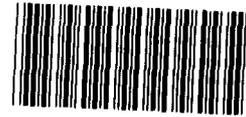


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Testimony



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Bonneville Unit's Irrigation and
Drainage System Is Not Economically
Justified

Statement of
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Natural Resources Management Issues
Resources, Community, and Economic
Development Division

Before the
Subcommittee on Water and Power
Committee on Energy and Natural Resources
United States Senate



Mr. Chairman and Members of the Subcommittee:

We are pleased to be here today to participate in this hearing on S. 2969, "The Central Utah Project Completion Act." This act would authorize \$150 million in federal funds for construction of the Irrigation and Drainage (I&D) System of the Central Utah Project's (CUP) Bonneville Unit. According to estimates by the Department of the Interior's Bureau of Reclamation, the currently authorized CUP cost ceiling will be insufficient by fiscal year 1992 to construct the I&D system.

At your request, we prepared a benefit-cost analysis of the I&D system to determine whether its construction is economically justified.

SUMMARY OF RESULTS

The Bureau did not calculate a separate benefit-cost ratio for the I&D system. To calculate this ratio, we extracted from the Bureau's 1988 benefit-cost analysis of the Bonneville Unit only those benefits and costs associated with the I&D system. This resulted in annual benefits of \$10.2 million and annual costs of \$12.1 million, or a benefit-cost ratio of .84 to 1. This means that for every \$1 of project costs, the U.S. economy would realize a benefit of only 84 cents.

We then adjusted this ratio to bring the Bureau's analysis in line with standard economic principles. For example, we evaluated all benefits and costs from a national economic development perspective. We treated taxes as a governmental benefit and included salinity impacts as a project cost. We also adjusted for indirect profits and farmers' labor costs. As a result of these adjustments, the annual benefits decreased to \$5.2 million and annual costs rose to \$17.5 million. Accordingly, the benefit-cost ratio was reduced to .3 to 1, or, in other words the U.S. economy would realize a benefit of only 30 cents for every \$1 of project costs.

Thus, from a strict benefit-cost analysis standpoint, construction of the I&D system is not justified. In the final analysis, the decision whether to approve the project is a policy judgment for the Congress, and factors in addition to the benefit-cost analysis, such as regional development contributions and construction costs already incurred, may be considered. To assist the Congress in its deliberations, we are beginning, at your request, to analyze the financial impacts of not completing the system, as well as alternatives to its construction.

BACKGROUND

The Colorado River Storage Project Act of 1956 authorized the Bureau to construct the CUP. The CUP consists of five separate

units, the largest of which is the Bonneville Unit. Of the five, construction of two has been deferred, two have been completed, and the Bonneville Unit is presently under construction. (Attachment I provides a graphic presentation of the five CUP units.)

Basically, the Bonneville Unit is divided into six systems that are designed to collect water in the Uintah Basin and transport it through the Wasatch Mountains to the Bonneville Basin through a complex system of aqueducts, tunnels, and canals. Construction of the unit began in 1966, and is expected to be completed in 1996. (Attachment II shows the geographic layout of the Bonneville Unit systems.)

The primary purpose of the Bonneville Unit's I&D system is to supply irrigation water to farmlands in central and southern Utah. The I&D system will also provide a small amount of municipal and industrial water to cities in Juab and Utah Counties. According to the Bureau, about 40 percent of the I&D system's water will provide supplemental irrigation to presently irrigated land to offset an existing water shortfall, and thereby stabilize existing agricultural production. Most of the remaining I&D system water will be used to irrigate presently unirrigated land to offset land being taken out of agricultural production by urbanization and industrialization.

The cost to construct the I&D system is \$328.5 million, of which \$150 million under S. 2969 will be borne by the federal government. The remaining costs will be funded by the Bureau's cost-sharing sponsors. Construction of the I&D system has not begun.

CRITERIA USED IN THE BENEFIT-COST ANALYSIS

At your request, our benefit-cost analysis of the I&D system applied the 1983 Economic and Environmental Principles and Guidelines for Water and Related Land Resources Implementation Studies (P&Gs) that became effective July 8, 1983. These P&Gs were developed by the Water Resources Council to guide formulation and evaluation studies by the major federal water resource development agencies, including the Bureau of Reclamation.¹

The P&Gs summarize methods for calculating the benefits and costs of water resource development alternatives and are intended to ensure proper and consistent planning by the water resource development agencies. They require, for example, that water resource planning be evaluated on the basis of contributions to national economic development consistent with protecting the nation's environment.

