting the treaty requirements. If H.R. 3300 is enacted and the investigations required by Title II lead to the authorization and construction of works which augment the Colorado River water supply by an amount which is sufficient to meet the deficiencies created by the Mexican Treaty burden, judicial interpretation of the Compact on this point will probably never have to be made.

Part VIII of this report discusses more fully the effects of fulfilling the United States obligation under the Mexican Water Treaty from the water supply of the Colorado River System.

Upper Colorado River Basin Compact

During the 1940's and 1950's the four Upper Division States began to feel the pressures of rapid population growth, the industrialization following World War II, and the need for additional products of irrigated agriculture. Before large-scale development could go forward, however, the negotiation of a compact relative to use of the Upper Basin's apportionment of water was essential if the rapidly growing water needs of Colorado, New Mexico, Utah, and Wyoming, were to be supplied.

In the Upper Basin, for various reasons, the problem of negotiating an interstate Compact was less controversial than in the Lower Basin. On October 11, 1948, following preliminary meetings at other points in the Basin, a Compact among the five States having territory in the Upper Basin was executed in Santa Fe, New Mexico. In addition to 20 other articles relating to other matters, the Compact apportions the consumptive use of 50,000 acre-feet of water annually to the State of Arizona and divides the remainder of the Upper Basin entitlement, in terms of percentage, as follows:

	Percent
Colorado	51.75
New Mexico	11.25
Utah	23.00
Wyoming	14.00

The apportionments made to each State include all of the water necessary to supply all existing rights. These percentages, then, constitute the total amount of water available for Upper Basin use after deducting the 50,000 acre-feet for Arizona.

For the official text of the Upper Basin Compact see 63 Stat. 31 (1949). It is also reprinted in the Interior Department's publication "Documents on the Use and Control of the Waters of Interstate and International Streams," pages 218ff (1956).

Arizona Ratifies Compact and Enters into Water Contract

The State of Arizona ratified the Colorado River Compact on February 24, 1944, and in the same year entered into a contract with the Department of the Interior for 2.8 million acre-feet of water from the Colorado River, subject to its availability, pursuant to the provisions of the Boulder Canyon Project Act. The Department, as previously outlined, had already entered into contracts with users in California and with the State of Nevada. The Arizona contract provided for the delivery of a maximum of 2.8 million acre-feet per annum by the United States to agencies or water users within the State of Arizona who entered into appropriate contracts with the United States. The contract also provided that all consumptive uses of mainstream Colorado River water within the State should be deemed *pro tanto* a discharge of the obligations of the contract. A portion of the 2.8 million acre-feet is being put to use at the present time by users along the river, principally in the vicinity of Yuma, Arizona.

Colorado River Storage Project Act

In 1956 the Congress enacted the Colorado River Storage Project Act (70 Stat. 105). This Act authorized the construction of a compre-

hensive, multiple-purpose, basinwide, water resource development plan known as the Colorado River Storage Project and Participating Projects. It is amended by Title V of H.R. 3300.

Present Development on the River

As indicated, Hoover Dam started to impound water in February 1935. Hoover Dam is located in Black Canyon 330 miles above the Mexican border and provides a reservoir with a usable storage capacity of 27,200,000 acre-feet.

Parker Dam, located 155 miles below Hoover Dam, with a usable reservoir capacity of 619,000 acre-feet, first impounded water in June 1938. This is the diversion point on the river for the Colorado River aqueduct of the Metropolitan Water District of Southern California.

Between the two, Davis Dam, located 67 miles below Hoover Dam, with a usable reservoir capacity of 1,810,000 acre-feet, reregulates releases from Hoover Dam to conform to downstream water use requirements including the requirements of the Mexican Treaty. It first impounded water in January 1950.

There are five additional diversion dams on the river in the Lower Basin:

(1) Headgate Rock Dam, located 15 miles below Parker Dam, diverts water to the Colorado River Indian Reservation;

(2) Palo Verde Dam, located 42 miles below Headgate Rock Dam, was completed in 1957 to divert water to the Palo Verde Irrigation District;

(3) Imperial Dam, located 90 miles below Palo Verde Dam, serves as the diversion point for the All-American Canal, and the Yuma and Gila projects;

(4) Laguna Dam, located 5 miles below Imperial Dam, which once served as the diversion point for the Yuma and North Gila Valley projects, is no longer in operation;

(5) Morelos Dam, located on the river below California on the Arizona-Mexico boundary, serves as the diversion point for the Mexican Canal, thus supplying irrigation water to the Mexicali Valley.

The All-American Canal system, replacing an existing, but obsolete system, went into operation in 1940. Through this system, diversions for the Imperial and Coachella Valleys and for the Yuma project now average more than 5 million acre-feet per year. Other principal Lower Basin water utilization projects diverting water from the main stream include the Gila project, the Palo Verde Irrigation District project, the Colorado River aqueduct, and works serving the Indian reservations.

By 1963, some $600,000,000 of Federal and non-Federal funds had been invested in California's three mainstream projects—the Metropolitan Water District's Colorado River Aqueduct (serving some 60 cities and districts on the coastal plain, including Los Angeles and San Diego), the All-American Canal (serving Imperial and Coachella Valleys, plus small areas in the Federal Yuma Project in California), and Palo Verde Irrigation District. Works had been constructed to use 5.4 million acre-feet, subject to the limitation imposed by the Boulder Canyon Project Act (4.4 million acre-feet of water apportioned by the compact plus one-half of any excess or surplus), and about 5.1 million

had been put to use. H.R. 3300 protects the priorities of only the 4.4 million, pending augmentation of the river. Projects had been authorized in Arizona to use about 1.2 million (primarily the Gila Project and the Colorado River Indian Reservation), and in Nevada to use something under 100,000.

In the Upper Basin, the storage reservoirs completed are Glen Canyon, just above Lee Ferry; Flaming Gorge on the Green River; and Navajo, on the San Juan River. In addition, the Curecanti unit, on the Gunnison River, is in an advanced stage of construction.

Arizona *v.* California

The continuing dispute between Arizona and California over their respective rights to the waters of the Colorado River has in the past constituted an insurmountable obstacle to the passage of bills to authorize construction of the Central Arizona Project. On April 18, 1951 this Committe, during deliberations on the Central Arizona Project, adopted a resolution providing that consideration of further bills relating to the Central Arizona Project—

> be postponed until such time as use of the water in the lower Colorado River Basin is either adjudicated or binding or mutual agreement as to the use of the waters is reached by the States of the Lower Colorado River Basin.

Shortly after this resolution was adopted, an action was instituted in the Supreme Court of the United States by the State of Arizona against the State of California to obtain such an adjudication. The principal issue in this litigation concerned the relative entitlement of California and Arizona to the use of water from the Colorado River, Arizona alleging that, pursuant to the Colorado River Compact and the Boulder Canyon Project Act, Arizona was entitled to the beneficial consumptive use of 2.8 million acre-feet of water each year from the Colorado River and that California's corresponding entitlement was limited to 4.4 million acre-feet.

The United States and Nevada intervened and, on the motion of California, New Mexico and Utah were added as parties in the case. The litigation was referred to a special master whose report was issued in December 1960. The opinion of the Supreme Court was rendered on June 3, 1963 (373 U.S. 546), and, 12 years after it began, the Court, on March 9, 1964, issued its decree (376 U.S. 340).

The Supreme Court findings are summarized as follows:

> The Colorado River Compact essentially divided the water between the Upper and Lower Basins, but it did not attempt to allocate water to individual States within either Basin. The Court held that neither the Compact, nor the law of prior appropriation, nor the doctrine of equitable apportionment controlled the division of Lower Basin water between the States of the Lower Basin, but that the Boulder Canyon Project Act authorized an apportionment of the lower Colorado River and hence must be used as a guide.
>
> In ratifying the Boulder Canyon Project Act, California covenanted—by the Act of its Legislature—to limit its annual consumption of Colorado River water to 4,400,000 acre-feet plus one-half of any surplus. Under terms of the Act, Arizona

and Nevada were allocated 2,800,000 and 300,000 acre-feet, respectively, with Arizona to share any surplus equally with California with provision that should Nevada contract for 4 percent of the surplus, Arizona's share of such surplus would be reduced to 46 percent.

The apportionment of Lower Basin water was restricted to the main stream of the Colorado downstream from Lee Ferry within the United States. Each State retained exclusive use of its tributaries without charge to its apportioned water; consequently, the all-important use of the Gila River in Arizona was awarded to that State without charge against its main-stream entitlement—a key issue in the dispute.

The Secretary of the Interior, within the confines of the Act, has authority to allocate and distribute the waters of the main stream of the Colorado in water-short years, subject to power of Congress to enlarge or diminish his authority.

Indian reservations are given priority for water, dating from the time the lands in question became a part of the reservation.

V. HISTORY OF LEGISLATION

This legislation grows out of a long series of bills, the earliest of which dealt with the Central Arizona Project alone.

In 1947, the Bureau of Reclamation submitted a feasible Central Arizona Project proposal to the Congress and its authorization was sought by bills in the 80th Congress. During the 81st and 82nd Congresses, the Senate twice passed Central Arizona Project authorizing legislation, but the legislation was not approved by the House of Representatives.

Consideration of legislation to authorize the Central Arizona Project was postponed indefinitely in April 1951 when this Committee adopted the resolution referred to in Part IV of this report.

Thus, in 1952, *Arizona* v. *California* was instituted, and, finally, on June 3, 1963, the United States Supreme Court issued its opinion and later, on March 9, 1964, its decree, as above stated. By this opinion and decree, Arizona finally secured an adjudication of its entitlement to 2.8 million acre-feet of main stream water from the Colorado River.

Almost immediately following the issuance of the opinion in *Arizona* v. *California*, legislation was again introduced in both Houses of the Congress to authorize the construction of the Central Arizona Project. From this point on, prolonged and complex negotiations evolved, not only between Arizona and California, but among all of the States of the Colorado River Basin.

The expanded concept of regional water development had its beginning in the so-called Pacific Southwest Water Plan, circulated in 1964 by the Secretary of the Interior and the Bureau of Reclamation. The Pacific Southwest Water Plan grew out of a letter from Chairman Aspinall to Secretary Udall, written in November 1962, requesting "an outline for a coordinated, comprehensive pattern under which, in your Department's understanding and view, the Southwest's water and power needs might be satifactorily provided for."

During the 88th Congress and the subsequent Congressional recess, negotiations were in progress among various interests in the States of the Basin. Numerous bills were introduced in both Houses in the

89th Congress which reflected all or a portion of the compromises and agreements resulting from these negotiations, as well as portions of the regional development concept of the Pacific Southwest Water Plan.

The continuing negotiations were reflected in hearings in the 89th Congress and action by this Committee on H.R. 4671, to authorize the Lower Colorado River Basin Project. Hearings were held in August and September of 1965 on H.R. 4671 and similar bills, and again in May of 1966. On August 11, 1966, H.R. 4671 was favorably reported (House Rept. No. 1849, 89th Congress) with amendments and with numerous separate and dissenting views.

H.R. 4671 of the 89th Congress was regional in scope and raised a number of issues of national concern. As reported, the bill included the authorization of the Central Arizona Project; establishment of a National Water Commission; provisions for augmentation studies, including studies of transbasin diversions of water; provisions for making the Mexican Treaty obligation a national obligation and for satisfying the treaty requirements out of water to be imported from other river basins; authorization of Hualapai and Marble Canyon Dams; establishment of a basin development fund; provision of a 4.4-million acre-foot priority to California until augmentation could be accomplished; authorization of the Animas-La Plata, Dolores, Dallas Creek, San Miguel, and West Divide participating projects of the Colorado River Storage project; and various other provisions reflecting the results of interstate negotiations. Though approved by this Committee, H.R. 4671 was not acted upon further in the 89th Congress.

Immediately after the 90th Congress convened, bills were once again introduced in both Houses to authorize the Central Arizona Project and several versions of the Colorado River Basin project. The bills varied widely. Some were identical to or patterned closely after H.R. 4671, as reported in the 89th Congress. Variations reflected attempts to achieve compromises on the points of opposition to earlier bills, or the dissolution of earlier agreements and compromises. H.R. 3300, as introduced by Chairman Aspinall, was similar to H.R. 4671, as reported, the principal exceptions being that provisions relating to Marble Canyon dam and the National Water Commission were deleted, and the water augmentation investigations and report were down-graded from feasibility grade to reconnaissance. The Committee held four days of hearings on H.R. 3300 and related bills in March of 1967.

In February 1967, the Secretary of the Interior recommended legislation to authorize the Central Arizona Project without mainstream dams and incorporating the Administration's proposal for acquiring, through a prepurchase arrangement, the necessary project pumping power. S. 1004, patterned after the Administration bill, was passed by the Senate on August 7, 1967. It includes no augmentation study provisions or dams on the Colorado River. S. 1004 does, however, include provisions for establishing a basin development fund. It also includes the five Upper Basin projects and criteria for operating all the dams on the river. In S. 1004, the 4.4 million acre-feet priority to California is limited to 27 years.

This Committee resumed its consideration of the Colorado River legislation in hearings on January 30 and February 1 and 2 of this year. These hearings were scheduled for the purpose of soliciting from the Secretary of the Interior information and data on specific aspects of the legislation. No additional testimony from public witnesses was taken. In addition to further clarifying the water supply situation, the Committee was brought up to date on such matters as (1) the effect of eliminating the Colorado River dams and inclusion of the prepurchase arrangement as a means of obtaining pumping power and energy for the Central Arizona Project, (2) the latest cost estimates for all the projects, (3) the financial analysis of the Central Arizona Project and information on the development fund with the dams eliminated from the plan, and (4) the Department's latest thinking with respect to studies for augmentation of the Colorado River water supply.

Prior to the scheduling of the January hearings, continuing negotiations among the Colorado River Basin States and the changed position of the Administration had led to a general understanding that no Colorado River mainstream dams should be included in the development plan at this time.

After the completion of hearings with Secretary Udall, the Subcommittee spent five days in executive consideration and mark-up of the legislation, and the Full Committee consumed three additional days in developing the final version of the legislation which it then approved and ordered reported. Thus, the consideration this year adds another eleven days to the 33 days which the Committee had already devoted to the legislation in previous years. The Committee has given more time and more study to this legislation than to any other legislative matter that it has considered in recent years.

VI. COLORADO RIVER WATER SUPPLY

Historical Controversy

So far as the history of modern civilization is concerned, the record is full of controversies over the water supply of various river systems. It is doubtful that any other river system in the world—and certainly no other river in the western hemisphere—has been the subject of so many disputes of such wide scope during the last half century as the Colorado River of the southwest. These controversies over one of humanity's most basic resources have permeated the political, social, economic, legal, and engineering facets of the society of the seven Colorado River Basin States individually and collectively because they have involved both intrastate and interstate differences. The Committee believes that the underlying fundamental cause of the many lawsuits and interbasin and interstate compacts is deeply rooted in the well-established fact that the water supplies available are severely limited in proportion to the other natural resources of the seven basin States and the continuing expansion of demands for those supplies.

The imbalance between water resources and other natural resources has reached an acute stage as the result of at least four major factors. First, the increasing population of the Nation has created greater demands for water. Second, the rising standard of living and new inventions and processes related thereto have created new demands.

Third, the westward migration of hundreds of thousands of citizens seeking new opportunities for homes and jobs have shifted the point of impact of demands for water. Fourth, and perhaps of most importance, the negotiators of the Colorado River Compact and the interstate Upper Colorado River Basin Compact apportioned a water resource that, at the time of the negotiations, appeared much larger than the River has subsequently yielded.

During 1953–56, the Committee had under consideration legislation to authorize the Colorado River Storage Project in the Upper Colorado River Basin. A large part of the opposition to that legislation was based upon arguments over the availability of water. The Storage Project legislation was approved by the Committee without real concern over the water supply because a large portion of the consumptive use of water apportioned by the Colorado River Compact to the Upper Basin was still available in 1956. Furthermore, the storage units and participating projects authorized in the Colorado River Storage Project Act brought the total consumptive use of water in the Upper Basin to less than 50 percent of its total compact apportionment.

As noted in Part V of this report, the Committee held hearings and considered, beginning in the autumn of 1964, several different versions of proposed bills to authorize a Central Arizona Project, a Pacific Southwest water plan, a Lower Colorado River Basin Project, or a Colorado River Basin Project. The subject legislation, H.R. 3300, as amended, is the culmination of these Committee efforts. As the aforementioned hearings progressed, it became apparent to the Committee, through expressions of interest by representatives of the Basin States and the Upper Colorado River Commission, that the most important issue involved in proposals for further development of the water resources in the Colorado River Basin is the availability of water. The Committee is aware of the fact that the development of water resources of this Basin has reached the stage where the last increments of the available supply are being considered for utilization.

The Committee has had to weigh carefully indisputable evidence of the fact that the over-all water problems of the Basin are of a more precarious nature in 1968 than they were 15 years ago. In the 1950's, the Upper Basin States were consuming only 2 to 2½ million acre-feet of water per year contrasted with 4.6 million acre-feet that are, or will be, consumed by presently constructed and authorized projects; therefore, the amount of water remaining to be consumptively used today is much less than it was in the 1950's. Also, in the last 34 years—and especially during the last 16 years—the trend of the dependable yield of the River has been consistently downward and the return to a period of high river flows has not materialized as predicted and, because of this, some people believe that earlier and less scientifically determined yields of the river may have been grossly over-estimated. Consequently, the risks of over development of the water, or of over-estimating the supply and causing serious injury to existing and potential economies have been compounded in the absence of an effectuated and reasonably certain economic and feasible river augmentation program.

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Flows of the Colorado River

The most universally used index of the basin's water yield is the "virgin" or "estimated undepleted" flow of the Colorado River at Lee Ferry, Arizona. Annual flows vary widely. Figure 1 indicates that the virgin flow at Lee Ferry has ranged between about 5.6 and 24 million acre-feet per annum since 1896—the long-term average (including 1967) being about 14.8 million acre-feet.[1] Since 1933—a period of 34 years—the progressive 10-year average virgin flow line has remained below the long-term average virgin flow.[2]

In 1922, when the Colorado River Compact was negotiated, the available records indicated there was sufficient water to furnish the 16 million acre-feet apportioned to the Upper and Lower Basins and, in addition, furnish, from surplus, water that might later be needed for fulfilling any agreement with Mexico. Figure 2 shows that by 1967, this long-term average had dropped to 14.8 million acre-feet. As the basis for the interstate compact, the Upper Colorado River Basin Compact Commissioners used the 1914–45 streamflow records,[3] the average for the 1914–45 period being estimated at 15.6 million acre-feet per year. For the period beginning at the time of negotiation of the Colorado River compact, 1922–67, the average virgin flow has been only 13.7 million acre-feet.[4] For the 38 years, 1930–67, the average annual virgin

[1] Streamflow records for Lee Ferry prior to 1921 are regarded by some as lacking considerably in reliability when compared to records subsequent to 1921.

[2] The progressive 10-year average virgin flow at Lee Ferry is of paramount importance because it is a criterion for measurement of water deliveries by the Upper Basin to the Lower Basin under the Colorado River Compact.

[3] Records prior to 1914 were dropped by these compact commissioners because of their lack of reliability.

[4] In H. Rept. No. 1849 of the 89th Cong., second sess., on H.R. 4671 average flows are recorded for periods ending in 1964. It should be noted that for the periods terminating in 1967 all averages have further declined.

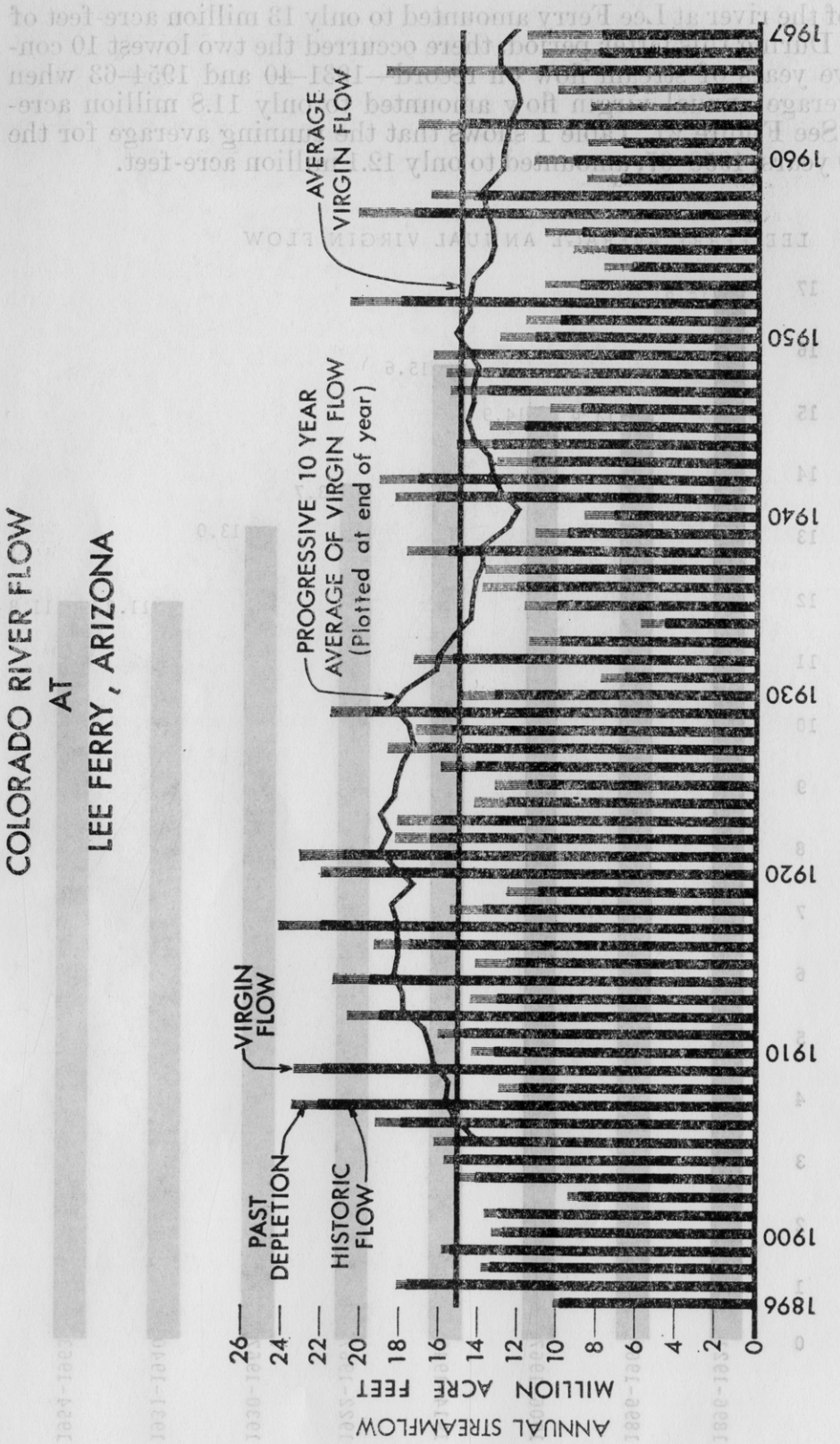

FIGURE 1.—Colorado River flow at Lee Ferry, Arizona.

yield of the river at Lee Ferry amounted to only 13 million acre-feet of water. During this latter period, there occurred the two lowest 10 consecutive years of stream flow on record—1931–40 and 1954–63 when the average annual virgin flow amounted to only 11.8 million acre-feet. (See Figure 2). Table I shows that the running average for the last 10 years, 1958–67, amounted to only 12.1 million acre-feet.

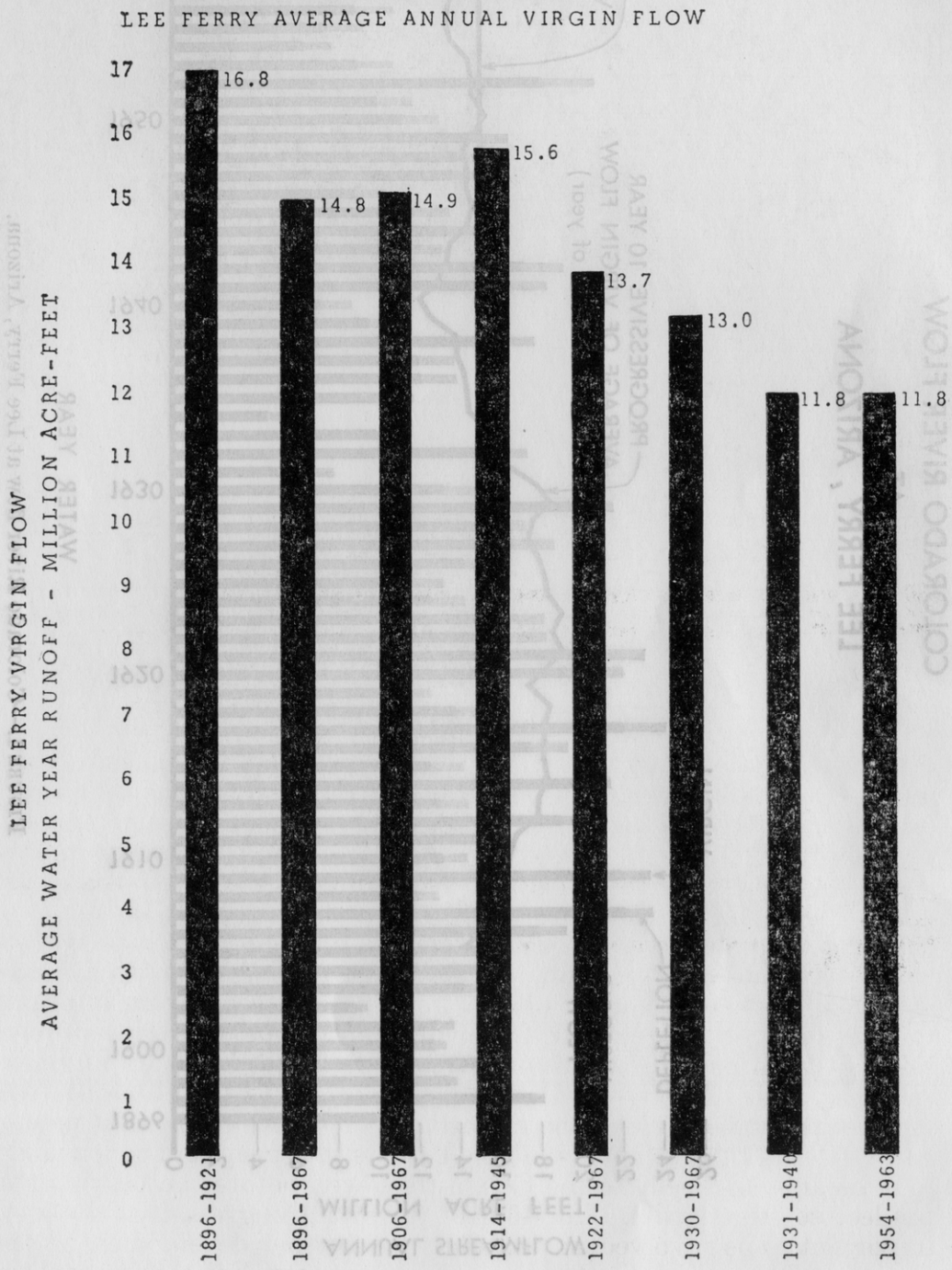

FIGURE 2.—Selected periods—water years.

TABLE I.—ESTIMATED VIRGIN FLOWS AT LEE FERRY[1]

[In millions of acre-feet]

Water year ending Sept. 30	Estimated virgin flow	Average including 1967	10-year running average	Water year ending Sept. 30	Estimated virgin flow	Average including 1967	10-year running average
1896	10.1	14.8		1932	17.2	13.1	15.9
1897	18.0	14.9		1933	11.4	13.0	15.2
1898	13.8	14.8		1934	5.6	13.0	14.3
1899	15.9	14.9		1935	11.5	13.3	14.2
1900	13.2	14.8		1936	13.8	13.3	14.0
1901	13.6	14.9		1937	13.7	13.3	13.5
1902	9.4	14.9		1938	17.5	13.3	13.5
1903	14.8	15.0		1939	11.1	13.1	12.5
1904	15.6	15.0		1940	8.6	13.2	11.8
1905	16.0	15.0	14.0	1941	18.1	13.4	12.8
1906	19.1	14.9	14.9	1942	19.1	13.2	13.0
1907	23.4	14.9	15.5	1943	13.1	13.0	13.2
1908	12.9	14.7	15.4	1944	15.2	13.0	14.2
1909	23.3	14.8	16.1	1945	13.4	12.9	14.4
1910	14.2	14.6	16.2	1946	10.4	12.9	14.0
1911	16.0	14.6	16.5	1947	15.5	13.0	14.2
1912	20.5	14.6	17.6	1948	15.6	12.8	14.0
1913	14.5	14.5	17.6	1949	16.4	12.7	14.5
1914	21.2	14.5	18.1	1950	12.9	12.5	15.0
1915	14.0	14.4	17.9	1951	11.6	12.5	14.3
1916	19.2	14.4	17.9	1952	20.7	12.5	14.5
1917	24.0	14.3	18.0	1953	10.6	12.0	14.2
1918	15.3	14.1	18.2	1954	7.7	12.1	13.5
1919	12.5	14.1	17.1	1955	9.2	12.4	13.1
1920	22.0	14.1	17.9	1956	10.7	12.7	13.1
1921	23.0	13.9	18.6	1957	20.1	12.9	13.5
1922	18.3	13.7	18.4	1958	16.5	12.1	13.6
1923	18.3	13.6	18.8	1959	8.6	11.7	12.9
1924	14.2	13.5	18.1	1960	11.3	12.0	12.7
1925	13.0	13.5	18.0	1961	8.5	12.1	12.4
1926	15.9	13.5	17.6	1962	17.3	12.7	12.1
1927	18.6	13.5	17.1	1963	8.5	11.8	11.8
1928	17.3	13.3	17.3	1964	10.2	12.7	12.1
1929	21.4	13.2	18.2	1965	18.7	13.5	13.0
1930	14.9	13.0	17.5	1966	10.8	10.9	13.1
1931	7.8	13.0	16.0	1967	11.0	11.0	12.1

[1] Col. 2 shows the estimated virgin runoff at Lee Ferry for the year indicated in col. 1. Col. 3 shows the average virgin runoff from the year indicated in col. 1 through 1967. Col. 4 shows the progressive 10-year running average virgin flow through the year indicated in col. 1.

Estimated Water Availability

Over the many years that it has been considering legislation involving the Colorado River, the Committee has received testimony indicating wide differences of opinion with regard to the quantity and dependability of the water resource actually available for consumptive use. The Committee has concluded that some of those differences are due to the inability of engineers to agree upon the basic data to be incorporated in their studies. For example, from figure 2 it is evident that the average virgin flow at Lee Ferry can be given as a figure anywhere between about 12 and 17 million acre-feet, depending upon the recorded period selected. Other differences among engineers have resulted from interpretations of the basic data or the bias in judgment relative to the objective of the studies made. The Committee has recognized the difficulty and the importance of selecting the most proper and reliable evidence upon which to base its judgment and conclusions.

It became apparent to the Committee, even before the hearings on predecessor legislation, H.R. 4671 of the 89th Congress, that the most important issue involved in proposals for further development in the Colorado River Basin is the availability of water. For this reason, the Committee, in its desire to ascertain as wide a range of facts and

opinion as possible, requested the Governor of each of the seven Basin States and the Secretary of the Interior to state for the record his position on the physicial availability of water for the Central Arizona Project, taking into consideration such relevant factors as present uses of water in the Upper Basin, the filling of Upper Basin reservoirs, and ultimate consumptive uses of water by the Upper Basin.

In response to the request by the Committee, three detailed analyses of the water supply were received prior to the hearings on H.R. 4671 in 1965 and 1966. These analyses were prepared by engineers of the Bureau of Reclamation, by engineers of the States of Arizona and California, and by the engineering firm of Tipton and Kalmbach, Inc. under the auspices of the Upper Colorado River Commission. These three studies were based upon different assumptions of net channel and evaporation losses, rates of future increase of Upper Basin stream depletions, and, in some instances, the periods of stream flow records employed. The studies of the Upper Colorado River Commission incorporated many combinations of these factors. The most significant result of these three analyses was the close agreement indicated with respect to the water supply remaining available for development in the basin and for the Central Arizona Project in particular. The differences in the final results of the three studies are related primarily to the expected time when utilization of the entire water resource of the basin will be accomplished.[5]

Notwithstanding the general agreement on physical data on water supply, it became evident during the 1967 Committee hearings that confusion persisted in the minds of some Committee Members over the disagreement on the water supply that would be available for a Central Arizona Project. For this reason, the Chairman, on December 29, 1967, directed another letter to the Secretary of the Interior requesting additional information on the water available from the Colorado River with special emphasis on (1) the effect of assumptions of different periods of stream flow records used in river operation studies, (2) the use of Upper Basin reservoir water spills as part of the supply for the Central Arizona project, and (3) different rates of Upper Basin stream depletions. These factors, as related to water supply, were the subject of testimony before the Committee earlier this year by the Secretary of the Interior and representatives of the Bureau of Reclamation. The studies by the Bureau of Reclamation were based upon the water supply records for the period 1906–67 with an average virgin flow of 14.9 million acre-feet. See figure 2. During the hearings it was evident that some Members of the Committee, due to the inherent risks involved in the possibility of over-estimating the water supply, held strong reservations concerning the inclusion of water records of questionable validity for the years prior to 1922 when direct water measurements were begun at Lee Ferry. It was also revealed that the Bureau's assumptions of future stream depletions in the Upper Basin were considerably less in both rate and quantity than those agreed to by the Upper Basin States. The Bureau also assumed in its operation studies that California would be given a first priority in the Lower Basin for 4.4 million acre-feet of water and that the Central Arizona Project aqueduct would be limited to a capacity of

[5] Summaries of results of these three water supply studies appear on p. 33, of House Report No. 1849 on H.R. 4671 of the 89th Cong., second sess.

2500 cubic feet of water per second, and, in these respects, the assumptions are consistent with the legislation approved by the Committee.

Some of the most pertinent information developed from the Secretary's testimony and the detailed operation studies furnished at the request of the Committee includes the following:

> Basically, the Colorado River water supply for the Central Arizona Project will come from two sources: (1) regulated releases from Glen Canyon Dam and (2) spills from Glen Canyon Dam into the Lower Basin. * * * the breakdown of the estimated CAP water supply from these two sources is as follows:

[In thousands of acre-feet] [1]

Source	1975	1990	2000	2030
Regulated release	1,650	1,020	730	284
Upper basin spills	0	235	296	392
Total	1,650	1,255	1,026	676

[1] With aqueduct capacity of 2,500 cubic feet per second.

The Committee understands that, absent a supplemental supply of water from other sources, beginning about year 1975, the Bureau of Reclamation anticipates that a part of the CAP water supply will come from reservoir spills from the Upper Basin, and that under the 2030 conditions assumed by the Bureau about 60 percent of the one-half water supply that will be available will have to be derived from spills from full Upper Basin reservoirs. The Committee is also aware of the fact that the estimated spills are averages over the period 1906–65, that the actual spills would be limited to a few years and dependent upon repeat of the 1911–1929 flows, and that if the run-off period 1922–67 were used as the basis of analysis there would be no spills of water available from the Upper Basin and the entire water supply for the Central Arizona Project would have to come from regulated releases at Glen Canyon Dam.

The Committee's Conclusions on Water Supply

1. The Committee believes that the results of studies submitted in testimony on H.R. 3300, and H.R. 4671 of the 89th Congress, reveal the water supply situation of the Colorado River Basin in proper perspective, and that they clearly demonstrate the limitations of the water resource as accurately as possible. These analyses, having utilized more refined techniques than those employed in the past, are probably more indicative of water availability than are earlier studies.

2. All of the studies indicate the presence of a serious water deficiency in the Lower Basin of the Colorado River; in fact, they show that a real crisis is being faced by Arizona, southern California, and Nevada. Even in the Upper Basin the remaining Colorado River water is fast being exhausted as development goes forward.

3. All of the studies show conclusively that any large increase in use of water in the Lower Basin must, even now, be supplied in part from water apportioned by the Colorado River Compact to the Upper Basin States but presently unused by them. As the Upper Basin

States progress with their development, the amount of unused water will diminish until ultimately no surplus Upper Basin water will be available for use in the Lower Basin.

4. Based upon the studies that have been examined by the Committee and its staff, the Committee believes that 1,200,000 acre-feet can reasonably be expected for the Central Arizona Project until some time during the decade 1985–1995, after which time, due to the priority granted to California by this legislation and as a consequence of the increasing consumption of water in the Upper Basin, the supply will diminish unless augmented from other sources.

5. The basic assumptions of the Department of the Interior with regard to virgin runoff, rate of increase and ultimate magnitude of Upper Basin stream depletion, and magnitude of future net losses along the Lower Colorado River are matters of judgment and, in the future, the Department's reliance on the assumptions used in its analyses shall in no manner jeopardize the consumptive use of water within compact apportionments in other areas of the Colorado River Basin.

6. On the basis of the water supply analyses furnished to the Committee and the testimony presented on H.R. 3300 and predecessor related legislation, the Committee has determined that the water supply of the Colorado River will neither be sufficient to meet future requirements of the areas dependent upon it, nor to meet apportionments of the consumptive use of water made by the Colorado River Compact to the Upper and Lower Basins plus the delivery of water to Mexico as required by international treaty. It is inevitable that water requirements will exceed the supply. This condition will occur with or without a Central Arizona Project. It is estimated that the amount of new water necessary to meet the Mexican Treaty requirements and the aforementioned apportionments in the Lower Basin alone ultimately will be between 2 million and 2.5 million acre-feet.

7. In order to prevent retrogression of the economy of the Colorado River Basin as its water resource diminishes, the Committee concludes that all means of increasing the water supply—such as reductions in water losses, water conservation practices, desalination, weather modification, importation of water from outside the drainage basin of the Colorado River—should be investigated and thoroughly studied as soon as possible.

8. The Committee has concluded that the most urgent and fundamental water resource issue before the Congress involves an initiation of plans and procedures pertaining to the resolution of the water supply deficiency of the entire Colorado River Basin as defined in the Colorado River Compact. The Committee is convinced that enactment and implementation of Title II in the form it has been approved will be a constructive step in the right direction.

9. Notwithstanding the anticipated water shortage on the Colorado River, if there is no augmentation, the committee finds that the Central Arizona Project is feasible with the presently known water supply. The importation of Colorado River water into central Arizona will reduce the need for groundwater, thus reducing the rate of decline of the water table. During periods of shortage on the Colorado River, diversions to central Arizona can be reduced and the groundwater can be again pumped into the irrigation and domestic supply systems.

VII. NEED FOR AUGMENTATION AND FOR WESTWIDE WATER STUDIES

The present and anticipated water supply situation in the Colorado River Basin described in Part VI of this report shows conclusively that a serious water deficiency already exists in the Lower Basin of the Colorado River and that, as this imbalance between requirements and availability continues to grow, the water situation throughout the entire basin will become more and more critical. There is no reasonable chance that the Colorado River will supply enough water to meet the demands of the area which relies upon it. The water supply situation, combined with the fact that there is insufficient water in the Colorado River to furnish the amounts specified in compacts, contracts, the Mexican Water Treaty, and the Supreme Court decree in *Arizona* v. *California*, means continued controversy accompanied by economic stagnation unless there is augmentation of the water supplies available from the river. There can be no lasting solution to the water problems and disputes of the states of the Colorado River Basin without the addition of more water.

The data presented in Part VI indicate that water operations on the Colorado River under the provisions of this Act will provide a long-term firm water supply for the Central Arizona Project of only 284,000 acre-feet annually compared to a planned average annual water supply of 1,200,000 acre-feet and that even this limited supply assumes that the Upper Basin States will furnish one-half the Mexican Treaty water. Thus, responsible water planning and management make it imperative that authorization of the Central Arizona Project be accompanied by the immediate initiation of meaningful studies to find new sources of water. To do otherwise would constitute a disservice to the State of Arizona and the Nation because it would raise false hopes in Arizona while jeopardizing future water development in Upper Basin States. The need for augmentation is beyond reasonable dispute. The only legitimate areas for difference of opinion lie in how and when this augmentation must be accomplished.

How the river should be augmented cannot be answered with confidence until the studies of all alternatives called for in the legislation have been completed. The experts who testified before the Committee on water supply and growth of requirements for water in the area served from the Colorado agreed that augmentation could be required as early as 1980 and that failure to provide additional water in the mid-1980's would seriously impede development in the Pacific Southwest. Experience has shown that 15 to 25 years are required to plan, authorize, design, and construct a major water project. Hence, studies of alternative means of augmenting the Colorado River must be initiated immediately if the future growth and economy of the Colorado River Basin and the Pacific Southwest is to be assured and decisions concerning augmentation are to be made with full knowledge of all alternatives. Considering the potential lead time needed to develop some of the alternatives, the studies must be completed and the facts must be before the Congress by not later than the mid-1970's. Under these circumstances, deferral of the studies would represent procrastination, and could result in decisions under crisis conditions rather than on the basis of orderly procedures.

The most pressing need is for an amount of new water necessary in order to satisfy the Mexican Treaty water requirements and the annual consumptive use of 7.5 million acre feet in the States of Arizona, California, and Nevada. This amount has been estimated by water experts to be ultimately between 2 million and 2.5 million acre-feet, depending on assumptions with respect to Lower Basin inflows, evaporation losses, and other water losses between Glen Canyon Dam and the Mexican border.

It is this most pressing need which is the basis for the provision in this legislation calling for preparation of a feasibility report on the most economic means of augmenting the water supply of the Colorado River by 2.5 million acre feet, with a January 1975 deadline for submission of such report to the Congress.

The other studies and investigations would be only in such detail as to permit the preparation of reconnaissance reports. All of the studies and investigations taken together are directed toward development of a regional water plan to serve as the framework for coordinated, future development throughout the entire Colorado River Basin.

As indicated hereinbefore, the Committee's approval of the Central Arizona Project is tied to immediate initiation of meaningful augmentation studies. This committee position stems from the fact that the states of the Colorado River Basin reached a consensus that they would not object to development that overcommits the river's limited resources before long-range augmentation studies are completed, provided studies of alternative means of augmenting the Colorado are conducted concurrently. To maintain the consensus, meaningful studies of all alternatives must be carried out on a strict timetable to provide assurance against the certain need in the future to apportion shortages from an overcommitted supply in the event nothing is done to augment the natural supply. The Lower Basin now relies in part upon the availability of unused water supplies apportioned to the Upper Basin by the Colorado River Compact. The slower developing states of the Upper Basin consider the studies under Title II as a meaningful step toward augmentation and as further assurance that they will be able to utilize fully their entitlements when the need arises.

The Committee has been disappointed that study provisions set out in Title II could not be made acceptable to the Pacific Northwest States. Every attempt was made to do so. However, those representing the Northwest continued to insist that only complete elimination of Title II would be acceptable. The Committee feels that the provision it adopted, prohibiting the Secretary from recommending importation unless the affected states approve, guarantees to the Northwest States and other areas of potential surplus that the position they take after the facts are known will carry great weight with respect to any decision on importation.

The minority opposition to the inclusion of augmentation studies in the legislation argues that the only way to assure objectivity is to place the entire matter before an independent National Water Commission authorized under separate legislation. Furthermore, the Northwest States request time to complete their inbasin and state water planning studies before initiation of interbasin studies. The Committee understands that these State studies as well as the Federal-State Type I Comprehensive Framework Studies are scheduled to be completed by 1971. Thus, the augmentation studies provided for in this

bill, scheduled for completion in the mid-1970's, allow full opportunity for consideration of the results of current state and Federal studies.

The Committee, in 1967, approved legislation to create a National Water Commission. Favorable action was achieved on the floor of the House. Previously the Senate had passed a similar measure. Final approval awaits resolution of the differences between the House and Senate versions.

Even so, the Committee believes that there is some confusion as to the purposes of the Commission. Certainly a small, temporary, "blue-ribbon" National Water Commission, created to deal with policy matters, should not be asked to manage and direct comprehensive studies of means of augmenting the Colorado River any more than it should be asked to manage and direct studies intent on solving the water and pollution problems of the Great Lakes, supplying the long-range water requirements of the high plains of Texas, or the almost endless quantity and quality problems which stretch from one end of the country to the other. In the words of the President, the Commission would—

> * * * review and advise on the entire range of water resource problems * * * It will judge the quality of our present efforts. It will recommend long-range plans for the future. * * *

To accomplish objectives of this nature, only the broadest strokes can be taken. Therein lies the value of such a commission, not in managing and directing specific regional studies.

The Committee feels that water problems throughout the country, including the Colorado River Basin, are so urgent that studies should proceed concurrently with the policy review of the National Water Commission, assuming it is established. In the case of the Colorado, the timetable will enable the Congress to appraise the results of the augmentation studies in light of the National Water Commission's recommendations, as the feasibility-level Colorado River report is not due until January 1, 1975.

In order to guard against deterioration of the economy of the Southwest when its water supply becomes completely developed and used, the Committee concludes that studies of all alternative ways of supplying water—such as reductions in water losses, water conservation practices, desalting, weather modification, interbasin water transfers, and other means—must be undertaken without delay. The Committee believes that enactment and implementation of Title II in the form which has been approved—including the protection afforded to the areas of origin and the veto powers given to the states involved before a recommendation can be forwarded to the Congress—will not only meet the urgent needs for objective investigations and studies essential to the future of the Colorado River Basin, but will provide also positive protection and benefits to other areas of the West as well.

