I am delighted to be in Las Vegas and to participate once again in your annual meeting.

Your program chairman suggested that I talk to you about the potential for increasing hydro-electric power production in the Colorado River Basin—and this is a particularly appropriate time to discuss the role of hydropower in our national energy picture.

There is wide speculation that the OPEC nations are about to increase the price of oil anywhere from 10 to 20 percent.

If so, their action would come at a time when the U.S. is already importing over 40 percent
of its oil. We import more foreign oil now than we did in 1973—the year of the embargo—and our consumption continues to climb.

The Nation's electric utilities, as well as other industries, are being forced to use more oil as natural gas supplies dwindle, or as the price of imported gas soars in relation to oil.

At the moment, oil is often the only answer in meeting the growing immediate demand for electricity. Coal and uranium may be the fuels of the future, but development of those energy sources has become a slow and discouraging process, delayed by regulatory, transportation, safety, and environmental issues.

It seems the energy problem has us going in circles—like a dog chasing its tail. As the demand for electricity increases, so does our oil consumption. As oil consumption rises, so do our oil imports—making us more dependent on energy from
foreign sources and more vulnerable to economic and political blackmail.

Yet in the national debate over alternative energy sources and ways to conserve oil, you seldom hear mention of the role hydropower has played--and could play--in a comprehensive national energy policy.

Perhaps this omission stems from a public misconception that hydropower has little to offer in solving our energy problems. David Lilienthal, former head of the TVA and a strong proponent of hydro, calls this attitude "a curious blindness that hydro is all used up."

In fact, only about one-third of the identified hydro potential in the United States has been developed. And hydropower could make an important and unique contribution to an energy policy for America's third century.
Before my environmental friends accuse me of advocating major new dams adjacent to the Grand Canyon, let me say that much of hydropower's unrealized potential could come through expanding and modernizing existing facilities—like we are doing with the new Third Powerplant at Grand Coulee Dam—greater use of pumped storage, uprating existing generators through rewinding, aggressive research into low-head generating concepts, and increasing capacity of powerplants already authorized.

Hydropower's real worth comes from its unique ability as a backup or energy storage operation for baseload energy systems. Because of hydro's flexibility to increase or decrease output on short notice, hydroplants are particularly well suited to meet peak power demands.

The operation of hydroelectric facilities, for peaking in conjunction with coal or nuclear
fired baseload energy systems can reduce oil consumption by reducing the need for alternative high-cost generation from gas or oil-fired turbines to meet both seasonal and daily peak demands.

This ability of hydro to go on line almost instantly offers other advantages as well in system regulation, emergency service, increasing the reliability of interconnected systems, and, perhaps in the future, stabilizing intermittent energy sources such as solar and wind power.

Hydro adds to the economy of power system operations. In the long run--because of an extended plant-life and low operating costs--hydroplants are often more economical than other powerplants.

Hydroplants consume no fuel, and therefore are not subject to inflation of fuel costs or scarcity, once initial capital outlays are made. Hydroplants do not pollute the air, nor do they pollute or consume the water that passes their turbines.
And while it's true that there are other economic, social, and environmental impacts associated with hydro development, I think any objective evaluation of those factors will show hydro to be far less objectionable than many other energy sources now or in the future.

I have outlined many of the virtues of hydro-electricity. Now I want to tell you briefly what the Bureau of Reclamation is doing to increase hydrogeneration in the West and here in the Colorado River Basin.

We have over 11 million kilowatts of new capacity either under construction, authorized for construction, or authorized for feasibility study in the 17 Western States. We also have a number of appraisal studies underway to explore the potential for still further hydro development.
Last year we launched the Western Energy Expansion Study as a preliminary inventory of the most promising hydro potential in the West. Our seven regions submitted 60 proposals for consideration, and a final report due to be completed soon will recommend 33 of those proposals for more specific study.

The recommendations for further study will include 7 proposals in the Colorado River Basin. These include additions to Blue Mesa, Glen Canyon, and Flaming Gorge, a new powerplant at Headgate Rock Dam, and replacement of an existing powerplant on the California side of the Yuma Main Canal at Siphon Drop.