¹The Water Resources Council, now inactive, consisted of the Secretaries of Agriculture, Army, Commerce, Energy, the Interior, Transportation, and Housing and Urban Development; and the Administrator of the Environmental Protection Agency.

The Bureau incorporated the Water Resources Council's P&Gs into its rules and regulations. Bureau officials informed us, however, that because the 1988 update was, in their view, a refinement of the entire Bonneville Unit plan, it was exempt from the P&Gs. Instead, the Bureau used its 1959 rules and regulations. These rules and regulations provide guidance for economic evaluations of multi-purpose water resource projects, but do not require that the benefit-cost analysis consider national economic development.

We used the P&Gs to adjust the Bureau's benefit-cost analysis. Where they were vague or did not explicitly address the treatment of specific aspects of benefits and costs, we supplemented them with standard economic principles.

RESULTS OF OUR BENEFIT-COST ANALYSIS

Mr. Chairman, I would now like to discuss our analysis and results. We extracted from the Bureau's 1988 benefit-cost analysis of the entire Bonneville Unit those costs expected to be incurred and those benefits expected to be realized only if the I&D system is built. This resulted in a benefit-cost ratio of .84 to 1. Therefore, Mr. Chairman, on the basis of the Bureau's own data and methodology, construction of the I&D system is not economically justified.

We then modified these benefits and costs to bring them in line with the P&Gs and standard economic principles, making those adjustments that were readily quantifiable. We made four adjustments relating to indirect profits, farmers' labor, taxes, and salinity costs. These adjustments resulted in a \$5 million annual decrease in benefits, and a \$5.4 million annual increase in costs. (The Bureau's benefits and costs data and our adjustments are shown in attachment III.)

Excluding indirect profits resulted in a \$2.6 million annual reduction in I&D system benefits. The Bureau defines these profits as those earned by food processors, transporters, and retailers for delivering increased farm production to final consumers. Profits should be considered a benefit only if they would not have been earned elsewhere in the economy during the 100-year life of the project. Standard economic principles assume that over a long period, such as the 100-year life of the CUP, labor and capital will find employment elsewhere in the U.S. economy. We assumed, therefore, that the labor and capital used to prepare and deliver these farm products to the consumer would have been otherwise employed.

Including farmers' labor costs resulted in a \$2.8 million annual decrease in benefits. Bureau calculations of farm profits omitted farmers' labor costs. Assigning no cost to farmers' labor

overestimates farm profits because it assumes that farmers could not be productive elsewhere in the U.S. economy. In other words, it assumes that outside of farming, they would be unemployed and earn no income for the duration of the project's 100-year life.

Including increased revenues to federal, state, and local governments resulting from taxing farm output increased benefits by \$0.4 million annually. The Bureau counted taxes only as a cost to farmers, but not as a benefit to the government. Taxes simply transfer part of the benefits realized by the farmers to the government.

Lastly, recognizing salinity impacts downstream resulting from the I&D system increased costs by \$5.4 million annually. By diverting water from the Colorado River, the I&D system increases salinity downstream by concentrating salts, resulting in lower agricultural yields and higher farm costs. The Bureau excluded these costs because under the Colorado River Compact of 1922, the Bonneville Unit has the legal right to deplete the river. These resulting salinity costs, however, are still a project cost.

The net effect of these adjustments is to reduce the I&D system's benefit-cost ratio to .3 to 1. In other words Mr. Chairman, in order for the construction of this project to be economically justified with a ratio of 1 to 1, project benefits