VIII. THE MEXICAN WATER TREATY—A NATIONAL OBLIGATION

During the hearings on H.R. 4671 of the 89th Congress in 1965–66 and on H.R. 3300 in 1967–68, the Committee heard detailed testimony relating to the effects of fulfilling the United States' obligation under

the Mexican Water Treaty (Treaty Series 994 (59 Stat. 1219)) from the water supply of the Colorado River system. From this testimony the Committee concluded that performance of this war-time Treaty (signed in 1944) adds to a water shortage on the Colorado River which will frustrate the interstate apportionment made by Congress in the 1928 Boulder Canyon Project Act, as well as the inter-basin apportionment made by the Colorado River Compact.

Fulfillment of the Treaty obligation with water apportioned to the States rather than from surplus as anticipated when the Treaty was negotiated means not only a water-short river and resulting economic stagnation, but also continued dispute over sharing of shortages among all the States and dispute between the States of the Upper and Lower Basins over accounting of consumptive uses of water from the Gila River in Arizona when computing amounts of water that may have to be supplied by the basin States to fill deficiencies in deliveries of water to Mexico in water-short years. The answer provided in H.R. 3300 is to direct the Secretary to investigate means of augmenting the river and to recognize satisfaction of the requirements of the Treaty as a national obligation (Sec. 202), telling him to treat as nonreimbursable the cost of the augmentation works required to offset the Treaty burden (Sec. 401), provided, of course, that such works are found to be feasible and are authorized by the Congress, The Secretary of the Interior and the Bureau of the Budget have approved this principle.

The Secretary reported to this Committee May 17, 1965, on H.R. 4671 (Hearings on H.R. 4671, 89th Cong., p. 12) :

> An alternative approach, of course, to assure the maintenance of main stream prices for not to exceed 1,500,000 acre-feet of imported water per annum would be to retain the nonreimbursable allocation, now provided for in section 402, to replenishment of deficiencies in main stream water occasioned by Mexican Treaty deliveries, with the limitation that the nonreimbursable costs be limited to those associated with the importation of not to exceed 1,500,000 acre-feet for replenishment purposes. In the Bureau of the Budget's view this alternative, too, would be applicable if the Congress considered the Lower Colorado River situation unique.

The Bureau of the Budget had reported to the Senate Committee on Interior and Insular Affairs on May 10, 1965 on S. 1019, 89th Cong., (reprinted in Hearings, House Committee on Interior and Insular Affairs, on H.R. 4671, 89th Cong., p. 17) :

> The Bureau does recognize, however, that one of the important demands on the river is to provide water necessary to meet commitments made by the U.S. Government to the Republic of Mexico in the treaty of 1944. Should the Congress decide that the situation is unique, we believe that the price guarantee should be further limited to not more than 1.5 million acre-feet of water annually, the amount required to meet the U.S. treaty obligation. With this proviso, the chances would appear minimal, based on Department of the Interior estimates, that any imported water would have to carry a price higher than main stream water—at least in the period through year 2030.

The United States Department of Justice properly conceded, in its proposed findings and conclusions submitted to the United States Supreme Court's Special Master in *Arizona* v. *California* (p. 47):

> IF SUCH SHORTAGE SHOULD OCCUR, IT WOULD BE BY REASON OF THE MEXICAN TREATY OBLIGATION
>
> The above caption restates the second point of our Proposed Conclusion 11.15. We think argument is not necessary to support it.

Like all treaties, the Mexican Water Treaty is, of course, a national obligation, and H.R. 3300 so states, but the Committee believes the circumstances back of this particular treaty would make it a particular injustice to impose the Treaty's financial consequences on the Colorado Basin States alone.

The facts are these:

1. The Compact

The prospect of a treaty with Mexico over the waters of the Colorado River was ever present in the Colorado River Compact negotiations. The significant factor from the beginning of the negotiations was the assumption by everyone concerned that the Colorado River flow was adequate to provide the Upper and Lower Basin allocations as well as a substantial allocation of water to Mexico. For example, in 1923, following the execution of the Compact, Mr. Herbert Hoover, then Chairman of the Colorado River Commission, assured Congressman Hayden that the water rights of the Lower Basin and Arizona were not endangered by the possibilities of a treaty with Mexico, as indicated in the following exchange:

> Question 10. What is the estimated quantity of water which constitutes the undivided *surplus* of the annual flow of the Colorado River and may the compact be construed to mean that no part of this surplus can be beneficially used or consumed in either the upper or the lower basins until 1963, so that the entire quantity above the apportionment must flow into Mexico, where it may be used for irrigation and thus create a prior right to water which the United States would be bound to recognize at the end of the 40-year period?
>
> (a) *The unapportioned surplus is estimated at from 4,000,000 to 6,000,000 acre-feet, but may be taken as approximately 5,000,000 acre-feet.*
>
> (b) The right to the use of unapportioned or surplus water is not covered by the compact. The question cannot arise until all the waters apportioned are appropriated and used, and this will not be until after the lapse of a long period of time, perhaps 75 years. Assuming that each basin should reach the limit of its allotment and there should still be water unapportioned, in my opinion, such water could be taken and used in either basin under the ordinary rules governing appropriations, and such appropriations would doubtless receive formal recognition by the commission at the end of the 40-year period. There is certainly nothing in the compact which requires any water whatever to run unused to Mexico, or which recognizes any Mexican rights, the only reference to that situation being

> the expression of the realization that some such rights may perhaps in the future be established by treaty. As I understand the matter, the United States is not "bound to recognize" any such rights of a foreign country unless based upon treaty stipulations.

The views expressed by Herbert Hoover were concurred in by Arizona's Colorado River Commissioner, W. S. Norviel, in his report wherein he stated:

> As a matter of comity, the United States may, and probably will, enter into a treaty with Mexico regarding irrigation water, *but certainly not to the extent of granting rights to water needed for irrigation in the United States.*

The Honorable Delph E. Carpenter, Commissioner for the State of Colorado, reported on the same subject in December of 1922, and attached to his report a table showing an unallotted surplus of 4,500,000 acre-feet.

Similar views were expressed by the Honorable R. E. Caldwell, Commissioner for the State of Utah, in his observations wherein he stated:

> * * * The reconstructed Colorado River would have an average annual flow of from 20,000,000 to 22,000,000 acre-feet,
>
> * * * Assuming that the reconstructed river has 22,000,000 acre-feet in it, the compact has left for future allocation after 40 years, 6,000,000 acre-feet of water if either the Upper Basin or the Lower Basin has wholly beneficially consumed its allocation. * * *

These and many other contemporaneous statements clearly indicate that no knowledgeable representatives of the states or the Federal Government believed that the Compact allocations to each basin totalling 16 million acre-feet would ever in the foreseeable future be curtailed in order to serve some future treaty with the Republic of Mexico. It was in this atmosphere and with this understanding that the following provision was included in the Colorado River Compact:

> (c) If, as a matter of international comity, the United States of America shall hereafter recognize in the United States of Mexico any right to the use of any waters of the Colorado River System, such waters shall be supplied first from the waters which are surplus over and above the aggregate of the quantities specified in paragraphs (a) and (b); and, if such surplus shall prove insufficient for this purpose, then the burden of such deficiency shall be equally borne by the Upper Basin and the Lower Basin, and whenever necessary the States of the Upper Division shall deliver at Lee Ferry water to supply one-half of the deficiency so recognized in addition to that provided in paragraph (d).

2. The Project Act (45 Stat. 1057)

In 1928 the Boulder Canyon Project Act stipulated in Section 1 that the waters stored in Hoover Dam should be dedicated to "beneficial uses *exclusively* within the United States." The Congress, in

the same Act, granted the consent of Congress to the Colorado River Compact (Sec. 13) and directed (Sec. 8a) that the United States and all of its water users should be controlled by that Compact.

The Congress proceeded on the assumption that the water supply was substantially more than 18 million acre feet, and therefore there were at least 2 million acre feet of "surplus" to satisfy Mexico above the 16 million acre feet of consumptive use allocated by the Compact (7.5 million to the Upper Basin, per Article III(a), and 8.5 million to the Lower Basin, per Articles III (a) and (b)).

Accordingly, Congress in Section 4(a) directed the allocation of 7.5 million acre feet of the water apportioned to the Lower Basin, 4.4 million to California, 2.8 million to Arizona, 300,000 to Nevada, and directed that the "excess" above that quantity (the million referred to in Article III(b) plus the "surplus" above 8.5 million) should be equally divided between Arizona and California.

3. The Mexican Water Treaty, and Its Mistaken Water Supply Assumption

In 1941, in wartime, the State Department undertook negotiations with Mexico for a treaty to encompass the Rio Grande (where most of the water originates in Mexico but is largely used in the United States), and the Colorado (where all the water originates and is stored and conserved in the United States; Mexico contributes no water and has no sites for storage dams).

The desire on the part of Mexico to consider the Rio Grande and Colorado River together is readily understandable from Mexico's point of view. So far as the Rio Grande was concerned, the United States needed the consent of Mexico in order to regulate this river by reservoirs because of the common boundary and past agreements with respect to navigation. The United States had reached its practical limits of water development without river regulation. The United States development was subject to the risks of flood damage and needed protection. Mexican streams furnished most of the water for the Rio Grande below Fort Quitman, Texas. Mexico could control the tributaries in Mexico and put their water to use. Increased Mexican uses of water could damage the United States water users. In other words, Mexico was in the control position so far as the Rio Grande was concerned.

For Mexico the Colorado River presented a different picture. The water supply for Mexico came entirely from the United States. The negotiators on the Colorado River were confronted with a completed Hoover Dam. Releases of water for power production resulted in a well-regulated flow below Hoover Dam. In the 1930's and early 1940's the water users in the United States could not absorb the water released at Hoover Dam. Thus, a large quantity of water was spilling to Mexico. Mexico was in a position to use this water, and wanted to establish its rights by Treaty before development in the United States made it unavailable. Thus, there is a sound basis for concluding that the treaty was a trade of Colorado River water to Mexico for Rio Grande water for lands in Texas. This conclusion is supported by recently released diplomatic correspondence by the State Department.

With respect to the Colorado River, both nations negotiated on mistaken estimates of the water supply. Mexico asserted that the avail-

able supply was 18,400,000 acre-feet annually, and "this means a surplus of 2,400,000 acre-feet annually, which amount could be allowed to Mexico without injury to its northern neighbor" (VI. "Foreign Relations of the United States, Diplomatic Papers 1942," p. 550; published by the State Department in 1963).

The State Department replied (id., p. 561):

> Based upon the best data presently available, the total virgin flow of the river is estimated at 18,000,000 acre-feet per annum on the average, leaving an estimated average quantity of 2,000,000 acre-feet per year to take care of reservoir losses and for future allocations in the United States. This water can all be beneficially used in the United States.

Later, and mistakenly, the American negotiators shifted to higher estimates. A Mexican negotiator reported to his Senate (reprinted in full in U.S. S. Doc. 98, 79th Cong., and in part in S. Doc. 249, 79th Cong., p. 14):

> The negotiations of the treaty on the part of the American delegation and later its approval by the American Senate were made by taking as a fundamental basis the official document called the Santa Fe agreement, which with the approval of the American Federal Government distributed, since 1922, the main stream of the Colorado River among the American States of the upper and lower basins, and specified that the waters assigned to Mexico should be taken from the excess which the average virgin volume of the river (22,000,000,000 cubic meters) (17,835,000 acre-feet) had over the volume distributed among the American States of the upper and lower basins (20,000,000,000 cubic meters) (16,213,600 acre-feet). Our assignment of 1,850,000,000 cubic meters (1,500,000 acre-feet) is included, then, within the 2,000,000,000 cubic meters (1,621,000 acre-feet) of the difference.

It is clear that both the American and Mexican negotiators thought they were disposing only of "surplus" waters that would involve no curtailment of uses of water apportioned by the Colorado River Compact. The report of the Senate Committee on Foreign Relations with respect to the Treaty specifically said:

> Presumably then, the Mexican allocation of 1,500,000 acre feet per year will be supplied from the amount of approximately 2,000,000 acre feet which is estimated to be the surplus after the Compact allocations, totalling 16,000,000 acre feet, have been supplied.

The Treaty actually signed in 1944 (Treaty Series 994, 59 Stat. 1219), guaranteed Mexico a minimum of 1.5 million acre-feet annually, measured at the boundary. "While the Treaty calls for a 'guarantee' to Mexico there is also language in the Treaty calling for a proportionate reduction to Mexico in times of extraordinary drought." But the actual burden on the American water supply occasioned by this guarantee is about 1.8 million. This is because the United States absorbs all reservoir evaporation and channel losses, and because the Treaty gives the United States credit only for water delivered in response to Mexican schedules of demands, with no credit for over-

deliveries, which are unavoidable. It appears that wartime exigencies, plus the desire to have this agreement signed before convening of the conference to organize the United Nations, accounted for some of the concessions granted Mexico. The guarantee to Mexico—now known to be insupportable without grave damage to American interests—reads as follows:

ARTICLE 10

Of the waters of the Colorado River, from any and all sources, there are allotted to Mexico:

(a) A guaranteed annual quantity of 1,500,000 acre-feet (1,850,234,000 cubic meters) to be delivered in accordance with the provisions of Article 15 of this Treaty.

(b) Any other quantities arriving at the Mexican points of diversion, with the understanding that in any year in which, as determined by the United States Section, there exists a surplus of waters of the Colorado River in excess of the amount necessary to supply uses in the United States and the guaranteed quantity of 1,500,000 acre-feet (1,850,234,000 cubic meters) annually to Mexico, the United States undertakes to deliver to Mexico, in the manner set out in Article 15 of this Treaty, additional waters of the Colorado River system to provide a total quantity not to exceed 1,700,000 acre-feet (2,096,931,000 cubic meters) a year. Mexico shall acquire no right beyond that provided by this subparagraph by the use of the waters of the Colorado River system, for any purpose whatsoever, in excess of 1,500,000 acre-feet (1,850,234,000 cubic meters) annually.

In the event of extraordinary drought or serious accident to the irrigation system in the United States, thereby making it difficult for the United States to deliver the guaranteed quantity of 1,500,000 acre-feet (1,850,234,000 cubic meters) a year, the water allotted to Mexico under subparagraph (a) of this Article will be reduced in the same proportion as consumptive uses in the United States are reduced.

It is unclear whether the "extraordinary drought" clause would enable the United States to protect its reserves in storage, or whether American reservoirs must be drawn down without limit to satisfy the Treaty burden. In the past, water stored in Lake Mead has been used to meet deliveries to Mexico, and the United States has never invoked the "extraordinary drought" escape clause, even at a time when the Secretary of the Interior was imposing a 10 percent reduction in consumptive uses below Hoover Dam.

The dependence of Mexico on Hoover Dam Storage (dedicated by the Project Act to the exclusive benefit of American water users) was conceded by one of the principal Mexican negotiators, reporting to his own Senate (reprinted in S. Doc. 249, 79th Cong., p. 9):

* * * This graph shows clearly that in the irregular form in which the flows would occur, *Mexico, instead of receiving benefits would repeatedly sustain damage; as a rule when the water was available, it would descend in veritable floods which would destroy everything; and on other occasions in*

the months of the greatest scarcity and the greatest necessity, the channel would be dry.

Instead, the waters that Mexico will receive in accordance with the treaty will be received regulated by the American works, and at the appropriate time for their application to the land.

The Treaty evaded the question of "quality of water" to be delivered to Mexico and this has been a matter of growing contention between the United States and Mexico.

On April 18, 1945, following extended debate, the Senate gave its advice and consent to the treaty; greater wartime interests of the United States compelled an agreement with Mexico.

4. A National Obligation

The Committee is convinced that the Mexican Water Treaty, like all other treaties between the United States and another country, is an international agreement for which the citizens of all 50 States must bear the national responsibility. This premise is well-established both by direct documentation and by precedent.

At the time the Treaty was before the Senate the statement by the Secretary of State recognized clearly the national character of the responsibility involved. For instance, at page 20 of the hearing, supra, he stated:

> It seemed to us to be in keeping with our democratic institutions and procedures that the representatives of the communities most vitally concerned should be consulted with respect to these matters, *despite the fact that these questions are also of large national and international significance.* [Emphasis supplied.]

From its historical background, from the nature of pretreaty negotiations, from hearings on the Treaty in the Senate, and from the manner in which it is administered, it is obvious that the fulfillment of Treaty water requirements is intended to be a *national* obligation—not the obligation of the seven basin States. The Treaty was entered into by the United States on behalf of all its citizens. The benefits of the Treaty are national in character, and should not have to be met by the sacrifices of water of the seven Colorado River Basin States.

The concept of providing that the costs of meeting Treaty requirements should be borne by the nation as a whole is not new—this is the general practice. There are numerous precedents involving international waters under which the United States has assumed the financial responsibility as a national obligation.

One such precedent can be found in the Mexican Water Treaty itself. So far as the Rio Grande is concerned, the obligations assumed by the United States with respect to the construction of the necessary control structures were national obligations. Article 5 of the Treaty provides for the construction and cost allocations between the two national governments of the necessary agreed upon dams. Article 6 provides for further studies of other future construction that may be agreed upon by the two governments, and costs are made the national obligations of the two governments. Falcon Dam and Armistad Dam were both built on the Rio Grande under terms of the Mexican Water Treaty. Also, the Davis Dam on the Colorado River is used for regulation in connection with meeting the Mexican

Treaty obligation, and Senator Wash Dam has just been completed at Federal expense for further regulation in connection with the Treaty.

The Painted Rock Dam on the Gila River was completed in 1959. It was justified as a nonreimbursable project because its construction was important to the operation of the Mexican Treaty.

As further evidence of Congressional recognition of the Mexican Water Treaty as a national obligation, Congress in 1965, faced by Mexican complaints over the quality of Colorado River water delivered to her under terms of the Treaty, authorized the construction of works to preserve the quality of releases to Mexico. These works, to bypass water of high salt content around Morelos Dam, were made nonreimbursable and thus the responsibility of all United States taxpayers.

In 1925, the United States entered into a Convention with Canada concerning the Lake of the Woods (Treaty Series 721 (44 Stat. 2108)). In this Treaty, Canada was seeking to raise the Lake of the Woods' water level for power production. Article VIII of the Treaty provides for the securing of flowage rights to a specified elevation. The United States assumed the liability to all United States' owners for needed land. Further, the United States was to provide the necessary protective works to make effective the raising of the water level of the Lake of the Woods.

In the Niagara Water Treaty of 1950 (1 U.S. Treaties and Other International Acts, page 695), dealing with the remedial works necessary to preserve the Niagara River, Article II provides that "the total cost of the works shall be divided equally between the United States of America and Canada."

Under the Rio Grande Convention of 1906 (Treaty Series 455 (34 Stat. 2953)), this Treaty being the one which granted Mexico 60,000 acre-feet of water from the Elephant Butte reservoir, by the Act of March 4, 1907 (34 Stat. 1295) the United States appropriated $1 million "toward the construction of a dam for storing and delivering 60,000 acre-feet annually in the bed of the Rio Grande at points where the headworks of the Acequia Madre now exists above the City of Juarez, Mexico." The Treaty also provides that:

> The said delivery shall be made without cost to Mexico, and the United States agrees to pay the whole cost of storing the said quantity of water to be delivered to Mexico, of conveying the same to the international line, of measuring the said water, and of delivering it in the river bed above the head of the Mexican Canal.

In 1933, the United States entered into the Rio Grande Convention (Treaty Series 864 (48 Stat. 1621)). The purpose of this Convention was to provide for rectification of the channel of the Rio Grande below Elephant Butte reservoir. In this Convention, Article III, the cost of the works was prorated between the two governments in the following percentages: United States 88 percent and Mexico 12 percent.

The Columbia River Treaty (15 U.S. Treaties and Other International Agreements, page 1555) provides in Article VI for the payment by the United States to Canada of $64,400,000 as compensation to Canada for the benefits which the United States will receive from the construction of dams in Canada on the headwaters of the Columbia River.

5. The Worsening Water Supply

Since the date of the Treaty's ratification, the Colorado River's water supply, and the quality of that supply, have worsened. Storage in American reservoirs has been depleted, at times, to the bare minimum of operating heads of the power plants—in grim contrast with the assumption stated in the Senate Committee 1944 report on the Treaty, p. 9: "The use of Boulder Dam is not contemplated under the Treaty for the delivery of the Mexican allocation." Lake Mead is only half full, and Lake Powell has never reached more than one-third its capacity, while the Mexican Water Treaty has been fully honored. Mexico has complained of the quality of the water reaching her, with the consequence that extra quantities have been released from American storage to improve that quality, and expensive works have been built at the expense of the United States Government to bypass return flow from the Wellton-Mohawk Project in Arizona around the Mexican points of diversion. This, also, is in contrast with the remarkable assurance given the United States Senate by one of the American negotiators that the Treaty could be satisfied by delivering to Mexico water of unusable quality (S. Doc. 249, 79th Cong., p. 12). Davis Dam, built at Federal expense as a treaty structure to re-regulate the power discharges at Hoover, has had to be supplemented by the Senator Wash Dam, at Federal expense, to more nearly regulate the flows to Mexico. Painted Rock Dam has been built at Federal expense to control floods from the Gila, which enters the Colorado just above Mexico. Clearly the precedent has been established that the costs of fulfilling the Mexican Treaty are to be borne by the American taxpayers.

6. Summary

Testimony before this Committee shows that the ultimate introduction of at least an additional 2 million acre-feet of new water of high quality into the river is essential if, in addition to meeting the Mexican Treaty requirements, these objectives are to be accomplished: (1) to supply the minimum of 7.5 million acre-feet annually of mainstream water which the Congress apportioned among the three Lower Division States; (2) to avoid further disputes and arguments with Mexico concerning deterioration of the quality of the water at the boundary, already containing several times the salt content countenanced by U.S. Public Health Service standards, to a level wholly unacceptable for use in either the United States or Mexico, and (3) to resolve a presently unresolved dispute between the Upper and Lower Basins over filling deficiencies in deliveries of water to Mexico in short water years. The unresolved issue is whether consumptive use of the water from the Gila River in Arizona, which is a tributary of the Colorado River, should be counted when computing the amounts of water that may have to be supplied by the Basin States to fill deficiencies in deliveries to Mexico. If the National Government augments the water supply of the Colorado River, there will be no deficiencies, and possible litigation between the Upper and Lower Basin States can be avoided.

In summary, it is clear that (1) the Mexican Water Treaty was based on a mistake of fact—i.e., that delivery to Mexico of 1,500,000 acre-feet of water would not decrease Upper and Lower Basin appor-

tionments of water, (2) the Treaty was based on the mistaken assumption that its fulfillment would not require the use of Lake Mead storage, (3) consideration of the Rio Grande and Colorado Rivers together in the Treaty negotiations worked to the detriment of the Colorado River Basin States, and (4) negotiations during wartime and just prior to the conference to organize the United Nations resulted in additional concessions by the United States. Thus, the Committee believes that the economic impact of the Treaty should be borne by the nation as a whole, rather than by the water users on the Colorado River. In other words, the cost of performing the Treaty ought to be a Federal responsibility. The national government created the Treaty obligation in the belief that it would not deprive American users of water or disrupt the economy of a large area in the United States, and when that belief proves to be wrong the national government should bear the cost of providing the additional water to meet the obligation. Both the Department of the Interior and the Bureau of the Budget have endorsed this principle, and the Committee accepts it as fair and equitable and necessary to the enactment of this legislation.

IX. NEED FOR PROJECTS

Central Arizona Project

Central Arizona is one of the fastest growing and most arid regions in the Nation. Historically, development in Central Arizona lagged behind most regions in the Nation because of its remoteness and its arid climate. Recently, however, population and economic growth have advanced rapidly, resulting in the utilization of the area's dormant wealth in agriculture, mining, lumbering and tourist attractions.

The Lower Colorado River Basin, of which Central Arizona is a vital part, produces more than a billion dollars worth of agricultural products annually. The fact that the Nation has this production now is highly important, but the prospect that the Nation might not have it in the future is alarming. Many specialty crops such as winter lettuce, citrus fruits, garden vegetables, dates and melons are produced in this area. Virtually all of the agriculture depends on irrigation.

A market exists for more produce of this kind than our domestic Southwest now grows. This is seen in the fact that the United States presently imports $65 million worth of this type farm produce. These imports consist principally of winter vegetables (melons, tomatoes, peppers, peas, and so forth) from irrigated areas south of the Arizona and California borders.

Water is the key element that has made Arizona's economy strong and its spectacular recent growth possible. Without a permanent supply of water, much of this area would revert to desert. This is more than a future possibility, as it has already begun to happen in some areas of the State where water shortages are most critical.

The effects of declining water supply are first felt in the agricultural sector of an area's economy. Diminished yields, greater depths to ground water, lowered water quality, and higher costs are first felt by farmers. Cutbacks in irrigation adversely affect local businesses. Local business is the link with regional and national trade, and reductions are soon transmitted to other States and other areas. If Arizona's water problems are not resolved, repercussions will be manifested in

the reduced outflow of agricultural products and the reduced inflow of farm machinery, fertilizers, and other farming inputs.

Urbanization is rapidly expanding in Arizona and in some areas is resulting in the loss of prime agricultural land. This is especially true in Central Arizona, because the major metropolitan areas have sprung from towns in the irrigated farming areas, and the very economic base which underlies the growth and vitality of these cities is being taken over in the population explosion. For example, the incorporated area of Phoenix, Arizona, has increased from 17.1 square miles to 222.7 square miles during the last 14 years. The demand for more agricultural land for industry, for business, for residences, for schools, parks, and recreation, will continue as the agriculture land base declines.

The transition from an agricultural economy dependent on irrigation to a strong, diversified industrial economy is inevitable. Industrial and municipal uses of water will, in the long run, support a larger and more affluent population than will predominantly agricultural uses of water, and this is a very important consideration in an area which will probably always have to live within definite constraints on the availability of water supplies. Basic changes such as these in the structure and fabric of a region's economy and way of life do not normally occur overnight, however, and when they do, they are usually accompanied by dislocation which disrupt the economy of the area, the well-being of its institutions, and the security and the aspirations of its people.

Construction of the Central Arizona Project will permit a more gradual transition toward a predominantly municipal and industrial use of water. Water supplied under the project is to supplement existing supplies and no new lands are to be irrigated. Water supplied by the Central Arizona Project will allow Arizona to utilize its share of Colorado River water. It will also provide time to diversify the economy, to plan, and to implement procedures which will avoid the crises which too often accompany a region's realization that economic growth must take place within the confines of a limited water supply.

The outstanding growth of manufacturing in the past 10 years is partially a result of the contribution of agriculture which furnishes substantial quantities of the raw materials processed through the factories. The bulk of the growth in manufacturing, however, has resulted from expansion in products of the communications, space, and aircraft industries. This trend should continue in the future.

Much of the water used in Arizona in the past has come from large ground water basins. Water stored in these reservoirs has accumulated over millions of years. Mining of this ground water resource (pumping of the ground water at a rate faster than it can be recharged naturally), has largely supported the area's growth.

In the desert, ground water recharge from precipitation is minimal. Historically, the major source of natural recharge came from rivers flowing onto and across the desert. Today this recharge is restricted to exceptionally wet water years when the highly developed reservoir systems fill and surplus water can flow downstream into the recharge area. As the streamflow has been diverted from natural streams into canals and farmland the recharge from agriculture and municipal uses has increased. However, even with this recharge the current average annual rate of ground water decline in the area has been about

10 feet per year with a large portion of the area experiencing a decline of as much as 20 feet or more.

The average water table depth in 1940 was only about 70 feet below ground surface. By 1964 the average had dropped to 200 feet with depths as great as 500 feet. Pump lifts associated with these water table levels vary from 250 to 600 feet. Judging from the present rate of ground water withdrawal, the average water table can be expected to fall about 300 feet or lower by 1975; and this fall in water tables will be accompanied by corresponding increases in pumping lift from wells.

Water quality frequently becomes poor at greater depths because of deep deposits of salts and gypsum. This poor quality water must be diluted with better quality water from other sources to avoid salt concentrations which exceed the minimum agricultural and public health standards. In fact, a great deal of the water presently used in Central Arizona now exceeds these minimum standards.

Because of pumping costs, poor water quality, and the physical limitations imposed by the variable nature of the underground storage, the entire volume of underground water cannot be considered available for use. The present net rate of overdraft of about 2½ million acre-feet per year will drastically deplete this largely nonreplenishable resource before adequate water is available to bring supply and demand in balance.

Water use in Arizona in the past has been predominantly for agriculture. As late as 1960 more than 90 percent of the water used in Central Arizona was used for agricultural purposes. As the urban areas of Phoenix and Tucson expand, this relationship of water use is changing rapidly. The rate of change is expected to accelerate in the future as the population continues to expand and as industrial development increases.

Central Arizona Project water will be marketed through qualified contracting agencies, principally municipalities and irrigation districts. The chief immediate result of purchases of project water by either of these two types of users will be a reduction in present overdrafts on the ground water, which in turn will result in prolonged availability of water for all uses. The use of project water to satisfy the growing urban needs will slow the pace of the preemption of agricultural water which is now taking place.

In brief, the Central Arizona Project is needed to—

(1) Reduce a dangerous overdraft upon ground water reserves; (2) Maintain as much as possible of the area's irrigated farm land; and (3) Provide a source of additional water for municipal and industrial use that will be required during the next 30 years.

Upper Basin Projects

The Upper Basin projects are needed in the areas they will serve to provide dependable water supplies to meet the ever-growing needs for agricultural, municipal, and industrial uses.

Animas-LaPlata

A dependable water supply is the most urgent need of the Animas-LaPlata project area. It is essential to expansion of the irrigated area, to stabilization of agriculture on the presently irrigated area, and to

the continuing development of other resources. Because of the great seasonal and yearly fluctuations in riverflow, the additional water needed can be obtained only through construction of regulatory reservoirs.

Practically all the land now irrigated is in need of supplemental water in the late growing season. Good quality lands without irrigation are idle or, under dry farming, are producing only a small part of their potential. Dry farming is a speculative venture and many man-years of low rainfall investments in dry farming are almost totally lost. Because of shortages of feed, the livestock industry on which much of the area is economically dependent is at a standstill. With the limited crop production winter feeds are in short supply and national forest and Taylor grazing lands are used to capacity. High transportation costs make it impractical to import additional feed into the area. Many farmers work off the farm part time to supplement their income. As a result, a growing number of small farms are inefficiently operated.

When the Animas-LaPlata plan was developed in 1962, the project was designed to serve primarily irrigation needs. However, in the period since the 1962 plan was formulated, a need for larger quantities of municipal and industrial water in an area serviceable by the project has become evident. Interest in obtaining water has been expressed by a number of New Mexico communities extending from Aztec on the Animas River through Farmington at the junction of the Animas and San Juan Rivers and downstream along the San Juan River through Kirtland, Fruitland, Waterflow, and Shiprock. Farmington plans to extend its municipal water system to include these downstream communities. Active interest has also been shown in obtaining water for uses associated with development of the extensive bituminous coal deposits underlying large areas of the LaPlata River Basin and the adjacent Mancos River Basin to the west. The Peabody Coal Co. and the Pittsburgh and Midway Coal Mining Co. are separately exploring the feasibility of a large coal-fueled power plant that would utilize coal from the LaPlata coalfield near the Colorado-New Mexico State line. The Peabody Coal Co. has expressed an interest in obtaining 30,000 acre-feet of water annually for cooling purposes at that location. Any development there would involve lands owned by the Southern Ute Indian Tribe. The Ute Mountain Indian Tribe has coal deposits on its lands in Colorado in the service area of the Animas-LaPlata project. Other potential needs for municipal and industrial water in the project area are associated with natural gas, oil, and other mineral resources, recreational attractions, and the trend toward more intensive farming in the raising of vegetables and fruit in the New Mexico portion of the area and dairying in the Colorado portion.

The 1962 project plan for the Animas-La Plata project has been modified to meet the growing requirements for municipal and industrial water.

Dolores

A dependable water supply through development of additional storage regulation is the most urgent need for continued growth of the Dolores project area. The water demands cannot be met by direct flows and the limited storage supplies presently available.

Additional irrigation water supplies are needed to stabilize and expand agricultural development. Lands in the Dove Creek area, which are now dry-farmed, produce only a part of their full potential because of the farmers' dependence on rainfall for moisture. In years of adequate rainfall, yields are good and the farmers prosperous yet in years of drought, which frequently occur, the lands produce barely enough to offset farming expenses. Although much of the Montezuma Valley area is irrigated, the irrigation supply fails to meet requirements and sufficient feeds are not available for the livestock industry. In the Towaoc area, a part of the Ute Mountain Indian Reservation, the sage-covered lands are usable only for sparse grazing. Indians on the reservation are forced to hire non-Indian operators in adjacent areas to raise much of their livestock feed supply.

Communities in the project area, particularly Dove Creek and Cortez, anticipate a need for additional water for future growth. Dove Creek's present supply is excessively costly because of high-head pumping involved in securing water from the Dolores River, and any development of additional supplies without project development would be equally as expensive. Without the Dolores project, it will be necessary for Cortez to acquire water which is currently used for irrigation and to construct storage facilities. Not only would such action be costly to the city but it would take valuable agricultural land out of production.

Dallas Creek

In the Dallas Creek project irrigation service area there is an urgent need for additional and dependable irrigation supplies to improve and stabilize the economy of the farmers and of related service industries. At the present time the late-season water shortages on irrigated lands commonly result in crop failures. Dryland farming is practiced to a limited extent but results are uncertain. Large acreages of land once cleared for dry farming at considerable expense are no longer farmed because of frequent crop failures due primarily to insufficient rainfall. Decreases in grazing privileges on public lands in recent years have adversely affected some livestock operations and increased the need for more farm-grown feed. Many of the farmers have depressed living standards because of limited agricultural production.

Additional municipal and industrial water is needed to meet existing and anticipated needs of local communities and to provide a safe and convenient supply for surrounding rural areas. The need for additional water in the communities is accentuated by the population growth anticipated for them in the years ahead. The already important recreational attractions of the area will soon be greatly increased with completion of the Curecanti unit of the Colorado River storage project. Local industrial development also is expected to be stimulated by electric power from the Curecanti unit and other units of the storage project. Growth in the area will almost certainly result from the new power operations center at Montrose, Colorado. Development of the authorized Fruitland Mesa and Bostwick Park projects and of the Dallas Creek project itself, if authorized, would increase agriculture and would improve recreational and fish and wildlife attractions, further stimulating growth of the general area.

Control of floodflows of the Uncompahgre River is needed to prevent the inundation of farmlands and frequent channel changes that now occur during the spring snowmelt period and during heavy rainstorms which usually occur in the late summer.

West Divide

Additional water is the most urgent need of the project area, both for agriculture and as a reserve for municipal and industrial use.

Because of inadequate irrigation supplies, agricultural incomes in the project irrigation service area on the south side of the Colorado River are unstable and many farm operations are marginal. Less than half of the arable lands are irrigated. Even lands with high-priority water rights often have late-season water shortages and lands with low-priority water rights receive almost no irrigation water in drought years. Recent decreases in grazing permits on public lands have aggravated the agricultural problems and forced a number of farmers to reduce their livestock herds and sell or abandon their farms. An increased supply of irrigation water made dependable by reservoir storage, such as would be provided by the West Divide project, would alleviate the farm problems and provide a base for an expanded and more prosperous agriculture.

Important as is the need for irrigation water, an even greater need appears to exist for municipal and industrial water in connection with the oil shale potentialities. Large water reserves are essential to the processing of the shale oil on a commercial basis and to the establishment of urban complexes to support the large influx of industrial workers and their families that would necessarily accompany the industrial development. Municipal water also is urgently needed to support suburban and recreational areas rapidly expanding in the eastern portion of the project area southward from Glenwood Springs and in the vicinity of Redstone, Colorado.

San Miguel

An expansion of the agricultural base is urgently needed to offset the fluctuating and currently depressing effects of the mining industry on the general economy of the San Miguel Project area. New agricultural development would create new settlement opportunities, more work on existing farms, and employment in related service industries. Such development would be a boon to the area's younger generation seeking job opportunities and to many now in the labor force with uncertain futures in the mining industry.

Improved control of San Miguel River flows is desirable to firm the water supply for industrial expansion and associated municipal water needs. Interest has been shown in obtaining regulated water supplies near the Nucla coal reserves to stabilize and expand present operations to meet continuously increasing power requirements. Interest has also been expressed in the establishment of a wood pulp or pulp and paper mill to utilize the products of nearby forests. Development of the area's potash reserves and the use of water in secondary oil and gas recovery operations represent other potential water needs.

The growing number of tourists in the project area is creating a need for water recreation areas such as would be provided by the San Miguel project. Reservoir areas would help fill the demand for fishing, picnicking, and other outdoor recreational opportunities.

X. DESCRIPTION OF PROJECTS

Central Arizona Project

Central Arizona project facilities authorized by H.R. 3300 will coordinate the use of Colorado River water and the local water resources of the Gila River Basin to provide water for the rapidly expanding metropolitan areas of Phoenix and Tucson, for agricultural areas presently dependent upon severely over-drafted ground water basins, and for other water-deficient areas of Arizona and western New Mexico through direct diversion or exchange of water. Additional purposes include flood control, recreation, fish and wildlife conservation, sediment retention, salinity control, power generation, and area redevelopment.

The backbone facilities of the Central Arizona Project are the Granite Reef, Salt-Gila, and Tucson aqueducts, which will convey pumped Colorado River water to the central service zone. Major project features include:

Granite Reef aqueduct and pumping plants.
Salt-Gila aqueduct and pumping plant.
Orme dam and reservoir or suitable alternative.
Tucson aqueduct and pumping plants (Colorado River source).
Buttes dam and reservoir.
Hooker dam and reservoir (New Mexico).
Charleston dam and reservoir.
Tucson aqueduct (San Pedro River source).

Granite Reef aqueduct

The Granite Reef aqueduct will transport water diverted from Lake Havasu by the Havasu pumping plant about 200 miles to Orme Dam located a few miles northeast of Phoenix. The designed capacity of the concrete-lined aqueduct is 2,500 cubic feet per second. The Granite Reef aqueduct, in addition to the initial pumping plant at Lake Havasu, will require a series of lower lift pumping plants, short tunnels, and siphon crossings at major drainages.

Orme Dam and Reservoir

Located on the Salt River just downstream from its junction with the Verde River, the Orme Dam will be operated with the present Salt River project storage system as well as the aqueduct system from the Colorado River. Sediment-laden storm-flows, originating on tributaries below Bartlett and Stewart Mountain Dams, will be regulated and controlled. Coordinated with operation of the Granite Reef aqueduct, it will provide regulatory storage as needed for both Salt-Verde flows and Granite Reef aqueduct deliveries. In its multiple-purpose role it will serve as an afterbay, reregulate releases from upstream reservoirs, improve the Salt River project operating conditions by removing sediment, create a recreational area with fish and wildlife conservation uses, and in combination and coordination with the upstream reservoirs and downstream channelization, provide storage to meet the flood control requirements of the Salt River through the Phoenix area.

Salt-Gila aqueduct and pumping plant

The 1,800 cubic-feet-per second capacity Salt-Gila aqueduct will receive water either directly from the Granite Reef aqueduct or by

releases from Orme Reservoir. A relatively low-head pumping plant is required to lift the water into the aqueduct from either source.

Buttes Dam and Reservoir

Although investigated and reported previously as a separate facility, Buttes Dam and Reservoir is included as an integral part of the Central Arizona Project. An earthfill structure, the Buttes Dam will form a reservoir of 366,000 acre-feet capacity. Conservation storage capacity will be 100,000 acre-feet, and 266,000 acre-feet of capacity will be used for sediment and flood control purposes.

Tucson aqueduct (Colorado source)

An aqueduct to deliver 100,000 feet annually to the Tucson metropolitan area will originate at the terminus of the Salt-Gila aqueduct. This municipal and industrial water supply will be conveyed through a 150-cubic feet per secoond-capacity pipeline and would be lifted 920 feet by a series of pumping plants.

Charleston Dam and Reservoir

On the San Pedro River between Tombstone and Fort Huachuca, a concrete gravity structure rising 158 feet above streambed, with earthenwing dams, will create a 238,000 acre-feet capacity reservoir. Water conservation will be provided through exchanges. Recreation, fish, and wildlife uses, sediment detention, and flood control benefits will also accrue.

Tucson aqueduct (San Pedro source)

This conduit will convey about 12,000 acre-feet annually from the Charleston Reservoir to Tucson and vicinity.

Hooker Dam and Reservoir

Hooker Dam or suitable alternative would be a structure on the upper Gila River. The dam will be constructed to a size adequate to provide for new consumptive uses of 18,000 additional acre feet of water annually by New Mexico as provided in this legislation. The reservoir will provide water supplies, fish and wildlife uses, recreation, sediment detention, and flood control. H.R. 3300 requires further study of this feature, and an alternative site may be recommended in the final plan.

Distribution systems

In all areas an improvement in conveyance and distribution system efficiencies is essential to obtain optimum water development and use.

H.R. 3300 provides for the authorization of up to $100 million of appropriations for Federal financing of distribution and drainage systems for non-Indian lands.

Construction of new irrigation systems and rehabilitation and lining of existing systems for the seven Indian reservations within the project area are included in the project costs.

Drainage and reuse facilities

Drainage facilities contemplated as part of the project works are open drains and drainage wells upstream from Gillespie Dam on the Gila River. Costs of these facilities are included in the project cost.

Power generation and transmission arrangements

The Secretary of the Interior is authorized to make prepayment arrangements to acquire an entitlement to the delivery of a portion of the electrical output of a large thermal generating powerplant to serve project pumping needs, assuming that he determines this is the best way to meet these power needs. The thermal plant would be owned, constructed, and operated by non-Federal interests (private and public utilities in the Southwest). Current studies indicate that approximately 400 megawatts of capacity will be required. The prepayment arrangements would permit the project to obtain power for pumping at a cost reflecting the economy of large thermal electric powerplants and the benefits of Federal financing.

Water salvage measures

Included in the bill are water salvage measures consisting of ground water recovery in the Yuma area and phreatophyte clearing along the Lower Colorado River. These undertakings will yield an estimated 320,000 acre-feet of water annually for use in the lower Colorado River basin.

Fish hatcheries and wildlife refuge

Fish and wildlife measures include national fish hatcheries for both warm water fish and trout, the Cibola National Wildlife Refuge, the New Mexico State Fish Hatchery, and a rough fish eradication program.

Upper Basin Projects

The five projects that will be authorized by H.R. 3300 are the Animas-La Plata project in Colorado and New Mexico, and the Dolores, Dallas Creek, West Divide, and San Miguel projects in Colorado. They would be authorized as participating projects under the Colorado River Storage Project Act. The five projects are briefly described in the following paragraphs:

Animas-La Plata

The Animas-La Plata project is in southwestern Colorado and northwestern New Mexico in the San Juan River Basin. The project would develop the flows of the Animas and La Plata River systems for irrigation, municipal and industrial use, recreation, and fish and wildlife enhancement.

Project water supplies would be provided to about 72,000 acres in Colorado and New Mexico of which 46,500 acres, including about 7,500 acres of Indian lands, would receive full supplies and 25,600 acres would receive supplemental supplies. About 76,000 acre-feet annually of municipal and industrial water also would be supplied by the project. A portion of these supplies would fulfill the present and future needs of Durango, Colorado; Farmington, New Mexico, and nearby communities. Substantial supplies would be made available for the development of coal-fired electric powerplants which will utilize the coal deposits on the Southern Ute and Ute Mountain Indian Reservations. By exchange, the project would also make irrigation water available to augment supplies of the existing Florida project nearby.

The Animas-LaPlata project would assist in the trend toward more intensive farming and the production of vegetables, fruit, and dairy

products in the area. The availability of water would insure the development of the area's valuable coal deposits. The development would be of particular value to the Indian tribes through the provision of both industrial and agricultural economic ventures.

Dolores

The Dolores project is just east of the Utah-Colorado State line in southwestern Colorado. The project would develop the flows of the Dolores River to provide irrigation water for about 61,000 acres, of which 28,700 acres would receive supplemental water supplies and 32,300 acres, including 1,500 acres of Indian land would receive full supplies. The project would furnish 6,100 acre-feet annually of municipal and industrial water supply for the communities of Dove Creek and Cortez. Significant recreation, fish and wildlife enhancement, flood control, area redevelopment, and water quality control benefits would also be realized from the development.

The Dolores project would stabilize the existing agricultural economy by providing supplemental water to irrigated lands now experiencing shortages and by expanding irrigation to good quality lands presently dry farmed and producing only a part of their potential. The municipal and industrial water supply is urgently needed to meet current and future requirements of communities in the project area.

Development of the project would bring substantial employment benefits to Indians of the Southern Ute, Ute Mountain, and Navajo Reservations. The regulation provided by the project's McPhee Reservoir would improve the quality of water for municipal use at Cortez and Dove Creek and provide appreciable flood control benefits downstream along the Dolores River.

Opportunities for water-based recreation and for fish and wildlife enhancement would be afforded by the project in an area now nearly devoid of such opportunities.

Dallas Creek

The Dallas Creek project is in Delta, Montrose, and Ouray Counties in west-central Colorado. The project would develop the water of the Uncompahgre River and its tributaries to provide irrigation water for about 23,600 acres of land, of which 14,900 acres would receive full water supplies and 8,700 acres supplemental supplies, and 15,000 acre-feet annually of municipal and industrial water supply for the communities of Olathe, Montrose, and Delta and the surrounding rural areas. Recreation, fish and wildlife enhancement, and flood control benefits would be provided by the project's reservoirs.

The irrigation supplies of the Dallas Creek project are urgently needed to alleviate late-season water shortages, which commonly result in crop failures, and to augment the irrigated acreage which supports the livestock industry of the area.