Also included are two new pumped storage proposals—one on the Nevada side of Lake Mead about 32 miles east of here, and one at Utah Lake near Provo, Utah. The proposed Pinto Valley
Pumped Storage Project on the Virgin Basin Arm of Lake Mead would use Lake Mead as a lower reservoir, and would require construction of a new upper reservoir together with associated transmission facilities. Utah Lake would also serve as a lower reservoir, and there again, we would have to construct a new upper reservoir and transmission facilities.

In addition to the Western Energy Expansion Appraisal Study, the Bureau is conducting specific feasibility studies aimed at increasing peaking capacity in the Upper Colorado River Basin and at Hoover Dam.

Preliminary figures show that we could increase hydroelectric capacity in the Colorado River Basin by as much as 6 million kilowatts—tripling the basin’s current generating capacity.

Once again, this increase in capacity could come mainly through expanding existing plants;
increasing the rated capacity of hydroplants already authorized; new pumped storage facilities; and possible improvements in operations to achieve maximum power production, water conservation, oil conservation, and flood control.

A study of power peaking capacity in the Upper Colorado River Basin is due to be completed in fiscal year 1977. We believe we can increase peaking capacity in the Upper Basin by some 5 million kilowatts, and our study will identify proposals justifying closer investigation.

Another feasibility study underway at Hoover Dam will look at the potential for increasing capacity by installing additional turbine generators, increasing the capacity of existing generators through rewinding, and adding reversible pump-generators to accommodate a pump-back storage system. We might be able to add one million kilowatts at Hoover—doubling the present
capacity. This study on Hoover's expansion should be completed in fiscal year 1980.

An increase in capacity at Hoover would not mean any significant additional production of kilowatt-hours on an annual basis, because we are already passing all water releases through the existing turbines. However, additional generators would provide greater operational flexibility and thus greater peaking capability, resulting in increased power revenues, and in some savings of oil or other fuels that would otherwise be used to meet heavy demand periods resulting in losses during offpeak periods.

There are a number of other ways we can increase the efficiency of our vast interconnected hydropower system in the West.

Storage in the major reservoirs along the Colorado will approach maximum capacity in the next few years, and water releases may have to
be increased for flood control. We are studying ways to gain maximum power generation from those releases through refinements in our operations.

The Bureau is also involved in studies on the feasibility of undertaking construction of a second Pacific Northwest-Pacific Southwest direct current intertie line to exchange surplus seasonal capacity. Several utilities have expressed an interest in a second intertie, which could reduce capital expenditures otherwise required for new generating capacity.

Other activities underway include research into underground pumped storage, low-head generators, and prospects for tying hydro into future solar and wind energy systems.

As you can see, the Bureau of Reclamation is actively pursuing the goal of developing the very sizeable hydroelectric potentials in the West.

We recognize, of course, that Congress must
provide specific authorization and funding for any significant expansion of hydroelectric facilities, following a careful evaluation of all the economic, environmental, and social factors involved.

We recognize, too, that every potential energy source has its unique problems, promoters, and opponents—and hydrogeneration is no exception—even though it has the advantage of not consuming any water and not causing any pollution to air or water.

It seems that controversy characteristically prevails at the time many of our greatest achievements are undertaken. I was reminded of this when I spoke recently at a ceremony commemorating the 40th anniversary of power generation at Hoover Dam.

Hoover Dam and powerplant were opposed by many, as was the Grand Coulee Complex, as being unneeded, and not in the public interest. Crusaders
in opposition to construction of Hoover Dam asked who would buy the electrical output—was it to be sold to jackrabbits?

Grand Coulee was labeled by some as the greatest white elephant ever perpetrated on the American public. However, in retrospect, Hoover and Grand Coulee have proven to be among the best investments this country has ever made.

The Grand Coulee Complex is the greatest power producer in the United States. Hoover Dam, over the past 40 years, has produced approximately 150 billion kilowatt-hours of non-polluting energy—enough to supply a million households for 20 years. This amount of energy is equivalent to about 260 million barrels of oil.

Hoover and Grand Coulee are just two examples of hydropower's continuing and lasting benefit to society. And because they depend on a renewable resource—water—their worth, if properly maintained
and managed, will be virtually perpetual.

Certainly, hydropower cannot begin to supply the enormous demand for electricity facing the U.S. in the years ahead.

But in the national debate over the future energy policy of this country, we do need to take into account all possibilities—including hydro—of we ever hope to achieve a balanced and orderly energy objective.