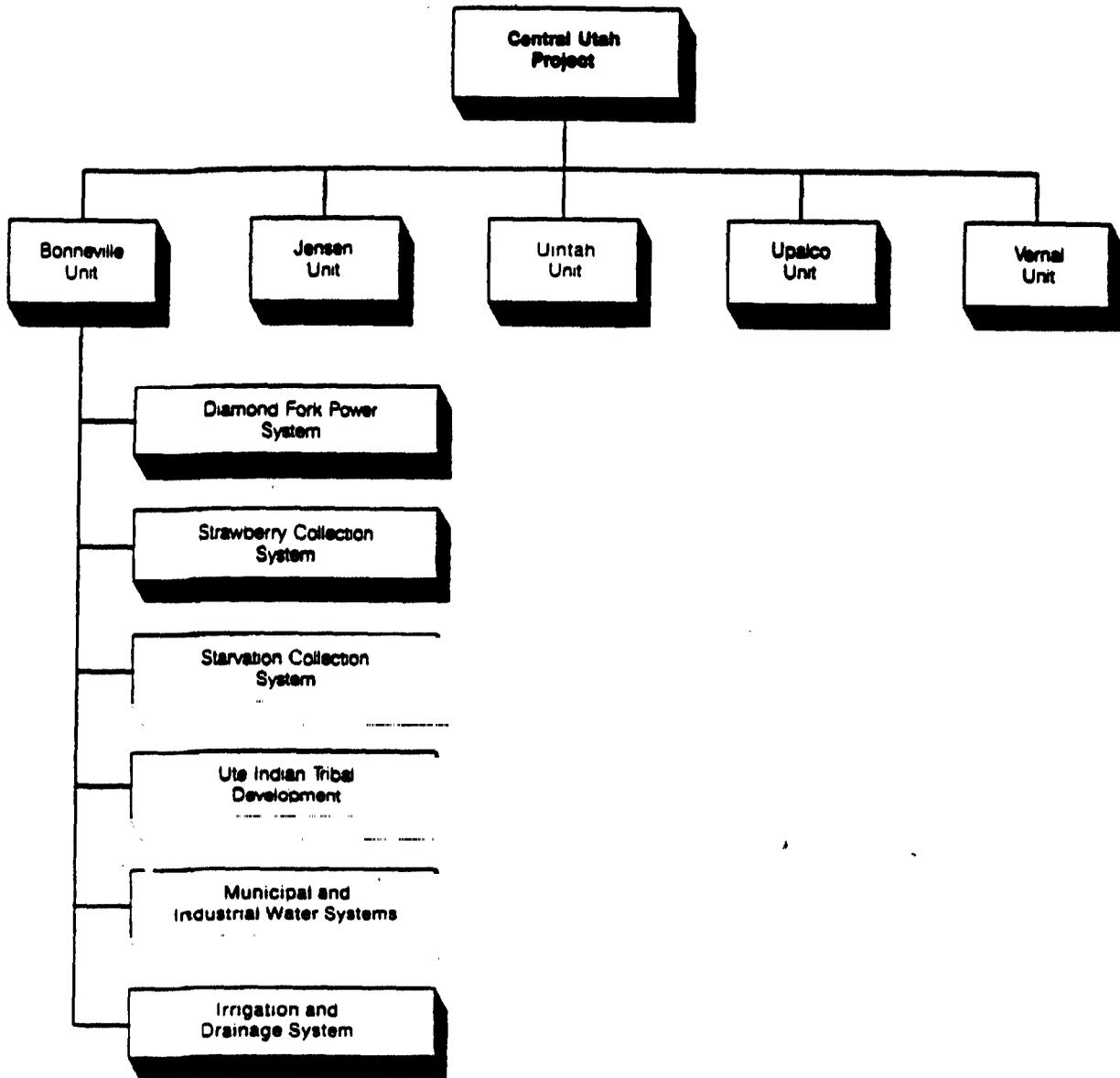
would have to be increased by 232 percent, or existing project costs would have to decrease by 70 percent.

In summary, Mr. Chairman, the construction of the I&D system from a strict benefit-cost analysis standpoint is not justified. However, we recognize that in making its decision whether to approve the project, the Congress may consider other factors.

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Mr. Chairman, this concludes my prepared statement. I would be pleased to respond to any questions that you or members of the Subcommittee may have.