The municipal and industrial water supplies are needed to meet the existing and potential needs for adequate and safe supplies for local communities and surrounding rural areas, particularly the city of Montrose which is presently experiencing rapid growth. The expansion of tourism is one of the factors contributing to the growth in the area.

Three project reservoirs would provide attractive recreation areas, and features for the conservation of fish and wildlife resources are also

included in the plan. The proposed Ridgeway Reservoir would be valuable for the control of snowmelt floods.

West Divide

The West Divide project is in Garfield, Mesa, Pitkin, and Gunnison Counties in west-central Colorado. Project water would be obtained from a series of Colorado River tributaries, including the Crystal River. The project would provide 77,500 acre-feet annually of municipal and industrial water and irrigation water for about 40,000 acres, of which 19,000 acres would receive full irrigation supplies and 21,000 acres would receive supplemental supplies. Recreation, fish and wildlife conservation, and flood control would also be important functions served by the project.

The project area lies along both sides of the Colorado River adjacent to the Roan Plateau which contains some of the world's richest oil shale deposits. Developmental oil shale activity is in progress near the project, and the area offers an attractive and convenient site for a municipal and industrial complex to develop this resource. The West Divide project would provide the initially required water supplies for the industrial processes and the attendant community growth. Municipal water would also be supplied for the current recreation and suburban expansion near Glenwood Springs.

The dependable irrigation water supplied by the project would alleviate the problems of the unstable and often marginal farming operations in the area and provide an expanded and more prosperous base for the existing agricultural economy.

The project reservoirs would significantly improve recreation opportunities in the already popular White River National Forest. Benefits to fisheries and upland game hunting would be provided by the project, and the project's Placita Reservoir would reduce snowmelt flood damages on the Crystal River.

San Miguel

The San Miguel project is in Montrose and San Miguel Counties in southwestern Colorado. The project would develop the flows of the San Miguel River to irrigate about 38,900 acres of land, of which 26,400 acres would receive full irrigation supplies and 12,500 acres would receive supplemental supplies, and to provide 44,000 acre-feet annually of municipal and industrial water supplies. It would also provide flood control, recreation, and fish and wildlife enhancement benefits.

Mining is the chief source of income in the project area, with agriculture second in importance. Mining activity has fallen off in recent years and an expansion of the agricultural base is urgently needed to offset the depressing effect on the general economy of the area. The project development would create new settlement opportunities and increased employment on existing farms and in related service industries.

The project would also provide water supplies for potential industrial and associated municipal expansion in the area. Interest has been evidenced in the development of coal resources near Nucla for the expansion of existing thermal-electric generating facilities. Other potential industrial uses are for pulp mills to utilize nearby timber resources and the development of the area's potash reserves. A depend-

able water supply would be basic to the realization of any of these possibilities.

The growth of tourism in the area is creating a need for water-based recreation and fishing, which will be provided by the development. Damaging spring flows of the San Miguel River would also be reduced by the project.

XI. SUMMARY OF COSTS—ECONOMIC AND FINANCIAL ANALYSES

Central Arizona Project

Costs

A summary of up-to-date capital and operating costs for the Central Arizona Project, including water salvage and recovery works, is set out in the tabulation which follows:

	1967 price level
Project costs:	
Granite Reef aqueduct	$370,760,000
Salt-Gila aqueduct	42,320,000
Tucson aqueduct	46,300,000
Orme Dam and Reservoir	42,340,000
Buttes Dam and Reservoir	35,240,000
Charleston Dam and Reservoir	36,420,000
Hooker Dam and Reservoir	[1] 31,730,000
Drainage system	11,570,000
Power generation and transmission arrangements	[2] 94,700,000
Subtotal	711,380,000
Indian distribution system	19,970,000
Water salvage and recovery	42,450,000
Fish hatcheries and wildlife refuge	5,250,000
Total project costs	779,050,000
Annual operation, maintenance, and replacement costs:	
Aqueduct system	[3] 3,773,000
Power generation and transmission arrangements	[3] 6,556,000
Subtotal	10,329,000
Water salvage projects	1,000,000
Fish hatcheries and wildlife refuge	490,000
Total	11,819,000

[1] This amount should not be appreciably different for any suitable alternative to Hooker Dam.

[2] Includes federally constructed transmission system to project pumps: $28,480,000—1967 price level.

[3] Pumping power costs are associated with power plant and transmission system rather than aqueduct system.

Benefit-cost analysis

A comparison of expected annual benefits from construction of the Central Arizona Project with annual costs is summarized in the tabulation which follows:

		1967 price level
Benefits:		
Irrigation:		
Total		$59,428,000
Direct		(28,640,000)
Municipal and industrial		18,584,000
Commercial power		4,246,000
Fish and wildlife		1,635,000
Recreation		583,000
Flood control		780,000
Areal redevelopment		267,000
Total		85,523,000
Direct		54,735,000
Costs:		
Total project costs		779,050,000
Interest during construction		52,446,000
Subtotal		831,496,000
Less:		
Investigation costs	$5,794,000	
Indian distribution system	19,970,000	
		25,764,000
Net Federal investment		805,732,000
Annual equivalent of investment costs (100 years, 3¼ percent interest)		27,298,000
Average annual O.M. & R		11,819,000
Total annual costs		39,117,000
Benefit-cost ratios:		
Total benefits, 100 years		2.2 to 1.0
Direct benefits only, 100 years		1.4 to 1.0
Total benefits, 50 years		2.1 to 1.0
Direct benefit only, 50 years		1.3 to 1.0

Cost allocation (100-year period, 3¼-percent interest)

The costs of the Central Arizona Project are allocated as follows:

1967 PRICE LEVEL

Purpose	Project cost	Average annual O.M. & R.
Irrigation	$358,157,000	$2,523,000
Municipal and industrial	216,143,000	812,000
Power	94,700,000	6,556,000
Irrigation	(45,361,000)	(3,140,000)
M. & I	(17,898,000)	(1,239,000)
Commercial	(31,441,000)	(2,177,000)
Recreation	5,984,000	329,000
Flood control	10,964,000	36,000
Fish and wildlife	23,801,000	73,000
Prepaid investigation	1,631,000	----------
Subtotal	711,380,000	10,329,000
Indian distribution system	19,970,000	----------
Water salvage and recovery	42,450,000	1,000,000
Fish hatcheries and wildlife refuge	5,250,000	490,000
Total	779,050,000	11,819,000

Repayment analysis

A summary of the reimbursable and the nonreimbursable costs for the Central Arizona Project follow:

1967 PRICE LEVEL

	Project cost	IDC at 3.253 percent	Total for repayment
Reimbursable:			
Irrigation	$358,157,000		$358,157,000
Municipal and industrial	216,143,000	$16,625,000	232,768,000
Power	94,700,000	2,842,000	97,542,000
Irrigation	(45,361,000)		(45,361,000)
Maintenance and inspection	(17,898,000)	(1,031,000)	(18,929,000)
Commercial	(31,441,000)	(1,811,000)	(33,252,000)
Recreation	1,678,000	55,000	1,733,000
Fish and wildlife	323,000	10,000	333,000
Total	671,001,000	19,532,000	690,533,000
Nonreimbursable:			
Flood control	10,964,000		
Recreation	4,306,000		
Fish and wildlife	23,478,000		
Indian distribution system [1]	19,970,000		
Water salvage and recovery	42,450,000		
Fish hatcheries and wildlife refuge	5,250,000		
Total	106,418,000		
Prepaid investigations	1,631,000		
Total project cost	779,050,000		

[1] Secretary makes determination of repayment ability—amount in excess over 50-year period is nonreimbursable.

Repayment of reimbursable costs

A repayment summary for the Central Arizona Project is shown in the tabulation which follows, and this summary is supported by a year-by-year repayment analysis which is also included.

1967 PRICE LEVEL

	Reimbursable costs	Net revenues available	Surplus or deficit
Irrigation	$358,157,000	$60,438,000	—$297,719,000
Municipal and industrial	232,768,000	287,072,000	[1] 54,304,000
Power (total)	97,542,000	175,199,000	77,657,000
Fish and wildlife	333,000	333,000	
Recreation	1,733,000	1,733,000	
Arizona's share of development fund [2]		166,064,000	166,064,000
Total	690,533,000	690,839,000	306,000

[1] Municipal and industrial water charge per acre-foot: $53.37.
[2] Derivation of Arizona's share of development fund available for irrigation assistance for central Arizona project.

Development Fund revenue after project payout through 2029 follows:

	Total	Arizona's share	Remainder
Hoover	$443,500,000	$78,056,000	$365,444,000
Parker-Davis	93,335,000	46,668,000	46,667,000
PNW–PSW Intertie	41,600,000	41,600,000	
Total	578,435,000	166,324,000	[1] 412,111,000
Power loss at Coolidge Dam		260,000	
Available for CAP irrigation assistance		166,064,000	

[1] This repayment study assumes that assistance to Dixie project of $28,000,000 to $35,000,000 will be repaid from revenue in development fund in excess of Arizona's share; however, all or part of this amount could be paid from Arizona's share after repayment of CAP. Approximate annual revenues into the development fund after 2029; Hoover, $10,660,000; Parker-Davis, $3,624,000; PNW–PSW Intertie, $5,200,000 through year 2046; CAP, $16,965,000 for total of annual revenue of $36,449,000.

Upper Basin Projects

Costs

A summary of up-to-date costs for the Upper Basin projects follows:

Animas-La Plata	$115,880,000
Dolores	53,850,000
Dallas Creek	42,310,000
West Divide	106,580,000
San Miguel	73,140,000
Total	391,760,000

Benefit-cost analysis

A comparison of the expected annual benefits from construction of the Upper Basin Projects with annual costs is summarized in the tabulation which follows:

Benefit-cost ratios:

Animas-La Plata	1.64 to 1.0
Dolores	1.72 to 1.0
Dallas Creek	1.70 to 1.0
West Divide	1.86 to 1.0
San Miguel	1.42 to 1.0
Composite (5 projects combined)	1.68 to 1.0

Cost allocation and repayment analysis

A project-by-project summary of the cost allocation and repayment analysis for the Upper Basin Projects follows:

ANIMAS-LA PLATA PROJECT—COST ALLOCATION AND REPAYMENT ANALYSIS (1967 PRICE LEVELS)

[In thousands of dollars]

	Construction costs	Interest during construction [1]	Annual O.M. & R. costs
Reimbursable costs:			
Irrigation	83,433.0	----------	240.6
M. & I. water	29,710.0	2,028.0	36.2
Recreation and fish and wildlife	284.8	1.5	34.2
Subtotal	113,427.8	2,029.5	311.0
Nonreimbursable costs:			
Irrigation	----------	5,516.0	----------
Recreation and fish and wildlife	2,452.2	135.5	15.4
Subtotal	2,452.2	5,651.5	15.4
Total	115,880.0	7,681.0	326.4

[1] Reimbursable interest during construction computed at 3.222% and nonreimbursable interest at 3.125%.

REPAYMENT OF REIMBURSABLE COSTS, 50 YEARS

[In thousands of dollars]

	Colorado		New Mexico		Total	
	Construction costs	Annual O.M. & R.	Construction costs	Annual O.M. & R.	Construction costs	Annual O.M. & R.
Irrigation	61,348.0	176.9	22,085.0	63.7	83,433.0	240.6
Irrigators	9,495.0	176.9	1,785.0	63.7	11,280.0	240.6
Non-Indians	(8,480.0)	155.3	(1,525.0)	55.8	(10,005.0)	211.1
Indians [2]	(1,015.0)	21.6	(260.0)	7.9	(1,275.0)	29.5
Ad valorem taxes	3,390.0	----------	4,347.0	----------	7,737.0	----------
Prepayment [3]	472.0	----------	170.0	----------	642.0	----------
Upper Colorado River Basin fund	47,991.0	----------	15,783.0	----------	63,774.0	----------
M. & I. water	26,115.0	30.2	5,623.0	6.0	31,738.0	36.2
Water users [4]	[5] 25,927.0	[6] 30.2	5,583.0	6.0	31,510.0	36.2
Prepayment [3]	188.0	----------	40.0	----------	228.0	----------
Recreation and fish and wildlife by non-Federal interests [4]	192.5	[7] 26.3	93.8	7.9	286.3	34.2
Total	87,655.5	233.4	27,801.8	77.6	115,457.3	311.0

[2] Payments by Indians on construction costs deferred under Leavitt Act of July 1, 1932 (47 Stat. 564).
[3] Prepaid from Colorado River development fund and contributed funds.
[4] Construction costs amount repaid with interest.
[5] Includes $1,669,000 of interest during construction.
[6] Includes $359,000 of interest during construction.
[7] Includes $1,500 of interest during construction.

DOLORES PROJECT—COST ALLOCATION AND REPAYMENT ANALYSIS

[1967 price levels. In thousands of dollars]

	Construction costs	Interest during construction [1]	Annual O.M. & R. costs
Reimbursable costs:			
Irrigation	45,259.8	----------	138.9
M. & I. water	2,393.5	182.8	3.0
Water quality	183.3	14.0	.3
Recreation and fish and wildlife	690.2	41.3	16.3
Subtotal	48,526.8	238.1	158.5
Nonreimbursable costs:			
Irrigation	----------	3,312.5	----------
Recreation and fish and wildlife	4,357.8	282.5	31.5
Flood control	458.1	34.0	2.2
Subtotal	4,815.9	3,629.0	33.7
Cost not allocated [2]	507.3	----------	----------
Total	53,850.0	3,867.1	192.2
Repayment of reimbursable costs, 50 years:			
Irrigation:			
Irrigators:			
Non-Indian	5,956.8	----------	133.3
Indian [3]	248.2	----------	5.6
Ad valorem taxes	1,424.6	----------	----------
Upper Colorado River Basin fund	37,630.2	----------	----------
Subtotal	45,259.8	----------	----------
M. & I. water: Water users	2,576.8	196.8	3.3
Recreation and fish and wildlife, non-Federal interests	690.2	41.3	16.3
Total	48,526.8	238.1	158.5

[1] Reimbursable interest during construction computed at 3.222 percent and nonreimbursable interest at 3.125 percent.
[2] CRDF $474,600 and contributed funds $32,700.
[3] Payments by Indians on construction costs deferred under the Leavitt Act of July 1, 1932 (47 Stat. 564).

DALLAS CREEK PROJECT—COST ALLOCATION AND REPAYMENT ANALYSIS

[1967 price levels. In thousands of dollars]

	Construction costs	Interest during construction [1]	Annual O.M. & R. costs
Reimbursable costs:			
Irrigation	30,380	----	75.9
M. & I. water	5,377	343	7.0
Recreation and fish and wildlife	797	9	88.1
Subtotal	36,554	352	171.0
Nonreimbursable costs:			
Irrigation	----	1,239	----
Recreation and fish and wildlife	4,609	223	10.0
Flood control	229	13	2.0
Subtotal	4,838	1,475	12.0
Cost not allocated:			
Investigations from nonreimbursable CRD fund	336	----	----
Excess costs of road relocation	582	----	----
Subtotal	918	----	----
Total	42,310	1,827	183.0
Repayment of reimbursable costs, 50 years:			
Irrigation:			
Irrigators	3,005	----	75.9
Ad valorem taxes	2,496	----	----
Upper Colorado River Basin fund	24,879	----	----
Subtotal	30,380	----	75.9
M. & I. water: Water users	5,377	343	7.0
Recreation and fish and wildlife, non-Federal interests	797	9	88.1
Total	36,554	352	171.0

[1] Reimbursable interest during construction computed at 3.222 percent and nonreimbursable interest at 3.125 percent.

WEST DIVIDE PROJECT—COST ALLOCATION AND REPAYMENT ANALYSIS

[1967 price levels. In thousands of dollars]

	Construction costs	Interest during construction [1]	Annual OM&R costs
Reimbursable costs:			
Irrigation	73,047	----	79.5
M. & I. water:			
High quality	22,188	1,533	10.1
Low quality	7,997	632	4.2
Subtotal	103,232	2,165	93.8
Nonreimbursable costs:			
Irrigation	----	5,870	----
Recreation and fish and wildlife	3,048	233	2.2
Flood control	300	27	1.8
Subtotal	3,348	6,130	4.0
Total	106,580	8,295	97.8
Repayment of reimbursable costs, 50 years:			
Irrigation:			
Irrigators	11,625	----	79.5
Ad valorem taxes	4,959	----	----
Upper Colorado River Basin fund	56,208	----	----
Prepayment [2]	255	----	----
Subtotal	73,047	----	79.5
M. & I. water—Water users:			
High quality	22,083	1,533	10.1
Low quality	7,997	632	4.2
Prepayment [2]	105	----	----
Subtotal	30,185	2,165	14.3
Total	103,232	2,165	93.8

[1] Reimbursable interest during construction computed at 3.222 percent and nonreimbursable interest at 3.125 percent.
[2] Prepaid from Colorado River development fund and contributed funds.

SAN MIGUEL PROJECT—COST ALLOCATION AND REPAYMENT ANALYSIS

[1967 price levels. In thousands of dollars]

	Construction costs	Interest during construction [1]	Annual O.M. & R. costs
Reimbursable costs:			
Irrigation	56,000	----------	125.1
M. & I. water	11,851	584	25.5
Recreation and fish and wildlife	549	10	31.9
Subtotal	68,400	594	182.5
Nonreimbursable costs:			
Irrigation	----------	2,917	----------
Recreation and fish and wildlife	3,612	157	4.5
Flood control	1,128	54	3.2
Subtotal	4,740	3,128	7.7
Total	73,140	3,722	190.2
Repayment of reimbursable costs, 50 years:			
Irrigation:			
Irrigators	4,845	----------	125.1
Ad valorem taxes	587	----------	----------
Upper Colorado River Basin fund	50,251	----------	----------
Prepayment [2]	317	----------	----------
Subtotal	56,000	----------	125.1
M. & I. water:			
Water users	11,784	584	25.5
Prepayment [2]	67	----------	----------
Recreation and fish and wildlife, non-Federal interests	549	10	31.9
Total	68,400	594	182.5

[1] Reimbursable interest during construction computed at 3.222 percent and nonreimbursable interest at 3.125 percent.
[2] Prepaid from Colorado River development fund and contributed funds.

XII. SECTION-BY-SECTION ANALYSIS

Title I—Colorado River Projects: Objectives

Section 101

This Section provides that the Act may be cited as the "Colorado River Basin Project Act."

Section 102

Section 102 states a dual purpose: (1) to provide for the comprehensive development of the water resources of the Colorado River Basin, and (2) to provide additional and adequate water supplies in both the upper and lower Colorado River Basins. The Secretary of the Interior is directed to develop a regional water plan that will serve as a framework for coordinating the construction of all projects in the basin under a time schedule that will assure an adequate supply of water for all of them.

Title II—Investigations and Planning

Section 201

Section 201 directs the Water Resources Council to establish standards and procedures (1) for estimating both the long-range water supplies of the basin and the water needs of the basin, (2) for investigating methods of supplying water to meet basin needs, either directly or by exchange, (3) for investigating means of maintaining water quality in the basin, (4) for investigating means for providing prudent conservation practices in the basin, and (5) for investigating the long-

range water supply of areas from which water could be imported into the Colorado River system, and probable water needs of such areas.

The Secretary of the Interior is directed to undertake such investigations in accordance with the standards and procedures established by the Water Resources Council. He is also directed to prepare reconnaissance reports on all matters investigated, and to submit the reports to the President and the Congress not later than June 30, 1973, but he may not include in a report a recommendation for inter-basin transfers of water without the approval of the States affected. He is further directed to prepare a feasibility report on a plan which shows the most economical means of augmenting the water supply of the Colorado River below Lee Ferry by 2½ million acre-feet annually, i.e., increasing the supply of the river by that amount of water which is in addition to the natural supply of the Colorado River system. If that plan involves an inter-basin diversion, no recommendation may be included in the feasibility report unless the States affected approve, and the feasibility report must include provisions for protecting the interests of the areas of origin. This report and comments of affected states and appropriate Federal agencies must be submitted to the Congress not later than Jan. 1, 1975.

It is the purpose of this section to provide for the assembly of all relevant facts in order that they may be evaluated by the Congress. The prohibition against Secretarial recommendation, in either a reconnaissance or feasibility-grade report, of an inter-basin diversion without approval of the States concerned is intended to assure Congressional consideration of all relevant facts without prejudgment by the Executive Branch. It is important, however, that Congress have all of the facts.

As fully discussed hereinbefore in Parts III and VII of this report, the Committee believes that augmentation of the flow of the Colorado River by some means is essential to the success of the Central Arizona Project and to the continued economic wellbeing of the Southwest.

The significance of the 2.5 million acre-feet figure is that the flow of the mainstream Colorado River below Lee Ferry must be augmented by that amount of water in order for the Lower Basin States to be assured of getting the full 7.5 million acre-feet of mainstream water apportioned to them by the Colorado River Compact, when Upper Basin depletions reduce the flow at Lee Ferry to the allowable annual average of 7.5 million acre-feet.

Section 202

Section 202 deals with the Mexican Treaty water burden from Colorado River and is a key provision in this legislation. It declares that satisfaction of the requirements of the Treaty constitutes a national obligation which shall be the first priority of any augmentation program.

The Mexican Treaty was entered into in 1944 by the Federal government as part of a settlement also involving the Rio Grande River and in the interest of international comity. This burden was imposed on the water supply of the Colorado River and is, in the opinion of the Committee, properly a national obligation. Justification for the Committee's position is discussed in Part VIII of this report.

The language of Section 202 provides that both the Upper Basin and the Lower Basin are relieved of the obligation imposed by Article

III(c) of the Colorado River Compact, which covers deliveries of water to Mexico, but only at such time as the Secretary determines and proclaims that means are available and are in operation capable of delivering annually into the Colorado River or its tributaries sufficient water to satisfy the Mexican Treaty water requirements together with associated losses. The studies to determine the means of supplying this water are provided in Section 201, but the necessary works cannot be undertaken until authorized by the Congress.

Section 203

Section 203 protects the States or areas of origin in the event a plan is prepared for inter-basin diversions into the Colorado River system. The Secretary is directed to include in the plan provisions that assure water supplies that are adequate to satisfy the ultimate requirements of the areas of origin at prices that are not affected adversely by the exportation of water to the Colorado River. For example, if the exportation of water caused the potential water users in the areas of origin to look to more expensive sources or methods of supply, the additional cost would have to be met either from one of the two development funds established in the Colorado River Basin or from other Federal revenues.

The section also protects the areas of origin by giving their future requirements for water a priority in perpetuity over the users of waters that are diverted from the basin, even though the diverted waters are put to a prior consumptive use.

Section 204

Section 204 requires annual reports to be made covering the progress made on the investigations and reports authorized by the bill.

Section 205

Section 205 authorizes the appropriation of the funds that are necessary to carry out the provisions of Title II.

TITLE III—AUTHORIZED UNITS: PROTECTION OF EXISTING USES

Section 301

Subsection (a) authorizes the construction of the Central Arizona Project including the Hooker dam and reservoir in New Mexico or suitable alternative. The elements of the Project have been described in Part X of this report.

The Hooker dam project is included in this legislation to provide the storage necessary for downstream flood protection and to permit New Mexico to use at least 18,000 acre-feet of water over and above the amount in the decree in *Arizona* v. *California*. The present Hooker dam plan is based on reconnaissance studies many years old. The studies need to be up-dated giving consideration to all new and pertinent information presented during the Committee's hearings. The flexibility needed for modifying the plan on the basis of the further studies is provided by the inclusion in the legislation of the words "or suitable alternative" following the language which authorizes Hooker dam and reservoir. In restudying this feature, the Secretary should give consideration to all the usual factors that go into determining the most feasible development. In this instance, particular attention should be given to the matter of water loss due to

evaporation and the fact that the present proposal involves a minor intrusion into the Gila wilderness area.

Subsections (b) and (c) establish a shortage formula which assures California 4.4 million acre-feet ahead of the Central Arizona Project in any year in which the water supply of the Colorado River is not adequate to provide 7.5 m.a.f. of mainstream consumptive use in the Lower Basin and to satisfy the Mexican Treaty obligation. This formula applies to all uses in Arizona, California, and Nevada under present perfected rights (which means rights existing as of June 25, 1929, the effective date of the Boulder Canyon Project Act), under existing contracts with the United States, and existing Federal Reservation rights.

In any year in which there is insufficient main stream Colorado River water available to satisfy annual consumptive use of 7,500,000 acre-feet in Arizona, California, and Nevada, diversions for the Central Arizona Project shall be so limited as to assure the availability of water to meet present perfected rights and other uses in Arizona, California, and Nevada, including existing Federal reservations, with a limitation of 4,400,000 acre-feet on California uses. Water users in the State of Nevada will not have to bear shortages in any proportion greater than would have been imposed in the absence of this section. The relative priorities, among themselves, of the water users in the three States whose rights are senior to diversions for the Central Arizona unit will not be affected by the provisions of this section.

The effect of the limitation on California imposed by section 4(a) of the Boulder Canyon Project Act is to require California to bear the first impact of any shortage which reduces the water supply from the main stream of the Colorado River for the three States to 7.5 million acre-feet. There are existing projects in California designed and built to use 5.4 million acre-feet in anticipation of the availability of 1 million acre-feet of surplus water, and the projects have actually used 5.1 million acre-feet. Thus, California would have to give up 700,000 acre-feet of existing uses when the main stream supply shrinks to 7.5 million acre-feet, and Arizona and Nevada require their full decreed rights. The effect of this section of the legislation is that if the supply of main stream water drops below 7.5 million acre-feet, the next impact of shortage will have to be borne by the Central Arizona Project. Under this condition diversions for the Central Arizona Project would have to be reduced to the extent necessary to assure the availability of water for use in Arizona, California, and Nevada by holders of present perfected rights and for meeting commitments to other users served under existing contracts with the United States, with the protection to California limited, however, to 4.4 million acre-feet.

The provisions in subsection (b) have the effect of implementing Article II B(3) of the decree of the Supreme Court in *Arizona* v. *California* which deals with shortages in the 7.5 million acre-feet apportioned by the Supreme Court. Article II B(3) directs the Secretary to first satisfy perfected rights and to allocate the remaining available water in accordance with applicable law. This section writes the applicable law which the Secretary would have to follow.

Under the provisions of subsection (c) the limitation on the Central Arizona Project diversions stated in subsection (b) will be inapplicable in any year that the Secretary determines and proclaims that

means are available and in operation to augment the water supply of the Colorado River System so as to provide annual consumptive use of 7.5 million acre-feet of mainstream water to Arizona, California, and Nevada users.

A priority for present California uses, up to 4.4 million acre-feet per year, over new uses for the Central Arizona Project, has been one of the major stumbling blocks in this and prior bills. If the flow of the River is eventually augmented, as a result of the studies authorized in Title II, the problem will become academic. If the augmentation does not occur, however, the decreased amount of water estimated to be in the River for use in the Lower Basin will curtail the water supply for the Central Arizona Project.

Section 302

Section 302 provides for the acquisition of the Indian lands or interests therein that are needed for the Orme dam and reservoir. The acquisition will be by negotiated agreement, if possible; otherwise, it will be by condemnation. The Indians will be paid the fair market value of the lands or interests acquired.

The section permits the Secretary of the Interior to acquire either fee title to a tract of land or an easement in the land, whichever is needed.

The value of the land is estimated to be between $1,000 and $2,000 per acre. On the basis of a possible taking up to 15,000 acres, the estimated maximum cost would be $30,000,000. The actual cost could, of course, be less than half this amount. There are about 300 persons in the Tribe, including both adults and children, who will receive the benefit of the payment.

In addition to payment of the full value of the land or easement acquired, the section provides for the following special benefits:

(1) The Secretary of the Interior is directed to add to the Fort McDowell Reservation 2500 acres of Federal land in the vicinity of the Reservation that are under the jurisdiction of the Secretary of the Interior. This land has a lower estimated value per acre than the land to be taken by the government. The 2500 acres are now in the Tonto National Forest, but will be transferred to the Department of the Interior for this purpose by public land order. The Secretary of the Interior will provide substitute lands for the Forest Service by exchanging public lands for inholdings in the various Arizona National Forests and transferring the exchanged lands to the Secretary of Agriculture.

The 2500 acres are to be added to the Indian reservation because the Federal taking for the Orme dam and reservoir will involve between 12,000 and 15,000 acres, out of a reservation of 24,680 acres. Some substitute lands are needed to maintain an adequate land base for the reservation.

(2) The Indians will retain the right to use the land taken by the United States, or to lease it, for any purpose that is not inconsistent with the operation of the Federal project. This will permit use of the land for grazing, for example, when it is not actually under water. It will also permit the extraction of minerals, if any, to the extent operation of the Federal project will not be impaired. There are no known mineral values that could be extracted. The value of the mineral right retained by the Indians will be reflected in the appraisal of the

land taken by the United States, but the value of the other use rights will not be considered in the appraisal.

(3) The Secretary of the Interior is directed to offer not to exceed $500,000 toward the cost of relocating or replacing the improvements on the Fort McDowell reservation. The entire community will be required to move. The improvements consist of 53 homes with an estimated value ranging from $0 to $12,000, one tribal community building, one office building, and a water system. The latter have an estimated value of $15,000 each. The payment for replacing a home may not exceed the difference between the value of the present structure and $8,000, which is considered to be the minimum cost of an acceptable replacement home. If $8,000 were allowed for the replacement of all 53 homes, which is not expected to happen, a total of $424,000 would be used, leaving $76,000 for replacement of the community building, office building, and water system. If more costly replacements are desired by the Indians, they should provide the funds from the purchase price paid for the land taken by the government.

(4) Each of the Indian communities involved will be permitted to develop and operate recreational facilities on the Federal lands along the shoreline of the Orme Reservoir that are located on or adjacent to its reservation. Such development must be in accordance with regulations and conditions prescribed by the Secretary of the Interior, but will not be subject to the Federal Water Projects Recreation Act. (See sec. 308.)

Precedent for the foregoing special benefits is found in prior legislation providing for Federal acquisition of reservation lands needed for the Tock's Island dam project, the Oahe dam project, the Fort Randall dam project, and the Big Bend dam project. In each instance, substantial sums were provided, in addition to the fair market value of the land, as compensation for indirect damages sustained by the Indians, and for rehabilitation purposes.

The Committee believes that the special benefits provided by section 302 are reasonable and are comparable to the benefits provided for other Indian tribes.

Section 303

Section 303 directs the Secretary to continue studies and complete a plan for supplying the power requirements of the Central Arizona Project and for augmenting the Lower Colorado River Basin Fund, but such plan cannot include main stream dams on the Colorado River. The plan must be submitted to the Congress within one year after the date of this Act and, except as provided in subsection (b) of this section, it will not become effective until approved by Congress.

If included in the recommended plan, the Secretary may enter into a contract with non-Federal interests who propose to construct and own a large thermal generating power plant, under which the United States will acquire the right to the portion of the plant capacity that is needed for the Central Arizona project, estimated to be about 400 megawatts for a 2,500 cfs canal. During intermittent periods, when such power and energy are not needed for the Central Arizona Project, the Secretary may dispose of this excess power and energy at such prices as he may determine, including its marketing in conjunction with other power and energy from the Federal Colorado River System.

Under the contract, the United States will pay a portion of the construction cost based on the ratio of the plant capacity purchased by the United States to the total plant capacity. The Federal share of preconstruction costs may be made available as needed, but the Federal share of construction costs may be made available only after adequate contracts, as determined by the Secretary, have been entered into between all affected parties with respect to the construction and operation of the plant. The United States will also pay a fair share of the operation and maintenance costs, and will be given credit for the value of any interest in Federal land made available for the plant.

The proposed thermal generating powerplant will require access across and use of Federal lands for plant facilities and appurtenances and transmission lines interconnecting said plant with the project pumping plants and with the load centers of the participating non-Federal interests and customers of such non-Federal interests. The construction and operation of the thermal generating power plant is of benefit to the United States and the Committee expects that, in accordance with principles of sound land management, such access rights and use of Federal lands will be granted by the Federal agencies responsible for the administration of such lands expeditiously and without conditions not directly related to the project or with the administration of the lands so occupied so as to advance the timely construction and operation of such facilities. The United States, of course, should receive appropriate payment for the interest in Federal lands so made available.

Water for the plant, if diverted above Lee Ferry for use in Arizona, will be a charge against the 50,000 acre-feet per year entitlement which Arizona has as a State of the Upper Basin under the Upper Colorado River Basin Compact.

Section 304

Section 304 provides that Central Arizona Project water will not be made available for the irrigation of lands unless the lands have a recent irrigation history, as determined by the Secretary. This prohibition does not apply to Indian land, to national wildlife refuges, or, in the discretion of the Secretary, to State-administered wildlife areas.

Central Arizona Project water may, if the Secretary deems desirable, be supplied for irrigation, municipal, and industrial uses pursuant to master contracts with organizations that have power to levy assessments against taxable real property within their boundaries. The contracts between such organizations and water users will be subject to Secretarial approval.

Repayment contracts and water delivery contracts under Sections 9(d) and 9(e) of the Reclamation Projects Act of 1939 may be for a basic term of not more than 50 years, and may provide for the use of irrigation water for municipal and industrial purposes when it is not needed for irrigation purposes.

Central Arizona Project contracts for municipal and industrial water may be made without regard to the last sentence of Section 9(c) of the Reclamation Projects Act of 1939, which permits such contracts only if they will not impair the efficiency of the project for irrigation use.

Central Arizona Project contracts must control expansion of irrigation from aquifers affected by irrigation in the contract service area,

prevent excess conveyance losses in canals, and prohibit pumping ground water from within the service area to a point outside the service area unless surplus ground water exists and drainage is required.

Central Arizona Project contracts may require a contractor to accept main stream water in exchange for or in replacement of other supplies. In times of shortage, however, contractors who have yielded water from other sources in exchange for main stream water will have a priority over other main stream users to the extent of the quantities of water yielded.

The committee recognizes that certain water rights on the Salt and Gila River systems, with which exchanges are contemplated, have never been adjudicated as to their legality and their dates of priority in relation to the rights of other water users. It is anticipated that a complete adjudication of all such rights will be effected before valid and meaningful exchange arrangements may be negotiated between the Secretary and the prospective upstream beneficiaries of exchange agreements.

The Secretary may, by contract, permit the consumptive use in New Mexico of not to exceed an average of 18,000 acre-feet per year of water from the Gila River. Such use will be in addition to the New Mexico entitlement to Gila River water under *Arizona* v. *California*, and will be charged to the Arizona entitlement of 2.8 million acre-feet of Colorado River water. Such use will be permitted however, only as long as other Colorado River water is available in sufficient quantities to replace any diminution of supply in Arizona resulting from diversions from the Gila in New Mexico.

When, through augmentation, water is available from the main stream of the Colorado River to permit consumptive uses in Arizona in excess of 2.8 million acre-feet per year, the Secretary may, to the extent of the excess, permit the additional use in New Mexico of an average of 30,000 acre-feet per year from Gila River water.

Both the 18,000 and the 30,000 acre-feet uses in New Mexico, if they should materialize, would be junior to all existing rights to Gila River water. In both cases the diminished water supply for use in Arizona that is caused by the diversions from the Gila in New Mexico would be replaced by Colorado River water. The 18,000 acre-feet would come out of the Arizona entitlement from the mainstream of the Colorado River, while the 30,000 acre-feet would come from the augmented water supply in the River only after 2.8 million acre-feet is made available for consumptive use in Arizona to provide for both exchanges.

Section 305

Section 305 provides that if the flow of the Colorado River is augmented in order to make possible the annual consumptive use of 2.8 million acre-feet in Arizona, 4.4 million acre-feet in California, and 300,000 acre-feet in Nevada, the water made available by augmentation, within the limits of the figures mentioned, will be furnished to users at the same cost and on the same terms that would have applied if mainstream water had been available. This cost provision is limited to the extent the deficiencies can be offset by the financial assistance available from the development fund established by Section 403 after taking into account a nonreimbursable allocation to the replenishment of deficiencies occasioned by satisfaction of the Mexican Treaty burden.

Section 306

Section 306 directs the Secretary to undertake programs for water salvage and ground water recovery along the main stream of the Colorado River, to the extent they are reasonably consistent with the maintenance of fish and wildlife habitat in the area.

Section 307

This section reauthorizes the Dixie Project in Utah and provides for its financial integration into the Colorado River Basin Project. Changes in the Dixie Project plan of development have resulted in increased costs, and the appropriation authorization for the project is therefore increased by this section from $42,700,000 to $58,000,000. Financial integration of the project into the Colorado River Basin Project will permit it to participate in the Lower Colorado River Basin Development Fund established by Title IV.

Section 308

This section provides for the conservation and development of fish and wildlife resources and for the development of recreational opportunities in accordance with the Federal Water Projects Recreation Act. This is a standard provision carried in all recent water project authorizations. The recreation development by the Fort McDowell Indians authorized in Section 302, is exempt from the provisions of this section.

Section 309

This section limits the appropriation authorization for construction of the Central Arizona Project to $779,000,000, subject to adjustment to reflect changes in price indices. This amount includes prepayment for entitlement to electric plant capacity and for entitlement to related transmission capacities. The appropriation authorization for construction of distribution and drainage facilities for non-Indian lands is limited to $100,000,000. The latter appropriation and the revenues from the operation of the distribution and drainage facilities will not be credited to the Lower Colorado River Basin Fund since these facilities, if constructed or financed by the Federal government, will be handled by separate contracts on a fully reimbursable basis.

Title IV—Lower River Basin Development Fund: Allocation and Repayment of Costs: Contracts

Section 401

This section requires the cost of constructing each Lower Basin unit of the Project, upon completion, to be allocated to the multiple purposes served by the Project. Allocation will be in accordance with Federal Reclamation Laws and the Federal Water Projects Recreation Act, except that costs allocated to recreation and fish and wildlife enhancement for the Dixie Project are made nonreimbursable as provided in the original Dixie Project authorization Act. In addition, an appropriate portion of the total construction cost is to be allocated to the replenishment of the Colorado River flows required in performance of the Mexican Water Treaty. These replenishment costs, including also operation and maintenance expenses, are made nonreimbursable because the cost of performing the Mexican Water Treaty is made a national obligation by Section 202. The Treaty costs

include replenishment of those losses in transit, evaporation from regulatory reservoirs, and regulatory losses at the Mexican boundary which are associated with the Treaty obligation. It should be understood that these replenishment costs are, in fact, the costs of augmenting the Colorado River by an amount necessary to satisfy the Treaty obligation. Thus, any allocation under this authority must await the authorization of augmentation works by the Congress and the construction of such works.

Section 402

This section provides that the costs allocated to the irrigation of Indian lands, and which are beyond the repayment capability of the lands, will be nonreimbursable. Costs that are within the repayment capability of the lands are reimbursable, but collection is deferred as long as the land remain in Indian ownership in accordance with the provisions of the Leavitt Act. The Leavitt Act applies automatically to all strictly Indian projects, but must be made applicable by specific provision when Indian lands are irrigated by a non-Indian irrigation project.

Section 403

This section establishes a Lower Colorado River Basin Fund into which will be paid:

(1) All appropriations for the Central Arizona Project and the Dixie Project as authorized by Title III;

(2) All revenues from the operation of the Central Arizona Project and the Dixie Project (except entrance and recreation user fees, which will continue to be governed by existing law), including revenues after payout of the projects;

(3) All revenues from the Boulder Canyon and Parker-Davis Projects which are surplus, after repayment obligations of these projects have been met. In lieu-of-tax payments of $300,000 to each of the States of Arizona and Nevada are required to be continued, however, as long as revenues accrue from operation of the Boulder Canyon Project. Without this provision the payments would terminate in 1987;

(4) All revenues from the portion of the Pacific Northwest-Pacific Southwest intertie located in Nevada and Arizona which are surplus, after applicable repayment obligations have been met.

Appropriations for construction of the Central Arizona Project and the Dixie Project that are credited to the fund are to be used for that purpose. Other revenues credited to the fund, however, may not be used for construction of the Central Arizona Project or any other project until approved by Congress.

Revenues in the fund derived from the Central Arizona Project and the Dixie Project and the surplus revenues in the fund derived from the portion of the intertie in Nevada and Arizona, and the surplus revenues in the fund derived from the sale of Boulder Canyon and Parker-Davis power and energy for use in Arizona, may be used without further appropriation (1) for operation and maintenance of the Central Arizona Project and the Dixie Project (subject to any limitation that may be imposed by annual appropriation Acts), and (2) for payment to water users in Arizona to compensate them for losses sustained as a result of diminution of the production of hydroelectric power at Coolidge Dam, caused by exchanges of water between

users in Arizona and New Mexico under Section 304(f), which relates to the diversion of 18,000 acre-feet of Gila River water in New Mexico. This latter payment is not expected to exceed $5,000 annually.

The revenues referred to in the preceding paragraph that are not used for the two purposes specified must be transferred annually, pursuant to subsection (f), to the General Fund of the Treasury to the extent they are needed to return within 50 years, exclusive of any authorized development period, the costs of the Central Arizona Project and the Dixie Project that are allocated to irrigation, commercial power, or municipal and industrial water supply, plus interest on the unamortized balance of the investment in the commercial power and municipal and industrial water supply features of the projects. However, in the case of the Dixie Project, repayment, to the extent it is not covered by Dixie Project revenues, shall be made only after payout of the Central Arizona Project. The Dixie Project costs, which exceed Dixie Project revenues, also may be repaid pursuant to subsection (g) of this section.

In accordance with subsection (g), all revenues in the fund that are not used or usable in the manner explained in the preceding two paragraphs will be available, without further appropriation, to reimburse the Upper Colorado River Basin Fund as required by Section 502, and, if needed, to help finance the Dixie Project (see Section 307), and, upon appropriation by Congress, to assist in the repayment of reimbursable costs incurred in connection with future projects to augment the water supplies of the Colorado River.

A financially sound development fund is critical to the success of an augmentation program and to resolution of the controversy over the sharing of water shortages in the Lower Basin. Notwithstanding the nonreimbursable allocation to the Mexican Water Treaty, a substantial amount of money will be required in the development fund to provide the financial assistance necessary to assure that augmentation water required to provide the full 7.5 million acre-feet apportioned among the Lower Basin States by the United States Supreme Court in *Arizona* v. *California* will be available at the same costs as the natural supply of the Colorado River. Unless this is accomplished, augmentation would do no more than shift the controversy from a struggle over who must bear the shortage to one of who must stand the cost of the augmentation water.

The interest rate required by this section will be based on the average rate payable by the Treasury on outstanding fifteen year or longer obligations; i.e., the coupon rate rather than the yield rate. This is the formula used by Congress in most water resource projects authorized in recent years.

Business-type budgets are required to be submitted to Congress annually for all operations financed from the fund.

Section 404

This section requires the Secretary to submit to Congress on a fiscal year basis reports showing the status of the cost of constructing, operating, and maintaining each Lower Basin project and unit and the status of revenues received. The report must show the investment allocated to each purpose, the up-to-date status of repayment, and the estimated return necessary to accomplish full repayment under the provisions of this Act.

Title V—Upper Colorado River Basin Authorizations and Reimbursements

Section 501

This section authorizes the construction of the Animas-La Plata, Dolores, Dallas Creek, West Divide, and San Miguel projects in the Upper Colorado River Basin as participating projects under the Colorado River Storage Project Act. The five projects will cost a total of $392,000,000 and are briefly described in Part X of this report. It also conditionally authorizes the Uintah unit of the Central Utah Project, subject to submission of a planning report to the Congress, certification as to its physical and financial feasibility, and authorization of appropriations for its construction.

This section also deletes, adds, and changes the nomenclature of certain projects in the planning section of the Colorado River Storage Project Act, with a deadline set for completion of the planning report for the Ute Indian Unit in Utah.

The Secretary is directed to proceed with the construction of the five projects authorized for the Upper Basin under a time schedule that will permit them to be completed by the time water is first delivered from the Central Arizona Project, but an appropriate repayment contract must be executed before construction on a project may commence. Furthermore, the Animas-La Plata project may not be started until Colorado and New Mexico have ratified a compact which makes the right to divert and store in Colorado and New Mexico project water for use in New Mexico, equal in priority to the right to use project water in Colorado, provided the New Mexico uses are within the New Mexico entitlement under the Upper Colorado River Basin Compact. The consent of Congress is given to the compact, the language of which is set out in this section.

The 160-acre excess lands provision of the Federal Reclamation Laws is modified to mean 160 acres of Class 1 land or the equivalent in other land classes, insofar as the five Upper Basin projects and the Seedskadee project (already authorized) are concerned.

In the administration of projects authorized by this Act or by the Colorado River Storage Project Act that are within or for the sole benefit of Colorado, the Secretary is required to comply with the laws of Colorado with respect to priority of appropriation and with respect to Federal and State Court decrees entered pursuant to such laws, in the diversion and storage of water. The Committee understands this requirement to mean that diversion and storage rights for these projects will be junior to existing rights recognized under Colorado law. This is merely a reaffirmation of the rule of law that would apply in any event. The Secretary is also directed to obtain the approval of the State of Colorado to any operating principles he may decide to adopt for these projects. The Secretary is not required, however, to adopt any operating principles. The Committee does not intend this language to interfere with the executive discretion of the Secretary in contracting for the sale and distribution of water.

Subsection (f) has been included in the legislation in order to give congressional interpretation to the meaning of the words "any western slope appropriations" that appear in paragraph (i) of the section of Senate Document No. 80, 75th Congress, 1st session, entitled "Manner of Operation of Project Facilities and Auxiliary Features." The

meaning of these words which this subsection approves is the same as that approved by the Colorado Water Conservation Board. The section of Senate Document No. 80 referred to provides for three principal water components of the Colorado—Big Thompson Federal reclamation project; namely, for diversion of water to the eastern slope of Colorado, for storage of replacement water, and for storage of water for use in western Colorado. The replacement water (52,000 acre-feet) and water for use in western Colorado (100,000 acre-feet) are stored in Green Mountain Reservoir in western Colorado.