Hydroelectric development has played a key role in our Nation's growth—especially here in the West. We would be grossly irresponsible if we ignored its undeveloped potential in planning for future generations, and in preserving and passing on to them the quality of life we all enjoy.

Remember, we are privileged to live in a great country, the greatest on earth. What has made it great? First, its people—the number one
resource of America—and next the resourcefulness of Americans in building this great Nation.

To meet the continuously growing economic and social needs of an expanding population, we must continue to build, but emphasis must be shifted to blend development needs with protection of our great environmental heritage. I'm convinced this is both proper and possible. Let's develop, manage, and use our ever-renewable water resources for the many, people-oriented benefits water can supply, but let's do it with the resourcefulness and ingenuity necessary to make sure that the needs of future generations are equally well served.

Our programs are oriented to that objective. I'm optimistic that the goal is reachable.

Thank you.
COLORADO RIVER WATER USERS
ASSOCIATION
1976

OFFICERS

President  Roland Fischer, Glenwood Springs, Colo.
Vice President  Thomas R. Rice, Las Vegas, Nevada
Secretary-Treasurer  Lee Harris, Glenwood Springs, Colo.
Ass't Secretary-Treasurer  Bernardine Sutton, Coachella, Calif.

DIRECTORS

Arizona —
   Karl F. Abel, Norris Soma, Tommy L. Long
California —
   Warren W. Butler, Bernard Galleano, (Vacant)
Colorado —
   Robert Delaney, Roland Fischer, Dan D. Noble
Nevada —
   Thomas R. Rice, Donald L. Paff, (Vacant)
New Mexico —
   John Dean, Jerry Geist, Wilson Skeet
Utah —
   Lynn Ludlow, Wayne Wilson, L. Y. Siddoway
Wyoming —
   George L. Christopulos, Martin Aimone, Clyde Polson

Program Committee
Harold F. Pellegrin, Chmn.
Kenneth Balcomb
Rich Johnson
Jerry Geist

Ival V. Goslin
Clyde Polson
Thomas R. Rice
Robert Hilbert

Ladies Program Committee
Jeanne Paff
Billie Miller
Marie Leland
Tillie Fischer
Ruth Pellegrin

Arlene Ditsworth
Eleanor West
Rosie Lopez
Peg Harris
Lena Galleano

Resolutions
Robert B. Porter, Chmn.
David P. Hale
Dan D. Noble
Tom Choules
Floyd A. Bishop
Robert F. Carter
Donald L. Paff

Nominations
Robert Delaney, Chmn.
C. C. Tabor
Elmo DeRicco
Wilson Skeet
Clyde Ritchie
Bernard Galleano
Clyde Polson

Housing and Arrangements
Donald L. Paff, Chmn.
Thomas R. Rice
William J. Williams
Richard S. Leland
Sterling Ditsworth

Audit
Norris Soma
Lynn Ludlow
Lowell O. Weeks

Education and Publicity
Lynn S. Ludlow, Chmn.
Roland Fischer
Rich Johnson
Alan J. Williams
William J. Williams
J. B. Mulcock, Jr.
Theodore F. Whitmoyer
William L. Rusko

Membership
Charles L. Thomson
Warren Butler
Thomas R. Rice
Clyde Polson
L. Y. Siddoway
Norris Soma
John Dean

STANDING COMMITTEES
COLORADO RIVER WATER USERS
ASSOCIATION
1976

33rd Annual Meeting
Colorado River Water Users Association
Caesar's Palace
Las Vegas, Nevada

December 13-14, 1976
Program

SUNDAY — December 12

2:00 p.m. to
5:00 p.m. Registration — North Convention Foyer
3:00 p.m. Board of Directors Meeting — Imperium

MONDAY — December 13

8:00 a.m. to
5:00 p.m. Registration — North Convention Foyer

MORNING SESSION — Colosseum Unus

9:30 a.m. CALL TO ORDER —
33rd ANNUAL MEETING
PLEDGE OF ALLEGIANCE
Roland Fischer, President,
Colorado River Water Users Association

INVOCATION
Senator James I. Gibson, Regional
Representative of the Twelve,
Church of Jesus Christ of
Latter-Day Saints