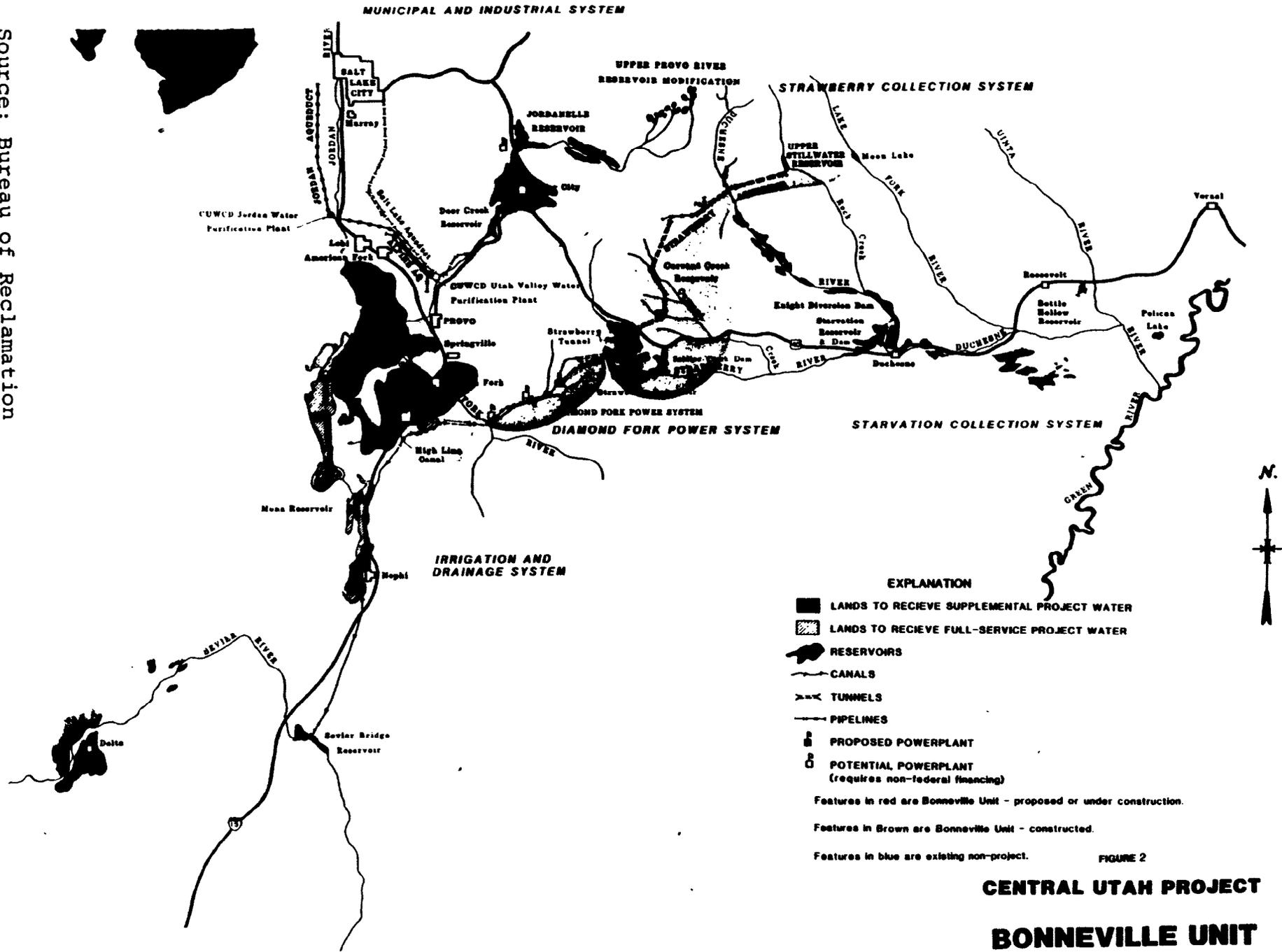
Units And Systems
Of The
Central Utah Project



The Jensen and Vernal Units have been completed. The Upalco and Uintah Units have been deferred. The Bonneville Unit is under construction.

Source: Bureau of Reclamation

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ESTIMATED REMAINING BENEFITS AND COSTS
FOR THE CENTRAL UTAH PROJECT BONNEVILLE UNIT'S
IRRIGATION AND DRAINAGE SYSTEM
(Figures in millions)

Annual benefits		\$ 10.2	
GAO adjustments:			
Indirect profits	(2.6)		
Farmers' labor	(2.8)		
Farm tax expenses	<u>.4</u>		
Subtotal	(5.0)	<u>(5.0)</u>	
Adjusted annual benefits		<u>\$ 5.2</u>	
Annual costs ¹		\$ 10.8	
Other costs ²		<u>1.3</u>	
Subtotal		\$ 12.1	
GAO adjustment:			
Salinity costs	5.4	<u>5.4</u>	
Adjusted annual costs		<u>\$ 17.5</u>	
I&D system benefit-cost ratio			
Before adjustment		.84 to 1	[\$10.2/\$12.1]
After GAO adjustment		.30 to 1	[\$ 5.2/\$17.5]

¹Investment cost annualized at 3 1/8 percent for 100 years.

²Other costs include annual operating, maintenance, and replacement costs, as well as assigned Colorado River Storage Project regulatory facilities' costs.

Source: GAO's analysis based on Bureau of Reclamation 1988 data.