The last sentence of paragraph (g) of the particular section of Senate Document No. 80 in question says:

> The 100,000 acre-feet of storage in said reservoir shall be considered to have the same date of priority of appropriation as that for water diverted or stored for transmountain diversion.

This quoted sentence is subsequently qualified by paragraph (i) of the same section which, with reference to the Colorado River Compact, states, in part, as follows:

> Notwithstanding the relative priorities specified in paragraph (g) herein, if an obligation is created under said compact to augment the supply of water from the State of Colorado to satisfy the provisions of said compact, the diversion for the benefit of the eastern slope shall be discontinued in advance of any western slope appropriations.

The Committee was informed that there has been considerable misunderstanding within the State of Colorado as to the effect of the additional projects herein authorized when viewed in the light of the above-quoted provisions of Senate Document No. 80. Although the misunderstandings may be less real than they appear, the Committee agrees to resolving the matter by approving the interpretation of the words "any western slope appropriations" to mean and refer to the appropriation heretofore made for storage in Green Mountain Reservoir on the western slope of Colorado. It is the view of the Committee that any other interpretation would interfere with water rights vested by law in prior appropriators, and that the approved interpretation defines and observes the purpose of said paragraph (i) of Senate Document No. 80, and does not, in any way, affect or alter any rights or obligations arising under Senate Document No. 80 or under the laws of the State of Colorado.

Section 502

Section 502 deals with the financial problems created by the filling of Lake Powell and the resulting impairment of firm power production at Hoover Dam. Substantial payments have already been made out of the Upper Colorado River Basin Fund to compensate Hoover Dam power contractors for deficiencies in power generation at Hoover Dam and additional payments may have to be made in the future under the Glen Canyon filling criteria.

Section 502 provides for the repayment of actual money expended heretofore or hereafter out of the Upper Colorado River Basin fund, pursuant to the 1962 Glen Canyon filling criteria. This is to be accomplished by transferring $500,000 each year to the Upper Basin Fund from the Colorado River Development Fund created by the Boulder

Canyon Project Adjustment Act of 1940, commencing with the enactment of this Act. This 1940 Fund now receives $500,000 per year from Hoover Dam power revenues earmarked for use in the construction of projects and will continue to do so under existing law until 1987. The effect of section 502 is to earmark that same amount ($500,000) for transfer to the Upper Basin Fund instead. If any deficit in reimbursement of the Upper Colorado River Basin Fund exists after 1987 the remaining deficiency is to be paid out of the new Lower Colorado River Basin Development Fund which is established by Title IV of this Act.

Title VI—General Provisions: Definitions: Conditions

Long and arduous negotiations preceded the adoption of the language in Title VI relating to the reservoir operating criteria for Hoover and Glen Canyon dams. These negotiations involved interests in the three Lower Division States and the four Upper Division States of the Colorado River Basin in consultation with technical and legal representatives of the Department of the Interior. The agreement reached is a step toward finally settling the disputes which have existed between the two basins, and constitutes an Act of statesmanship which is to be highly commended.

The language expressed in Title VI, in the opinion of the Committee, constitutes a fair and reasonable solution to the problem of protecting the future water resource development of the four Upper Division States, and also providing for the use of the water in the Lower Division States until the water is required upstream. This should result in the greatest beneficial use of the available water.

Section 601

This section disclaims any intention to change in any way the Colorado River Compact, the Upper Colorado River Basin Compact, the Mexican Water Treaty, or the Supreme Court decision in *Arizona* v. *California*. Likewise, except as provided in this legislation, there is no intention to change the Boulder Canyon Project Act, the Boulder Canyon Project Adjustment Act, or the Colorado River Storage Project Act.

The Secretary is directed to make reports at five-year intervals showing consumptive uses and losses from the Colorado River system, and to condition all contracts for the delivery of water originating in the drainage basin of the Colorado River upon the availability of water under the Colorado River Compact. While the reports would have to be submitted only every five years, starting October 1, 1970, the information on consumptive uses and losses would be on an annual basis. The importance of this provision is underscored by the fact that the Central Arizona Project will be able to operate at full capacity only by using temporarily water that is apportioned to the Upper Basin but which is presently not used there. As Upper Basin development progresses there will come a time when this water will no longer be available for use in the Lower Basin, and operations of the Central Arizona Project will need to be reduced unless the flow of the river below Lee Ferry is augmented. This time is expected to arrive about 1985 to 1995. The Upper Basin, therefore, insists and is entitled to a clear statement of its right to recapture its waters when needed.

While the Committee hopes that some practical method of augmentation can be found, it is satisfied from the testimony of witnesses

that the Central Arizona Project is economically feasible even if the river flow is not augmented and the Project water supply is ultimately curtailed.

Under the terms of subsection (c) any affected State may institute suit in the United States Supreme Court, and the United States may be joined as a party, in the event that any Federal officer or agency fails to comply with the provisions of the Act or with the laws, treaty, interstate compacts, and court decree named in subsection (a) of this section. The Committee understands that this subsection relates to the storage and release of water from all Federal reservoirs and to the operation and maintenance of all Federal facilities in the Colorado River system, including any Federal works that may be subsequently authorized for construction for the augmentation of the water supply in any part of the Colorado River system from sources outside the drainage area of that system.

Section 602

Storage in Lake Powell is the key to whether the Upper Division States can deliver water at Lee Ferry as required by Articles III(c) and III(d) of the Compact without curtailment of Upper Basin consumptive uses. If there is no water storage in Lake Powell to make the required releases during periods of drought, it is possible that Upper Basin consumptive uses would have to be curtailed in order to discharge the Compact obligations. The greater the storage in Lake Powell, the less likelihood there will be of this happening. On the other hand, if too much water is withheld in Lake Powell on the ground that it is necessary for later discharge of Upper Basin compact obligations the possibility of spill and denial of use in the Lower Basin is increased. The language of Title VI, implementing operations under the Colorado River Compact, is intended to establish a commonsense balance between the right of the Upper Division States to store water to meet future delivery requirements under the Compact and the Lower Basin's right under Article III(e) of the Compact to demand the release of water stored in the Upper Basin to meet Lower Basin consumptive uses.

Section 602 directs the Secretary of the Interior, in consultation with the official representatives of each of the seven Colorado River Basin States and with affected contractual interests, to promulgate equitable criteria for the coordinated long-range operation of reservoirs constructed under the authority of this Act, the Colorado River Storage Project Act, and the Boulder Canyon Project Act. It sets forth the broad objectives to be attained by such criteria and outlines, in broad terms, guiding policies to be followed. It also sets forth specific and detailed provisions to be incorporated in the criteria.

The criteria required by section 602 must be adopted by the Secretary not later than July 1, 1970, and he must report annually, beginning January 1, 1972, to the Congress and to the Governors of the Colorado River Basin States with respect to operation under these adopted criteria. To the extent that it is possible to foresee, reservoir operations under section 602 will not be inconsistent with reservoir operations permitted under the Glen Canyon filling criteria promulgated by the Secretary of the Interior and printed in the Federal Register on July 19, 1962 (27 F.R. 6851). Thus, it is expected that the criteria established pursuant to this section will permit the filling criteria to be continued until terminated at some later date. No change

in the manner of determining deficiencies in Hoover generation during the remainder of the filling period is anticipated, but the matter of payments for such deficiencies will be governed by section 502 of this Act.

With respect to the procedure for establishing the criteria required by subsection (a), it is the intention of the language approved by the Committee that such criteria be prepared and reviewed each year after an exchange of views (1) with State entities designated as official in the field of water resource development either by State law or by the Governor of the State; (2) with representatives of interstate compact commissions primarily concerned with administration of the waters of either the Upper or Lower Basins; and (3) with parties to contracts with the Federal government that may be affected by the criteria.

The section specifies that in the preparation of the reservoir operating criteria, and in their execution, certain priorities shall govern the storage of water in reservoirs of the Colorado River Storage Project and releases of water to the Lower Basin at Glen Canyon Dam. The first priority, set out in clause (1), is for the release of water to satisfy one-half the deficiency in deliveries of water to Mexico as described in Article III(c) of the Colorado River Compact, if such deficiency exists and is chargeable to the Upper Basin States. This priority for releasing water at Glen Canyon Dam shall not apply in any year that the Secretary, pursuant to section 202 of this Act, proclaims that means are available and are in operation capable of delivering annually into the Colorado River or its tributaries sufficient water to satisfy the Mexican Treaty water requirements together with associated losses.

The Committee is fully cognizant of the fact that witnesses from the Upper Basin and from the Lower Basin differed with respect to the impact of the Mexican Treaty water burden on the two basins. The Committee, therefore, realizes that if the river is not augmented to the extent necessary to meet the Treaty requirements the question of the magnitude of the Upper Division States' share of the Mexican Treaty water deficiency burden remains unresolved and may have to be settled by litigation should curtailment of water resource development in the Upper Basin be threatened.

The second priority, set out in clause (2), for release of water from Lake Powell is to deliver at Lee Ferry 75 million acre-feet in every period of 10 consecutive years under Article III(d) of the Colorado River Compact. If the Upper Division States arrange for a delivery of water into the Colorado River below Lee Ferry from sources outside the Colorado River system, this water is to be credited to the States of the Upper Division which then, by exchange, can consume an equal amount of Colorado River water.

A third priority is given to the storage of water to enable the States of the Upper Division to meet their compact obligations without impairing consumptive uses in the Upper Basin. The langauge in the first part of clause (3) provides that water not required to be released each year to fulfill the priorities relating to the Mexican Treaty burden and delivery of 75 million acre-feet every 10 years shall be stored in Upper Basin reservoirs to the extent that the Secretary shall find to be necessary to assure long-term deliveries of water at Lee Ferry for these same purposes without impairing present or contemplated

consumptive uses of water within the Compact apportionment to the Upper Division States. In determining the extent to which water must be stored for those purposes, the Secretary is required to consult with the Upper Colorado River Commission and representatives of the three Lower Division States and to take into consideration all factors pertinent to an hydrologic analysis of the water supply situation, including historic streamflows, the most critical period for which water records are available, and probabilities of water supply under recognized statistical procedures. This procedure is consistent with the intent of the Colorado River Storage Project Act, and the Committee believes that it can be complied with and still provide the Secretary the necessary latitude in determining the extent of storage reasonably required.

As the Upper Basin depletions increase with time, the controlling critical periods will lengthen and the required amounts of carryover storage will increase. It is recognized that the establishment of requirements for carry-over storage cannot be based on critical period considerations alone, but that probabilities of water supply also must be considered. Also, the production of power and energy is a relevant factor that must be considered if the financial feasibility of Federal developments in the Colorado River Basin is to be assured.

The Committee understands that the language of the proviso in clause (3) establishes specific criteria for the release of water available in excess of Compact III (c) and (d) requirements and water required to be stored as provided in clauses (1), (2), and the first part of (3). Before discussing the operating criteria of clause (3), it should be pointed out that during prolonged periods of low runoff there would be no available excess water and hence these criteria would not be applicable. During periods of high runoff and high storage content the problems of reservoir operation dealt with in clause (3) are not critical and their application would not be of major significance. Thus, it is within the intermediate ranges of runoff and storage content that the criteria specified are particularly meaningful.

The language of the proviso in clause (3) embodies three specific operating criteria. The first listed criterion (i) provides that if water excess to the requirements of clauses (1) and (2) and the first part of (3) is determined to be available, it shall be released from Lake Powell to the extent that it can be reasonably applied in the Lower Division States to the domestic and agricultural uses specified in Article III(e) of the Colorado River Compact, but no such releases of water will be made from Lake Powell when the active storage therein is less than the active storage in Lake Mead.

The second listed criterion (ii) has as its objective the distribution of available excess water in a manner that will equalize as nearly as practicable active storage in Lake Mead and Lake Powell. The Committee believes that the policy, herein established, of maintaining so far as possible equal active storage in Lake Powell and Lake Mead is consistent with good operating practice and is fair and equitable to both the Upper and Lower Basins. The Committee was advised that although there may be conditions where it would be desirable and advantageous to operate over a limited period of time in a manner different than that specified in criterion (ii), particularly when both Lake Powell and Lake Mead have substantial reserves of storage, any problem caused by application of this criterion is not regarded as serious.

The third listed criterion (iii), to avoid spilling water from Lake Powell, is obviously consistent with good river management.

Subsection (c) of section 602 directs that section 7 of the Colorado River Storage Project Act (70 Stat. 109), which relates to power production, be administered in accordance with the criteria set out in this section. This provision is appropriate and necessary, in the view of the Committee, in order to assure consistent power operations at all Federal reservoirs on the Colorado River, and to emphasize the point that the production of hydroelectric energy is a relevant factor that must be considered if the financial feasibility of Federal water resource developments in the Colorado River Basin is to be reasonably assured, as hereinbefore indicated.

The Committee believes that the inclusion of the reservoir operating criteria of section 602 not only will prevent a recurrence of the misunderstandings that were manifest in the basin at the time the Secretary initiated the filling of Colorado River Storage Project reservoirs, but also will constitute a major contribution to more efficient and reasonable river management. The Committee regards the operating criteria of this section as being fully consistent with the terms of the Colorado River Compact, including Article III (e) thereof. The Committee wishes to emphasize that the language in this section is not an attempt to interpret Article III(e) of the Colorado River Compact; it simply places qualifications upon operations under Article III(e). The successful negotiations between Upper and Lower Basin representatives which produced these guidelines for the Secretary to follow in operating Federal reservoirs under Article III (e) in the Colorado River Basin may preclude costly litigation in the future.

Section 603

This section is included in the legislation in order to further protect the rights of the Upper Basin to the consumptive use of water apportioned to it from the Colorado River system by the Colorado River Compact against any claims to the use of that water over either a short-term or long-term by water users in the Lower Colorado River Basin. The Committee wants it to be clearly understood that the right of the Upper Basin States to fully utilize the water apportioned by the Compact to the Upper Basin shall not be diminished, reduced or prejudiced by the temporary use in the Lower Basin of presently apportioned but unused upper basin waters.

Subsection (b) disclaims any intention to change in any way the duties and powers of the Upper Colorado River Commission.

Section 604

Section 604 is a statement of policy that, except as provided in this legislation, the Secretary, in constructing, operating, and maintaining the units of the Colorado River Basin project authorized in this Act or to be authorized as units of said project in subsequent legislation, is governed by general Federal Reclamation Laws, including the excess lands provisions thereof, and that this legislation upon enactment shall be a supplement to the Reclamation Laws.

Section 605

This section makes Part I of the Federal Power Act inapplicable to the Colorado River between Hoover Dam and Glen Canyon Dam unless otherwise provided by Congress. This reserves to the Congress

the ultimate decision concerning the wisest use or combination of uses of the water and land resources of this part of the river. One immediate effect of the section is to preclude the issuance of a FPC license to develop the Marble Canyon or the Hualapai damsites. The Committee feels that, in view of the conflicting interests involved, any decisions with respect to development on this stretch of the river should be made by the Congress rather than the Federal Power Commission.

Section 606

This section defines the terms used in this legislation. Of particular significance is the fact that all terms used in this legislation that are defined in the Colorado River Compact will retain the meanings expressed in the Compact. Also of significance is the definition of "augment" or "augmentation"; these words mean the introduction of new water into the river system which is in addition to the natural supply of the system. The Committee wants it clearly understood that the definitions apply only to the usage of the terms in this legislation.

XIII. DEPARTMENTAL REPORT

The report of the Department of the Interior on H.R. 3300 follows:

U.S. DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D.C., February 15, 1967.

Hon. WAYNE N. ASPINALL,
Chairman, Committee on Interior and Insular Affairs, House of Representatives, Washington, D.C.

DEAR MR. CHAIRMAN: This responds to your request for a report on H.R. 3300, a bill to authorize the construction, operation, and maintenance of the Colorado River Basin project, and for other purposes.

With two important exceptions, the bill is patterned after H.R. 4671, 89th Congress, which was extensively considered and, with modifications, favorably reported by your Committee on August 11, 1966 (H. Rep. No. 1849, 89th Cong., 2nd sess.). The two differences are: the Marble Canyon unit is eliminated, and the Secretary of the Interior would be directed to make a reconnaissance grade investigation of projects to augment the flow of the main stream Colorado River below Lee Ferry by a minimum of 2,500,000 acre-feet annually, by imports from sources outside the Colorado River Basin. H.R. 4671, as reported, called for a feasibility report as well. References hereafter to H.R. 4671 are, except as otherwise note, to that measure as reported.

The basic objectives of the first four titles of H.R. 3300 are twofold—to authorize the Central Arizona project thereby enabling Arizona to use its entitlement of Colorado River water, and, at the same time, to lay the framework for a sound and lasting solution for the Colorado River Basin's long-range water supply.

With these objectives, the Department and the Administration are in full accord.

The Administration is committed to the authorization of the Central Arizona project. If the State of Arizona is to put to use its entitlement of Colorado River water as adjudicated by the Supreme Court in *Arizona* v. *California, et al.*, 373 U.S. 546 (1963), this project must

be built. The Central Arizona Project should be undertaken now in order to slow the pace at which ground water resources in the Central Arizona area are being exhausted.

Similarly, we are in agreement that studies of the long-range water supply problems of the Colorado River basin should now be initiated in order that proposed solutions may be evolved and considered in a timely fashion.

Over the past four months, in concert with the Bureau of the Budget, we have analyzed a wide variety of possible alternative approaches to the basic objectives encompassed in Titles I–IV of H.R. 3300 and its predecessor, H.R. 4671. These studies have led us to the following recommendations:

1. Authorization of the Central Arizona Project (including Hooker Dam in New Mexico) with provision for assistance in meeting repayment requirements in Arizona through (a) a $10 per acre-foot average canal-side irrigation rate, (b) a $50 per acre-foot municipal and industrial water rate, (c) a small addition to the municipal and industrial water rate, or an ad valorem tax, or a combination of the two;

2. Provision of low-cost pumping power for the Central Arizona project through prepayment for the requisite capacity and associated transmission facilities in a large, efficient thermal plant to be constructed in the southwest area by a combination of public and private utilities associated with Western Energy Supply and Transmission Associates (WEST);

3. Programs for water salvage and recovery of ground water along and adjacent to the main stream of the lower Colorado River;

4. Expansion of the Grand Canyon National Park to include the Marble Canyon site and the elimination of the latter development from the program;

5. Deferral of action on the Hualapai (Bridge Canyon) project at this time, reserving the question of disposition of the Hualapai site for future consideration by the Congress;

6. Establishment of the National Water Commission to reexamine the nation's critical water supply problems, including the Colorado River Basin, as heretofore recommended by the Administration.

The foregoing program will, we believe, provide the authorization necessary to meet the most immediate water development needs in the lower Colorado River Basin area. At the same time, the studies of the National Water Commission will provide a background of information and advice against which long-range solutions to the region's water supply problems can be effectively evolved.

The segments of the lower Colorado River that would be inundated by the Hualapai and Marble Canyon developments possess major scenic and wilderness values. Whether the benefits to be derived from construction of these projects are of sufficient importance to outweigh the retention of these areas in their present state has been one of the most vexing issues that has emerged in connection with consideration of Colorado River resource problems. After further consideration all aspects of the matter, we have concluded that the highest and best use of the Marble Canyon site is to retain it in its natural state as an addition to the existing Grand Canyon National Park.

Studies regarding the boundaries of the proposed addition to the park will be completed shortly and, as soon as possible, we shall transmit for the Committee's consideration a draft of a bill to carry out this recommendation. Pending action on it, we believe that legislation authorizing the Central Arizona project should also remove the Marble Canyon site, along with the Hualapai site hereafter discussed, from the operation of Part I of the Federal Power Act. If the necessary determinations can be completed in time, there would be no objection to including the park extension in the present legislation.

Whether hydroelectric development of the Hualapai site should also be precluded permanently need not be decided at this time. Deferment of this decision need not affect construction of the Central Arizona project since, under our recommendations, the Central Arizona unit will not depend upon a main stream Colorado River hydroelectric power development as a source of pumping power and financial assistance.

We, therefore, reiterate the recommendation made in our report of May 17, 1965, on H.R. 4671 and by the Bureau of the Budget in its report of May 10, 1965, on S. 75 and S. 1019, that consideration of the Hualapai site be deferred by the Congress pending evaluation of the issue by the National Water Commission.

In order to preserve Congressional freedom of action with respect to Hualapai, Part I of the Federal Power Act should be made inapplicable to it.

We believe that the National Water Commission should be authorized separately as provided by S. 20 which was passed by the Senate on February 6 and is before your Committee. Sections 201–205 of H.R. 3300 would also establish a Commission with similar authority.

We believe the Commission is the appropriate entity to undertake an evaluation of basic issues relative to Colorado River water supply problems. The Commission would be directed by section 3(a) of the Senate-passed bill to:

> "(1) review present and anticipated national water resource problems, making such projections of water requirements as may be necessary and identifying alternative ways of meeting these requirements—giving consideration, among other things, to conservation and more efficient use of existing supplies, increased usability by reduction of pollution, innovations to encourage the highest economic use of water, interbasin transfers, and technological advances including, but not limited to desalting, weather modification and waste water purification and reuse; (2) consider economic and social consequences of water resource development, including, for example, the impact of water resource development on regional economic growth, on institutional arrangements, and on esthetic values affecting the quality of life of the American people; and (3) advise on such specific water resource matters as may be referred to it by the President and the Water Resources Council."

Advice and guidance on these matters, all relevant to the Colorado Basin's water problems, by a disinterested and objective Commission composed of outstanding citizens should provide background of great assistance in the formulation of specific proposals. The Commission can be expected to give prompt consideration to the problems of the

Colorado River Basin. As President Johnson said in his message to the Congress on "Protecting our Natural Heritage" of January 30, 1967, in renewing his recommendation for the establishment of the Commission, "We must thoroughly explore every means for assuring an adequate supply of pure water to arid areas like the Southwest."

Under the previously proposed plan for the Central Arizona project, which envisioned provision of pumping power and financial assistance from main stream hydroelectric power developments, all reimbursable costs would have been returned through financial assistance from power sales and average rates of $10 and $50 per acre-foot for irrigation and municipal and industrial water, respectively. This $50 M&I rate included a component for irrigation assistance. Federal financing of a portion of a nonfederally owned thermal plant through prepayment for project power requirements would provide low-cost pumping power and would eliminate the necessity for financial assistance from main stream Colorado River hydroelectric projects.

Using the previously proposed average water rates, our studies estimate that under such a situation, the project cost would be repaid either by increasing the M&I rate to $56.00 per acre-foot or by assessing the project service area in Arizona with an annual ad valorem tax levy which would come to 0.6 mills per dollar of assessed valuation if Pinal, Maricopa, and Pima Counties are included. The economic benefits of the project should manifest themselves in an increase in the area's wealth which, in turn, would be reflected in a growth of the tax base. All things considered, the increase in taxes would seem to be relatively modest.

Obviously, various combinations of the two alternatives of the municipal and industrial water charge and the ad valorem levy are possible. Decisions on the actual mix should be taken only in closest consultation with the State and local people concerned. The legislation we are suggesting will provide the requisite flexibility. The average $10 per acre-foot canal-side irrigation water rate, which results in an average rate of $16 per acre-foot at the farmer's headgate, however, is not capable of substantial adjustment. It represents the average repayment ability of the water users, given other necessary costs, reasonable profit allowances and maintenance of the type of agriculture consistent with the objectives of the Federal reclamation program. Among the factors which restrict an upward thrust of the average irrigation water rate for the Central Arizona project are the restraints proposed upon the expansion of irrigation and the lack of an assurance of a continuing water supply. Consequently, we contemplate retention of the $10 rate, on the basis of current price levels.

This plan adheres to all present reclamation repayment policies. There are precedents for the use of a small M&I surcharge or ad valorem tax for irrigation repayment assistance. The Central Valley Project in California is an example of the former. The Colorado River Storage Project and the Fryingpan-Arkansas Project, both upper Colorado River Basin projects, are among the latter, as is the Garrison Diversion Project in North Dakota.

While the prepaid purchase of pumping power from a non-Federal steam-electric plant would be a departure in reclamation history, the provision of pumping power for project use is, itself, customary. There are indications that Bureau of Reclamation cooperation in a non-

Federal steamplant would be acceptable to the public and private generating utilities in the WEST organization.

Enclosed as Attachment A is a draft of bill, sections 1–7 of which would give effect to the foregoing recommendations. Additional comments on these sections of this draft are made in Attachment B, entitled "Analysis of Proposed Bill."

H.R. 3300, as did H.R. 4671, would grant California a priority for the consumptive use of 4,400,000 acre-feet of water as against diversions for the Central Arizona Project in any year in which there is less than 7,500,000 acre-feet of main stream Colorado River water available for consumptive use in the three lower basin States of Arizona, California, and Nevada. In such event, diversions for the Central Arizona project would also be curtailed in favor of existing users in Arizona and Nevada. This priority would persist until works are in operation capable of augmenting the flow of the main stream of the Colorado River below Lee Ferry by not less than 2,500,000 acre-feet annually. This interstate priority was arrived at by agreement of the States involved. Earlier, the Senate Interior and Insular Affairs Committee, in favorably reporting S. 1658 in the 88th Congress, provided a similar California priority as against the Central Arizona project, but terminating in 25 years.

We believe the questions of whether there should be a statutory priority and of its terms are primarily for resolution by the States involved and the Congress. If agreement can be reached upon an interstate priority, the Administration would offer no objection. The Bureau of Reclamation water supply studies, financial analysis and feasibility determination for the Central Arizona project have been made in the light of a priority of 4,400,000 acre-feet per annum for California uses and for existing rights and uses in Nevada and Arizona.

Payout assistance from a lower Colorado River Basin fund would not be necessary under our proposal. However, if the Congress deems it appropriate to establish such a fund at this time to provide financial assistance for other future water developments for the lower basin, we perceive no objection thereto. Presumably, such a fund would include post-amortization revenues from the existing Hoover and Parker-Davis projects, the Central Arizona project, and such other Federal dams as may be subsequently constructed in the lower basin. The most recent step by the Congress in this direction was the establishment of a Columbia Basin account by section 2 of P.L. 89–448 of June 14, 1966. In the event the Committee concludes that a lower Colorado River Basin development fund should be established at this time, we also transmit such a provision (Attachment C) for the Committee's consideration.

The following table compares the construction cost of the lower Colorado program we recommend be authorized with the cost of the construction authorizations contained in Title III of H.R. 3300:

	Administration recommendation	Title III, H.R. 3300
Hualapai (including Coconino silt retention dam)		$529,000,000
Paria silt retention dam		11,000,000
Central Arizona project	$580,000,000	580,000,000
Thermal prepay	92,000,000	
Water salvage	42,000,000	42,000,000
ish and wildlife	5,000,000	5,000,000
Total	719,000,000	1,167,000,000

H.R. 3300 would also authorize five participating projects under the Colorado River Storage Project Act, Animas-La Plata, Colorado-New Mexico and Dolores, Dallas Creek, West Divide and San Miguel in Colorado.

In transmitting the planning reports on these projects to the Congress, the Animas-La Plata and Dolores projects were recommended for immediate authorization. Deferral, pending the establishment and completion of review by the National Water Commission of related water problems, was proposed for the others. This proposed legislation would seem to be the appropriate vehicle to authorize the Animas-La Plata and Dolores projects. This could be accomplished by inclusion therein of a provision along the lines of Section 501 of H.R. 3300. In that event subsections (a) and (c) would be modified to omit the Dallas Creek, West Divide and San Miguel projects. We would also propose to eliminate what is now subsection (d) of Section 501 of H.R. 3300 (Section 501(d) of H.R. 4671) for the reasons stated last year in Commissioner Dominy's testimony. (See pp. 1343–1344, Serial 89–17, Part II, Hearings on "Lower Colorado River Basin Project.") We would offer no objection to the inclusion of provisions like Section 501 (b) and (e) of H.R. 3300. Nor would there be objection to applying the "Class 1 equivalency" concept to acreage limitations for the Animas-La Plata, Dolores and Seedskadee projects (Sec. 501(c), H.R. 3300), in view of the high altitude and relatively short growing seasons of the areas involved.

In addition to the foregoing authorization of participating projects under the Colorado River Storage Project Act, H.R. 3300 includes a number of provisions affecting Upper and Lower Colorado River Basin relationships. These provisions have largely been arrived at in the course of interbasin discussions and Congressional consideration of earlier Colorado River bills. There is no objection to inclusion of the substance of these provisions in this legislation and the attached draft bill so provides, commencing with Section 8. Comments on them are contained in Attachment B.

In addition to H.R. 3300, reports were also requested on H.R. 9, H.R. 722, H.R. 744, H.R. 1179 and H.R. 1271. H.R. 744, except for the omission of Section 502, is identical to H.R. 3300. H.R. 722 is identical to HR. 4671 as reported by your Committee last year. H.R. 9, H.R. 1179 and H.R. 1271 are identical. These three bills differ from H.R. 3300 principally in that they (*a*) are less specific regarding the scope and timing of investigations to be undertaken by the Secretary pursuant to Title II, (*b*) specify a minimum 3,000 cfs capacity for the Granite Reef aqueduct, (*c*) provide for a Gila River exchange of 18,000 acre-feet annually in favor of New Mexico users, (*d*) omit the interstate priorities in favor of California (4.4 million acre-feet) and existing Nevada uses, as against diversions for the Central Arizona Project in the event of shortage, and (*e*) omit the provisions dealing with Upper Colorado River Basin authorizations and reimbursements (Title V of H.R. 3300). The views expressed in this report are applicable to the measures referred to in this paragraph as well as to H.R. 3300.

The Bureau of the Budget advises that there is no objection to the presentation of this report from the standpoint of the Administration's

program, and that the enactment of legislation to authorize the Central Arizona project as herein proposed is in accord with the program of the President.

Sincerely yours,

STEWART L. UDALL,
Secretary of the Interior.

ATTACHMENT A

A BILL To authorize the construction, operation, and maintenance of the Central Arizona project, Arizona-New Mexico, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress Assembled,

SECTION 1. That this Act may be cited as the "Central Arizona Project Act."

SEC. 2(a). For the purposes of furnishing irrigation water and municipal water supplies to the water deficient areas of Arizona and western New Mexico through direct diversion or exchange of water, generation of electric power and energy, control of floods, conservation and development of fish and wildlife resources, enhancement of recreation opportunities, and for other purposes, the Secretary of the Interior (hereinafter referred to as the "Secretary") shall construct, operate, and maintain the Central Arizona Project, consisting of the following principal works: (1) a system of main conduits and canals, including a main canal and pumping plants (Granite Reef aqueduct and pumping plants), for diverting and carrying water from Lake Havasu to Orme Dam or suitable alternative, which system shall have a capacity of two thousand five hundred cubic feet per second; (2) Orme Dam and Reservoir and power-pumping plant or suitable alternative; (3) Buttes Dam and Reservoir, which shall be so operated as to not prejudice the rights of any user in and to the waters of the Gila River as those rights are set forth in the decree entered by the United States District Court for the District of Arizona on June 29, 1935, in United States against Gila Valley Irrigation District and others (Globe Equity Number 59); (4) Hooker Dam and Reservoir; (5) Charleston Dam and Reservoir; (6) Tucson aqueducts and pumping plants; (7) Salt-Gila aqueduct; (8) canals, regulating facilities, hydroelectric powerplants, and electrical transmission facilities; (9) related water distribution and drainage works; and (10) appurtenant works.

(b) The Secretary may enter into an agreement with non-Federal interests proposing to construct a thermal generating powerplant whereby the United States shall acquire the right to such portion of the capacity of such plant, including delivery of power and energy over appurtenant transmission facilities to mutually agreed upon delivery points, as he determines is required in connection with the Central Arizona Project. Power and energy acquired thereunder may be disposed of intermittently by the Secretary when not required in connection with the Central Arizona Project. The agreement shall provide, among other things, that—

(1) The United States shall pay not more than that portion of the total construction cost, exclusive of interest during construction, of the powerplant, and of any switchyards and transmission

facilities serving the United States, as is represented by the ratios of the respective capacities to be provided for the United States therein to the total capacities of such facilities. The Secretary shall make the Federal portion of such costs available to the non-Federal interests during the construction period, including the period of preparation of designs and specifications, in such installments as will facilitate a timely construction schedule;

(2) Annual operation and maintenance costs, including provision for depreciation (except as to depreciation on the pro-rata share of construction cost borne by the United States in accordance with the foregoing subdivision (1)) shall be apportioned between the United States and the non-Federal interests on an equitable basis taking into account the ratios determined in accordance with the foregoing subdivision (1);

(3) Costs to be borne by the United States under subdivisions (1) and (2) shall not include (a) interest and interest during construction, (b) financing charges, (c) taxes (except for Social Security and other payroll taxes) including but not limited to real or personal property taxes, gross or net income taxes, and sales, use, and transaction privilege taxes, (d) franchise fees, and (e) such other costs as shall be specified in the agreement;

(4) The United States shall be given appropriate credit for any interests in Federal lands administered by the Department of the Interior that are made available for the powerplant and appurtenances.

(c) Unless and until otherwise provided by Congress, water from the Central Arizona Project shall not be made available directly or indirectly for the irrigation of lands not having a recent irrigation history as determined by the Secretary, except in the case of Indian lands, national wildlife refuges, and, with the approval of the Secretary, State-administered wildlife management areas.

(d)(1) Irrigation and municipal and industrial water supply under the Central Arizona Project within the State of Arizona may, in the event the Secretary determines that it is necessary to effect repayment, be pursuant to master contracts with organizations which have power to levy assessments against all taxable real property within their boundaries. The terms and conditions of contracts or other arrangements whereby each said organization makes water from the Central Arizona Project available to users within its boundaries shall be subject to the Secretary's approval and the United States shall, if the Secretary determines such action is desirable to facilitate carrying out the provisions of this Act, have the right to require that it be a party to such contracts or that contracts subsidiary to the master contracts be entered into between the United States and any user. The provisions of this subparagraph (1) shall not apply to the supplying of water to an Indian tribe for use within the boundaries of an Indian reservation.

(2) Any obligation assumed pursuant to section 9(d) of the Reclamation Project Act of 1939 (43 U.S.C. 485h(d)) with respect to any project contract unit or irrigation block shall be repaid over a basic period of not more than fifty years; any water service provided pursuant to section 9(e) of the Reclamation Project Act of 1939 (43 U.S.C. 485h(e) may be on the basis of delivery of water for a period of fifty years and for the delivery of such water at an identical price per acre-

foot for water of the same class at the several points of delivery from the main canals and conduits and from such other points of delivery as the Secretary may designate; and long-term contracts relating to irrigation water supply shall provide that water made available thereunder may be made available by the Secretary for municipal or industrial purposes if and to the extent that such water is not required by the contractor for irrigation purposes. Notwithstanding any other provisions of law no contract relating to an irrigation water supply under the Central Arizona Project from the main stream of the Colorado River shall commit the United States to deliver such supply for a basic period of more than fifty years for each project contract unit or irrigation block, nor shall such a contract carry renewal or conversion rights or entitle the contractor to water beyond expiration of the delivery periods specified therein. In negotiating new contracts for delivery of such main stream water, the Secretary shall consult with representatives of the State of Arizona and the Secretary shall take into consideration the overall water supply and needs of the Central Arizona Project.

(3) Contracts relating to municipal and industrial water supply under the Central Arizona Project may be made without regard to the limitations of the last sentence of section 9(c) of the Reclamation Project Act of 1939 (43 U.S.C. 485h(c)); may provide for the delivery of such water at an identical price per acre-foot for water of the same class at the several points of delivery from the main canals and conduits; and may provide for repayment over a period of fifty years if made pursuant to clause (1) of said section and for the delivery of water over a period of fifty years if made pursuant to clause (2) thereof.

(e) Each contract under which water is provided under the Central Arizona Project shall require that (1) there be in effect measures, adequate in the judgment of the Secretary, to control expansion of irrigation from aquifers affected by irrigation in the contract service area; (2) the canals and distribution systems through which water is conveyed after its delivery by the United States to the contractors shall be provided and maintained with linings, adequate in his judgment to prevent excessive conveyance losses; (3) neither the contractor nor the Secretary shall pump or permit others to pump ground water from lands located within the exterior boundaries of any Federal reclamation project or irrigation district receiving water from the Central Arizona Project for any use outside such Federal reclamation project or irrigation district, unless the Secretary and the agency or organization operating and maintaining such Federal reclamation project or irrigation district shall agree or shall have previously agreed that a surplus of ground water exists and that drainage is or was required; and (4) all agricultural, municipal and industrial waste water, return flow, seepage, sewage effluent and ground water located in or flowing from contractor's service area originating or resulting from (i) waters contracted for from the Central Arizona Project or (ii) waters stored or developed by any Federal reclamation project are reserved for the use and benefit of the United States as a source of supply for the service area of the Central Arizona Project or for the service area of the Federal reclamation project, as the case may be: *Provided*, That notwithstanding the provisions of clause (3) of this subsection, the agricultural, municipal and industrial waste water, return flow, seepage,

sewage effluent and ground water in or from any such Federal reclamation project, may also be pumped or diverted for use and delivery by the United States elsewhere in the service area of the Central Arizona Project, if not needed for use or reuse in such Federal reclamation project.

(f) The Secretary may require in any contract under which water is provided from the Central Arizona Project that the contractor agree to accept main stream water in exchange for or in replacement of existing supplies from sources other than the main stream. The Secretary shall so require in the case of users in Arizona who also use water from the Gila River system, to the extent necessary to make available to users of water from the Gila River system in New Mexico additional quantities of water as provided in and under the conditions specified in subsection (h) of this section: *Provided*, That such exchanges and replacements shall be accomplished without economic injury or cost to such Arizona contractors.

(g) In times of shortage or reduction of main stream Colorado River water for the Central Arizona Project, as determined by the Secretary, users which have yielded water from other sources in exchange for main stream water supplied by that project shall have a first priority to receive main stream water, as against other users supplied by that unit which have not so yielded water from other sources, but only in quantities adequate to replace the water so yielded.

(h) In the operation of the Central Arizona Project, the Secretary shall offer to contract with water users in New Mexico for water from the Gila River, its tributaries and underground water sources, in amounts that will permit consumptive use of water in New Mexico not to exceed an annual average in any period of ten consecutive years of eighteen thousand acre-feet, including reservoir evaporation, over and above the consumptive uses provided for by article IV of the decree of the Supreme Court of the United States in Arizona against California (376 U.S. 340). Such increased consumptive uses shall not begin until and shall continue only so long as delivery of Colorado River water to downstream Gila River users in Arizona is being accomplished in accordance with this Act, in quantities sufficient to replace any diminution of their supply resulting from such diversions from the Gila River, its tributaries and underground water sources. In determining the amount required for this purpose full consideration shall be given to any differences in the quality of the waters involved. All additional consumptive uses provided for in this subsection shall be subject to all rights in New Mexico and Arizona as established by the decree entered by the United States District Court for the District of Arizona on June 29, 1935, in United States against Gila Valley Irrigation District and others (Globe Equity Number 59) and to all other rights existing on the effective date of this Act in New Mexico and Arizona to water from the Gila River, its tributaries and underground water sources, and shall be junior thereto and shall be made only to the extent possible without economic injury or cost to the holders of such rights.

SEC. 3. The conservation and development of the fish and wildlife resources and the enhancement of recreation opportunities in connection with the Central Arizona Project works authorized pursuant to this Act shall be in accordance with the provisions of the Federal Water Project Recreation Act (79 Stat. 213).

SEC. 4. The Secretary shall determine the repayment capability of Indian lands within, under, or served by the Central Arizona Project. Construction costs allocated to irrigation of Indian lands (including provision of water for incidental domestic and stock water uses) and within the repayment capability of such lands shall be subject to the Act of July 1, 1932 (47 Stat. 464), and such costs as are beyond repayment capability of such lands shall be nonreimbursable.

SEC. 5. The interest rate applicable to those portions of the reimbursable costs of the Central Arizona Project which are properly allocated to commercial power development and municipal and industrial water supply shall be determined by the Secretary of the Treasury, as of the beginning of the fiscal year in which the first advance is made for initiating construction of such project, on the basis of the computed average interest rate payable by the Treasury upon its outstanding marketable public obligations which are neither due nor callable for redemption for fifteen years from the date of issue.

SEC. 6. The Secretary may undertake programs for water salvage along and adjacent to the main stream of the Colorado River and for ground water recovery in the Yuma area. Such programs shall be consistent with maintenance of a reasonable degree of undisturbed habitat for fish and wildlife in the area, as determined by the Secretary. No groundwater recovery program hereby authorized shall be undertaken until the Secretary of State has reported to the President on consultation which he may have had with the Government of Mexico pursuant to the Water Treaty of 1944 (Treaty Series 994) and the President has approved a definite plan report thereon.

SEC. 7. Part I of the Federal Power Act (16 U.S.C. 791a–823) shall not be applicable to the reach of the Colorado River between Lake Mead and Glen Canyon Dam until and unless otherwise provided by Congress.

SEC. 8. The Upper Colorado River Basin fund established under section 5 of the Act of April 11, 1956 (70 Stat. 107), shall be reimbursed from the Colorado River development fund established by section 2 of the Boulder Canyon Project Adjustment Act (54 Stat. 755), for all expenditures heretofore or hereafter made from the Upper Colorado River Basin fund to meet deficiencies in generation at Hoover Dam during the filling period of reservoirs of storage units of the Colorado River storage project pursuant to the criteria for the filling of Glen Canyon Reservoir (27 Fed. Reg. 6851, July 19, 1962). For this purpose $500,000 for each year of operation of Hoover Dam and powerplant, commencing with the enactment of this Act, shall be transferred from the Colorado River development fund to the Upper Colorado River Basin fund, in lieu of application of said amounts to the purposes stated in section 2(d) of the Boulder Canyon Project Adjustment Act, until such reimbursement is accomplished. To the extent that any deficiency in such reimbursement remains as of June 1, 1987, the amount of the remaining deficiency shall then be transferred to the Upper Colorado River Basin fund from net revenues derived from the sale of electric energy generated at Hoover Dam.

SEC. 9. (a) Nothing in this Act shall be construed to alter, amend, repeal, modify, or be in conflict with the provisions of the Colorado River Compact (45 Stat. 1057), the Upper Colorado River Basin Compact (63 Stat. 31), the Water Treaty of 1944 with the United

Mexican States (Treaty Series 994), the decree entered by the Supreme Court of the United States in Arizona against California, and others (376 U.S. 340), or, except as otherwise provided herein, the Boulder Canyon Project Act (45 Stat. 1057), the Boulder Canyon Project Adjustment Act (54 Stat. 774) or the Colorado River Storage Project Act (70 Stat. 105).

(b) The Secretary is directed to—

(1) make reports as to the annual consumptive uses and losses of water from the Colorado River system after each successive five-year period, beginning with the five-year period starting on October 1, 1965. Such reports shall be prepared in consultation with the States of the lower basin individually and with the Upper Colorado River Commission, and shall be transmitted to the President, the Congress, and to the Governors of each State signatory to the Colorado River Compact.

(2) condition all contracts for the delivery of water originating in the drainage basin of the Colorado River system upon the availability of water under the Colorado River Compact.

SEC. 10. (a) The Secretary shall propose criteria for the coordinated long-range operation of the reservoirs constructed and operated under the authority of the Colorado River Storage Project Act and the Boulder Canyon Project Act, consistent with the provisions of those statutes, the Boulder Canyon Project Adjustment Act, the Colorado River Compact, the Upper Colorado River Compact and the Mexican Water Treaty. To effect in part the purposes expressed in this paragraph, the criteria shall make provision for the storage of water in storage units of the Colorado River Storage Project and releases of water from Lake Powell in the following listed order of priority:

(1) Releases to supply one-half the deficiency described in article III(c) of the Colorado River Compact, if any such deficiency exists and is chargeable to the States of the upper division.

(2) Releases to comply with Article III(d) of the Colorado River Compact.

(3) Storage of water not required for the releases specified in clauses (1) and (2) of this subsection to the extent that the Secretary after consultation with the Upper Colorado River Commission and representatives of the three lower division States and taking into consideration all relevant factors (including, but not limited to, historic streamflows, the most critical period of record, and probabilities of water supply), shall find to be reasonably necessary to assure deliveries under clauses (1) and (2) without impairment of annual consumptive uses in the Upper Basin pursuant to the Colorado River Compact: *Provided*, That water not so required to be stored shall be released from Lake Powell: (i) to the extent it can be reasonably applied in the States of the lower division to the uses specified in article III(e) of the Colorado River Compact, but no such releases shall be made when the active storage in Lake Powell is less than the active storage in Lake Mead, (ii) to maintain, as nearly as practicable, active storage in Lake Mead equal to the active storage in Lake Powell, and (iii) to avoid anticipated spills from Lake Powell.

(b) Not later than July 1, 1968, the criteria proposed in accordance with the foregoing subsection (a) of this section shall be submitted to

the governors of the seven Colorado River Basin States and to such other parties and agencies as the Secretary may deem appropriate for their review and comment. After receipt of comments on the proposed criteria, but not later than January 1, 1969, the Secretary shall adopt appropriate criteria in accordance with this section and publish the same in the Federal Register. Beginning January 1, 1970, and yearly thereafter, the Secretary shall transmit to the Congress and to the governors of the Colorado River Basin States a report describing the actual operation under the adopted criteria for the preceding compact water year and the projected operation for the current year. As a result of actual operating experience or unforeseen circumstances, the Secretary may thereafter modify the criteria to better achieve the purposes specified in subsection (a) of this section, but only after correspondence with the governors of the seven Colorado River Basin States and appropriate consultation with such state representatives as each governor may designate.

(c) Section 7 of the Colorado River Storage Project Act shall be administered in accordance with the foregoing criteria.