WELCOME TO NEVADA
Hon. Robert E. Rose,
Lieutenant Governor,
State of Nevada

10:00 a.m. MORE POWER FOR THE
COLORADO RIVER BASIN
Hon. Gilbert W. Stamm,
Commissioner of Reclamation

10:30 a.m. CORPS OF ENGINEERS' PROGRAM
ON THE COLORADO RIVER
BG Richard M. Connell, U. S. Army,
Division Engineer, South Pacific
Division, U. S. Army Corps of Engineers

11:00 a.m. SIGNIFICANCE OF SALINITY
STANDARDS TO COLORADO RIVER BASIN
Patrick J. Godsil, Chief, Planning Branch,
Environmental Protection Agency

NOON LUNCHEON
ADDRESS:
Hon. Richard D. Lamm, Governor
State of Colorado

AFTERNOON SESSION — Colosseum Unus

2:00 p.m. PRESENT PERFECTION RIGHTS: WILL
ARIZONA v. CALIFORNIA EVER END?
Douglas B. Noble, Deputy Attorney
General, State of California

2:30 p.m. WATER QUALITY MANAGEMENT IN
THE COLORADO RIVER BASIN
John W. Keys, III, Chief, Colorado
River Water Quality Office
U. S. Bureau of Reclamation

3:00 p.m. IS THERE A FUTURE FOR COAL
CARIOUSIFICATION?
Jerry T. Verkler, Manager, Public Affairs,
Texas Eastern Transmission Corporation

3:30 p.m. THE NAVAJO INDIAN IRRIGATION
PROJECT — WATER DEVELOPMENT
Bert Levine, Project Construction
Engineer, Navajo Indian Irrigation
Project, New Mexico

THE NAVAJO INDIAN IRRIGATION
PROJECT — FARM DEVELOPMENT
Harold Fish, General Manager, Navajo
Agricultural Projects Industry

EVENING SESSION — Colosseum Duotus

5:30 p.m. to
6:30 p.m. PERCOLATION AND RUNOFF
CONFERENCE
Caesar's Palace — Host

TUESDAY — December 14

MORNING SESSION — Colosseum Unus

8:30 a.m. Historical Documentary Film —
STEAMBOATS ON THE COLORADO
Hank Tester, News Director, KLFX
Television, Las Vegas, Nevada

9:00 a.m. ADDRESS:
Hon. Calvin Rampton, Governor
State of Utah

9:30 a.m. UNITED STATES v. CAPPAERT (Pupfish)
"Background and Decision"
Roland D. Westergard — Nevada State
Engineer
"Devil's Hole Siren Songs — Water
Rights and Water Wrongs"
Paul Bloom — General Counsel
New Mexico Interstate Stream Commission

"Reserved Rights to Surface Water —
Underground"
Charles B. Roe, Jr. — Senior Assistant
Attorney General, State of Washington

"The Bark of the Pupfish"
Carl Boronkay — Assistant General Counsel,
The Metropolitan Water District
of Southern California

10:30 a.m. AFTERMATH OF KAIPAROWITS
* Daniel F. Lawrence, Director, Utah
Division of Water Resources, and
Interstate Streams Commissioner

11:00 a.m. DESIGN AND CONSTRUCTION OF THE
RIO COLORADO—TIJUANA AQUEDUCT
Robert M. Edmonston, Bookman and
Edmonston Engineering, Inc.

11:30 a.m. OIL SHALÉ — WHERE ARE WE AND
WHERE DO WE GO FROM HERE
John D. Baker, Manager, Information
Services, Cameron Engineers, Inc.

12:00 Noon BUSINESS SESSION

drawing for door prizes will be held during
Business Session. Ticket holders must be
present.

12:30 p.m. ADJOURNMENT

LADIES' PROGRAM

MONDAY MORNING — Imperium

9:00 a.m.—
11:30 a.m. Continental Breakfast
Meet the Artist — Roy E. Purcell
Poetry Reading — The Mother River
Exhibit and Demonstration of Etchings
Personal Portfolios on Exhibit

TUESDAY MORNING — Imperium

9:00 a.m.—
11:30 a.m. Continental Breakfast
Films — Las Vegas, Crossroads of the West”
“Steamboats on the Colorado”
The Making of a Documentary —
"Steamboats on the Colorado"
Hank Tester, Producer, KLFX Television,
Las Vegas