SEC. 11. (a) Rights of the Upper Basin to the consumptive use of water apportioned to that basin from the Colorado River system by the Colorado River Compact shall not be reduced or prejudiced by any use of such water in the lower basin.

(b) Nothing in this Act shall be construed so as to impair, conflict with or otherwise change the duties and powers of the Upper Colorado River Commission.

SEC. 12. Except as otherwise provided in this Act, in constructing, operating, and maintaining the Central Arizona Project, the Secretary shall be governed by the Federal reclamation laws (Act of June 17, 1902; 32 Stat. 388 and Acts amendatory thereof or supplementary thereto) to which laws this Act shall be deemed a supplement.

SEC. 13. (a) All terms used in this Act which are defined in the Colorado River Compact shall have the meanings there defined.

(b) "Main stream" means the main stream of the Colorado River downstream from Lee Ferry within the United States, including the reservoirs thereon.

(c) "User" or "water user" in relation to main stream water in the lower basin means the United States, or any person or legal entity, entitled under the decree of the Supreme Court of the United States in Arizona against California, and others (376 U.S. 340), to use main stream water when available thereunder.

(d) "Active storage" means that amount of water in reservoir storage, exclusive of bank storage, which can be released through the existing reservoir outlet works.

(e) "Colorado River Basin States" means the States of Arizona. California, Colorado, Nevada, New Mexico, Utah and Wyoming.

ATTACHMENT B

ANALYSIS OF PROPOSED BILL TO AUTHORIZED THE CONSTRUCTION, OPERATION AND MAINTENANCE OF THE CENTRAL ARIZONA PROJECT, ARIZONA-NEW MEXICO, AND FOR OTHER PURPOSES

The description of the Central Arizona Project (sec. 2(a)) differs from that as set out in section 304(a) of H.R. 3300, in that (1) Granite

Reef aqueduct capacity is fixed at 2,500 cfs and (2) specific reference to capacity and possible enlargement of Hooker dam is omitted.

Section 2(b) is new. It encompasses the authorization for acquisition of thermal power for purposes of the Central Arizona Project (with commercial sale of power when intermittently not required in connection with the project). Preliminary studies of the Bureau of Reclamation indicate that approximately 400 megawatts of thermal power would be required for pumping purposes, with the 2,500 cfs Granite Reef aqueduct we propose. However, we have not specified that figure in the authorization—instead we make refrence to such portion of the output as is required—in order to allow for flexibility in negotiations and possible modification resulting from final, detailed planning.

Section 2(c) is adapted from the first sentence of section 304(b) of H.R. 3300.

Section 2(d)(1) is new. It provides for ad valorem taxing authority to assist in repayment of the costs of the Central Arizona Project.

Except for the last two sentences, section 2(d)(2) is substantially identical with section 404(a) of H.R. 3300. The last two sentences are similar to a provision first included as section 107(e) of the draft bill transmitted with our report of April 9, 1964, to the Senate Committee on Interior and Insular Affairs on S. 1658 in the 88th Congress. Our report of May 17, 1965, to your Committee on H.R. 4671 also proposed its inclusion. We reiterate here what was said in that letter:

> Until such time as sufficient water is available to meet all demands, it is important that legislation authorizing new projects using lower basin Colorado River water include the mechanisms whereby the availability of water as between irrigation and municipal and industrial uses can be further considered from time to time. Irrigation water contracts should be of a definite term—long enough to justify investments and development to put the water to use, but nevertheless with a finite time limit—to provide the opportunity for reappraisal of the water situation at the end of the contract period looking to the dedication of water to its highest use at that time. We recognize that this is a departure from the permanent service requirement of the Boulder Canyon Project Act and the provisions of the act of July 2, 1956 (70 Stat. 415) providing for renewal of irrigation water delivery contracts. It is, however, in our view justified by the conditions now prevailing in the Southwest.

Section 2(d)(3) incorporates the provisions of section 404(b) of H.R. 3300.

Section 2(e) incorporates all of section 304(b) of H.R. 3300 except for the first sentence which, as above noted, appears as section 2(c) of the attached draft. Clauses 3 and 4 of section 2(e) (clauses 3 and 4 of sec. 304(b) of H.R. 3300) did not appear in the version of H.R. 4671 to which our May 17, 1965, report was directed. However, we have no objection to them as explained at page 58 of the Committee's report (H. Rept. 1849, 89th Cong., second sess.).

Section 2 (f) and (g) incorporate section 304 (c) and (d) of H.R. 3300. They deal with exchange of main stream Colorado River water for existing local supplies in connection with the Central Arizona Project. Except for the references to Gila River system exchange,

somewhat similar provisions were included in the version of H.R. 4671 upon which we reported. We have no objection thereto.

Section 2(h) incorporates provisions of section 304 (e) and (g) of H.R. 3300. It would require an exchange of 18,000 acre-feet of water per annum from the Gila River system in Arizona for main stream Colorado River water made available in Arizona in order that Gila River system water users in New Mexico might increase their use by the same amount. The section is explained at pages 58–59 of your Committee's report on H.R. 4671. It represents an agreement arrived at between Arizona and New Mexico during consideration of H.R. 4671. We have no objection to it. We have not included that portion of the H.R. 3300 (sec. 304(f)) which provides, on a contingent basis, for an exchange of an additional 30,000 acre-feet of water.

Section 3, dealing with fish and wildlife and recreation, appears as Section 308 of H.R. 3300. It specifically makes applicable the provisions of the Federal Water Project Recreation Act (79 Stat. 213).

Section 4 relating the reimbursability of costs of the Central Arizona Project allocable to Indian lands, is Section 402 of H.R. 3300. It is a standard provision.

Section 5 (sec. 403(h) of H.R. 3300) is the usual provision establishing the interest rates applicable to reimbursable costs allocable to commercial power and municipal and industrial water. It is standard.

Section 6, dealing with water salvage programs in the lower Colorado River area, is essentially in the form in which it appeared in section 305 of the version of H.R. 4671 upon which we reported.

Section 8 is similar to section 502 of H.R. 3300 (sec. 502 of H.R. 4671). It represents an agreement between upper and lower Colorado River basin interests relative to the ultimate assumption of the costs entailed in meeting deficiencies in generation at Hoover dam occasioned by filling operations at the Colorado River storage project reservoirs. We offer no objection to it.

Section 502, like the provisions of title VI of H.R. 3300, involves matters of concern to the lower Colorado River basin as well as to the upper basin. For that reason, we have included it as section 8 of the proposed draft bill, along with the others to which we offer no objection.

Section 9(a) is identical to section 601(a) of H.R. 3300.

Section 601(b)(1) of H.R. 3300 is not reflected in the draft bill because of the possibility that it may not be entirely consistent with the provisions of section 602 of H.R. 3300 which appear, in substance, as section 10 of the draft. The latter provision is also one which has been worked out between the Upper and Lower Basin interests with participation on the technical level by representatives of this Department. As Secretary Holum said in testifying before your Committee last year, "we endorse the objective of this section and find the guidelines to be reasonable and workable." (See Serial No. 89–17, Part II, "Hearings on H.R. 4671 and similar bills," p. 1339.)

Section 601(c) of H.R. 3300 (sec. 604(c) of H.R. 4671) is patterned after similar provisions in the Colorado River Storage Project Act (70 Stat. 105); the Navajo Indian Irrigation Project and San Juan-Chama Project Act (76 Stat. 96) and the Fryingpan-Arkansas Project Act (76 Stat. 389). It appears to us to be unnecessary and is, therefore, omitted from the attached draft bill.

LOWER COLORADO RIVER BASIN PLAN

Repayment Analysis - 2,500-cfs Central Arizona Project
400-MW Power Plant Portion - Coal-Fired Plant
H.R. 3300

Year	POWER							MUNICIPAL AND INDUSTRIAL WATER					IRRIGATION WATER					RECAPITULATION OF DEVELOPMENT FUND				
	Interest-Bearing Investment				Interest-Free Investment																	
	Net Revenue	Interest @ 3.253%	Unpaid Balance	Plant in Service	Irrigation Plant in Service End of Year	Balance to be Repaid	Cumulative Net Balance	Net Operating Revenue	Interest on Unpaid Balance @ 3.253%	Unpaid Balance	Plant in Service	Cumulative Net Revenue	Net Operating Revenue	Unpaid Balance	Plant in Service	Assistance After Repayment From Irrigators	Allowable Unpaid Balance	Power	M&I	Irrigation Assistance From Development Fund	Arizona's Share 1/	Cumulative Net Balance
										41,898	41,898			25,752	25,752							
1977	-5	0	52,186	52,181	45,361	45,361		-125	1,363	164,425	162,937		-1,962	301,883	298,563							
78	-1,193	1,698	55,077					3,807	5,349	172,950	169,920		-366	336,238	335,268							
79	2,083	1,792	54,786					4,481	5,626	236,943	232,768		3,882	356,603	358,157							
1980	2,130	1,782	54,438					4,706	7,708	239,945			3,707	352,896								
81	2,451	1,771	53,758					6,564	7,805	241,186			3,423	349,473								
82	2,553	1,749	52,954					6,882	7,846	242,150			3,265	346,208								
83	2,658	1,723	52,019					7,186	7,877	242,841			3,111	343,097								
84	2,762	1,692	50,949					7,516	7,900	243,225			2,915	340,182								
85	2,868	1,657	49,738					7,836	7,912	243,301			2,744	337,438								
86	2,972	1,618	48,384					8,134	7,915	243,082			2,580	334,858								
87	3,079	1,574	46,879					8,433	7,907	242,556			2,428	332,430								
88	3,181	1,525	45,223					8,716	7,890	241,730			2,302	330,128								
89	3,289	1,471	43,405					9,020	7,863	240,573			2,125	328,003								
1990	3,393	1,412	41,424					9,324	7,826	239,075			1,969	326,034								
91	3,467	1,348	39,305					9,648	7,777	237,204			1,860	324,174							2,041	2,041
92	3,550	1,279	37,034					9,957	7,716	234,963			1,756	322,418							2,106	4,147
93	3,642	1,205	34,597					10,261	7,643	232,345			1,658	320,760								6,253
94	3,727	1,125	31,995					10,569	7,558	229,334			1,557	319,203								8,359
95	3,812	1,041	29,224					10,848	7,460	225,946			1,486	317,717								10,465
96	3,894	951	26,281					11,152	7,350	222,144			1,382	316,335								12,571
97	3,977	855	23,159					11,466	7,226	217,904			1,269	315,066								14,677
98	4,055	753	19,857					11,748	7,088	213,244			1,205	313,861								16,783
99	4,142	646	16,361					12,047	6,937	208,134			1,097	312,764								18,889
2000	4,225	414	12,550					12,310	6,771	202,595			1,034	311,730							2,106	20,995
1	4,259	318	8,609					12,310	6,590	196,875			974	310,756							2,015	23,010
2	4,286	280	4,603					12,310	6,404	190,969			930	309,826								25,025
3	4,320	150	433			45,361		12,279	6,212	184,902			901	308,925								27,040
4	4,354	14	0			41,454		12,279	6,015	178,638			851	308,074							2,015	29,055
5	4,384	0				37,070		12,248	5,811	172,201			836	307,238							3,912	32,967
6	4,418					32,652		12,248	5,602	165,555			776	306,462								36,879
7	4,445					28,207		12,217	5,386	158,724			763	305,699								40,791
8	4,479					23,728		12,217	5,163	151,670			713	304,986							3,912	44,703
9	4,510					19,218		12,187	4,934	144,417			686	304,300							3,911	48,614
2010	4,540					14,678		12,187	4,698	136,928			640	303,660							3,911	52,525
11	4,574					10,104		12,156	4,454	129,226			611	303,049							3,852	56,377
12	4,608					5,496		12,156	4,204	121,274			561	302,488								60,229
13	4,638					858		12,125	3,945	113,094			545	301,943								64,081
14	4,669					0	3,811	12,125	3,679	104,648			488	301,455				3,811				71,744
15	4,702						8,513	12,094	3,404	95,958			469	300,986				4,702			3,852	80,298
16	4,733						13,246	12,094	3,122	86,986			423	300,563				4,733			3,808	88,839
17	4,764						18,010	12,063	2,830	77,753			397	300,166				4,764				97,411
18	4,794						22,804	12,034	2,529	68,248			370	299,796				4,794				106,013
19	4,828						27,632	12,034	2,220	58,434			330	299,466				4,828				114,649
2020	4,862						32,494	12,003	1,901	48,332			301	299,165				4,862			3,808	123,319
21	4,892						37,386	11,972	1,572	37,932			286	298,879				4,892			3,751	131,962
22	4,923						42,309	11,972	1,234	27,194			229	296,650				4,923			8,951	145,836
23	4,957						47,266	11,941	885	16,138			210	298,440				4,957				159,744
24	4,984						52,250	11,910	525	4,753			197	298,243				4,984				173,679
25	5,018						57,268	11,879	155	0		6,971	168	298,075			358,157	5,018	6,971		8,951	194,619
26	5,048						62,316	11,879	0			18,850	121	297,954			332,405	5,048	11,879		8,921	220,467
27	5,082						67,398	11,849				30,699	102	56,878		240,974	56,878	5,082	11,849	240,974		5,345
28	5,116						72,514	11,818				42,517	73	25,605		31,200	25,605	5,116	11,818	31,200		0
2029	5,143	0	0	52,181	45,361	0	77,657	11,787	0	0	232,768	54,304	60	0	358,157	25,545	0	5,143	11,787	25,545	8,921	306
Total	207,042	31,843	0	52,181	45,361	0	77,657	552,859	265,787	0	232,768	54,304	60,438	0	358,157	297,719	0	77,657	54,304	297,719	166,064	306

1/ Arizona's share of Development Fund adjusted for loss of power at Coolidge Dam.

Note Rate assumptions: Water delivered at canalside--irrigation, $10 per acre-foot; M&I, $53.37. Power delivered to pumps or load center--irrigation pumping, 3 mills/kwh; M&I pumping, 5 mills/kwh; residual for commerical sales, 5 mills.

Section 601(d) of H.R. 3300 (sec. 604(e) of H.R. 4671) appears to us to be unnecessary. We do not read the bill as having the effects referred to.

The other provisions of the draft bill are self-explanatory.

ATTACHMENT C

DRAFT PROVISION FOR "LOWER COLORADO RIVER BASIN DEVELOPMENT FUND."

SEC. —. All Federal revenue from the Boulder Canyon, Parker-Davis, Central Arizona and any other Federal reclamation projects hereafter constructed in the lower Colorado River Basin, which, after completion of the respective repayment requirements thereof, are surplus, as determined by the Secretary, to their respective operation, maintenance, and replacement requirements shall be kept in a separate fund in the Treasury of the United States, to be known as the Lower Colorado River Basin development fund, to be expended or applied in connection with water conservation and development for the Lower Colorado River Basin as may hereafter be prescribed by the Congress.

CHANGES IN EXISTING LAW

In compliance with clause 3 of rule XIII of the Rules of the House of Representatives, changes in existing law made by the bill, as reported, are shown as follows (existing law proposed to be omitted is enclosed in black brackets, new matter is printed in italic, existing law in which no change is proposed is shown in roman):

ACT OF SEPTEMBER 2, 1964 (78 STAT. 848)

* * * * * * *

SEC. 8. There is hereby authorized to be appropriated for the construction of the Dixie project, the sum of [$42,700,000] *$58,000,000*, plus or minus such amounts, if any, as may be justified by reason of ordinary fluctuations in construction costs as indicated by engineering cost indexes applicable to types of construction involved therein, and, in addition thereto, such sums as may be required to operate and maintain said project.

ACT OF APRIL 11, 1956 (70 STAT. 105, AS AMENDED; 43 U.S.C. 620)

In order to initiate the comprehensive development of the water resources of the Upper Colorado River Basin, for the purposes, among others, of regulating the flow of the Colorado River, storing water for beneficial consumptive use, making it possible for the States of the Upper Basin to utilize, consistently with the provisions of the Colorado River Compact, the apportionments made to and among them in the Colorado River Compact, and the Upper Colorado River Basin Compact, respectively, providing for the reclamation of arid and semiarid land, for the control of floods, and for the generation of hydroelectric power, as an incident of the foregoing purposes, the Secretary of the Interior is hereby authorized (1) to construct, operate, and maintain the following initial units of the Colorado River storage project, con-

sisting of dams, reservoirs, powerplants, transmission facilities and appurtenant works: Curecanti, Flaming Gorge, Navajo (dam and reservoir only), and Glen Canyon: *Provided*, That the Curecanti Dam shall be constructed to a height which will impound not less than nine hundred and forty thousand acre-feet of water or will create a reservoir of such greater capacity as can be obtained by a high waterline located at seven thousand five hundred and twenty feet above mean sea level, and that construction thereof shall not be undertaken until the Secretary has, on the basis of further engineering and economic investigations, reexamined the economic justification of such unit and, accompanied by appropriate documentation in the form of a supplemental report, has certified to the Congress and to the President that, in his judgment, the benefits of such unit will exceed its costs; and (2) to construct, operate, and maintain the following additional reclamation projects (including power-generating and transmission facilities related thereto), hereinafter referred to as participating projects: Central Utah (initial phase *and the Uintah unit*), San Juan-Chama (initial stage), Emery County, Florida, Hammond, La Barge, Lyman, Navajo Indian, Paonia (including the Minnesota unit, a dam and reservoir on Muddy Creek just above its confluence with the North Fork of the Gunnison River, and other necessary works), [Pine River Extension] *Animas-La Plata, Dolores, Dallas Creek, West Divide, San Miguel,* Seedskadee, Savery-Pot Hook, Bostwick Park, Fruitland Mesa, Silt and Smith Fork: *Provided, That construction of the Uintah unit of the Central Utah Project shall not be undertaken by the Secretary until he has completed a feasibility report on such unit and submitted such report to the Congress along with his certification that, in his judgment, the benefits of such unit or segment will exceed the costs and that such unit is physically and financially feasible: Provided further*, That as part of the Glen Canyon Unit the Secretary of the Interior shall take adequate protective measures to preclude impairment of the Rainbow Bridge National Monument.

SEC. 2. In carrying out further investigations of projects under the Federal reclamation laws in the Upper Colorado River Basin, the Secretary shall give priority to completion of planning reports on the Gooseberry, [Parshall, Troublesome, Rabbit Ear,] Eagle Divide, [San Miguel, West Divide,] Bluestone, Battlement Mesa, [Tomichi Creek, East River, Ohio Creek,] Grand Mesa, [Dallas Creek, Dolores, Fruit Growers extension, Animas-La Plata,] Yellow Jacket, *Basalt, Middle Park (including the Troublesome, Rabbit Ear, and Azure units), Upper Gunnison (including the East River, Ohio Creek, and Tomichi Creek units), Lower Yampa (including the Juniper and Great Northern units), Upper Yampa (including the Hayden Mesa, Wessels, and Toponas units)*, and Sublette (*including a diversion of water from the Green River to the North Platte River Basin in Wyoming*), *Ute Indian unit of the Central Utah Project, San Juan County (Utah), Price River, Grand County (Utah), Gray Canyon, and Juniper (Utah)* participating projects[.]: *Provided, That the planning report for the Ute Indian unit of the Central Utah participating project shall be completed on or before December 31, 1974 to enable the United States of America to meet the commitments heretofore made to the Ute Indian Tribe of the Uintah and Ouray Indian Reservation under the agreement dated September 20, 1965 (Contract Numbered 14–06–W–194).* * * *

* * * * * * *

SEPARATE AND DISSENTING VIEWS

We do not support the authorization of the Colorado River Basin Project Act and the extorted provisions of H.R. 3300 as amended and reported by the House Committee on Interior and Insular Affairs. We are therefore opposed to the bill.

I. General Comments

H.R. 3300 as amended and approved by the Committee has as one of its objectives the authorization, construction, operation and maintenance of the Central Arizona Project in Arizona and New Mexico. We support the authorization of the Central Arizona Project. We do so, to enable the people of the State of Arizona to use their entitlement of 2.8 million acre feet of Colorado River water as adjudicated by the Supreme Court of the United States in *Arizona* vs. *California, et. al.*, 373 U.S. 546 (1963). In support of this position, we submit herein a proposal which was offered in Committee and which would authorize the Central Arizona Project without the extorted provisions contained in H.R. 3300.

A careful reading and analysis of H.R. 3300 seriously opens to question the basic principle and purpose of this legislation. This legislation with its many direct authorizations, its open-ended authorizations, limitations, protections, conditions, exceptions, and consent for suit against the United States, demonstrates beyond any reasonable doubt that the principle purpose of these controversial provisions are the defeat of the Central Arizona Project, if the extorted provisions are not retained in H.R. 3300.

The Central Arizona Project has had a long and troubled history. Bills to authorize construction of the project were first introduced in the Congress in 1947–48. Hearings on this legislation have always centered on the legal rights and availability of water. In 1951, it was the motion of the Ranking Minority Member of the Committee which resulted in the Committee's action that sent the States of Arizona and California into the Supreme Court to have these questions decided.

Arizona won her suit against California. Arizona won it fairly and handsomely. Arizona is entitled to the benefits of her efforts without the extorted agreements and conditions imposed upon Arizona by California, Colorado, and the other Colorado River Basin States as set forth in H.R. 3300. Arizona should not be required to pay a price for authorization of the Central Arizona Project as the result of her victory in the Supreme Court of the United States.

Nor, should the Congress of the United States ask Arizona to pay this ransom by authorizing the Colorado River Basin Project Act. The Congress of the United States should not be placed in this position because, in the balance, and in the gathering storm, hinges the total future of the reclamation program. Nothing more needs to be said of

the importance of the reclamation program to the future of this nation and its people. Its non-existence or curtailment is obvious.

Notwithstanding this national interest, the other basin States insist on eviscerating Arizona's Supreme Court victory as the price for supporting the Central Arizona Project. Arizona, in order to obtain that support, has unwillingly and reluctantly abrogated her rights, as determined by the Supreme Court decree, by accepting the provisions of H.R. 3300 which provide:

(1) A guaranteed priority to the State of California of 4,400,000 acre-feet of water each year—an amount to which California is entitled only if there is 7,500,000 acre feet available in the main stream of the Colorado River below Lee Ferry, but not otherwise; and

(2) That satisfaction of the requirements of the Mexican Water Treaty constitute a national obligation and the first obligation of any water augmentation project; and

(3) That as a result of the need to augment the river to satisfy the requirements of the Mexican Water Treaty, further studies be made for augmenting the flow of the river including trans-basin importations; and

(4) Provisions which protect the Upper Basin States and guarantee that their future water needs are not endangered in any way.

This conduct by the other basin States and the abrogation by Arizona, sets another example of the breeding disrespect and the erosion of law and order which is rapidly encompassing our Nation today.

II. A Comparison

H.R. 3300 is similar to H.R. 4671, a bill cited as the Colorado River Basin Project Act, which was reported by the Committee during the 89th Congress. H.R. 4671 was not acted upon in the 89th Congress for at least two reasons: (1) the highly controversial provisions of H.R. 4671, and (2) a withdrawal and breach by the other basin States of their agreement with Arizona.

A comparison of H.R. 3300, as amended and reported by the Committee, and H.R. 4671, as reported in the 89th Congress, is most interesting.

H.R. 4671 was regional in scope and raised a number of issues of national concern. The bill included the authorization of the Central Arizona Project; establishment of a National Water Commission; provisions for augmentation studies, including studies of transbasin diversions of water; provisions making the Mexican Water Treaty a national obligation and satisfaction of the treaty requirements from water to be imported from other river basins; authorization of Hualapai and Marble Canyon Dams; establishment of a basin development fund; provision for a 4.4 million acre-feet guarantee to California until augmentation could be accomplished; authorization of participating projects in the Upper Colorado River Basin; and various other provisions reflecting the results of interstate negotiations.

Immediately after the 90th Congress convened, bills were again introduced in both Houses to authorize the Central Arizona Project and to authorize the Colorado River Basin Project. On March 13, 1967,

the House Subcommittee on Irrigation and Reclamation began consideration of this legislation, H.R. 3300. In hearings before the Subcommittee Arizona testified as follows:

1966 PROGRAM TOO AMBITIOUS

> Last year Arizona and its neighbor states asked for much more. We worked toward a regional water resource development plan which would have solved many of the present and future water supply problems of the entire Southwest. Together, we undertook to solve all of our common water problems and succeeded in reaching agreement on a sound, workable regional plan.
>
> That plan, as considered so meticulously by this Committee last year, was a good plan, a farsighted plan, a blueprint for the essential future development of an entire segment of the country. But it was large, it was expensive, and it was ambitious. And, we regret to say, it was highly controversial. *It included some elements which continue to be controversial—elements flatly unacceptable to some segments of the public.* [Emphasis added.] As we know, that great plan, which looked not just to the present—but 50 years into the future—was approved by this Committee, but its controversies bore heavily upon it, and it failed to clear the Rules Committee in the closing days of the 89th Congress and was never considered by the entire Congress.
>
> After careful soul-searching—after a thorough and painful analysis of the legislative situation—and after another hard look at our rapidly deteriorating water situation—the Arizona Congressional delegation is now convinced that Arizona cannot wait to solve all the water supply problems of the Southwest.
>
> Let us make it perfectly clear that we support regional water planning and action. Our bill is a regional bill; it does contain the essential foundation and skeleton on which future regional and interregional development may be built.

At another point, Arizona also testified,

> But the single most important lesson of 1966 was that H.R. 4671 was probably too large and controversial to pass without serious danger of amendment.

The plea of Arizona was for naught as California testified as follows:

> Here we are legislating in the field that the Supreme Court refused to decide, the allocation of shortages, and which it remitted to Congress. We propose to solve that problem by resort to the century-old law of the West: the protection of existing uses under senior appropriations against new uses, but all in strict accordance with the agreement that California's legislature made with Congress forty years ago. We have relied on that agreement in building the half-billion dollars of projects on which ten million people and most of Southern California's agriculture are now dependent, and we are confident that Congress will keep its side of that same

bargain in authorizing the new Central Arizona project.

In this way both States are made aware of their common necessity to bring about the importation of water into the Colorado—a necessity shared by all seven states for that matter.

With our existing projects protected to the extent that I have described, California can and does support the inclusion of the Central Arizona project in the regional plan of development proposed in our bills. [Emphasis added.]

The existing projects in California presently utilize approximately 5.1 million acre feet of Colorado River water. California is entitled to use 4.4 million acre feet of water under existing laws governing the consumptive use of Colorado River waters. Thus, California is using roughly 700,000 acre feet of water which she is not entitled to use. Therefore, it is most interesting to note California's support of H.R. 3300. If H.R. 3300 is enacted, California will lose 700,000 acre-feet of water, if the Central Arizona Project is constructed and there is no program for augmentation.

At another point California itself applied a simple comparison of H.R. 3300, and H.R. 4671, and said:

H.R. 3300 is itself a modified compromise of H.R. 4671's principle provisions. And while there may exist some differences in language and terms, all are uniformly dedicated to the same goal and all maintain the essential seven-state characteristics of H.R. 4671.

In a direct response to a California comparison of the bills before the Subcommittee, Arizona responded in part:

We think, realistically, if we are going to get the Central Arizona Project and go forward on the water needs of the region, that we have to have something that is reduced in scope.

Again, Arizona's plea was unheeded because on March 26, 1968, the House Committee on Interior and Insular Affairs ordered H.R. 3300, as amended, favorably reported to the House of Representatives.

H.R. 3300, as amended and reported to the House of Representatives, is by comparison, a bill which is regional in scope and raises a number of issues of national concern. The bill includes the authorization of the Central Arizona Project; provisions for augmentation studies, including studies of transbasin diversions of water; provisions making the Mexican Water Treaty a national obligation with satisfaction of the treaty requirements the first obligation of the water to be imported from other river basins; establishment of a basin development fund; provision of a 4.4 million acre-feet guarantee to the State of California in perpetuity; authorization of numerous projects in the Upper Colorado River Basin; and various other provisions reflecting the results of interstate negotiations.

So, by comparison there is very little difference between H.R. 4671, as reported to the 89th Congress, and H.R. 3300, as reported to the 90th Congress. And, this is so despite the pleas, desires and needs of the people of the State of Arizona, who are being required to bear the burden of an expensive, ambitious, and controversial regional water

development plan, under the guise of basinwide support for a simple Central Arizona Project.

Before leaving this comparison it might do well to compare the federal costs involved in H.R. 4671 and H.R. 3300. A cost analysis becomes mandatory when considered in the light of the financial crisis now facing this Nation.

H.R. 4671, as reported in the 89th Congress, involved federal expenditures roughly in the sum of $1,756,438,000, not including the studies and costs of importation which were factually estimated to cost an additional $8,000,000,000.

H.R. 3300, as amended and reported in the 90th Congress, involves federal expenditures of approximately $1,286,000,000, not including the costs of the study of importing 2½ million acre-feet of water for satisfaction of the Mexican Water Treaty and the costs of the associated studies, plans and reports.

This cost analysis of H.R. 4671 and H.R. 3300 indicates a cost reduction of approximately $400,000,000, notwithstanding the plea of Arizona for a bill "reduced in scope" and the financial crisis now facing our national government. This amount does not include the costs of the studies associated with H.R. 3300 which in testimony before the Committee was stated to be undeterminable.

H.R. 3300, as amended and reported by the Committee on Interior and Insular Affairs, goes far beyond the recommendations of the Administration in support of this legislation.

This comparison should not be taken as indicating that we are opposed to regional or large scale planning or the costs involved in such function. We are not.

It is the attempts to justify authorization of the Central Arizona Project on the basis of studies predirected and prejudged on the need for large scale importations of water which have not been made that we oppose.

Amidst all the clamor for large scale regional planning, of moving forward together and joining hands in partnership lies hidden an irreconcilable conflict of water rights jealously guarded and emotionally defended.

Water planning requires decisions, and these decisions are necessarily political because their purposes are political purposes of states and nations. For that reason no perfect plan or solution for water problems will be found at anytime. If we are to try and meet the ever changing demands and situations of our society our water planning decisions must be based upon completed studies and criteria which form the basis for long-range and regional water planning. To do otherwise is to give substance to a never ending conflict of water rights and availability, which in turn create the issues of national concern.

H.R. 3300 does not in our opinion present a long-range regional water development plan based upon completed studies and reports so necessary for intelligent planning. If we are to proceed with the reclamation program, if we are to encourage progress in the economic development of the Southwestern United States, we must proceed at a pace in which this Nation and its people have the capacity to perform. We suggest, therefore, that in the absence of detailed studies and reports we proceed one step at a time and authorize the Central Arizona Project.

III. WATER AVAILABILITY

As early as the latter part of the nineteenth century the people of the Southwestern United States recognized the need for a controlled and dependable water supply from the Colorado River. And, since that time, the water resources of the Colorado River have been a subject of controversy.

Each time the Committee considers legislation involving the Colorado River, the testimony indicates wide differences of opinion regarding the dependability of the water supply of the Colorado River and the amount of water actually available for consumptive use. These differences are due to the inability of the hydrologists to agree upon the basic data to be incorporated in their studies.

H.R. 3300 again raises the issue of water availability because the bill initially authorizes the Central Arizona Project which involves a large diversion of the waters of the Colorado River. The other basin States contend there is not sufficient water available to authorize a financial and economically feasible Central Arizona Project.

The Committee concluded in reporting similar legislation during the 89th Congress, based upon all the studies and testimony presented to the Committee that—

> *There will be available, however, a full water supply from the Colorado River for the central Arizona unit until some time during the decade 1990–2000.* [Emphasis added.] * * * In the absence of imported water, the average divertible supply of water for the Central Arizona unit is estimated to be 900,000 acre-feet by the year 2000.

This Committee conclusion of the 89th Congress apparently proved unconvincing because on March 14, 1967, the testimony before the Committee was as follows:

> QUESTION. . . . You say that you know of no serious opposition to the central Arizona Project that the administration proposed.
>
> The problem, of course, under your proposal, is that there is no provision for long-term water supply for the central Arizona project, nor is there any provision that studies will be made; is that true?
>
> Secretary UDALL. No, I could not accept that as a statement of the situation. We have adequate water, even assuming—as we assume in all of our studies—the 4.4 priority, for a viable project with a sound cost-benefit ratio.
>
> QUESTION. At whose expense?
>
> Secretary UDALL. Well, I think at no one's expense.
>
> QUESTION. You are going to continue the central Arizona project as you propose it, to make it a lasting project, to serve the amount of water that is needed to make this a feasible project, and, if so who has to furnish that water, if you do that?
>
> Secretary UDALL. Mr. Chairman, I want to make my position very clear on this point. I think one very big and bold and necessary assumption must be made.
>
> As far as the long-term future of the river is concerned, the river is in short supply. This is the main fact of life on the

river. This is what all of us have been talking about for the last 2 or 3 years, and I am convinced that the people of this large and fast-growing region are not going to sit by without providing plans that will be timely. And when the year 1990 or the year 2000 comes, you will have augmenting plans to the river whole.

I just proceed on this assumption.

So that I think, in terms of anybody bearing any shortage or deficiency, if we do our work right in the Congress and in the region, I do not think that there will be any deficiency.

QUESTION. You do not answer my question: At whose expense must this project get water, even from the beginning?

Secretary UDALL. I do not understand. I do not understand your question. At whose expense——

QUESTION. Under the provisions of the Colorado River compact, and along the river, whose entitlement will be used to make this project a feasible project?

Secretary UDALL. I think the anticipation is that water that Arizona uses during this period, as we have planned it, is water that will be available in the river that moves down the river by gravity, Mr. Chairman. That is all that I can say. I do not think it is taken from anybody. You cannot.

QUESTION. Under any reasonable study of the water in the river at the present time, how much water is Arizona going to get from this whole priority in the lower basin of the 7.5 million acre-feet of water to be delivered at Lee's Ferry? How much water will be available under anybody's study at the present time for Arizona?

Mr. DOMINY. It is true that in the early years——

QUESTION. What is true?

Mr. DOMINY. Under this project, it is true that upper basin water would be available, because your project——

QUESTION. That is what bothers me. I thought that you would say that. I thought that the Secretary would say that.

Secretary UDALL. I concur with whatever he says. [Laughter.]

QUESTION. I wonder who is going to be the receiver of the kickoff and who is going to be the final ball carrier? That is what I wondered when you came in. I would like to have Mr. Dominy give us these figures, because I have told you already that I was in favor of this project, but I am not about to permit entitlement of the upper basin to be jeopardized by this project.

Mr. DOMINY. Nor do we have any intention that it would be so, Mr. Chariman. We have worked diligently with all of the water authorities in your State and the other States of the upper basin as well as the lower basin, getting firm estimates as to the rate of project development that would be reasonable to forecast, and on the basis of all of those reviews with your people and others, we think that there will be 1.650 million acre-feet or 1,650,000 acre-feet available in the Colorado River up to 1975 for the Central Arizona Project.

By 1990, we think that will drop down to an average of 1,255,000 because of other uses being developed. Under the

rights of the compact, by the year 2000, we are predicting that that will drop to an annual average of 1,026,000 acre-feet available for central Arizona.

QUESTION. I will stop you there. In order to take care of Arizona's needs from this project, how much water do you need? Not to pay off the project, but to go ahead and take care of the needs of Arizona?

Mr. DOMINY. We recognized from the very start that this project is not a total panacea for the problems of the water supply in Arizona.

QUESTION. I did not ask you that. I just want to know: How much water Arizona has to have and how much Arizona will have if you develop the upper basin by the year 2000?

Mr. DOMINY. By the year 2000 Arizona would still be needing, if it took care of all of its overdraft, more than 2 million acre-feet of water, instead of the 1 million that we think will be available. We know that there will be a declining agriculture base in Arizona unless there is augmentation to the river supply to pick up that deficiency.

But our studies, so far as the project benefit-cost ratios are concerned—the payouts are concerned—are based on a realistic appraisal that the water will not be there, because you have the rights under the compact to develop your projects in the upper basin, and we think that you will develop them on schedule by the year 2000.

QUESTION. Maybe you will be able to place it in the record without going around the bush.

How much water does Arizona intend to take out of the Colorado River when this project is completed?

Mr. DOMINY. We would hope to divert on the average in the early years of 1,650,000 acre-feet.

QUESTION. And how much do you expect to take out by the year 2000?

Mr. DOMINY. About 1,026,000 acre-feet, on the average.

QUESTION. If the upper basin gets its entitlement, keeping in mind that the lower basin is entitled to the first 7.5 million acre-feet of water, what is Arizona's present entitlement out of the Colorado River.

Mr. DOMINY. It would drop ultimately to an average of about 675,000 acre-feet.

QUESTION. That is it.

Mr. DOMINY. That amount would remain when you get all of your water put to work. We have calculated our studies on that basis.

Then, on January 30, 1968, the Department of the Interior was again called upon to testify on the water supply available for the Central Arizona Project. At that time, the Department submitted on the basis of their studies the following testimony:

ESTIMATE OF WATER SUPPLY

Estimates of future water supply available to the lower basin are influenced by three basic assumptions, each a matter

of judgment. The first relates to the magnitude of virgin runoff that will occur in the future. The second concerns the rate of increase and the ultimate magnitude of Upper Basin depletions. The third involves the magnitude of future net losses along the Lower Colorado River.

Let us discuss all three of these items.

The traditional method of forecasting future runoff is to base the estimate on past records. The question posed in the Colorado Basin is what period of past runoff should be taken as most representative of the future. The following three periods represent typical variations involved:

[In thousands of acre-feet]

Period	Characteristic	Average virgin runoff at Lee Ferry
1931 to 1967	Critical period	12,990
1922 to 1967	Actual record at Lee Ferry	13,750
1906 to 1957	Longest reliable period of record on Colorado River	14,960

The larger estimate of future virgin runoff at Lee Ferry, the larger will be the estimate of water supply for the lower basin, although not in direct proportion. With a 4.4 million acre-foot California priority the magnitude of the central Arizona project water supply is more sensitive to the estimate of future virgin flow at Lee Ferry. * * *

With respect to Upper Basin depletions affecting the water supply available for the Central Arizona Project, the Department of the Interior testified as follows:

There appears to be substantial agreement as to the extent of present upper basin depletions. There is disagreement, however, as to the rate at which future upper basin depletions will occur. There is disagreement as to the extent of responsibility, if any, of the upper basin to meet a part of the Mexican water treaty obligations.

The basic differences in projection of upper basin depletions are as follows:

[In thousands of acre-feet]

Year	Bureau of Reclamation estimate	Tipton report estimate
1965	2,787	2,777
1975	4,220	4,513
1990	5,100	[1] 6,342
2000	5,430	[1] 7,351
2030	5,800	[1] 7,891

[1] Tipton report demonstrates that upper basin's art. III(d), Colorado River compact obligation, limits assured supply for upper basin to 6,300,000 acre-feet annually, exclusive of its Mexican treaty obligation, if any.

We agree that land and other resources in the upper basin could be physically developed to deplete water at the rate the upper basin estimates. However, it does not appear likely in the judgment of our experts that projections which would

completely dedicate the upper basin's total remaining unused Colorado River water supplies to specific areas or uses would be developed at rates commensurate with upper basin projections.

It seems more likely that some reserves will be withheld for future municipal and industrial growth. Also influencing our judgment is the uncertainty as to whether the upper basin is obligated to meet part of any Mexican water treaty deficiencies. Until that issue is resolved, we doubt that projects dependent on the contested water supply, as a practical matter, would be authorized or undertaken.

To the extent that weather modification, desalting, or other measures provide water for additional use, we would expect that the rate of future upper basin depletions would increase accordingly. In the interim, we believe that our estimates of future upper basin depletions are realistic.

Testimony on the third basic assumption was as follows:

NET WATER LOSSES ALONG LOWER COLORADO RIVER

The third broad category where projection or assumption is necessary to estimate future lower basin water supply involves estimating the future net water losses along the Lower Colorado River. Our proposal for the Colorado River Basin project include works to salvage some 680,000 acre-feet of Colorado River water that have constituted river losses in the past. With these salvage works in operation, we estimate that there will remain some 590,000 acre-feet of net losses along the lower river, primarily from evaporation and evapotranspiration from nonbeneficial vegetation. For comparative purposes, other estimates of future net losses are as follows:

Source	*Estimate, acre-feet*
Bureau of Reclamation	590,000
Upper Basin (Tipton)	810,000
Colorado River Board of California	1,000,000

The magnitude of the future losses would affect significantly the residual water supply for the central Arizona project.

Again, we believe our estimates are realistic. Senator Wash Reservoir is now in operation and preventing overdeliveries to Mexico. We are confident that water losses can be reduced through eradication and control of phreatophytes and through further channelization. We know that we can salvage water through ground-water recovery.

In support of its basic assumptions concerning the water available for the Central Arizona Project the Department further testified as follows:

WATER SUPPLY FOR THE CENTRAL ARIZONA PROJECT

The effect of varying assumption in the three broad aspects of water supply I have just discussed—virgin runoff, upper basin depletions, and lower river losses—is as follows and as shown graphically on the chart before you.

WATER FOR CENTRAL ARIZONA PROJECT

[In thousand acre-feet]

Condition	Year 1979	Year 1990	Year 2000	Year 2030	Average 50-year period
USBR projections:					
60-year period, 1906–65	1,650	1,255	1,026	676	1,045
62-year period, 1906–67	1,650	1,239	1,005	626	1,019
46-year period, 1922–67; USBR projections of upper basin depletions	1,650	900	430	284	622
46-year period 1922–67: Tipton projections of upper basin depletions [2]	1,105	500	360	284	450
46-year period 1922–67: Tipton projections of upper basin depletions; Tipton estimate of lower basin salvage [2]	890	285	145	77	237

[1] Aqueduct capacity, 2,500 c.f.s.; 4.4 m.a.f. priority for California.
[2] Tipton projections on basis that upper basin would be required to provide ½ of Mexican water delivery. If upper basin were not so required, water supply for CAP would drop to zero about 1985 on basis of Tipton projections.

Secretary UDALL. Only time will tell which assumptions are the more nearly correct. There is no way of guaranteeing or proving with certainty any given assumption today. The only positive solution, therefore, lies in programs which will supplement Colorado River runoff at least sufficiently to guarantee 7.5 million acre-feet for consumptive use by the lower basin States. If this is accomplished, the assumptions as to virgin flow, upper basin depletions, and river losses become academic insofar as lower basin water supply is concerned.
* * *

In addition the Department presented testimony on water available for the Central Arizona Project through water conservation programs and desalting.

In response to specific Committee inquiries the Department furnished for the record additional information on the water supply available for the Central Arizona Project as follows:

The minimum average annual amount of water necessary to the economic and financial feasibility of the Central Arizona Project is about 450,000 acre-feet. This is the amount of water that would be available based on Colorado River runoff for the 46-year period 1922–1967, based on Mr. Tipton's projection of Upper Basin depletions, and assuming that the Upper Basin would contribute 750,000 acre-feet toward meeting Mexican water deliveries. The average water supply by year would be:

Year:	*Acre-feet (1,000)*
1979	1,105
1990	500
2000	360
2030	284
Average 50-year period	450

A minimum delivery of 8,250,000 acre-feet annually at Lee Ferry is essential to the feasibility of CAP under the assumption of a 4.4 million acre-foot priority for California.

The average annual amount of water and the minimum annual amount of water needed from the main stream for all Lower Basin uses in order to make the Central Arizona

Project feasible are both of the same general order of magnitude. At least 8,250,000 acre-feet annually are required. This amount would serve the following requirements:

	Amount
Delivery to Mexico	1,500,000
California	4,400,000
Nevada	246,000
Arizona main stem	1,230,000
Central Arizona project	[1] 284,00
Net losses below Hoover Dam	590,000
Total	8,250,000

[1] This plus 50,000 acre-feet of other project water supply developed by CAP would be a firm supply to meet the revenue-producing M. & I. sales.

Inasmuch as net inflow between Lee Ferry and Lake Mead just about equals evaporation from Lake Mead, this means that the minimum regulated flow at Lee Ferry would need to by 8,250,000 acre-feet. With average runoff, the regulated flow at Lee Ferry will exceed 8,250,000 acre-feet for a number of years, at least into the 1980's. Thus, the average Lower Basin water supply would exceed the minimum required by a small amount due to early years of excess.

This testimony clearly establishes these most important facts concerning the water available for the Central Arizona Project:

(1) That, the testimony pertaining to water supplies was based upon detailed and completed studies; and

(2) That, such studies clearly establish there is a full water supply available for a feasible Central Arizona Project until the decade 1990–2000; and

(3) That, the other basin States have consistently attempted to impeach the validity of these studies without success.

It is most interesting to note here the attempts of the other basin States to discredit these studies performed by the Department of the Interior, when on the other hand, the other basin States insist upon the inclusion of the controversial provisions of Title II of H.R. 3300 which require the Department of the Interior to prepare reconnaissance and feasibility studies and investigations providing for augmentation of the water resources of the Colorado River.

Title II of H.R. 3300 is another feature of the bill which we oppose. The purpose of Title II is to authorize the Secretary of the Interior to engage in investigations and studies of the means of augmenting the water resources of the Colorado River, including interbasin transfers and the preparation of reconnaissance and feasibility reports thereon.

We think the provisions of Title II duplicate already existing authority as contained in the Water Resources Planning Act (79 Stat. 244) and the bills passed by both Houses of this Congress establishing a National Water Commission. We support the position of the Administration on this point, and agree that a National Water Commission—

> is the appropriate entity to undertake an evaluation of basic issues relative to Colorado River water supply problems. * * * Advice and guidance on these matters, all relevant to the Colorado Basin's water problems, by a disinterested and objective Commission composed of outstanding citizens

should provide background of great assistance in the formulation of specific proposals. The Commission can be expected to give prompt consideration to the problems of the Colorado River Basin.

The States of the Colorado River Basin have attempted to placate the opposition of other States to the provisions of Title II of H.R. 3300 by adding language which appears to protect "areas of origin" or those States affected by such interbasin transfers of water, which did not appear in similar legislation reported in the 89th Congress.

The provisions of Title II should be stricken from H.R. 3300 for these reasons:

(1) The authority to study interbasin diversion of water already exists in the provisions of the Water Resources Planning Act (P.L. 89–90, 79 Stat. 244), as follows:

> SEC. 103. The Council shall establish, after such consultation with other interested entities, both Federal and non-Federal, as the Council may find appropriate, and with the approval of the President, principles, standards, and procedures for Federal participants in the preparation of comprehensive regional or river basin plans and for the formulation and evaluation of Federal water and related land resources projects. Such procedures may include provision for Council revision of plans for Federal projects intended to be proposed in any plan or revision thereof being prepared by a river basin planning commission.
>
> SEC. 104. Upon receipt of a plan or revision thereof from any river basin commission under the provisions of section 204(3) of this Act, the Council shall review the plan or revision with special regard to—
>
> (1) the efficacy of such plan or revision in achieving optimum use of the water and related land resources in the area involved;
>
> (2) the effect of the plan on the achievement of other programs for the development of agricultural, urban, energy, industrial, recreational, fish and wildlife, and other resources of the entire Nation; and
>
> (3) the contributions which such plan or revision will make in obtaining the Nation's economic and social goals.
>
> Based on such review the Council shall—
>
> (a) formulate such recommendations as it deems desirable in the national interest; and
>
> (b) transmit its recommendations, together with the plan or revision of the river basin commission and the views, comments, and recommendations with respect to such plan or revision submitted by any Federal agency, Governor, interstate commission, or United States section of an international commission, to the President for his review and transmittal to the Congress with his recommendations in regard to authorization of Federal projects.

(2) The Committee on Interior and Insular Affairs, and the Congress do not have available the preliminary information and analysis to justify authorization of the study provisions of Title II of H.R. 3300.

(3) The Committee and the Congress do not have available the necessary information as to the costs of the studies authorized by Title II of H.R. 3300.

Two other points should be observed concerning Title II of H.R. 3300. The first, is that the states of the Colorado River Basin, other than Arizona, have agreed to the authorization of the Central Arizona Project, if and only if, the bill contains the provisions providing for a costly feasibility study on augmenting the water resources of the Colorado River. The second observation is that the study provisions of Title II make the responsibility of augmenting the water supply and the costs associated therewith a federal responsibility to be paid for by all the taxpayers of the United States and not the requirement or fiscal responsibility of the Colorado River Basin States.

The creation of this federal responsibility for augmenting the water supplies of the Colorado River was most cleverly designed to arise from the requirements of the Mexican Water Treaty.

IV. The Mexican Water Treaty

We are opposed to the provisions of Section 202 of H.R. 3300 which will make the satisfaction of the requirements of the Mexican Water Treaty a national obligation. We oppose shifting the burden of the Mexican Water Treaty from the Colorado River, where it belongs, to other parts of the Country, where it does not belong, at the expense of the people of the United States who should not bear it. We oppose the assumption of this burden as a national obligation and we are opposed to the covert effect of these provisions as stated in H.R. 3300.

The position of the seven Colorado River Basin States on this issue is quite clear and has been proudly stated in this manner:

> * * * In our bill last year we had a little feature that went almost completely unnoticed, and there was little controversy about it. That feature provided that the federal government would assume the Mexican Treaty burden, picking up the tab for the first 2.5 million acre feet of augmentation of the river. That little item, all by itself, could mean perhaps about $2.5 billion to the states of the Colorado River Basin, the equivalent of about two Hualapai Dams. I think such a transfer of that burden is still possible and ought to be getting our maximum attention and effort. I think that what we can do for ourselves in this area is a lot more important than grousing about the loss of those two dams.

The logic of shifting the burden of the Mexican Water Treaty is most interesting. First, the Colorado River Basin States concluded that there was insufficient water in the river to satisfy the requirements of all the basin States. They then concluded that means must be found to augment the water supply or reduce the requirements. The question then followed as to how augmentation could be accomplished and at whose expense. The next step is most obvious.

The basin States concluded that since the federal government burdened the river with the requirement to deliver 1.5 million acre-feet of water annually plus losses to the Republic of Mexico, the federal government should assume this obligation and be responsible for augmenting the water resources of the Colorado and the costs associated

therewith. This logic supposedly creates the federal responsibility as provided in Title II of H.R. 3300, to the States of the Colorado River Basin.

The Colorado River Basin States, all of them, knew as early as 1922, at the time of the Colorado River Compact, that the Republic of Mexico had been using and was entitled to the use of the water in the Colorado River. They have all known since 1944, when the Mexican Water Treaty was ratified, precisely what amount of water that would be.

The discussions of water for Mexico occupied a prominent part in the negotiations for the compact between the basin States. Now, the Colorado River Basin States have concluded that the apportionment of Colorado River water to Mexico under the Treaty was done on the basis of a mistake in judgment as to the amount of water in the Colorado River. The Colorado River Basin States have thus stated, afortiori, the federal government has a responsibility to correct this mistake in judgment and should do so by assuming the obligations of the Mexican Water Treaty.

With this logic we cannot agree. This shallow reasoning covertly attempts to saddle the other States of the Nation with the costs of studying, planning and augmenting the water supply of the Colorado River as a federal responsibility and not a responsibility of the seven basin states.

Assuming the Mexican Water Treaty may have been negotiated on the basis of a mistake in judgment as to the amount of water available for delivery to Mexico, such mistake appears to be a unilateral mistake to which the seven states of the Colorado River Basin long ago assented. There is no evidence of a mutual mistake of fact in the negotiation of the Mexican Water Treaty which in equity might call for the recession or renegotiation of this agreement.

The Mexican Water Treaty is as much a fact of life for the States of the Colorado River Basin, as it is for the federal government. The Treaty is as much a part of the "law of the river" to which the basin states pledge their allegiance day in and day out, when it suits them to do so—as is the geology of the area or the paucity of precipitation that is one of its characteristics. And, the basin States ought to have planned accordingly.

If there were no Mexican treaty and these States were planning a project to import 2,500,000 acre-feet of water into their basin to bolster their water-short economy, there is no question but that they would be obligated to pay for it. The case is no different here. For what absolving them from the burden of the Mexican treaty means is that they will have 2,500,000 acre-feet of water more than they now have to bolster that same economy. They should be required to pay for it either out of power revenues or from taxes on themselves or by some other means, and project planning should be required to proceed on the assumption that they will have to do so.

The bill, as amended, goes further than this. It is abundantly clear that all costs associated with bringing these 2,500,000 acre-feet of water into the Colorado Basin will be nonreimbursable, but the bill is seductively vague on how the costs of the other investigations and studies will be allocated. Absent anything in the bill to the contrary, we read this as an invitation to assign all the basic costs of the works

to satisfying the Mexican Treaty requirement. We read it, in other words, as an invitation to load on the American taxpayer not only the Mexican Treaty's proportionate share of the cost of the importation works but a good deal more than this in addition. This is unjustified.

V. The Upper Basin Projects

We also oppose those provisions of Title V of H. R. 3300 which authorize five (5) participating projects under the Colorado River Storage Project Act. These projects are: the Animas-La Plata, Colorado, New Mexico and the Delores, Dallas Creek, West Divide and San Miguel projects in Colorado.

The authorization of these projects and the inclusion of a number of provisions affecting upper and lower Colorado River Basin relationships constitute the ransom extorted by the States of the Upper Colorado River Basin as their price for supporting the authorization of the Central Arizona Project.

Considerable testimony before the Committee concerned the availability of water and the rate of Upper Basin depletions which would occur by the authorization and construction of the Upper Basin Projects. As a result of the time consumed on the Upper Basin depletions, the Committee received little or no testimony concerning the eocnomic and financial feasibility of the Upper Basin Projects.

In authorizing these five Upper Basin projects H. R. 3300 again goes far beyond the position of the Administration in support of this legislation. In transmitting the planning reports on these projects to the Congress, only the Animas-La Plata and Delores projects were recommended. The Bureau of the Budget has recommended deferral of the three other projects pending the establishment of the National Water Commission and completion of its review of related water problems.

The position of the Administration is more fully disclosed by the following letter:

Executive Office of the President,
Bureau of the Budget,
Washington, D.C., April 30, 1966.

Hon. Stewart L. Udall,
Secretary of the Interior,
Washington, D.C.

Dear Mr. Secretary: This is in reply to your letters of April 6 and 13, 1966, submitting your proposed reports on the Dallas Creek, San Miguel, West Divide, and Animas-La Plata projects in Colorado. These Upper Colorado Basin projects, together with the Dolores project on which we advised you earlier, would be authorized under the provisions of a revision of H.R. 4671 (found in House Interior Committee Print No. 19), legislation to authorize the Lower Colorado River Basin project, which is now under consideration in the Congress. This legislation would also authorize the central Arizona project, Bridge and Marble Canyon Dams, and related works in the Lower Colorado Basin as features of an overall Colorado Basin development.

Except for San Miguel, the projects meet the conventional direct benefit-cost ratio criterion. However, all five projects have a high cost per acre and investment per farm, and the irrigation cost per

acre for Dallas Creek, San Miguel, and West Divide are among the highest for reclamation projects. In all cases, irrigation farmers will be heavily subsidized by assistance from power revenues and the percentage repayment of irrigation cost by water users is only a small fraction of the irrigation allocation. Since these new projects in the Upper Colorado Basin would require such heavy subsidies for irrigation farmers, we question the desirability in areas of critically short water supply of Federal Government sponsorship without further consideration of both alternative uses and of supplemental water sources.

Our specific comments on the individual projects are as follows:

DOLORES PROJECT

The Dolores project, which we cleared in our letter to you of May 4, 1966, has a cost per acre for the irrigation allocation of $630 and a direct 100-year benefit-cost ratio just above unity (1.07:1). The irrigation investment per farm would be approximately $140,000. The repayment of the irrigation allocation is low (16.8 percent) and, as we noted in our earlier letter, the charges for municipal and industrial water might be raised to help pay for the project and reduce power subsidies from the Upper Colorado River Basin fund.

ANIMAS-LA PLATA PROJECT

The revised Animas-La Plata project would also have a heavy dependence on power revenues, with a water users repayment of only 13.1 percent. The investment per farm would be about $157,000. The project has a cost per acre of $840 and a low direct benefit-cost ratio (1.1:1). While there appears to be no immediate need for the 23,500 acre-feet of municipal and industrial water that would be delivered to the Ute Mountain Tribe Reservation, the allocation of this water for these purposes rather than irrigation improves the project. The charge for municipal and industrial water seems very low considering that it will probably be used in large part for developing a profitable coal-steam power industry.

DALLAS CREEK PROJECT

The Dallas Creek project has a very high cost per acre ($1,140) and the irrigators' repayment is low (11.9 percent). The investment per farm would be about $192,000. We agree with the comment of the Department of Agriculture that the economic growth of the area would be stimulated more by the planned development of additional municipal and industrial water supply to meet future demands rather than allocating large amounts of water to irrigation. We also agree with the comment of the State of Nevada that the charge on the contemplated municipal and industrial water could be increased to help in the direct repayment of the project.

WEST DIVIDE PROJECT

The West Divide project has one of the highest costs per acre ($1,710) of any reclamation project. The investment per farm would be approximately $273,000. We also question whether there is enough

demand in the near future to necessitate the immediate authorization of this project and believe it would be preferable for the project to be deferred until it is clear that there will be a real demand for the project water for the development of oil shale reserves. However, if the oil shale reserves are developed, it would seem to be an unwise use of resources to commit water to irrigation if the future demands for municipal and industrial water are as great as anticipated in the project report. Furthermore, we agree with the State of Nevada that the water charge for municipal and industrial water could be substantially increased, particularly in light of the commercial development of the oil shale resources.

SAN MIGUEL PROJECT

The San Miguel project appears to have the lowest priority of the five projects. It has a very high cost per acre ($1,310), an extremely low irrigators' repayment (10 percent) with a correspondingly heavy dependence on power revenues and a direct benefit-cost ratio significantly less than unity (0.89:1). The investment per farm would be approximately $226,000. We agree with the comments of the State of Nevada that the municipal and industrial water charges could be at least doubled.

We fully understand the desire of the State of Colorado to make full use of its compact entitlement to the scarce waters of the Upper Colorado Basin. These five projects would, however, exhaust the remaining supply of water available to the State of Colorado. Further, the situation is somewhat different in the Upper than in the Lower Colorado Basin. In the lower basin, an established economy is faced with an immediate water crisis accelerated by the pressures of population growth. In both the upper and lower basins, nevertheless, the same considerations—population pressures, alternative opportunities for regional development, development for industrial as well as agricultural purposes, demands for water at the lowest possible cost—emphasize the critical importance of planning at this time to use waters available to the States of the Colorado Basin in the most efficient possible way, and thereby, to make an optimum contribution to the future growth of the States, the region, and the Nation.

The revision of H.R. 4671, contained in House Interior Committee Print No. 19, on which hearings are scheduled before the House Interior and Insular Affairs Committee for May 9, 1966, is designed to solve water problems in the Colorado Basin by directing the Secretary of the Interior to consider projects to import up to 8.5 million acre-feet annually, in addition to authorizing developments in the Upper and Lower Colorado Basins, including the Central Arizona project, as noted above. We commented last year on S. 75 and S. 1019, similar bills to authorize certain development in the Lower Colorado Basin and to provide means of augmenting water supplies for that area. However, the revision of H.R. 4671 would apply to both the Upper and Lower Colorado Basins and would go substantially beyond the legislation commented on by the Bureau last year.

These considerations, particularly the major policy and budgetary implications of any proposed major importation of waters as contemplated in the measure now under consideration by the Congress, in our view, underline the importance of prompt establishment of the

National Water Commission recommended by the administration to review these and other complex water problems both in the West and throughout the entire Nation. This Commission, composed of the most able individuals from all related disciplines, would advise on the entire range of water resource problems, from methods to conserve and augment existing water supplies to the application of modern technology, such as desalting, to provide more usable water for our cities, our industries, and our farms. We would favor acceleration of the review of western water problems with particular emphasis on the Colorado Basins. The Commission would also provide a focal point for a considered assessment of the conflicting objectives of power, water supply, and the preservation of areas of unique, scenic value—presented by proposals for dams in the Colorado River Gorge.

In summary, for the reasons expressed above, the Bureau of the Budget would favor deferral of at least the West Divide, San Miguel, and Dallas Creek projects at this time, pending the establishment of the National Water Commission and completion of its review of related water problems. We believe that this course of action will permit water developments needed at this time in the Colorado Basin to proceed, but at the same time provide a basis for thorough consideration of the fundamental issues involved and a recommended program that will be in the best interest of the people of the Upper and Lower Colorado Basin, as well as the Nation as a whole.

Sincerely,

PHILLIP S. HUGHES,
Deputy Director.

On the basis of the position taken by the Administration and because of the lack of testimony before the Committee on the economic and financial justification of these Upper Basin Projects, we think the five (5) projects; the Animas-La Plata, Colorado, New Mexico, the Dallas Creek, West Divide and San Miguel projects in Colorado should not be authorized by H.R. 3300. The authorization of these five (5) projects by H.R. 3300, without detailed testimony on their economic and financial feasibility, is in our opinion, an outstanding example of improper water resource development planning.

VI. THE NEED FOR A CENTRAL ARIZONA PROJECT—A PROPOSAL

Proper water resource development and planning has long called for the authorization of the Central Arizona Project in Arizona.

The need for a Central Arizona Project is so aptly described in the report (Senate Report No. 408) on S. 1004, similar legislation passed by the Senate authorizing the Central Arizona Project, that we adopt and incorporate the narrative as part of our views on the need for a Central Arizona Project. The narrative follows:

VI. NEED FOR THE CENTRAL ARIZONA PROJECT

Central Arizona is one of the fastest growing and most arid regions in the Nation. Historically, development in central Arizona lagged behind most regions in the Nation because of its remoteness and its arid climate. Recently, however, population and economic growth has advanced rapidly, resulting

in the utilization of the area's dormant wealth in agriculture, mining, lumbering and tourist attractions.

The Lower Colorado River Basin, of which central Arizona is a vital part, produces more than a billion dollars worth of vital agricultural products annually. The fact that the Nation has this production now is highly important, but the prospect that the Nation might not have it in the future is alarming. Many specialty crops such as winter lettuce, citrus fruits, garden vegetables, dates and melons are produced in this area. Virtually all of the agriculture depends on irrigation.

A market exists for more produce of this kind than our domestic Southwest now grows. This is seen in the fact that the United States presently imports $65 million worth of this type farm produce. These imports consist principally of winter vegetables (melons, tomatoes, peppers, peas, and so forth) from irrigated areas south of the Arizona and California borders.

Water is the key element that has made Arizona's economy strong and its spectacular recent growth possible. Without a permanent supply of water, much of this area would revert to desert. This is more than a future possibility, as it has already begun to happen in some areas of the State where water shortages are most critical.

The effects of declining water supply are first felt in the agricultural sector of an area's economy. Diminished yields, greater depths to ground water, lowered water quality, and higher costs are first felt by farmers. Cutbacks in irrigation adversely affect local businesses. Local business is the link with regional and national trade, and reductions are soon transmitted to other States and other areas. If Arizona's water problems are not resolved, repercussions will be manifested in the reduced outflow of agricultural products and the reduced inflow of farm machinery, fertilizers, and other farming inputs.

Urbanization is rapidly expanding in Arizona and in some areas is resulting in the loss of prime agricultural land. This is especially true in central Arizona, because the major metropolitan areas have sprung from towns in the irrigated farming areas, and the very economic base which underlies the growth and vitality of these cities is being taken over in the population explosion. For example, the incorporated area of Phoenix, Ariz., has increased from 17.1 square miles to 222.7 square miles during the last 14 years. The demand for more agricultural land for industry, for business, for residences, for schools, parks, and recreation, will continue as the agriculture land base declines.

The transition from an agricultural economy dependent on irrigation to a strong, diversified industrial economy is inevitable. It is also desirable, because industrial and municipal uses of water will, in the long run, support a larger and more affluent population than will predominantly agricultural uses of water. And this is a very important consideration in an area which will probably always have to live with-

in definite constraints on the availability of water supplies. Basic changes such as these in the structure and fabric of a region's economy and way of life do not normally occur overnight, however; and when they do, they are usually accompanied by tragic dislocations which disrupt the economy of the area, the well-being of its institutions and the security and the aspirations of its people.

S. 1004 is in part based on a recognition of the need for a gradual transition toward a predominantly municipal and industrial use of water. Accordingly, water supplied under the project is to supplement existing supplies and no new lands are to be irrigated. Water supplied by the Central Arizona Project will allow Arizona to utilize its share of Colorado River water awarded and decreed by the Supreme Court. It will also provide time to diversify the economy, to plan, and to implement procedures which will avoid the crises which too often accompany a region's realization that economic growth must take place within the confines of a limited water supply.

The outstanding growth of manufacturing in the past 10 years is partially a result of the contribution of agriculture which furnishes substantial quantities of the raw materials processed through the factories. The bulk of the growth in manufacturing, however, has resulted from expansion in products of the communications, space, and aircraft industries. This trend should continue in the future.

ARIZONA'S RANK BY 7 IMPORTANT INDEXES OF GROWTH

	Rank among States	Percent gain, 1953–63
Growth of manufacturing employment	1	97
Growth of nonagricultural employment	2	89
Growth of population	2	74
Growth of passenger car registrations	2	117
Growth of bank deposits	1	162
Growth of personal income	3	132
Growth of life insurance in force	2	360

Much of the water used in Arizona in the past has come from large ground water basins. Water stored in these reservoirs has accumulated over millions of years. Mining of this ground water resource (pumping of the ground water at a rate faster than it can be recharged naturally), has largely supported the area's growth.

In the desert, ground water recharge from precipitation is minimal. Historically, the major source of natural recharge came from rivers flowing onto and across the desert. Today this recharge is restricted to exceptionally wet water years when the highly developed reservoir systems fill and surplus water can flow downstream into the recharge area. As the streamflow has been diverted from natural streams into canals and farmland the recharge from agriculture and municipal uses has increased. However, even with this recharge the current average annual rate of ground water

decline in the area has been about 10 feet per year with a large portion of the area experiencing a decline of as much as 20 feet or more.

The average water table depth in 1940 was only about 70 feet below ground surface. By 1964 the average had dropped to 200 feet with depths as great as 500 feet. Pump lifts associated with these water table levels vary from 250 to 600 feet. Judging from the present rate of ground water withdrawal, the average water table can be expected to fall about 300 feet or lower by 1975; and this fall in water tables will be accompanied by corresponding increases in pumping lift from wells.

Water quality frequently becomes poor at greater depths because of deep deposits of salts and gypsum. This poor quality water must be diluted with better quality water from other sources to avoid salt concentrations which exceed the minimum agricultural and public health standards. In fact, a great deal of the water presently used in central Arizona now exceeds these minimum standards.

Because of pumping costs, poor water quality, and the physical limitations imposed by the variable nature of the underground storage, the entire volume of underground water cannot be considered available for use. The present net rate of overdraft of about 2 million acre-feet per year will drastically deplete this largely nonreplenishable resource before adequate water is available to bring supply and demand in balance.

Water use in Arizona in the past has been predominantly for agriculture. As late as 1960 more than 90 percent of the water used in central Arizona was used for agricultural purposes. As the urban areas of Phoenix and Tucson expand, this relationship of water use is changing rapidly. The rate of change is expected to accelerate in the future as the population continues to expand and as industrial development increases.

Central Arizona Project water will be marketed through qualified contracting agencies, principally municipalities and irrigation districts. The chief immediate result of purchases of project water by either of these two types of users will be a reduction in present overdrafts on the ground water, which in turn will result in prolonged availability of water for all uses. The use of project water to satisfy the growing urban needs will slow the pace of the preemption of agricultural water which is now taking place.

In brief, the Central Arizona Project is needed to—

1. Reduce a dangerous overdraft upon ground water reserves.
2. Maintain as much as possible of the area's 1,250,000 acres of irrigated farm land.
3. Provide a source of additional water for municipal and industrial use that will be required during the next 30 years.

The need for the Central Arizona Project was succinctly summarized by Stewart Udall, the Secretary of the Interior, during the hearings in the following language:

"In respect of the second principal objective of our proposed program for the Colorado River Basin, that of alleviating the most immediately urgent water supply deficiencies, the required action at this time in the Lower Basin remains the authorization and construction of the Central Arizona Project.

"The rapidly lowering ground water levels, the agricultural lands going out of production, the expanding population, the mounting needs for municipal and industrial water, and the prospects of economic stagnation if relief is not provided, all urge strongly for the need to go ahead with the Central Arizona Project?

"I think this needs no further argument to establish that it is the great and pressing need in the basin at the moment."

We agree that Arizona's needs for supplemental water from the Colorado River are most critical and will become more so as time goes on. We agree too, that to maintain the existing economy of Arizona and to supply the needs of growing municipal and industrial use, the Central Arizona Project should be authorized without further delay.

We also believe the next logical step in the water resource development of the Colorado River Basin is the authorization, construction, operation and maintenance of the Central Arizona Project. We therefore submit a proposal, the purpose of which is to authorize the Central Arizona Project, minus the controversial provisions of H.R. 3300. Our proposal is as follows:

A BILL To authorize the construction, operation, and maintenance of the Central Arizona Project, Arizona-New Mexico, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. That this Act may be cited as the "Central Arizona Project Act".

SEC. 2. (a) For the purposes of furnishing irrigation water and municipal water supplies to the water deficient areas of Arizona and western New Mexico through direct diversion or exchange of water, generation of electric power and energy, control of floods, conservation and development of fish and wildlife resources, enhancement of recreation opportunities, and for other purposes, the Secretary of the Interior (hereinafter referred to as the "Secretary") shall construct, operate, and maintain the Central Arizona Project, consisting of the following principal works: (1) a system of main conduits and canals, including a main canal and pumping plants (Granite Reef aqueduct and pumping plants), for diverting and carrying water from Lake Havasu to Orme Dam or suitable alternative, which system shall have a capacity of not less than three thousand cubic feet per second; (2) Orme Dam and Reservoir and power-pumping plant or suitable alternative; (3) Buttes Dam and Reservoir, which shall be so

operated as to not prejudice the rights of any user in and to the waters of the Gila River as those rights are set forth in the decree entered by the United States District Court for the District of Arizona on June 29, 1935, in United States against Gila Valley Irrigation District and others (Globe Equity numbered 59); (4) Conner Dam and Reservoir or suitable alternative, which shall be constructed in such a manner as to give effect to the provisions of subsections (f), (g), and (h) of this section; (5) Charleston Dam and Reservoir; (6) Tucson aqueducts and pumping plants; (7) Salt-Gila aqueduct; (8) canals, regulating facilities, hydroelectric powerplants, and electrical transmission facilities; (9) related water distribution and drainage works; and (10) appurtenant works: *Provided*, That nothing in this Act shall be construed to alter, amend, repeal, modify, or be in conflict with the rights of Arizona under the decision in Arizona against California (373 U.S. 546). The terms "consumptive use" and "main stream" as used in this Act shall have the meanings assigned to those terms in the decree in Arizona against California, dated March 9, 1964 (376 U.S. 340).

(b)(1) The Secretary may enter into an agreement with non-Federal interests proposing to construct a thermal generating powerplant whereby the United States shall acquire the right to such portion of the capacity of such plant, including delivery of power and energy over appurtenant transmission facilities to mutually agreed upon delivery points, as he determines is required in connection with the Central Arizona Project. Power and energy acquired thereunder may be disposed of intermittently by the Secretary when not required in connection with the Central Arizona Project. The agreement shall provide, among other things, that—

(i) The United States shall pay not more than that portion of the total construction cost, exclusive of interest during construction, of the powerplant, and of any switchyards and transmission facilities serving the United States, as is represented by the ratios of the respective capacities to be provided for the United States therein to the total capacities of such facilities. The Secretary shall make the Federal portion of such costs available to the non-Federal interests during the construction period, including the period of preparation of designs and specifications, in such installments as will facilitate a timely construction schedule, but no funds other than for preconstruction activities shall be made available by the Secretary until he determines that adequate contracts have been entered into between all the affected parties covering land, water, fuel supplies, power (its availability and use), rights-of-way, transmission facilities, and all other necessary matters for the thermal generating powerplant: *Provided*, That nothing in this section or in this Act contained shall be construed to authorize the study or construction of any dams on the main stream of the Colorado River or its tributaries between Hoover Dam and Glen Canyon Dam;

(ii) In entering into the contracts between the United States and the other interested parties the United States shall be given appropriate credit for any interests in Federal lands administered by the Department of the Interior that are made available for the powerplant and appurtenances;

(iii) Annual operation and maintenance costs, including provisions for depreciation (except as to depreciation on the pro rata share of construction cost borne by the United States in accordance with the foregoing subdivision (i)) shall be apportioned between the United States and the non-Federal interests on an equitable basis taking into account the ratios determined in accordance with the foregoing subdivision (i);

(iv) Costs to be borne by the United States under subdivisions (i) and (iii) shall not include (a) interest and interest during construction, (b) financing charges, (c) franchise fees, and (d) such other costs as shall be specified in the agreement;

(v) This section and other relevant parts of this law shall not be construed as precedent for the Department of the Interior, Bureau of Reclamation, or any other Federal agency to enter into the construction of a thermal powerplant or plants.

(2) The thermal generating plant referred to in subparagraph (1) of this subsecton shall be located in Arizona, and if it is served by water diverted from the drainage area of the Colorado River system above Lee Ferry, consumptive use of water in connection therewith shall be charged against the apportionment to Arizona made by article III(a) of the Upper Colorado River Basin compact (63 Stat. 31) and such use shall not increase Arizona's entitlement to consumptive use under said compact: *Provided*, That if at any time during the operation of the Central Arizona Project, there is any change in the powerplant heretofore authorized which shall result in the diminution of water consumed in the cooling towers or recovered from the cooling towers, or otherwise, such reduction and, or recovery, shall be credited solely to Arizona.

(c) Unless and until otherwise provided by Congress, water from the Central Arizona Project shall not be made available directly or indirectly for the irrigation of lands not having a recent irrigation history as determined by the Secretary, except in the case of Indian lands, national wildlife refuges, and, with the approval of the Secretary, State-administered wildife management areas.

(d) (1) Irrigation and municipal and industrial water supply under the Central Arizona Project within the State of Arizona may, in the event the Secretary determines that it is necessary to effect repayment, be pursuant to master contracts with organizations which have power to levy assessments against all taxable real property within their boundaries. The terms and conditions of contracts or other

arrangements whereby each such organization makes water from the Central Arizona Project available to users within its boundaries shall be subject to the Secretary's approval and the United States shall, if the Secretary determines such action is desirable to facilitate carrying out the provisions of this Act, have the right to require that it be a party to such contracts or that contracts subsidiary to the master contracts be entered into between the United States and any user. The provisions of this subparagraph (1) shall not apply to the supplying of water to an Indian tribe for use within the boundaries of an Indian reservation.

(2) Any obligation assumed pursuant to section 9(d) of the Reclamation Project Act of 1939 (43 U.S.C. 485h(d)) with respect to any project contract unit or irrigation block shall be repaid over a basic period of not more than fifty years; any water service provided pursuant to section 9(e) of the Reclamation Project Act of 1939 (43 U.S.C. 485h(e)) may be on the basis of delivery of water for a period of fifty years and for the delivery of such water at an identical price per acre-foot for water of the same class at the several points of delivery from the main canals and conduits and from such other points of delivery as the Secretary may designate; and long-term contracts relating to irrigation water supply shall provide that water made available thereunder may be made available by the Secretary for municipal or industrial purposes if and to the extent that such water is not required by the contractor for irrigation purposes. Notwithstanding any other provisions of law no contract relating to an irrigation water supply under the Central Arizona Project from the main stream of the Colorado River shall commit the United States to deliver such supply for a basic period of more than fifty years plus any development period authorized not to exceed ten years, for each project contract unit or irrigation block, nor shall such a contract carry renewal or conversion rights or entitle the contractor to water beyond expiration of the delivery periods specified therein. In negotiating new contracts for delivery of such main stream water, the Secretary shall consult with representatives of the State of Arizona and the Secretary shall take into consideration the overall water supply and needs of the Central Arizona Project.

(3) Contracts relating to municipal and industrial water supply under the Central Arizona Project may be made without regard to the limitations of the last sentence of section 9(c) of the Reclamation Project Act of 1939 (43 U.S.C. 485h(c)); may provide for the delivery of such water at an identical price per acre-foot for water of the same class at the several points of delivery from the main canals and conduits; and may provide for repayment over a period of fifty years if made pursuant to clause (1) of said section and for the delivery of water over a period of fifty years if made pursuant to clause (2) thereof.

(e) Each contract under which water is provided under the Central Arizona Project shall require that (1) there be

in effect measures, adequate in the judgment of the Secretary, to control expansion of irrigation from aquifers affected by irrigation in the contract service area; (2) the canals and distribution systems through which water is conveyed after its delivery by the United States to the contractors shall be provided and maintained with linings, adequate in his judgment to prevent excessive conveyance losses; and (3) neither the contractor nor the Secretary shall pump or permit others to pump ground water from within the exterior boundaries of the service area of a contractor receiving water from the Central Arizona Project for any use outside said contractor's service area unless the Secretary and such contractor shall agree, or shall have previously agreed, that a surplus of ground water exists and that drainage is or was required; and (4) all agricultural, municipal, and industrial waste water, return flow, seepage, sewage effluent, and ground water located in or flowing from contractor's service area originating or resulting from (i) waters contracted for from the Central Arizona Project or (ii) waters stored or developed by any Federal reclamation project are reserved for the use and benefit of the United States as a source of supply for the service area of the Central Arizona Project or for the service area of the Federal reclamation project, as the case may be: *Provided*, That notwithstanding the provisions of clause (3) of this subsection, the agricultural, municipal, and waste water, return flow, seepage, sewage effluent, and ground water in or from any such Federal reclamation project, may also be pumped or diverted for use and delivery by the United States elsewhere in the service area of the Central Arizona Project, if not needed for use or reuse in such Federal reclamation project.

(f) The Secretary may require in any contract under which water is provided from the Central Arizona Project that the contractor agree to accept main stream water in exchange for or in replacement of existing supplies from sources other than the main stream. The Secretary shall so require in the case of users in Arizona who also use water from the Gila River system, to the extent necessary to make available to users of water from the Gila River system in New Mexico additional quantities of water as provided in and under the conditions specified in subsection (h) of this section: *Provided*, That such exchanges and replacements shall be accomplished without economic injury or cost to such Arizona contractors.

(g) In times of shortage or reduction of main stream Colorado River water for the Central Arizona Project, as determined by the Secretary, users which have yielded water from other sources in exchange for main stream water supplied by that project shall have a first priority to receive main stream water, as against other users supplied by that project which have not so yielded water from other sources, but only in quantities adequate to replace the water so yielded.

(h) In the operation of the Central Arizona Project, the Secretary shall offer to contract with water users in New

Mexico for water from the Gila River, its tributaries and underground water sources, in amounts that will permit consumptive use of water in New Mexico not to exceed an annual average in any period of ten consecutive years of eighteen thousand acre-feet, including reservoir evaporation, over and above the consumptive uses provided for by article IV of the decree of the Supreme Court of the United States in Arizona against California (376 U.S. 340). Such increased consumptive uses shall not begin until and shall continue only so long as delivery of Colorado River water to downstream Gila River users in Arizona is being accomplished in accordance with this Act, in quantities sufficient to replace any diminution of their supply resulting from such diversions from the Gila River, its tributaries and underground water sources. In determining the amount required for this purpose full consideration shall be given to any differences in the quality of the waters involved. All additional consumptive uses provided for in this subsection shall be subject to all rights in New Mexico and Arizona as established by the decree entered by the United States District Court for the District of Arizona on June 29, 1935, in United States against Gila Valley Irrigation District and others (Globe Equity numbered 59) and to all other rights existing on the effective date of this Act in New Mexico and Arizona to water from the Gila River, its tributaries and underground water sources, and shall be junior thereto and shall be made only to the extent possible without economic injury or cost to the holders of such rights.

(i) For a period of ten years from the date of the first delivery of water to the Central Arizona Project, no water from the projects authorized by this Act shall be delivered to any water user for the production on newly irrigated lands of any basic agricultural commodity, as defined in the Agricultural Act of 1949, or any amendment thereof, if the total supply of such commodity for the marketing year in which the bulk of the crop would normally be marketed is in excess of the normal supply as defined in section 301(b)(10) of the Agricultural Adjustment Act of 1938, as amended, unless the Secretary of Agriculture calls for an increase in production of such commodity in the interest of national security.

(j) The Dixie project, heretofore authorized in the State of Utah, is hereby reauthorized for construction at the site determined feasible by the Secretary and the Secretary shall integrate such project into the repayment arrangement and participation in the Lower Colorado River Basin Development Fund established by section 5 of this Act consistent with the provisions of this Act.

SEC. 3. The conservation and development of the fish and wildlife resources and the enhancement of recreation opportunities in connection with the Central Arizona Project works authorized pursuant to this Act shall be in accordance with provisions of the Federal Water Project Recreation Act (79 Stat. 213).

SEC. 4. The Secretary shall determine the repayment capability of Indian lands within, under, or served by the Central Arizona Project. Construction costs allocated to irrigation of Indian lands (including provisions of water for incidental domestic and stock water uses) and within the repayment capability of such lands shall be subject to the Act of July 1, 1932 (47 Stat. 464), and such costs as are beyond repayment capability of such lands shall be paid from the Lower Colorado River Basin Development Fund.

SEC. 5. (a) There is hereby established a separate fund in the Treasury of the United States, to be known as the Lower Colorado River Basin Development Fund (hereafter called the "Development Fund"), which shall remain available until expended as hereafter provided, for carrying out the provisions of section 2 of this Act, and to be expended or applied in connection with water conservation and development for the Lower Colorado River Basin as may hereafter be prescribed by the Congress.

(b) All appropriations made for the purpose of carrying out the aforesaid provisions of section 2, and such projects as are hereafter authorized by the Congress for water conservation and development for the Lower Colorado River Basin, shall be credited to the Development Fund as advances from the general fund of the Treasury and shall be available for such purposes.

(c) There shall also be credited to the Development Fund—

(1) All revenues collected in connection with the operation of the works and facilities authorized pursuant to section 2 and hereafter authorized in furtherance of the purposes of this Act (except entrance, admission, and other recreation fees or charges and proceeds received from recreation concessionaires); and

(2) All Federal revenues from the Boulder Canyon and Parker-Davis projects, which, after completion of repayment requirements of the said Boulder Canyon and Parker-Davis projects, are surplus, as determined by the Secretary, to the operation, maintenance, and replacement requirements of those projects: *Provided, however*, That the Secretary is authorized and directed to continue the in-lieu-of-taxes payments to the States of Arizona and Nevada provided for in section 2(c) of the Boulder Canyon Project Adjustment Act so long as revenues accrue from the operation of the Boulder Canyon project; and

(3) All Federal revenues from the portion of the Pacific Northwest-Pacific Southwest intertie, located in the States of Nevada and Arizona which, after completion of repayment requirements of the said part of the Pacific Northwest-Pacific Southwest intertie located in the States of Nevada and Arizona, are surplus, as determined by the Secretary, to the operation, maintenance, and replacement requirements of said portion of the Pacific Northwest-Pacific Southwest intertie and related facilities.

(d) All revenues collected and credited to the Development Fund pursuant to this Act shall be available, after proper reports have been made to the Committees on Interior and Insular Affairs of the Senate and House of Representatives, and when appropriated for—

(1) defraying the costs of operation, maintenance and replacements of, and emergency expenditures for, all facilities of the project within such separate limitations as may be included in annual apropriation Acts;

(2) payments, if any, as required by section 7 of this Act;

(3) payments as required by subsection (f) of this section; and

(4) payments to reimburse water users in the State of Arizona for losses sustained as a result of diminution of the production of hydroelectric power at Coolidge Dam, Arizona, resulting from exchanges of water between users in the States of Arizona and New Mexico as set forth in section 2 of this Act.

(e) Revenues credited to the Development Fund shall not be available for construction of the works authorized pursuant to section 2 of this Act except on appropriation by the Congress.

(f) Revenues in the Development Fund in excess of the amount necessary to meet the requirements of clauses (1), (2), and (4) of subsection (d) of this section shall be paid annually to the general fund of the Treasury to return—

(1) the costs of the project or separable features thereof, authorized pursuant to section 2 of this Act which are allocated to irrigation, commercial power, or municipal and industrial water supply, pursuant to this Act, within a period not exceeding fifty years from the date of completion of each such unit or separable feature, exclusive of any development period authorized by law; and

(2) interest (including interest during construction) on the unamortized balance of the investment in the commercial power and municipal and industrial water supply features of the project at a rate determined by the Secretary of the Treasury in accordance with the provisions of subsection (g) of this section, and interest due shall be a first charge.

(g) The interest rate applicable to those portions of the reimbursable costs of the Central Arizona Project which are properly allocated to commercial power development and municipal and industrial water supply shall be at a rate not less than (i) a rate determined by the Secretary of the Treasury taking into consideration the current average market yield on outstanding marketable obligations of the United States with remaining periods to maturity comparable to the average maturities of similar loans, adjusted upward to the nearest one-eighth of 1 per centum, as of the beginning of the fiscal year in which the first advance is made for initiating construction of such project, plus (ii) such additional charge,

if any, toward covering other costs of the program as the Secretary may determine to be consistent with its purposes.

(h) Business-type budgets shall be submitted to the Congress annually for all operations financed by the Development Fund.

SEC. 6. The Secretary may undertake programs for water salvage along and adjacent to the main stream of the Colorado River and for ground water recovery. Such programs shall be consistent with maintenance of a reasonable degree of undisturbed habitat for fish and wildlife in the area, as determined by the Secretary.

SEC. 7. The Upper Colorado River Basin fund established under section 5 of the Act of April 11, 1956 (70 Stat. 107), shall be reimbursed from the Colorado River Development Fund established by section 2 of the Boulder Canyon Project Adjustment Act (54 Stat. 774), for all expenditures heretofore or hereafter made from the Upper Colorado River Basin fund to meet deficiencies in generation at Hoover Dam during the filling period of reservoirs of storage units of the Colorado River storage project pursuant to the criteria for the filling of Glen Canyon Reservoir (27 Fed Reg. 6851, July 19, 1962). For this purpose $500,000 for each year of operation of Hoover Dam and powerplant, commencing with the enactment of this Act, shall be transferred from the Colorado River Development Fund to the Upper Colorado River Basin fund, in lieu of application of said amounts to the purposes stated in section 2(d) of the Boulder Canyon Project Adjustment Act, until such reimbursement is accomplished. To the extent that any deficiency in such reimbursement remains as of June. 1, 1987, the amount of the remaining deficiency shall then be transferred to the Upper Colorado River Basin fund from net revenues derived from the sale of electric energy generated at Hoover Dam.

SEC. 8. Nothing in this Act shall be construed to alter, amend, repeal, modify, or be in conflict with the provisions of the Colorado River compact (45 Stat. 1057), the Upper Colorado River Basin compact (63 Stat. 31), the water treaty of 1944 with the United Mexican States (Treaty Series 994), the decree entered by the Supreme Court of the United States in Arizona against California and others (376 U.S. 340), the Boulder Canyon Project Act (45 Stat. 1057), the Boulder Canyon Project Adjustment Act (54 Stat. 774), or the Colorado River Storage Project Act (70 Stat. 105).

SEC. 9. The Secretary is directed to—

(a) make reports as to the annual consumptive uses and losses of water from the Colorado River system after each successive five-year period, beginning with the five-year period starting on October 1, 1965. Such reports shall include a detailed breakdown of the beneficial consumptive use of water on a State-by-State basis. Specific figures on quantities consumptively used from the major tributary streams flowing into the Colorado River shall also be included on a State-by-State basis.

Such reports shall be prepared in consultation with the States of the lower basin individually and with the Upper Colorado River Commission, and shall be transmitted to the President, the Congress, and to the Governors of each State signatory to the Colorado River compact;

(b) condition all contracts for the delivery of water originating in the drainage basin of the Colorado River system upon the availability of water under the Colorado River compact.

SEC. 10. (a) The Secretary shall propose criteria for the coordinated long-range operation of the reservoirs constructed and operated under the authority of the Colorado River Storage Project Act and the Boulder Canyon Project Act, consistent with the provisions of those statutes, the Boulder Canyon Project Adjustment Act, the Colorado River compact, the Upper Colorado River compact, and the Mexican Water Treaty. To effect in part the purposes expressed in this paragraph, the criteria shall make provision for the storage of water in storage units of the Colorado River storage project and releases of water from Lake Powell in the following listed order of priority:

(1) Releases to supply one-half the deficiency described in article III(c) of the Colorado River compact, if any such deficiency exists and is chargeable to the States of the upper division.

(2) Releases to comply with article III(d) of the Colorado River compact.

(3) Storage of water not required for the releases specified in clauses (1) and (2) of this subsection to the extent that the Secretary, after consultation with the Upper Colorado River Commission and representatives of the three lower division States and taking into consideration all relevant factors (including, but not limited to, historic streamflows, the most critical period of record, and probabilities of water supply), shall find to be reasonably necessary to assure deliveries under clauses (1) and (2) without impairment of annual consumptive uses in the upper basin pursuant to the Colorado River compact: *Provided*, That water not so required to be stored shall be released from Lake Powell: (i) to the extent it can be reasonably applied in the States of the lower division to the use specified in article III(e) of the Colorado River compact, but no such releases shall be made when the active storage in Lake Powell is less than the active storage in Lake Mead, (ii) to maintain, as nearly as practicable, active storage in Lake Mead equal to the active storage in Lake Powell, and (iii) to avoid anticipated spills from Lake Powell.

(b) Not later than January 1, 1970, the criteria proposed in accordance with the foregoing subsection (a) of this section shall be submitted to the Governors of the seven Colorado River Basin States and to such other parties and agencies as the Secretary may deem appropriate for their

review and comment. After receipt of comments on the proposed criteria, but not later than July 1, 1970, the Secretary shall adopt appropriate criteria in accordance with this section and publish the same in the Federal Register. Beginning January 1, 1972, and yearly thereafter, the Secretary shall transmit to the Congress and to the Governors of the Colorado River Basin States a report describing the actual operation under the adopted criteria for the preceding compact water year and the projected operation for the current year. As a result of actual operating experience or unforeseen circumstances, the Secretary may thereafter modify the criteria to better achieve the purposes specified in subsection (a) of this section, but only after correspondence with the Governors of the seven Colorado River Basin States and appropriate consultation with such State representatives as each Governor may designate.

(c) Section 7 of the Colorado River Storage Project Act shall be administered in accordance with the foregoing criteria.

SEC. 11. (a) Rights of the upper basin to the consumptive use of water apportioned to that basin from the Colorado River system by the Colorado River compact shall not be reduced or prejudiced by any use of such water in the lower basin.

(b) Nothing in this Act shall be construed so as to impair, conflict with, or otherwise change the duties and powers of the Upper Colorado River Commission.

SEC. 12. Part I of the Federal Power Act (41 Stat. 1063; 16 U.S.C. 791a–823) shall not be applicable to the reach of the Colorado River between Lake Mead and Glen Canyon Dam until and unless otherwise provided by Congress.

SEC. 13. Except as otherwise provided in this Act in constructing, operating, and maintaining the Central Arizona Project, the Secretary shall be governed by the Federal reclamation laws (Act of June 17, 1902; 32 Stat. 388 and Acts amendatory thereof or supplementary thereto) to which laws this Act shall be deemed a supplement.

SEC. 14. (a) All terms used in this Act as defined in the Colorado River compact shall have the meanings there defined, unless changed by the decree of the Supreme Court of the United States in Arizona against California (376 U.S. 340).

(b) "User" or "water user" in relation to main stream water in the lower basin means the United States, or any person or legal entity, entitled under the decree of the Supreme Court of the United States in Arizona against California, and others (376 U.S. 340), to use main stream water when available thereunder.

(c) "Active storage" means that amount of water in reservoir storage, exclusive of bank storage, which can be released through the existing reservoir outlet works.

(d) "Colorado River Basin States" means the States of Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming.

SEC. 15. There is hereby authorized to be appropriated for construction of the Central Arizona Project, including prepayment for power generation and transmission facilities, but exclusive of distribution and drainage facilities for non-Indian lands, and the Dixie project in the State of Utah heretofore reauthorized in section 2(j) of this Act, the sum of $837,000,000, plus or minus such amounts, if any, as may be justified by reason of ordinary fluctuations in construction costs as indicated by engineering cost indices applicable to the types of construction involved herein, and not to exceed $100,000,000 for construction of distribution and drainage facilities for non-Indian lands and, in addition thereto, such sums as may be required for operation and maintenance of the project.

Amend the title so as to read: "A bill to authorize the construction, operation, and maintenance of the Central Arizona Project, Arizona-New Mexico, and for other purposes."

VII. SECTION-BY-SECTION ANALYSIS

Section 1

This section provides that this act may be cited as the "Central Arizona Project Act."

Section 2(a)

Section 2(a) sets forth the purposes of the Central Arizona Project and describes the principal works.

The backbone facilities of the Central Arizona Project are the Granite reef, Salt-Gila, and Tucson aqueducts, which will convey pumped Colorado River water to the central service zone. Major project features include:

Granite Reef aqueduct and pumping plants.
Salt-Gila aqueduct and pumping plant.
Orme Dam and Reservoir (designated as McDowell Dam and Reservoir in the 1947 report) or suitable alternative.
Tucson aqueduct and pumping plants (Colorado River source).
Buttes Dam and Reservoir.
Hooker Dam and Reservoir (New Mexico).
Charleston Dam and Reservoir.
Tucson aqueduct (San Pedro River source).

Aqueduct system

Granite Reef aqueduct.—The Granite Reef aqueduct will transport water diverted from Lake Havasu by the Havasu pumping plant about 200 miles to Orme Dam located a few miles northeast of Phoenix. The designed capacity of the concrete-lined aqueduct is 3,000 cubic feet per second. The Granite Reef aqueduct, in addition to the initial pumping plant at Lake Havasu, will require a series of lower lift pumping plants, short tunnels, and siphon crossings at major drainages.

Orme Dam and Reservoir.—Located on the Salt River just downstream from its junction with the Verde River, the Orme Dam will be operated with the present Salt River project storage system as well as the aqueduct system from the Colorado River. Sediment-laden storm-flows, originating on tributaries below Bartlett and Stewart

Mountain Dams, will be regulated and controlled. Coordinated with operation of the Granite Reef aqueduct, it will provide regulatory storage as needed for both Salt-Verde flows and Granite Reef aqueduct deliveries. In its multiple-purpose role it will serve as an afterbay, reregulate releases from upstream reservoirs, improve the Salt River project operating conditions by removing sediment, create a recreational area with fish and wildlife conservation uses, and in combination and coordination with the upstream reservoirs and downstream channelization, provide storage to meet the flood control requirements of the Salt River through the Phoenix area.

Salt-Gila aqueduct and pumping plant.—The 1,800-cubic-feet-per second-capacity Salt-Gila aqueduct will receive water either directly from the Granite Reef aqueduct or by releases from Orme Reservoir. A relatively low-head pumping plant is required to lift the water into the aqueduct from either source.

Buttes Dam and Reservoir.—Although investigated and reported previously as a separate facility, Buttes Dam and Reservoir was included as an integral part of the Central Arizona Project in the 1947 report and in the 1964 supplemental report. An earthfill structure, the Buttes Dam will form a reservoir of 366,000 acre-foot capacity. Conservation storage capacity will be 100,000 acre-feet, and 266,000 acre-feet of capacity will be used for sediment and flood control purposes.

Tucson aqueduct (Colorado source).—An aqueduct to deliver 100,000 feet annually to the Tucson metropolitan area will originate at the terminus of the Salt-Gila aqueduct. This municipal and industrial water supply will be conveyed through a 150-cubic feet per second-capacity pipeline and would be lifted 920 feet by a series of pumping plants.

Charleston Dam and Reservoir.—On the San Pedro River between Tombstone and Fort Huachuca, a concrete gravity structure rising 158 feet above streambed, with earthen wing dams, will create a 238,000 acre-foot capacity reservoir. Water conservation will be provided through exchanges. Recreation, fish, and wildlife uses, sediment detention, and flood control benefits will also accrue.

Tucson aqueduct (San Pedro source).—This conduit will convey about 12,000 acre-feet annually from the Charleston Reservoir to Tucson and vicinity.

Conner Dam and Reservoir.—Conner Dam would be located downstream from the Cliff-Gila Valley. The dam will be constructed to a size adequate to provide for new consumptive uses of 18,000 additional acre feet of water annually by New Mexico. The reservoir will provide water supplies, fish and wildlife uses, recreation, sediment detention, and flood control.

This provision differs from the provision in H.R. 3300, as amended, which authorizes the construction of "Hooker Dam or suitable alternative" on the Gila River in New Mexico.

Construction at the Hooker site of a dam high enough to store the amount of water allocated to New Mexico would result in the backing of slack reservoir water across land within the Gila primitive area, which is subject to review for future inclusion in the national wilderness preservation system, and through the Gila Gorge some 9 miles within the Gila wilderness area.

The Gila wilderness area is one of 54 units of the National Wilderness Preservation System established by the Congress just 4 years ago, by means of the Wilderness Act (Public Law 88–577), "to secure for the American people of present and future generations the benefits of an enduring resource of wilderness." Through the leadership of the late Aldo Leopold, it also was the first wilderness established by the Forest Service in the United States, in 1924. It should not be degraded by a man-made, unnatural intrusion as provided for in H.R. 3300.

If the Forest Service is going to be able to fully protect the Gila Wilderness from nonconforming uses and developments, H.R. 3300 should be amended to eliminate all reference to the Hooker site. The Conner site will avoid this direct threat to the wilderness area. The phrase, "Hooker Dam or suitable alternative", is not preferable to the language "Conner Dam or suitable alternative." Many members of the full committee favored this language over the present language of H.R. 3300 which, as a minimum, must be interpreted by the Secretary of the Interior as a clear mandate to find an alternative to the Hooker site.

During the committee's consideration of this portion of the bill, it became obvious that adequate, up-to-date technical studies of the Hooker project, and the most feasible alternatives based on the provisions of the current legislation, were lacking. Because the Wilderness Act requires a determination that a water-development project within a wilderness will better serve the interests of the United States than will its denial, and because the necessary study had not been made that would have furnished the facts on which the committee could have made a decision, the committee amended the bill to require such a study (the "Hooker Dam or suitable alternative" language). This amendment—while it does not go as far toward eliminating Hooker Dam as is needed—intends that the Secretary of the Interior shall study the project, taking into account at least the following:

1. The uses to which the water would be put and the benefits that would accrue to the people of the United States; 2. Comparative advantages of different methods of providing the water, such as, but not restricted to, reservoir storage at various sites, purification of brackish water, and pumping from underground sources; 3. Means for protecting existing water rights; 4. Damage to the natural environment, wildlife, and scenic resources, particularly those public lands within the wilderness area and primitive area: 5. The construction, maintenance, and other costs of dams at the Hooker site, Conner site, other suitable sites, or other alternative water supply methods.

We would like to point out that other wilderness areas will be in great jeopardy if a reservoir and associated developments are permitted in this unit of the National Wilderness Preservation System. We understand that, in Montana, the Bureau of Reclamation has plans to flood out part of the Bob Marshall Wilderness Area by a dam on the Sun River. Also in Montana, the proposed Glacier View Dam would flood irreplaceable wilderness lands in Glacier National Park. Plans exist to construct water-development projects that would invade the Flat Tops wilderness in Colorado, the High Uintas in Utah, and primitive areas in Idaho. The Hooker Dam proposal is a test case. We believe it marks a crisis in the history of wilderness preservation in the United States.

An excellent summary of the potential impact of Hooker Dam on the Gila wilderness, and of the advantages of the alternative Conner site, was published recently by The Wilderness Society, a respected national conservation organization, which with other national conservation groups strongly opposes the authorization of this dam. We quote part of its report:

> The Gila River canyon in the Hooker reservoir area is steep and narrow, strictly limiting use of the reservoir for recreational purposes. Precipitous, rocky terrain would make a recreation access road to the reservoir very expensive to build. Few locations on the steep slopes around the reservoir would allow adequate campground, parking, or boat-launching facilities. An alternate damsite downstream—the Conner site—would provide additional recreational facilities without destroying wilderness values.
>
> The Hooker project would destroy extraordinarily scenic wilderness lands and miles of wilderness river, eliminate significant fisheries and wildlife habitat, and obstruct access to the wilderness by foot and horseback.

In summary, we believe the Congress should accept the judgment it made in 1964 when it placed the Gila wilderness in the wilderness system, and should not now authorize a reservoir project which will invade the Nation's first wilderness and set a pattern for other invasions of the National Wilderness Preservation System in the future.

Distribution systems.—In all areas an improvement in conveyance and distribution system efficiencies is essential to obtain optimum water development and use. Widely varying capabilities and conditions exist among the various organized districts and unorganized areas. Lining of presently unlined and future conveyance and distribution systems is provided for in current project plans.

The existing facilities of the Salt River and San Carlos projects, the Maricopa County Municipal Water Conservation District, and several other districts are based on integrated surface and ground water supplies. Rehabilitation and lining of conveyance and distribution works in progress by these districts to improve their system efficiencies would be completed under project conditions.

The bill provides for the authorization of up to $100 million of appropriations for Federal financing of distribution systems for non-Indian lands under the Distribution System Loans Act (act of July 4, 1955, 69 Stat. 244) or other appropriate programs. This work will be accomplished by loans to project water users under separate contracts and the costs are therefore not included in the Central Arizona Project costs.

Construction of new irrigation systems and rehabilitation and lining of existing systems for the seven Indian reservations within the project area are included in the project costs.

Additional works.—Growing and potential water needs of the area require facilities in addition to those included in the project works. Existing facilities of other agencies which could be operationally integrated into the Central Arizona Project include dams, reservoirs, and irrigation works serving proposed contracting agencies in the project area.

The proposed channel improvements of the middle Gila River and the construction of Camelsback Reservoir by the Corps of Engineers and the continuing soil and moisture conservation programs of the Bureau of Land Management and Soil Conservation Service could and should be integrated or coordinated with the project. Natural channels used for water transport are basically canals and, when used as part of a system, their efficiency should be commensurate with their use.

Drainage and reuse facilities.—The control, use, and disposal of the return and effluent flows to be made available in the project area will require additional study to properly evaluate the benefits accruing from reuse and the attendant costs of physical facilities. The cost of such facilities would not affect economic and financial aspects of the project as presented in this report because these units would have to be justified by benefits over and above those considered herein.

Drainage facilities contemplated as part of the project works are open drains and drainage wells upstream from Gillespie Dam on the Gila River. Costs of these facilities are included in the project cost.

Power generation and transmission arrangements

The Secretary of the Interior is authorized to make prepayment arrangements to acquire an entitlement to the delivery of a portion of the electrical output of a large thermal generating powerplant to serve project pumping needs. The thermal plant would be owned, constructed, and operated by non-Federal interests (private and public utilities in the Southwest). The right will also include delivery of the power on jointly shared transmission facilities where available. Current studies indicate that approximately 470 megawatts of capacity will be required on a 24-hour per day basis in connection with the Central Arizona Project with the Granite Reef aqueduct sized at 3,000 cubic feet per second. As a result of the prepayment arrangements the project will obtain power for pumping at a low cost reflecting the economy of large thermal electric powerplants; shared economical, high-capacity, extra-high-voltage transmission facilities will be used; and the benefits of Federal financing will be obtained.

Water salvage measures

Included in the bill are water salvage measures consisting of ground water recovery in the Yuma area and phreatophyte clearing along the Lower Colorado River. These undertakings will yield an estimated 320,000 acre-feet of water annually for use in the Lower Colorado River Basin which, particularly in years of low water supply, will be necessary to realize the projected diversion of water to the Central Arizona Project.

Fish hatcheries and wildlife refuge

Fish and wildlife measures not reflected in the costs of multipurpose project structures include national fish hatcheries for both warm water fish and trout, the Cibola National Wildlife Refuge, the New Mexico State Fish Hatchery, and a rough fish eradication program.

Section 2(a)(1) specifies that the project water pumping and delivery system for carrying Colorado River water from Lake Havasu to Orme Dam shall have a capacity of not less than 3,000 cubic feet per second (c.f.s.). (This is the Granite Reef portion of the project aqueduct and pumping plants system.)

Bureau of Reclamation data indicate an improved benefit-cost ratio for the project as aqueduct capacity is increased from the originally planned 1,800 c.f.s. to at least 3,800 c.f.s.

Bureau hydrology indicates that even under conditions of ultimate development on the river there will be recurrent periods of high flow resulting in periodic spills from Lake Mead. The capacity of the Granite Reef aqueduct will permit Arizona to utilize more of its share of such spillage.

While the amount of water made available by increasing the size of the aqueduct depends upon the criteria used in analyzing the hydrology, it is reasonable to anticipate that over the 50-year payout period, water made available by a 3,000 c.f.s. aqueduct would average about 125,000 acre-feet annually more than that made available by a 2,500 c.f.s. aqueduct.

The difference in cost between a 2,500 c.f.s. aqueduct and a 3,000 c.f.s. is on the order of $50 million if done at the time of initial construction. The cost of enlarging the capacity of the Granite Reef aqueduct following construction would be extremely high and it would probably, as a practical matter, be necessary to construct paralleling facilities to provide increased capacity.

Fluctuating aqueduct water deliveries can be utilized in central Arizona without waste because of the existing and proposed regulating reservoirs and ground water pumping facilities which can be operated in relationship to the availability of aqueduct deliveries from the Colorado River at any given time.

Section 2(b)(1)

This subsection authorizes the Secretary to obtain project pumping power requirements from non-Federal entities who will own, construct, and operate a modern thermal plant.

The Department of the Interior made a detailed study during the fall of 1966 of alternative sources and arrangements to provide pumping power for the needs of the Central Arizona Project. These alternatives ranged from the construction of dams and hydroelectric plants on the river as proposed in some bills, to the purchase of power from private and public utilities on the open market.

The Department recommendations, based on these studies, were embodied in the draft of proposed legislation sent to the Congress on February 15, 1967.

The bill provides that the required pumping power will be supplied by purchasing a portion of the capacity of a large steam electric generating plant constructed, owned and operated by non-Federal utilities (private and public utilities in the Southwest). The power required to operate the project pumps on a 24-hour-per-day basis is estimated by the Bureau of Reclamation as the output from 470 megawatts of generating capacity.

In making the power available to the Central Arizona Project, the Bureau would charge the project a sufficient price to repay to the Treasury the full amount of the capital advanced over the life of the plant along with the annual operating costs, and to create a sinking fund for replacement of plant components at the end of their useful life. In accord with reclamation law, capital costs associated with pumping power used for municipal and industrial purposes would be repaid with interest at the same interest rate which is customarily

charged if municipal and industrial pumping power is produced by hydroelectric generating plants.

It is estimated that the cost for power delivered at the Central Arizona Project pumping plants will be 3 mills per kilowatt hour for pumping irrigation water, and 5 mills per kilowatt hour for pumping municipal and industrial water. These power rates are low enough that construction of the Central Arizona Project will be financed primarily by water charges paid by the water users.

The Department of the Interior's summary report on the Central Arizona Project with Federal prepayment power arrangements, February 1967 (pp. 13 and 14) describes the arrangements by which power obtained under this bill will be managed:

> In the analyses for this report, it was assumed that a power banking arrangement with utilities in the area would be established. Surplus power and energy when available would be put into the bank to be withdrawn later to accommodate fluctuating project pumping requirements. The ratio between amounts of deposit and withdrawal would be adjusted for losses between the banking utilities' systems and the Central Arizona Project pumping plants as well as providing a small incentive to the utilities.
>
> The power and energy available for commercial sale each year was assumed to be the Government's entitlement to total generation less the Central Arizona Project pumping requirement, transmission losses, and reserve for the capacity sold commercially, and it was adjusted for the power banking service described above. Based on water supply projections, practically the entire Federal share of the thermal plant output will be required for project pumping purposes through the year 1990. A small increment of commercial power sales would be anticipated during this period because of the smaller amount of reserve capacity that would be maintained in the early years * * *.

It has been suggested that the steam plant might be located in northern Arizona, possibly near Page, and adjacent to Lake Powell. However, a careful engineering study may dictate other sites in the State of Arizona as being preferable. The plant is to be located at the most feasible site. It has been contemplated that the plant would burn coal obtained from the Black Mesa fields of the Navajo-Hopi Indian Reservations in northern Arizona, and the water used for the plant would be obtained from the drainage area of the Colorado River system above Lee Ferry—but, there too, these assumptions should not in any way limit working out the most efficient way of constructing, operating, and maintaining this plant. Water for the plant—if diverted above Lee Ferry—would be a charge against the 50,000 acre-feet per year entitlement which Arizona has as a State of the Upper Basin under the Upper Colorado River Basin compact, whether or not the plant is located in the drainage area of the Colorado River system above Lee Ferry.

The bill directs the Secretary to make adequate contractual provisions to secure performance of the prepaid power arrangements.

Although the language of section 2(b)(1) authorizes the Secretary to enter into a contract whereby the Secretary would "make the Fed-

eral portion of such cost available to non-Federal interests during the construction period," it is not intended to limit the Secretary in all instances to cash or money advances. It is believed that in some instances savings of State and local taxes may be achieved by the United States, itself, purchasing equipment and facilities for the plant or providing services in connection with construction of the plant, with appropriate credit being given to the United States by the non-Federal owners of the plant. In other words, the same concept which applies to appropriate credits being given for interest in Federal lands—Section 2(b)(1)(iii) should also apply to equipment, facilities, or services provided by the United States—and the Secretary is expected to incorporate appropriate language in this respect in his contract with the non-Federal utilities.

Section 2(b)(1)(i)

This subsection provides that the Federal Government will pay not more than its share of the costs of the powerplant and facilities under the power prepayment arrangements. The Federal Government's share of the capacity of the thermal powerplant shall not exceed the ratios of the respective capacities to be provided for the use of the United States, to the total capacity of the thermal plant. For example, under the bill, if the United States will require approximately 470 megawatts of power, the Federal Government's share of the capacity of a 2,000-megawatt thermal plant would be 470/2,000 or 23½ percent. The prepayment by the United States for project power would be computed as no more than 23½ percent of the cost of constructing the thermal powerplant.

The United States will not pay to the owners of the thermal plant any interest on money used in its construction. The reason, of course, is that the Federal Government will be advancing money under the prepayment arrangement for purchase of the required electrical power during the construction period in installments designed to facilitate a timely construction schedule. The cash advances will be charged to the Central Arizona Project as project costs and repaid to the Treasury as required by reclamation law.

The Secretary is not to make any funds available other than those which are necessary for preconstruction activities, until he determines that adequate contractual arrangements covering water and fuel supplies are in effect. It is anticipated that in addition to the express safeguards in the legislation which are designed to protect the Federal investment, there will also be contractual safeguards to insure (1) a dependable supply of pumping power for the Central Arizona Project, (2) performance of the agreements which will be entered into by the Department, and (3) protection of the environmental quality of the area.

The Secretary is expected to require of the non-Federal interests which construct and operate the thermal plant, adequate measures to control waste water, waste materials, sewage, and other forms of pollution resulting from the operation of the thermal plant. Every effort should be made to insure that there will be no significant pollution of the waters of the basin.

The Secretary is also to require that measures are adopted by the non-Federal owners and operators of the thermal plant to insure that

smoke, fly ash, and dust from stack emissions will meet approved health and esthetic standards.

Construction of a coal-fired thermal plant may necessitate the opening of a large strip mine. If so the Secretary should require that arrangements are made for appropriate reclamation and restoration of these lands after they have been mined.

With respect to water and air pollution and strip mine reclamation, the Secretary should endeavor to see that all applicable Federal laws and standards are strictly complied with. He should also reserve the right to make periodic inspections to insure that the appropriate standards are being met. Provision should be made for periodic review and implementation of technological advances in quality control equipment.

Section 2(b) (1) (ii)

This subsection provides that if the thermal power plant and appurtenances are located on Federal lands, the United States will be granted due credit for the value of the land in determining the prorata share of payments to be made by the participants in the thermal plant. This section also applies to switchyards and transmission lines.

Section 2(b) (1) (iii)

This subsection provides that the annual operation and maintenance costs of the thermal powerplant will be apportioned between the United States and the non-Federal interests on an equitable basis, taking into account the ratios determined in connection with the allocation of construction costs made under subsection 2(b) (1) (i). This language provides the Department with sufficient flexibility in contract negotiations to see that the United States will be given appropriate credit toward its share of the operation and maintenance costs in the event that some of these costs are paid for in the form of services, personal property, or any other valuable consideration.

The United States would not bear depreciation costs of any of the initial construction costs of the thermal powerplant, switchyard, and transmission lines built under subsection 2(b) (1) (i). The reason, of course, is that the United States will have already paid for the project pumping power requirements by prepayment and will make its own arrangements to recover this investment.

With respect to replacements for components with relatively short service life after the thermal plant goes into operation, the United States has the option of either (1) paying a portion of the capital costs of any necessary replacements, in which event it would not share in depreciation costs, or (2) paying a portion of the depreciation costs on any replacement items which are entirely financed by the non-Federal interests.

The plant replacement costs which would occur at the end of the useful life of the thermal powerplant, however, will be paid in the form of a capital prepayment, the same as the initial prepayment. A replacement reserve for this purpose will be accumulated within the development fund by retention of an appropriate annual portion of the revenues from pumping and commercial power.

Section 2(b) (1) (iv)

This subsection insures that the U.S. portion of the costs of purchasing capacity in the thermal power plant, switchyards, and transmis-

sion lines will not include any interest, interest during construction, financing charges, or franchise fees, which would be applicable to the non-Federal constructors of the plant. The United States will provide its own funds from its own sources and therefore will pay its own financing and interest costs. The United States is not required to obtain a franchise to supply power for project pumping and the payment of franchise fees to municipalities or regulatory bodies through the non-Federal owners and operators would not therefore be appropriate.

Section 2(b)(1)(v)

This subsection provides that the provisions of this legislation shall not be construed as a precedent for any federal agency to enter into construction of a thermal power plant or plants.

Section 2(b)(2)

This subsection requires the thermal power plant to be located in the State of Arizona and makes clear that if the plant is served by upper basin water the consumptive use of that water shall be a charge against Arizona's 50,000 acre-feet per year entitlement under the terms of article III(a) of the Upper Colorado River Basin compact (63 Stat. 31). Use of this water shall not be construed to increase Arizona's entitlement to water under that compact.

Section 2(c)

Subsection 2(c) establishes the conditions for the delivery and use of Central Arizona Project water. Project water can be used for irrigation of only those lands which the Secretary of Interior finds to have a "recent irrigation history." Colorado River water delivered into central Arizona is intended only to supplement the existing supplies which are inadequate for sustained uses at the present rates of use. A primary purpose is to reduce the annual overdraft upon the limited ground water reserves. It would be inconsistent with this essential purpose to permit delivery of project water for irrigation of lands that have not previously been irrigated.

Indian lands and national wildlife refuges are expected from this condition, and if the Secretary approves, the exception may also apply to wildlife management areas administered by the State.

Section 2(d)(1)

This subsection provides the Secretary with the authority, in the event that he determines it is necessary to effect repayment of the Central Arizona Project facilities, to require that project water be supplied pursuant to master contracts with organizations which have power to levy assessments against all taxable real property within their boundaries. Organizations such as these are commonly known as conservancy districts and are sometimes used as a means of levying ad valorem taxes on all taxable real property within the project service areas.

With the basin development fund (Sec. 5), it appears that the contemplated ad valorem tax will be unnecessary and that this authority will not have to be exercised. The Secretary is to require the use of an ad valorem tax only if such a tax is found to be necessary to provide revenues to accomplish the repayment of the project.

In view of the provision for a development fund to assist in repayment of irrigation costs the need for an ad valorem tax is very remote.

This provision should nevertheless be retained in the bill for use under unforeseen circumstances which could develop at some future time. This will provide an added guarantee that the project costs will be repaid.

The provisions of this subsection, should they be exercised, would not apply to the costs of supplying water to an Indian tribe for use within the boundaries of an Indian reservation.

Section 2(d) (2)

This subsection provides that section 9(d) and 9(e) contracts which are made pursuant to the Reclamation Project Act of 1939 shall be made for a period of 50 years. It also provides that water made available under such contracts for irrigation purposes may, if no longer needed for that purpose, be made available by the Secretary for municipal and industrial purposes.

Section 9(d) of the Reclamation Project Act of 1939 provides for the execution of repayment contracts and requires that such contracts be made as a prerequisite to the delivery of water.

Section 9(e) of the Reclamation Project Act of 1939 provides for the execution of contracts for delivery of water in lieu of contracts for repayment.

The provision for conversion of irrigation water supply to municipal and industrial uses was included so that it would be possible to progressively increase the amount of water available for municipal and industrial supply as the needs for these uses increase. In some instances municipalities may be expected to grow into areas which are now irrigated. In those cases the irrigation users would no longer require the water for irrigation purposes and the Secretary could contract with the municipalites for the use of the water.

Section 2(d) (3)

This subsection provides that contracts relating to municipal and industrial water supplies may be made notwithstanding the provisions of the last sentence of section 9(c) of the Reclamation Project Act of 1939. This sentence provides that municipal contracts may not be made unless, in the judgment of the Secretary, such contracts will not impair the efficiency of the project for irrigation use. The desire is not to relegate municipal and industrial use to a secondary preference, and it is for that purpose that section 2(d) (3) was inserted.

This provision is in accord with the practice in recent years of making an exception to the "irrigation preference" established under the Reclamation Project Act.

Section 2(e)

This section provides that each water and repayment contract entered into by the Secretary with water users shall contain various safeguards for water conservation and use.

First, there must be measures to control expansion of irrigation from ground water aquifers which have been improved by the importation of Colorado River water. In other words, owners of land not within the project service area but adjacent to it should not receive a "windfall" from the improved ground water conditions.

Second, the contracts shall require that all contractors provide lined canals and laterals adequate in the judgment of the Secretary to prevent excessive conveyance losses.

Third, the language of the contracts shall provide that "neither the contractor nor the Secretary shall pump or permit others to pump ground water from within the exterior boundaries of the service area of a contractor receiving water from the Central Arizona Project for any use outside said contactor's service area unless the Secretary and such contractor shall agree, or shall have previously agreed, that a surplus of ground water exists and that drainage is or was required."

This is similar in some respects to the first item mentioned. However, it is more specific and is intended to prohibit pumping from improved ground water conditions which result either from seepage of Central Arizona Project water into the underground aquifers or which result from the shutting down of deep well agriculture pumps for substantial periods of time and using Central Arizona Project water as replacement for ground water. This subsection provides that one contractor for Central Arizona Project will not be permitted to pump ground water from within the boundaries of the service area of another contractor and thus receive the benefits of low-cost ground water as opposed to higher cost Central Arizona Project water.

This section also provides that all waters, including industrial waste water, return flow, seepage, sewage effluent and ground water in or flowing from the contractor's service area and "originating or resulting from (i) water contracted for from the Central Arizona Project, or (ii) water stored or developed by any Federal reclamation project are reserved for the use and benefit of the United States as a source of supply" for the Central Arizona Project or Federal reclamation project.

Section 2(f)

This subsection gives the Secretary authority to arrange for water exchanges. As a condition prerequisite to any contract, the contractor may be required to accept main stream water in exchange for or in replacement of the contractor's existing supplies. By these exchanges, various areas of Arizona which, by virtue of location and topography, cannot receive main stream water, will be able to benefit from the project.

This subsection would also apply to the specific exchange authorized between users in the States of New Mexico and Arizona dealt with in subsection (h) of this section, which directs the Secretary to require downstream users of Gila River system water in Arizona to agree to accept Central Arizona Project water from the main stream of the Colorado River in exchange for water to be used in New Mexico.

Section 2(g)

Subsection (g) provides a means of protecting contract users who have yielded water from other sources in exchange for main stream water. The protection is provided by giving such contract users a first priority to main stream water in times of main stream shortages over contract users who have not so yielded. This priority, however, shall not exceed the amount of water yielded from other sources.

Section 2(h)

Subsection (h) authorizes an exchange of water between New Mexico users on the Upper Gila River system and users in Arizona who can be physically supplied from the main stream of the Colorado River through the Central Arizona Project.

The practical effect of the language is to permit New Mexico to utilize not to exceed an annual average of 18,000 acre-feet of Gila River water in any 10-consecutive-year period. This water is intended to be over and above the amount now allocated to New Mexico, and its use is to be from water allocated to Arizona as a part of its 2,800,000 acre-feet main stream entitlement even though the water is actually exchange water from the Gila River system. As a protection to downstream users, full consideration is to be given to any differences in the quality of water exchanged.

The Secretary, in making these exchanges, is not to permit increased uses by water users in New Mexico until—and the uses shall continue only so long as—delivery of sufficient Colorado River water to downstream Gila River water users in Arizona is being accomplished as set forth in this bill.

The last sentence of this subsection provides protection for all users who have a legal right to the use of Gila River water at the time of the enactment of this act. This protection is accomplished by making "all additional consumptive uses provided for in this subsection" subject to water rights on the Gila River, its tributaries, and underground water sources effective on the date of enactment of this act.

The water rights along the Gila River in Arizona and New Mexico have been the subject matter of long disputes in the courts and in negotiations among holders of rights to the water of the river. It is not the intention of this section to express or indicate in any manner whatever its opinion with respect to the application or binding effect upon persons who either have or claim the right to use the water of the river. The language of this section has as its purpose the arrangement for an exchange of water between the States of New Mexico and Arizona without affecting any legal right to the use of Gila River water which exists at the time of enactment of this legislation. The existing rights along the Gila River are, therefore, neither enhanced nor impaired by this section.

This exchange may be accomplished without amendment of article IV of the decree in *Arizona* v. *California* (376 U.S. 340). (See opinion of the Solicitor of the Department of the Interior, Aug. 19, 1966, and approval of the Solicitor General of the United States dated Aug 18, 1966, as printed in the hearings on the Central Arizona Project, May 1967, p. 382.)

Section 2(i)

This subsection is intended to restrict, for a period of 10 years after this bill is enacted into law, the delivery of water to any newly irrigated lands for the purpose of raising crops which are surplus. There is no intent to allow project water to be used to irrigate new lands in Arizona. The water furnished by the Central Arizona Project is to be used to supplement the existing water supply for lands currently under production or lands which have a history of irrigation, but which were recently taken out of production due to lack of water. There may be some new lands irrigated in New Mexico to which this provision would apply.

Section 2(j)

The Dixie project, located in Utah, has been authorized but is not yet under construction because present studies indicate it will be $25

to $30 million short of being able to repay the reimbursable costs. This section provides that the Dixie project may receive financial assistance from the development fund and thus become a financially feasible project.

It is the intention of this section to reauthorize the Dixie project and that the provisions for the repayment of the Dixie project remain as far as possible in accord with the project's authorizing legislation (Public Law 88–565, 78 Stat. 848). Costs allocated to recreation and fish and wildlife are to remain nonreimbursable as in the original authorization.

Section 3

This section assures that the Central Arizona Project works will be developed in accordance with the Federal Water Project Recreation Act (79 Stat. 213). This act was effective July 9, 1965, and its purpose was to provide that in investigating and planning any Federal navigation, flood control, reclamation, hydroelectric or multiple-purpose water resources project full consideration would be given to opportunities, if any, afforded for outdoor recreation and for fish and wildlife enhancement. Any potentials for outdoor recreation, or fish and wildlife enhancement which might reasonably be served by the Central Arizona Project works should be fully developed and utilized, insuring the greatest use and benefits possible to the American people.

Section 4

This section deals with the cost of serving Indian lands. Under the language of this section the Secretary is required to determine the repayment capability of any Indian lands served by the project facilities. That portion of the construction cost allocated to the irrigation of Indian lands which is within the repayment capability of such lands will be deferred under the provisions of the Leavitt Act (act of July 1, 1932; 47 Stat. 464), and the portion which is not within the repayment capability of such lands will be paid from the Development Fund.

Section 5(a)

Section 5(a) establishes a separate fund in the Treasury to be known as the Lower Colorado River Basin Development Fund. The development fund would provide assistance to the Central Arizona Project and the Dixie project, and will be available upon future authorization by the Congress for basinwide water conservation and development. Revenues to be paid into the development fund will include the surplus post-amortization revenues from Hoover Dam, the Parker-Davis project, the Arizona-Nevada section of the Pacific Southwest Intertie, as well as the revenues of the Central Arizona Project works and facilities, including any revenues resulting from commercial power sales during periods of time when the project does not use all of the power purchased under the prepayment plan.

The establishment of development funds is not a new concept. The principle has been recognized and utilized in the Colorado River Storage project, the Missouri River Basin project, the Columbia Basin, and the Central Valley project.

The Bureau of Reclamation's financial analysis of this project is, as was previously mentioned, predicated on a priority in perpetuity to California of 4.4 million acre-feet. This is but one of a multiplicity

of factors which will be determinative of the amounts available in the development fund. The Bureau of Reclamation has estimated these amounts as follows:

1. The facilities authorized by this bill will need assistance from the development fund in the amount of $122 million by 2025. By the year 2050 these facilities will repay that assistance and in addition will provide the development fund with an additional $315 million. If the Bureau's studies had not been based on a perpetual 4.4 million acre-feet priority to California, and if the shortages had been pro rated on the basis of 28/75 to Arizona, 44/75 to California, and 3/75 to Nevada, the assistance needed from the development fund would be reduced to $76 million by 2025, and the $315 million figure cited above would be increased to $387 million.

2. Hoover, Parker and Davis Dams would provide a surplus of approximately $479 million by the year 2025 and approximately $837 million by the year 2050.

3. The Arizona-Nevada portion of Pacific Northwest-Pacific Southwest Intertie would contribute $21 million by the year 2025 and $130 million by the year 2050.

The following tabulation shows the source of revenues and the anticipated amounts as of the year 2025 and 2050: [2]

	2025	2050
Central Arizona project	($122,481,000)	$314,848,000
Hoover-Parker Davis	478,983,000	837,073,000
Northwest-Southwest intertie	20,800,000	130,000,000
Total	377,302,000	1,281,921,000

Upon future authorization by the Congress the revenues in the development fund will be available for use in connection with construction and operation of other projects, desalinization plants, weather modification programs, watershed improvement and control, salvage operations, and purification of sewage effluent for reuse, and other programs designed to augment the flow of the river, conserve its water resources, and contribute to future basin development.

These contemplated revenues are based upon Department of the Interior assumptions of postamortization rates. Starting with the Pacific Southwest water plan and in all subsequent studies, Hoover rates have been proposed to be an average of 4 mills per kilowatt-hour and Parker-Davis rates at 4.7 mills per kilowatt-hour. The Pacific Northwest-Southwest intertie wheeling charges and Central Arizona Project water rates are anticipated to remain at their original level.

[2] In this tabulation the following assumptions were made—

1. The 4.4 million acre-foot priority to California is in perpetuity.
2. The indicated surpluses for Hoover, Parker-Davis are those which remain after payment of $600,000 annually to Arizona and Nevada in lieu of taxes.
3. The indicated total surpluses are those which remain after payment of $5,000 annually for power lost at Coolidge Dam.
4. It was assumed that the upper Colorado River Basin development fund will be completely reimbursed for the loss in power at Hoover during the filling of Glen Canyon.
5. The totals do not reflect assistance required for the Dixie project estimated to total $25 million to $30 million.
6. Average commercial power rate assumptions:
   Hoover Dam: 4 mills per kilowatt-hour.
   Parker-Davis Project: 4.7 mills per kilowatt-hour.
   Central Arizona Project: 5 mills per kilowatt-hour.

Section 5(b)

Section 5(b) provides that all appropriations made to accomplish the purposes of section 2 and for other projects which may in the future be authorized by Congress to develop and conserve water for the lower basin States, shall be credited to the development fund as advances from the general fund of the Treasury.

Section 5(c)(1)

This subsection provides that all revenues from operation of the works and facilities authorized in section 2 or authorized in the future in furtherance of the purposes of this bill shall be credited to the development fund. It is intended that when non-Federal entities enter into cost-sharing agreements under the provisions of the Federal Water Project Recreation Act (79 Stat. 213), the user fees will be available to such entities for cost-sharing payments under that act. The cost-sharing payments made by such entities to the United States will, however, be revenues to the development fund.

Section 5(c)(2)

This section provides that all Federal revenues from power generation at the Boulder Canyon and Parker-Davis projects which, after completion of repayment requirements of the projects, are surplus to the operation, maintenance, and replacement costs shall be credited to the development fund.

The Secretary is, however, authorized to continue the "in-lieu-of-taxes" payments to the States of Arizona and Nevada as provided for in section 2(c) of the Boulder Canyon Project Adjustment Act, so long as revenues accrue from the operation of the Boulder Canyon project. Absent this provision, these payments would have terminated in 1987.

It is the intent that all surplus revenues following repayment of Hoover Dam shall be paid into the Lower Colorado River Basin Development Fund and any payments to the Upper Colorado River Basin thereafter shall be made out of the development fund. Payments from net revenues at Hoover, as used in section 7, shall be construed to mean payment from the development fund.

Section 5(c)(3)

This subsection provides that postamortization revenues from the U.S. Bureau of Reclamation portion of the Dalles-Hoover and the Hoover-Phoenix transmission lines and terminal facilities located in the States of Nevada and Arizona will be credited to the Lower Colorado River Basin Development Fund. The intertie is scheduled to pay out in year 2021, which is 50 years after initiation of full service in 1972. The service life of the intertie is at least 75 years.

It is appropriate to provide for the inclusion of the U.S. portion of these funds from facilities located in Nevada and Arizona into the Lower Colorado River Basin Development Fund to set up a basin account for Federal reclamation projects in the States of Arizona, California, and Nevada. Were these funds not utilized as provided for in this section, they would be paid into the general fund of the Treasury.

There is precedent for inclusion of postamortization benefits resulting from the Pacific Northwest-Pacific Southwest interties into a basin development fund. The Oregon portion of the Federal Pacific

Northwest-Pacific Southwest intertie is financially integrated with the Federal Columbia River power system. Postamortization revenues from these facilities, in excess of operating costs and other costs, will therefore become a part of the net revenues derived from the marketing of commercial power and energy through the Federal Columbia River power system. Under the provisions of section 2 of Public Law 89–448 (80 Stat. 200) these net revenues are made available, as limited by section 6(b) of Public Law 89–561 (8 Stat. 715), for assistance in the repayment of costs of reclamation projects in the Columbia River allocated to irrigation which are beyond the repayment ability of irrigation water users.

Similarly, any revenues resulting from the intertie to the Central Valley Project in California will be reflected in Central Valley Project's accounts. As a part of the surplus power revenues of the project, they will be available for irrigation repayment assistance to units of the project which are now or will in the future be authorized.

Section 5(d)

This subsection provides for the application of revenues in the development fund upon further appropriation for purposes of: (1) operation, maintenance, replacement and emergency expenditures; (2) for reimbursement to the upper Colorado River basin fund as required by section 8; (3) for payments as required by subsection (f) of section 5; and (4) for payments to reimburse water users in the State of Arizona for losses sustained as a result of diminution of the production of hydroelectric power at Coolidge Dam.

This latter provision is necessitated because of the provisions of subsection 2 (f), (g), and (h) which apply to the increased uses in New Mexico. Increased uses in New Mexico will diminish the downstream flow into the storage reservoir at Coolidge Dam. While the water used in New Mexico would be replaced downstream from Coolidge on the Gila River, this replacement would not be delivered into the reservoir behind Coolidge Dam. As a result, it would not be available for the generation of power and energy at the Coolidge Dam turbines.

The San Carlos project which now receives the benefit of this power and energy is entitled to continue to receive the same benefit, and provision is therefore made for payment out of the basin fund for this purpose.

Section 5(e)

This subsection provides that revenues in the development fund may be used for the construction of works authorized in section 2 of this act only as appropriated by the Congress.

Section 5(f)

This subsection relates to the use of revenues in the development fund that are in excess of the amount necessary to meet the requirements of (1), (2), and (4) of section 5(d). Such excess funds shall be paid to the Treasury to return the costs of those project features authorized by section 2 which are allocated to irrigation, commercial power, or municipal and industrial water supply, in a period of 50 years from completion of each unit or separate feature exclusive of any allowable development period.

Development fund moneys will also be used to pay interest (including interest during construction) on the unamortized balance of the investment in commercial power and municipal and industrial water features. Interest due shall be a first charge, and shall be set by the Secretary of the Treasury in accordance with subsection (g) of section 5.

Section 5(g)

This subsection deals with the interest rate to be applied to reimbursable project costs allocated to commercial power and municipal and industrial water supply. The Secretary of the Treasury will determine the rate at the beginning of the first fiscal year in which funds are advanced to begin construction of the project.

Section 5(h)

This subsection requires the annual submission of business-type budgets to the Congress for all operations financed from the development fund.

Section 6

Section 6 authorizes a program for water salvage along and adjacent to the main stream of the Colorado River and for ground water recovery. The program must be consistent with maintenance of a reasonable degree of undisturbed habitat for fish and wildlife as determined by the Secretary of the Interior.

The water salvage program consists of ground water recovery in the Yuma, Ariz., area and eradication and control of phreatophytes presently covering 42,000 acres of land near the Colorado River which consume thousands of acre-feet of water. It is estimated that the total salvage program, when combined with the channelization of the river which is now in progress will salvage about 680,000 acre-feet of water.

The breakdown of the project costs indicates that the water salvage and recovery program will cost $42,450,000.

Section 7

Section 7 deals with the financial problems created by the filling of Lake Powell and the resulting impairment of firm power production at Hoover Dam. Substantial payments have already been made out of the upper Colorado River Basin fund to compensate Hoover Dam power contractors for deficiencies in power generation at Hoover Dam, and additional payments may have to be made in the future under the Glen Canyon filling criteria.

Section 7 provides for the repayment of such expenditures heretofore or hereafter made out of the upper Colorado River Basin fund. This is to be accomplished by transferring $500,000 each year to the upper basin fund from the Colorado River development fund (CRDF) created by the Boulder Canyon Project Adjustment Act of 1940, commencing with the enactment of this act. The CRDF now receives $500,000 per year from Hoover Dam power revenues earmarked for use in the development of projects and will continue to do so under existing law until 1987. The effect of section 7 is to earmark that same amount ($500,000 annually) for transfer to the upper Colorado Basin fund instead. If any deficit in reimbursement of the upper Colorado River Basin fund exists after 1987 the remaining deficiency is to be paid out of the new lower Colorado River Basin development fund which is established by section 5 of this act.

Section 8

This section provides that nothing in this legislation is to be construed as changing in any way the provisions of applicable interstate compacts; the water treaty with Mexico; the Supreme Court decree in *Arizona* v. *California;* or except as provided in this act the Boulder Canyon Project Act, the Boulder Canyon Project Adjustment Act, or the Colorado River Storage Project Act.

Section 9(a)

Subsection (a) requires that after each successive 5-year period, the Secretary will report the annual uses and losses of water from the Colorado River system. The first period begins on October 1, 1965. The reports shall include a State-by-State breakdown of consumptive uses and specific quantitative consumptive uses from the major tributaries flowing into the Colorado River from each State. In preparing such reports the Secretary shall consult with each of the States of the lower basin and with the Upper Colorado River Commission. The reports shall be transmitted to the President, the Congress, and the Governors of each of the seven States involved in the Colorado River compact.

The purpose of such reports is to obtain data required for full and efficient development of the limited water resources of the basin.

Section 9(b)

Subsection (b) directs the Secretary to make all contracts for delivery of water originating in the Colorado River drainage basin subject to physical availability under terms of the Colorado River compact. This provision merely continues the presently existing policy with regard to such contracts.

Section 10

Section 10 constitutes a fair and reasonable solution to the problem of protecting the future water resource development of the four upper division States, and also providing for the use of the water in the lower division States until the water is required upstream. This should result in the greatest beneficial use of the available water.

According to the terms of the Colorado River compact, articles III(c) and III(d), delivery of Colorado River water is required of the upper division States at Lee Ferry. Storage in Lake Powell is the key to the accomplishment of this requirement. If there is no water storage in Lake Powell to make the required releases during periods of drought, it is possible that upper basin consumptive uses would have to be curtailed in order to discharge the compact obligation. The greater the storage in Lake Powell, the less likelihood there will be of this happening. On the other hand, if too much water is withheld in Lake Powell on the grounds that it is necessary for later discharge of upper basin compact obligations the possibility of spill and denial of use in the lower basin is increased. The language of Section 10, implementing operations under the compact, is intended to establish a commonsense balance between the right of the upper division States to store water to meet future delivery requirements under the compact and the lower basin's right under article III(e) of the compact to demand the release of water stores in the upper basin to meet lower basin consumptive uses.

Section 10(a)

Section 10(a) directs the Secretary of the Interior to propose criteria for the coordinated long-range operation of reservoirs constructed under the authority of the Colorado River Storage Project Act and the Boulder Canyon Project Act, consistent with the provisions of those statutes, the Boulder Canyon Project Adjustment Act, the Colorado River compact, the Upper Colorado River compact and the Mexican Water Treaty.

While it is impossible to anticipate all of the combinations of hydrologic sequences and economic and financial factors that will occur in the future or to evaluate precisely the effect of applying rigid criteria under all conditions, the committee believes, on the basis of testimony and information supplied by the Department of the Interior, that strict adherence to the specific criteria required by this title will rarely, if ever, require a reservoir operation which is inconsistent with what would be considered the optimum operation.

To the extent that it is possible to foresee, reservoir operations under section 10 will not be inconsistent with reservoir operations permitted under the Glen Canyon filling criteria promulgated by the Secretary of the Interior and printed in the Federal Register on July 19, 1962 (27 F.R. 6851). Thus, the filling criteria would continue until terminated at some later date.

Section 10(a) further specifies that in the preparation of the reservoir operating criteria, and in their execution, certain priorities shall govern the storage of water in reservoirs of the Colorado River storage project and releases of water to the lower basin at Glen Canyon Dam. The first priority, set out in paragraph (1), is for the release of water to satisfy one-half the deficiency in deliveries of water to Mexico as described in article III(c) of the Colorado River compact, if such defficiency exists and is chargeable to the upper basin States.

The second priority, set out in paragraph (2), for release of water from Lake Powell is to deliver at Lee Ferry 75 million acre-feet in every period of 10 consecutive years under article III(d) of the Colorado River compact.

A third priority is given to storage of water to enable the States of the upper division to meet their compact obligations without impairing consumptive uses in the upper basin. The language in the first part of paragraph (3) provides that water not required to be released each year to fulfill the priorities relating to the Mexican Treaty burden and delivery of 75 million acre-feet every 10 years shall be stored in upper basin reservoirs to the extent that the Secretary shall find to be necessary to assure long-term deliveries of water at Lee Ferry for these same purposes without impairing present or contemplated consumptive uses of water within the compact apportionment to the upper division States. In determining the extent to which water must be stored for those purposes, the Secretary is required to consult with the Upper Colorado River Commission and representatives of the three lower division States and to take into consideration all factors pertinent to a hydrologic analysis of the water supply situation, including historic streamflows, the most critical period for which water records are available, and probabilities of water supply under recognized statistical procedures. This procedure is consistent with the intent of the Colorado River Storage Project Act, it can be complied

with and still provide the Secretary the necessary latitude in determining the extent of storage reasonably required.

As the upper basin depletions increase with time, the controlling critical periods will lengthen and the required amounts of carryover storage will increase. It is recognized that the establishment of requirements for carryover storage cannot be based on critical period considerations alone, but that probabilities of water supply also must be considered. Also, the production of power and energy is a relevant factor that must be considered if the financial feasibility of Federal developments in the Colorado River Basin is to be assured.

The language of the proviso in paragraph (3) establishes specific guidelines for the release of water available in excess of compact III (c) and (d) requirements and water required to be stored as provided in paragraphs (1), (2), and the first part of (3). Before discussing the operating guidelines of paragraph (3) it should be pointed out that during prolonged periods of low runoff there would be no available excess water and hence these criteria would not be applicable. During periods of high runoff and high storage content the problems of reservoir operation dealt with in paragraph (3) are not critical and their application would not be of major significance. Thus, it is within the intermediate ranges of runoff and storage content that the criteria specified are particularly meaningful.

The language of paragraph (3) embodies three specific operating guidelines. The first (i) provides that if water excess to the requirements of paragraphs (1) and (2) is determined to be available, it shall be released from Lake Powell to the extent that it can be reasonably applied in the lower division States to the domestic and agricultural uses specified in article III (e) of the Colorado River compact, but no such releases of water will be made from Lake Powell when the active storage therein is less than the active storage in Lake Mead.

The second (ii) has as its objective the distribution of available excess water in a manner that will equalize as nearly as practicable active storage in Lake Mead and Lake Powell. The policy, herein established, of maintaining, so far as possible, equal active storage in Lake Powell and Lake Mead is consistent with good operating practice and is fair and equitable to both the upper and lower basins. Although there may be conditions under which it would be desirable and advantageous to operate over a limited period of time in a manner different than that specified in phase (ii), particularly when both Lake Powell and Lake Mead have substantial reserves of storage, any problem caused by application of this criterion is not regarded as serious.

The third (iii), to avoid spilling water from Lake Powell, is obviously consistent with good river management.

Section 10(b)

Subsection (b) retains to the seven States composing the Colorado River Basin a voice in formulating the operating criteria. The proposed criteria must be submitted by the Secretary of the Interior not later than January 1, 1970, to the Governors of these seven States, and to other appropriate parties or agencies, for their review and comment. Thereafter, the Secretary will adopt the criteria by July 1, 1970, and publish the same in the Federal Register.

The Secretary is also required to keep the Congress and the Governors of the Colorado River Basin States informed by a yearly report reflecting actual operation for the past compact year and projected operation for the current year.

As with any proposed operation or set of criteria, actual practice may dictate changes, so the Secretary is authorized to make changes in the criteria required by actual operating experience or unforeseen circumstances. As a protection to the States of the basin, such changes may only be made after correspondence with the Governors and consultation with representatives selected by the Governor of each State.

These provisions give adequate latitude and flexibility in establishing or changing criteria to meet any circumstance which may arise, while at the same time assuring change only after adequate consultation with those affected. It is recognized that all conceivable exigencies cannot be foreseen, thus the necessity for such provisions.

Section 10(c)

Subsection (c) directs that section 7 of the Colorado River Storage Project Act (70 Stat. 109), which relates to power production, be administered in accordance with the criteria set out in this section. This provision is appropriate and necessary to assure consistent power operations at all Federal reservoirs on the Colorado River, and to emphasize that the production of hydroelectric energy is a relevant factor that must be considered if the financial feasibility of Federal water resource developments in the Colorado River Basin is to be reasonably assured, as hereinbefore indicated.

The development of the reservoir operating criteria pursuant to section 10 not only should prevent a recurrence of the misunderstandings that were manifest throughout the Colorado River Basin at the time the Secretary initiated the filling of Colorado River storage project reservoirs, but should also constitute a major contribution to more efficient and reasonable river management. The operating criteria of section 10 is fully consistent with the terms of the Colorado River compact, including article III(e) thereof. The language in this section is not an attempt to interpret article III(e) of the Colorado River compact; it simply places qualifications upon operations under article III(e). The successful negotiations which produced these guidelines for the Secretary to follow in operating Federal reservoirs under article III(e) in the Colorado River Basin may preclude costly litigation in the future.

Section 11(a)

This section recognizes and reaffirms the Colorado River compact and the binding effect of its provision on the States signatory thereto. The upper basin rights to the consumptive use of the water apportioned to that basin under the compact are protected against any interim use of this water in the lower basin. Under this section, when the upper basin has the projects and the means necessary to use its entitlement under the Colorado River compact it will then have available the water. Interim use of Colorado River water cannot ripen into a legal, moral, or equitable right to any portion of the upper basin's water regardless of the length of time the water has been used.

Section 11(b)

This subsection provides that the duties and powers of the Upper Colorado River Commission are made inviolate to any of the terms of this bill. This bill will not in any fashion change or control the actions or conduct of the affairs of the Upper Colorado River Commission.

Section 12

Section 12 removes from the jurisdiction of the Federal Power Commission the stretch of the Colorado River between Lake Mead and Glen Canyon Dam until and unless otherwise provided by the Congress. This section of the bill renders inapplicable part I of the Federal Power Act (16 U.S.C. 791a–823), by which Congress had previously delegated to the Federal Power Commission authority to grant licenses for construction of hydroelectric power generating facilities by non-Federal entities on waters or lands subject to Federal jurisdiction.

The stretch of the Colorado River thus removed from Federal Power Commission jurisdiction includes Bridge Canyon, the site long considered for construction of a multiple-purpose reclamation dam most recently referred to as "Hualapai Dam." Practically all of the Central Arizona Project bills considered in the 90th and previous Congresses would have authorized the construction of Federal dams on the Colorado River.

The purpose of section 12 is to reserve to the Congress the ultimate decision concerning the wisest use or combination of uses of the water and land resources of this stretch of the river.

The moratorium provided for under this section will furnish ample time to allow the National Water Commission to undertake its study of the alternative and best uses of our Nation's water resources. The results of the Commission's study will be available to the Secretary of the Interior and to the Congress, and should provide guidance and valuable information concerning the future use of the Hualapai Dam site.

A proposal to enlarge the Grand Canyon National Park to include the Marble Canyon site, as recommended by the administration, is the subject of separate legislation now before the committee for consideration.

Section 13

Section 13 is a statement of policy that, except as otherwise provided in this legislation, the Secretary, in constructing, operating, and maintaining the Central Arizona Project, is to be governed by general Federal reclamation laws (32 Stat. 388, as amended and supplemented), and that this legislation upon enactment shall be a supplement to the reclamation laws.

Section 14

Subsection (a) specifies that all terms used in this bill and defined in the Colorado River compact shall have the meaning as defined in the compact.

Subsections (b), (c), and (d) establish the specific meaning for the terms "user" or "water user," "active storage," and "Colorado River Basin States" as used in this bill. These subsections apply to the use of

these terms in this legislation only, and are not to be construed as general definitions for purposes of Federal reclamation law.

Section 15

Section 15 places a ceiling of $837 million, plus or minus such amounts as may be justified by reason of ordinary fluctuations in construction costs as indicated by engineering cost indexes applicable to the types of construction involved under the project facilities authorized herein.

The construction of irrigation distribution and drainage facilities for non-Indian lands is not included in the project costs because of the indeterminate service area and the wide variation in works which will be required for various portions of the service area and the possibility that the construction of these systems will be undertaken pursuant to the Distribution System Loan Act (69 Stat. 244, as amended) or the Small Reclamation Projects Act of 1956 (70 Stat. 1044, as amended) or other suitable program. It is intended that the works will be financed through separate repayment contracts and that neither the appropriations nor the repayment for such contracts will be treated as parts of the development fund.

VIII. Conclusion

For the reasons expressed in these separate and dissenting views, we oppose the enactment of H. R. 3300.

John P. Saylor.
James A. Haley.
Rogers C. B. Morton.
George V. Hansen.
John Kyl.

I concur in the above and foregoing Separate and Dissenting Views with the exception of the substitution of Conner Dam for Hooker Dam.

James A. McClure,

The undersigned concur in the above separate and dissenting views with the reservation that we have no objection to Title V of H. R. 3300 authorizing certain projects in the Upper Colorado Basin.

Thomas S. Foley.
Wendell Wyatt.
Lloyd Meeds.

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ADDITIONAL SEPARATE AND DISSENTING VIEWS

The undersigned members regret that we cannot support H.R. 3300 as ordered reported by the House Interior and Insular Affairs Committee on March 26, 1968. We regret that we are forced to take this action, because in the past we have consistently supported the authorization of the Central Arizona Project. The project meets the criteria and policies of the Interior Committee for Federal water resource developments. Considered on its own merits, it warrants early Congressional approval.

We are forced to oppose H.R. 3300 because, as that measure was reported by the Committee, the Central Arizona Project has become a mere appendage to other purposes; a convenient legislative vehicle to advance unrelated provisions which are not required, not recommended by the Administration, not justified financially, and unprecedented in cost.

Those aspects of H.R. 3300 to which we are opposed are found in title II. They are:

(1) An authorization and directive to the Secretary of Interior to undertake immediate reconnaissance and feasibility studies leading to the construction of facilities to import to the Southwest millions of acre-feet of water from the major river basins of other regions of the Nation.

(2) A congressional commitment to develop sources of water to provide, at Federal expense and at unknown cost, all of the water Mexico is entitled to receive under rights which have been confirmed by the Mexican Water Treaty.

A summary of the provisions of title II is attached as an appendix to these views.

We are opposed to the provisions found in title II for the following reasons.

Title II Unnecessary

1. The bill which the administration transmitted and recommended to the Congress on February 15, 1967, did not contain the provisions now found in Title II. The measures proposed by Title II are not necessary—and there is strong indication that they are detrimental—to the long range national interest. There is no emergency and no immediate water shortage which requires or justifies the immediate and hurried approval of the provisions found in Title II. The Majority Report notes that "*a full water supply (1,200,000 acre-feet) can reasonably be expected for the Central Arizona Project until sometime during the decade 1985–1995.* * * *" [Emphasis added, p. 39.] This has been repeatedly affirmed by representatives of the Administration in testimony before the Committee.

Congressional Commitment

2. The provisions of Section 202 of Title II declare that "the satisfaction of the requirements of the Mexican Water Treaty * * * constitutes a National obligation" and relieves the States of the Colorado River Basin "from all obligations which may have been imposed upon them by * * * The Colorado River Compact." These provisions have costly and far-reaching effects.

Every member of the Congress has a right to know what these effects are, and to know precisely what is proposed in Title II.

To declare by legislation that Mexico's right to use Colorado River water constitutes a "National obligation" would impose a tremendous financial burden upon the nation's taxpayers, and would result in benefit to a relatively small group of southwest interests. Adoption of Title II would constitute a *legislative commitment* by the Congress to construct, at unknown costs, a massive water resource project that has yet to be even studied.

Under present law, the Mexican Water Treaty confirms Mexico's right to an annual supply of 1.5 million acre-feet of water from the Colorado River. Mexico's right to this water must, under the Treaty and under international law, be observed by the seven basin states which also use Colorado River water.

If Title II were enacted, Mexico's right would be an obligation of the River *only until* the United States constructed facilities to furnish 2½ million acre-feet of additional water to the River. In other words, the fact that Mexico's water right is shifted from the river to the United States by Title II would make it virtually *mandatory* upon the Federal Government to step in at a future date and construct the facilities necessary, regardless of the cost, to satisfy Mexico's rights as confirmed in the Treaty.

Unprecedented Costs

3. What would construction of these facilities cost? Estimates vary widely dependent upon the source of the water. The Commissioner of the Bureau of Reclamation, during the recent January-February hearings on the bill, had this to say about the cost of importing Columbia River water—one of the alternatives contemplated in Title II—as compared to moving desalted water from the Pacific Coast to Lake Mead.

> Question. Do you have any general estimate of what we are talking about in terms of acre-feet costs?
>
> Mr. Dominy. On a straight projection basis, if it costs $50 an acre-foot to transport the water 313 miles over a lift of 2800 feet, it looks like it could well cost $125 to $150 an acre-foot to transport it 1200 miles because of the extra length and extra pumping head to move it from the Columbia. (p. 897, Hearings on H.R. 3300, Part II).

If we assume a cost of $150 per acre-foot for importing water, it would cost $375 million every year to deliver 2½ million acre-feet as called for by Section 201 of the bill. Assuming a 50 year life for the project, the total water cost would be almost $19 billion.

These costs are associated with a diversion of 2½ million acre-feet per year. And this is a minimum. A larger diversion proposal could materialize from the importation studies authorized by Title, II and it would cost *much more.* The reason a larger diversion could, and probably would materialize is that any engineering plan even to begin to approach the present criteria for economic feasibility would require immense economies of scale and size. Estimates of the initial construction cost of an inter basin diversion have ranged from $10 to $30 billion.

Even the smaller, $10 billion figure is staggering. The entire investment in *all Reclamation facilities constructed since 1902*—Hoover Dam, Grand Coulee Dam, the Colorado River Storage Project, the Missouri River Basin Project, the Central Valley Project, and all the rest—is *only $5½ billion.*

A further indication of how much money is involved in Title II of this bill may be gained by comparing the smaller $10 billion figure with the total Federal national resource budget estimate for 1969 of less than 2½ billion.

Cost Falls on Treasury

4. At any event, no matter what the ultimate cost of furnishing the minimum of 2½ million acre-feet of water as required under Title II, and no matter what source is ultimately chosen—importation, desalting, etc.—it is clear that under the provisions of the bill, *almost all of the costs would be a nonreimbursable item,* and would therefore be assumed by the Nation's taxpayers through the Federal Government. The Majority Report very frankly recognizes this. At page 18 the Report states: "* * * *the cost of such augmentation will be nonreimbursable or, in other words, a cost charged against the entire Nation.*" [Emphasis added.]

The Bureau of Reclamation estimated in its reconnaissance study of augmentation by desalting that because of evaporation and transportation losses, 1.8 million acre-feet per year would be required to meet Mexico's right to Colorado River water. Using Commissioner Dominy's cost figures on importation, it would cost the United States $270 million each year to furnish this 1.8 million acre-feet of water. This amounts to an outright *annual* subsidy to the Southwest which is *greater than* the Bureau of Reclamation's *total* annual construction program. This construction program furthermore benefits 17 States and most of its costs will ultimately be repaid by the beneficiaries.

Repayment Policy Repudiated

5. The provisions of H.R. 3300 would not only, commit the nation to make this tremendous investment, but in direct contradiction to traditional reclamation policy, would relieve the beneficiaries of *any* repayment obligation.

The deliveries of water to Mexico will be made whether the river is augmented or not. The water provided by augmentation, therefore, would all be used in the United States, probably for agriculture. Reclamation policy provides that water users must repay the costs associated with the water supply functions of projects. In the case of irrigation, no interest is charged and, in some instances, irrigators'

repayments are limited to their ability to pay and assistance is provided from other sources of project revenues or from "basin accounts."

Under the provisions of H.R. 3300, *no repayment would be made by the users or the basin account* for at least 1.8 million acre-feet of water annually.

Alternatives' Cost Ignored

6. It should be noted, that the committee's majority report *does not make any reference to the estimated cost of augmenting the Colorado River by any of the alternatives mentioned in Title II.* We think that this is relevant information and that it should not be ignored. It should be brought to the attention of the members of the House before they vote on H.R. 3300.

The costs associated with importation of water from other regions of the Nation are admittedly difficult to ascertain. The preceding discussion, based on Commissioner Dominy's $150 per acre-foot figure is, we feel, realistic and conservative based on the limited data now available.

There are two other alternative sources of water for augmentation which have considerably more favorable costs.

The first of these is desalting. Recently, the Bureau of Reclamation completed a reconnaissance report on augmentation by desalting sea water on the Pacific Coast and conveying it to Lake Mead on the Colorado River. Commissioner Dominy testified in the recent hearings as follows:

> Question. Relative to the reconnaissance report, Commissioner Dominy, I am sure the record is clear on this, but what is the projection for the cost of the desalted water at the oceanside?
>
> Mr. Dominy. Our reconnaissance studies show, based on the advancement of the science that can be expected to occur in the next 25 years in the judgment of the Atomic Energy people and desalinization experts, that *we could produce the water from the ocean at the plant at about 9.8 cents a thousand gallons. That is roughly $30 an acre-foot.*
>
> Question. Approximately $30 an acre-foot.
>
> Mr. Dominy. Yes, sir.
>
> Question. What is the cost that you have projected for conveyance for pumping the water from the ocean to Lake Mead?
>
> Mr. Dominy. This would add about another $50 to it. The conveyance cost, in other words, would be the greater part of the total cost (p. 392, Hearing Record, Part II).

Concerning a second alternative, that of weather modification, Secretary Udall expressed even more optimistic prospects in his prepared statement to the Committee as follows:

> Detailed planning is now beginning for a large-scale pilot operation in the Upper Colorado River Basin. Knowledge gained through our comprehensive efforts and those financed through the National Science Foundation gives a firm basis for planning an undertaking of this magnitude. This first pilot project could be logically initiated as early as 1969 or 1970.

We believe it reasonable to anticipate that within 10 years a firm capability to augment Upper Basin streamflow by about 1,900,000 acre-feet annually could be developed. A justifiable large-scale operation could then be started involving:

> Seeding within well-defined and localized target areas by remote controlled ground-based generators using silver iodide.
>
> Seeding susceptible winter storms at high elevations to increase winter snowpack.

Modification of winter precipitation in lower or middle elevations of the Upper and Lower Basin and summer precipitation throughout the region are further potentials that could be realized by 1985. [Emphasis added. p. 704, Hearing Record, Part II.]

Concerning the costs of this water he stated further:

> Although the average annual streamflow augmentation of about 1,900,000 acre-feet will occur during the spring runoff, regulation provided by the large storage capacity built in the Colorado River Basin will make virtually all the increase usable water supply.
>
> *The total annual cost of a full-scale cloud seeding operation in the prime target areas is estimated at $2,650,000. This* estimate includes amortized initial installation and replacement costs, supplies, maintenance, and a continuing analysis of results and any effects on ecological regimes.
>
> *The unit cost* of producing 1,900,000 acre-feet of new water by cloud seeding *is thus estimated as about $1.50 per-acre-foot.* The estimated cost is probably on the high side, representing an upper boundary for costs. *Once more is known, careful planning may reduce unit costs to as low as $1.00 per acre-foot.* [Emphasis added. p. 704 Hearing Record. Part II.]

Work toward the realization of these two alternatives is under way and is progressing without the necessity of further authorization and direction in H.R 3300. Besides the study recently completed by the Bureau of Reclamation, a joint study group formed by the Governments of Mexico and the United States and the International Atomic Energy Agency is making an assessment of the technical and economic practicability of a dual-purpose nuclear power and desalting plant which would serve the general areas of California, Arizona, Baja California, and Sonora. A report is expected soon. A sizable continuing effort toward research and development of desalting technology also has been under way for some time under the auspices of the Department of Interior's Office of Saline Water.

In the field of weather modification, the Bureau of Reclamation has a continuing developmental program in progress which is at the level of $5 million for fiscal year 1969. A major part of that program is specifically directed toward augmentation of the Colorado River.

It is our judgment that no additional impetus is necessary for the advancement of these programs and that none would result from the adaptation of the study provisions of Title II. On the contrary, re-

sources would very likely be diverted to investigation of the import plan which Title II directs be undertaken.

As was pointed out earlier in these views, as the Majority Report notes on page 39, and as Administration officials have repeatedly testified before this Committee, *there is no need for augmentation of the Colorado River before the year 1990*, if ever. In view of this, we strongly feel that the Congress should not be stampeded into authorization of the costly and far-reaching measures proposed by Title II of H.R. 3300.

Costly Danger of Obsolescence

7. If, as a result of the changes made in the Mexican Water Treaty obligation and the feasibility studies authorized by Title II, Congress should in the future hurriedly authorize a massive importation program, it may find that by 1990 the importation program has been rendered totally obsolete and uneconomical by technological advances in desalting and weather modification.

In our judgment, this is a risk which the Nation should not take. We should instead apply this new technology in desalting and weather modification to augmenting the Colorado River as it is developed. The Nation cannot afford to do otherwise.

We recognize that the Southwest is reluctant to wait and see if weather modification can add 2 million acre-feet of water to the Colorado River Basin by 1985 at a cost of $1.50 per acre-foot. We recognize that the certainty of providing water through a massive importation program has far more immediate popular and political appeal. We feel, however, that in view of the tremendous cost differences involved between importation and weather modification, it is in both the National interest and the Southwest's interest to await these technological advances. This approach is all the more compelling when it is recognized that there is no present or immediate danger of water shortage in the Southwest.

Law, Policy and Procedures Ignored

8. The provisions of Title II make an unwarranted exception to existing law, violate Congressional policy and ignore regular Committee procedures.

Section 8 of the Federal Water Project Recreation Act of 1965 (79 Stat. 217) requires specific Congressional authorization of feasibility studies. The intent of the Congress in enacting Section 8 of the Water Project Act was to insure that Congress would have an opportunity to review the reconnaissance reports and findings of the Department of the Interior on specific proposals before authorizing more costly and detailed feasibility studies.

Title II would make an exception to Section 8 and the procedures Congress has followed. Title II authorizes and directs the Secretary to prepare a reconnaissance report by 1973, and then to proceed *directly* to the preparation of a feasibility report by 1975 to augment the flow of the Colorado River by a minimum of 2½ million acre-feet. No provision is made for Congressional review of the reconnaissance report as is contemplated by Section 8 of the Water Project Act. No opportunity is available for Congress to weigh the costs and alterna-

tives proposed in the preliminary reconnaissance report before deciding whether to authorize a pre-construction feasibility study.

We do not feel that Section 8 and the policy Congress has followed should be ignored or discarded as is proposed in Title II. This is especially true where the proposed feasibility study would be the most expensive ever undertaken and would be directed toward the most costly and controversial water resource development ever built.

Title II also departs from Congressional policy in two other respects. First, it specifically directs that a reconnaissance study of importation be undertaken. The past practice has always been that the water resource agencies of the Federal government have been granted the discretion to initiate those reconnaissance studies which the Administration determines to be in the National interest. It is our judgment that to direct by legislation, that the Department of the Interior undertake a reconnaissance study of importing water from the Pacific Northwest or other Regions of the Nation is to direct the Department to undertake actions which the Administration recognizes are *not* in the national interest and are *not* financially sound. It is clear that absent legislative direction the Department would not undertake the importation study contemplated by Title II.

Second, Title II directs reconnaissance studies of "weather modification," "desalting," "reductions in losses," and "other means." This directive is, in our judgment, superfluous. These studies as was noted earlier, are, and have been, underway for some years. They *have not* required special legislative authorization. It is clear that their inclusion in Title II is for the sole purpose of avoiding the appearance of what is truly intended: namely, the passage of legislation directing the Secretary to prepare an importation plan for moving millions of acre-feet of water more than a thousand miles. As was stated at the recent hearings on H.R. 3300:

> There is nothing that prevents the Department, as the chairman pointed out, from presently studying interbasin studies on a reconnaissance study, the same thing that has been done in desalting. It is not a question of study, *it is a question of whether this Committee should obviously indicate preference for one means of augmentation over another when the studies have not been done and when the information is not in existence.* [Emphasis added. p. 915, Hearings on H.R. 3300, Part II.]

"Veto" Proviso Irrelevant, Unwise

9. The Majority Report states that the Secretary "is forbidden to recommend importation from areas of surplus without the approval of the states affected" (p. 18), and that "the veto power given to the states involved before a recommendation can be forwarded to the Congress" insures an objective study and provides positive protection to the areas of origin (p. 42).

We deny the validity of these statements and the inference in both the legislation and Majority Report, that Title II accords *any* protection, or *any* vestige of a so-called "Veto Power" to the states of origin—the states which would be required under Title II to furnish the water the southwest desires if an importation plan should, in the future be authorized.

The language which is cited as providing to the states of origin a "veto" over importation proposals is the proviso of subsection 201 (a) (2) which reads as follows:

> Provided, That the Secretary shall not, under the authority of this clause or anything in this Act contained, make any recommendation for importing water into the Colorado River system from other river basins without the approval of those states which will be affected by such exploration, *said approval to be obtained in a manner consistent with the procedure and criteria established by Section I of the Flood Control Act of 1944.* (58 Stat. 887); [*Emphasis added.*]

Contrary to statements in the Majority Report, the pertinent provisions of Section I of the Flood Control Act of 1944 merely provide that—

> (1) "to the extent deemed practical" the affected states may receive information on the studies and have an opportunity to consult and cooperate in the investigations.
>
> (2) the states' plans for use of the water resource will be set out in any report to the Congress.
>
> (3) the "written views and recommendations of each affected state * * * may be submitted to [the Secretary] and that they will be transmitted with the Secretary's report and such recommendations as he deems appropriate."

It is clear beyond contradiction that the so-called "veto power" merely gives the affected states an opportunity to review and comment upon the reports of studies. And this is *already* a requirement of law in the Flood Control Act. *Nothing* by the way of protection is added by the proviso of Subsection 201 (a) (2) of H.R. 3300.

The proviso of Subsection 201(a) (2) merely means that if an affected state objects or fails to approve the plan, the Secretary cannot "formally" recommend the adoption of the feasibility plan for importation in his letter transmitting the report. *The report is, nevertheless, transmitted to the Congress.* All that the proviso does is to give the affected states the power to prevent the Secretary from saying in his letters of transmittal to the House and Senate that "I recommend this plan." Instead, he would have to say, "I transmit this detailed construction plan, but cannot officially recommend its authorization because an affected state does not approve it."

National Water Commission

10. The Representatives of the States of the Pacific Northwest have not sought a "veto power" over objective and impartial studies of long range water transfers. We have advocated, however, that such studies should be undertaken by an entity, such as the proposed National Water Commission, which would be capable of considering the long range regional impact and the questions of broad national policy involved.

We object only to studies which would be conducted with a narrow objective and on a schedule which is needlessly accelerated and precludes the possibility of objective and comprehensive findings.

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Conclusion

We urge the Members of the House to oppose H.R. 3300 in its present form. If Title II of H.R. 3300 becomes law, rational water resource planning in the United States will be gravely threatened.

We believe that Title II and the provisions in other parts of H.R. 3300 which relate to Title II should be eliminated. We believe that the National Water Commission should be established to evaluate long-term policies and alternatives to the Nation's water problems. The evaluation should include studies of transbasin water diversions. Legislation to establish a National Water Commission has already been passed by the House and the Senate in slightly different form.

If, as we recommend, Title II is eliminated from H.R. 3300, the Central Arizona Project and the other provisions of H.R. 3300 can be authorized with our support. Sensible water resource planning can then go forward.

Appendix

SUMMARY OF THE PROVISIONS OF TITLE II

Title II of H.R. 3300 authorizes and directs the Secretary of the Interior, in conformity with principles, standards and procedures to be established by the Water Resources Council, to perform studies of the following:

1. Long-range water supply and demand in the Colorado Basin.
2. Sources of augmentation to meet the current and anticipated water requirement of the Colorado Basin including salvage, importation, desalination, weather modification, and other means.
3. Water quality measures.
4. Water conservation practices.
5. Long-range water supply and demand in areas from which importations of water could be made.

The Secretary is authorized and directed to complete reconnaissance reports on these studies by June 30, 1973, and, on the basis of these reports, to proceed with feasibility studies of an augmentation plan leading to a feasibility report by January 1, 1975.

Title II further provides that the requirements of the Mexican Water Treaty shall be the first obligation of the augmentation and that this will be a "national obligation."

The remaining provisions of Title II are:

1. Directions to the Secretary to provide protection of the interests of the states of origin against the consequences of water exportation.
2. Priority to uses of water in the states of origin over exportation works.
3. Annual progress reports to be prepared by the Secretary.
4. Authorization of appropriations for the investigations with no limitation stated.

For the reasons expressed in these views, we oppose the enactment of H.R. 3300.

Wendell Wyatt,
Member of Congress.
Thomas S. Foley,
Member of Congress.
George V. Hansen,
Member of Congress.
Lloyd Meeds,
Member of Congress.
James A. McClure,
Member of Congress.

SEPARATE VIEWS ON HOOKER DAM SITE

We want to express our concern about the provision of H.R. 3300 as amended which authorizes the construction of a "Hooker Dam or suitable alternative" on the Gila River in New Mexico.

Construction at the Hooker site of a dam high enough to store the amount of water allocated in this bill to New Mexico would result in the backing of slack reservoir water across land within the Gila Primitive Area, which is subject to review for future inclusion in the National Wilderness Preservation System, and through the Gila Gorge some nine miles within the Gila Wilderness Area.

The Gila Wilderness Area is one of 54 units of the National Wilderness Preservation System established by the Congress just four years ago, by means of the Wilderness Act (Public Law 88–577), "to secure for the American people of present and future generations the benefits of an enduring resource of wilderness." Through the leadership of the late Aldo Leopold, it also was the *first* wilderness established by the Forest Service in the United States in 1924. It should not be degraded by a man-made, unnatural intrusion as a result of this legislation.

If the Forest Service is going to be able to fully protect the Gila Wilderness from non-conforming uses and developments, the bill should be amended to eliminate all reference to the Hooker site. An alternative dam site downstream, the Connor site, should be substituted for the Hooker site in the bill's language to avoid this direct threat to the Wilderness Area. The phrase, "Conner Dam or suitable alternative," would be preferable to the present language. Many members of the full Committee favored this language over the present language of H.R. 3300, which, as a minimum, must be interpreted by the Secretary of the Interior as a clear mandate to find an alternative to the Hooker site.

During the Committee's consideration of this portion of the bill, it became obvious that adequate, up-to-date technical studies of the Hooker project, and the most feasible alternatives based on the provisions of the current legislation, were lacking. Because the Wilderness Act requires a determination that a water-development project within a wilderness will better serve the interests of the United States than will its denial, and because the necessary study had not been made that would have furnished the facts on which the Committee could have made a decision, the Committee amended the bill to require such a study (the "Hooker Dam or suitable alternative" language). This amendment—while it does not go as far toward eliminating Hooker Dam as is needed—intends that the Secretary of the Interior shall study the project, taking into account at least the following:

1. The uses to which the water would be put and the benefits that would accrue to the people of the United States; 2. Comparative advantages of different methods of providing the water, such as, but not restricted to, reservoir storage at various sites, purification of brackish water, and pumping from underground sources; 3. Means for protecting existing water rights; 4. Damage to the natural environment, wildlife, and scenic resources, particularly those public lands within the Wilderness Area and Primitive Area; 5. The construction, maintenance and other costs of dams at the Hooker site, Conner site, and other suitable sites, or other alternative water supply methods.

We would like to point out that other wilderness areas will be in great jeopardy if a reservoir and associated developments are permitted in this unit of the National Wilderness Preservation System. We understand that, in Montana, the Bureau of Reclamation has plans to flood out part of the Bob Marshall Wilderness Area by a dam on the Sun River. Also in Montana, the proposed Glacier View Dam would flood irreplaceable wilderness lands in Glacier National Park. Plans exist to construct water-development projects that would invade the Flat Tops wilderness in Colorado, the High Uintas in Utah. and Primitive Areas in Idaho. The Hooker Dam proposal is a test case. We believe it marks a crisis in the history of wilderness preservation in the United States. An alternative to Hooker Dam can and must be found.

An excellent summary of the potential impact of Hooker Dam on the Gila Wilderness, and of the advantages of the alternative Conner site, was published recently by The Wilderness Society, a respected national conservation organization, which with other national conservation groups strongly opposes the authorization of this dam. We quote part of its report:

> The Hooker project would destroy extraordinarily scenic wilderness lands and miles of wilderness river, eliminate significant fisheries and wildlife habitat, and obstruct access to the wilderness by foot and horseback.
>
> The Gila River canyon in the Hooker reservoir area is steep and narrow, strictly limiting use of the reservoir for recreational purposes. Precipitous, rocky terrain would make a recreation access road to the reservoir very expensive to build. Few locations on the steep slopes around the reservoir would allow adequate campground, parking, or boat-launching facilities. An alternate dam site downstream—the Conner site—would provide additional recreational facilities without destroying wilderness values.

In summary, we believe the Congress should accept the judgment it made in 1964 when it placed the Gila Wilderness in the Wilderness System, and should not now authorize a reservoir project which will invade the Nations first wilderness and set a pattern for other invasions of the National Wilderness Preservation System in the future.

We urge that the Secretary of the Interior find an alternative to Hooker Dam which will both provide New Mexico with its water and preserve the integrity of the National Wilderness Preservation System.

LLOYD MEEDS.
PHILLIP BURTON.
PATSY T. MINK.
JAMES A. HALEY.
THEODORE R. KUPFERMAN.
WILLIAM F. RYAN.
ROBERT W. KASTENMEIER.
WENDELL WYATT.
GEORGE HANSEN.
HUGH L. CAREY.
JOHN TUNNEY.
ED REINECKE.
JOHN P. SAYLOR.
JOHN KYL.
JOE SKUBITZ.
ROGERS C. B. MORTON.
THOMAS S. FOLEY.

SEPARATE VIEWS OF MR. HALEY AND MR. SKUBITZ

Delivery of Water from the Colorado River to Mexico in Accordance with the Terms of the Water Treaty of 1944 is Not a National Responsibility

The supply of water available in the Colorado River according to records of recent years will not be sufficient to meet both the needs of all States who have received allocations and the treaty obligations with Mexico. However the treaty obligation is a constant factor and must be met. It is only fair that each State concerned be allocated a proportionately lesser share of water in periods of stringency in order to meet that obligation.

In the event that the total water supply of the Basin is augmented in the future, all proposals are for amounts greater than that required to meet the treaty obligation. All States stand to benefit to some extent from the surplus over treaty needs. They should therefore be required to share in the costs of such augmentation as well.

Augmentation of total water supply would increase the capacity of the system to produce hydroelectric power. The sale of this power is an important element in meeting reimbursement costs. Sharing in the benefits of an increased flow of water carries with it the obligation to share in the costs.

Since all portions of the basin would share in the right to utilize surplus water they should also be required to share any stringency that might occur.

The proposal that the Federal Government assume the responsibility for meeting the treaty obligation is primarily based on the need for augmentation of total water supply, by whatever means. It is almost certain that when this is accomplished that there will be considerable pressure brought to bear to import more than the treaty needs, with basin States bearing only incremental costs. This would amount to local benefits at the national taxpayers' expense since expansion would be possible only after initial construction. The proposal that meeting treaty demands through assumption of national responsibility and augmentation of supply at Federal cost is in a real sense a subterfuge to obtain benefits unfairly to the extent that initial costs would be nonreimbursable.

At the time the Colorado Compact was negotiated and the Mexican Water Treaty was approved it was believed that the Mexican share would come from surplus waters. The total water supply was estimated then to be greater than it has proven to be. This is unfortunate but the States concerned agreed to the compact and the fact that there is less water available than originally thought does not alter the fact that the Mexican obligation has been accepted by the States and its terms must be met by sharing the shortages.

H.R. 3300 as amended and reported by the Committee on Interior and Insular Affairs contains provisions that would declare that satisfaction of the requirements of the Mexican Water Treaty of 1944 con-

stitutes a national obligation (Title II) which shall be the first obligation of any water augmentation project.

It authorizes a study and recommendation of means of augmenting the water supply of the Colorado River whether by weather modification, desalination, interbasin transfer or by whatever alternative means.

The bill stipulates that States from which water might be imported be protected in their rights to water originating in those States.

The bill would direct the Water Resources Council to establish guidelines for such studies.

Augmentation of water supplies has become a matter of immediate concern. Original allocations of water to the Upper and Lower Basins and as among the individual States was based on hydrologic records of previous years which have been found to be larger than is actually the experience of recent years. More water has been allocated than available in the immediate past and is in prospect for the future.

In order to meet the obligation under the Mexican Water Treaty and at the same time to meet the needs of the States of the basin to which they are entitled under the compacts it will be necessary to augment the total water supply.

Several methods of augmentation have been given consideration. Studies being conducted by the Bureau of Reclamation include weather modification, nuclear-powered desalination and trans-basin diversions.

The importation of water from drainage areas outside of the Colorado River Basin has become a precondition for support of the Central Arizona Project. This is because if the project is constructed, anticipated water uses in the Colorado River Basin, including delivery of 1.5 million acre-feet to Mexico, would amount to over 16 million acre-feet if evaporation losses are included. This would preclude any further development of water resources in the Upper Basin to meet anticipated future needs. Without augmentation prospective water supplies in the Colorado River will be insufficient to meet commitments under existing and proposed projects.

No specific source of interbasin transfer of water to augment Colorado supplies has been advanced, consequently no cost figures are available.

For the reasons expressed in these separate views we oppose the provisions of H.R. 3300, as amended, which make the satisfaction of the requirements of the Mexican Water Treaty a national obligation.

JAMES A. HALEY.
JOE SKUBITZ.

SEPARATE VIEWS OF MR. HANSEN AND MR. McCLURE

In addition to our views expressed in "Separate and dissenting views" and in "Additional separate and dissenting views," we cannot support H.R. 3300 as we are opposed to the authorization of studies of inter-regional water transfer until such time as the resources and needs of the Pacific Northwest states and the Southwest states have been identified.

We are sympathetic to the needs of the Southwest states, but we feel that the separate study which would be authorized by H.R. 3300 is premature and undesirable.

The State of Idaho has water needs studies underway to identify our water resources and needs to the year 2070. These studies are being coordinated with other state and federal agencies. In addition, comprehensive framework plans are now underway by federal and state agencies in the eleven western states under the supervision of the Federal Water Resources Council. The framework plans and the State studies should be completed by 1971 or 1972.

It should be pointed out that preliminary studies indicate that upwards of six million additional acres of the Snake River Plain in Idaho can be brought under irrigation. But the water required for this would exceed the annual average flow of the river. Therefore, sympathetic as we are to the needs of the Southwest states, we must oppose the authorization of studies of inter-regional water transfer until such time as our own needs and resources are accurately assessed.

GEORGE V. HANSEN.
JAMES A. McCLURE.

INDIVIDUAL VIEWS OF CONGRESSMAN ED REINECKE

One of the most controversial river basin questions before the Congress in many years has been the Central Arizona Project. I firmly believe that H.R. 3300, as amended, recognizes the needs of all Western States concerned and represents the best compromise achievable for the Nation after years of hard work in holding hearings and reviewing various approaches to further development of the Colorado River.

The bill clearly sets forth California's present position on basin-wide projects, having won the endorsement of the State Administration as well as major agencies involved—the Colorado River Board of California and its six-agency membership, Metropolitan Water District of Southern California, Imperial Irrigation District, Los Angeles Department of Water and Power, Coachella Valley County Water District, San Diego County Water Authority, Palo Verde Irrigation District, California Water Commission, and the Advisory Committee on Western States Water Planning.

The long fight has been waged on a number of principal issues—

The disparity between legal allocations of Colorado River water among the seven States of the basin and the estimated amount of water available each year;

The important matter of augmenting low river-flow, including protection to areas of origin and financial feasibility;

The means of financing the Central Arizona Project; and

The contention of conservation organizations that further construction of dams on the lower stretch of river would destroy the natural beauty and amenity of the Grand Canyon.

The Arizona diversion, designed to meet the needs of water-short areas around Phoenix and Tucson, has not been authorized earlier because other Western States feared that the project would create shortages in their own regions. On June 3, 1963, the Supreme Court handed down its decision in a 40-year dispute between Arizona and California over allocation of waters of the Lower Colorado River (Arizona v. California, et. al. 373 U.S. 546–1963). This decision rested on 12 years of judicial proceedings and included the largest body of testimony ever taken under the Court's jurisdiction. The Court generally upheld the position of Arizona over a disputed 1 million acre-feet of water, and in effect gave the State entitlement to sufficient water to make its Central Arizona Project feasible. Under the Colorado River Compact of 1922, the Upper Colorado Basin States and Lower Colorado Basin States each were allocated the use of an average of 7.5 million acre-feet of water annually. The Court ruled that the water available each year to the Lower Colorado Basin States was to be allocated as follows:

	Million acre-feet
California	4.4
Arizona	2.8
Nevada	.3

The 1944 Treaty with Mexico provided that 1.5 million acre-feet of Colorado water was to be delivered to Mexico annually. In addition, an estimated annual evaporation loss from the river amounts to about 1 million acre-feet. Thus the total legal allocations of water under the Compact and Treaty, plus evaporation, amounts to about 17.5 million acre-feet. The actual water available each year normally ranges between 3 to 4 million acre-feet less than this amount, but at present the full allocations are not being used. Although the Court decision established the State allocations, it did not resolve the problem of future shortages predicated on expanding use of the river. California has contended that in the event of low flow, any shortage in allocation should be borne by new water users, mainly the users of the Central Arizona Project.

The size of the Arizona diversion, authorized under H.R. 3300, will enable Arizona to take up to and not to exceed an additional 1.8 million acre-feet of water from the Colorado. Under the bill's provisions, California is guaranteed its 4.4 million acre-feet allocation annually with the understanding that the Arizona diversion will bear any shortage until there is sufficient water made available in the river. This provision holds for any future year, rather than a specified number of years as proposed in other legislation. California gave way on major proportions in agreeing to the 4.4 years ago. We must recognize that California is now using 5.1 and has contracts to 5.4. This to pull back to 4.4 means giving up 700,000 as the first shortage on the river in order to alow Arizona to divert the 1.8 for the Central Arizona Project.

Under the Mexican Treaty, the several States of the basin must supply the assured flow to Mexico out of their own allocations in times of low flow. This requirement is to be waived as soon as water augmentation can be provided. Thus, the fulfillment of the Mexican Treaty is to become a national obligation rather than a continuing onerous responsibility of the several basin States.

To finance the Central Arizona Project it was proposed in earlier legislation that two Federal hydroelectric dams be built at locations near the Grand Canyon National Park. H.R. 3300 includes instead a provision for purchasing electric power needed for the diversion's pumping operation from a coal-fueled generating plant whose construction has been planned by a combine of private utilities and public power agencies. These facilities are an acceptable alternative to the hydroelectric dams which aroused such strong opposition from conservation organizations and which in my analysis would never have made a feasible import program. The bill also provides for a separate Development Fund with revenues originating from Arizona sources going to help finance the project, together with supplemental funds derived from the Pacific Northwest and Southwest Intertie.

To make possible eventual augmentation of Colorado river-flow, the bill authorizes the Federal Water Resources Council to establish procedures and the Department of the Interior to investigate all possible sources of supplementary water from outside the basin, including weather modification, desalination and other means. However, to protect the interests of non-basin States, the bill provides that any recommendation involving importation from surrounding river basins must meet the prior approval of those States affected. A separate

Development Fund is to be established to make possible future construction of such augmentation facilities as may be agreed upon. Revenues derived from the California and Nevada power purchases are to be set aside in this Fund, as well as all surplus revenues derived from the Fund established for the Central Arizona Project.

Many members of Congress, from California, including myself, have introduced legislation embodying these or similar provisions. I consider the compromise bill reported by our subcommittee a good bill—immediately helpful to Arizona and moderate in its reach toward the solution of water problems of other Colorado Basin States, forward looking but practical in approach. I support it wholeheartedly and am pleased to work for its early enactment by the House.

ED REINECKE.

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ARIZONA COLLECTION
ARIZONA STATE UNIVERSITY