Utah CLEAR

Utah CLEAR - Concerned about Limited Energy and Air Resources - was a Utah citizens group focused on education and awareness of energy development in Southern Utah. The small group participated in hearings related to Kaiparowitz Plateau and Four Corners area coal power plants, air pollution, and water resources. Key members included Leroy Kuehl, Jack McLellan, Larry Jensen, Polly Schmidt, and Sherm Janke (and Andrade). The group began meeting in about 1970 and was officially disbanded in 1982.

the ENERGY ETHIC

Prepared by **Utah CLEAR** - -(Concerned about Limited Energy and Air Resources), a coordination committee organized to examine and help solve the problem of accelerated energy resource use and resulting air pollution in the Southwest by stimulating action from individuals and citizen groups -- and by urging development of an "Energy Ethic".

● THE FOLLOWING INFORMATION IS PRESENTED AS A PUBLIC SERVICE TO ALERT YOU TO THE IMPORTANCE OF THE MAY 26 HEARING IN SALT LAKE CITY ON THE ENVIRONMENTAL IMPACT OF COAL-FIRED ELECTRICAL GENERATING POWER PLANTS IN THE FOUR-CORNERS REGION.

● WIDESPREAD PUBLIC CONCERN OVER THE ENVIRONMENTAL EFFECTS OF POWER PLANTS in the Four Corners region has resulted in these Senate hearings. Your support in attending the hearings and by writing statements can help form a policy in which the safety of the Southwest's scenic and natural resources will be a major factor in future decisions on power plant management and siting.

● HERE'S WHAT YOU CAN DO TO HELP:

1 Read this newsletter and the attached award-winning article.

2 Come to the hearing on May 26, 1971 (Wednesday) to indicate your support for clean air and rational energy resource use.*

3 Write a statement or letter for the hearing record.**

4 Pass this newsletter and article on to someone else. Talk to friends and neighbors; get them to come to the hearing, and to write letters of support.

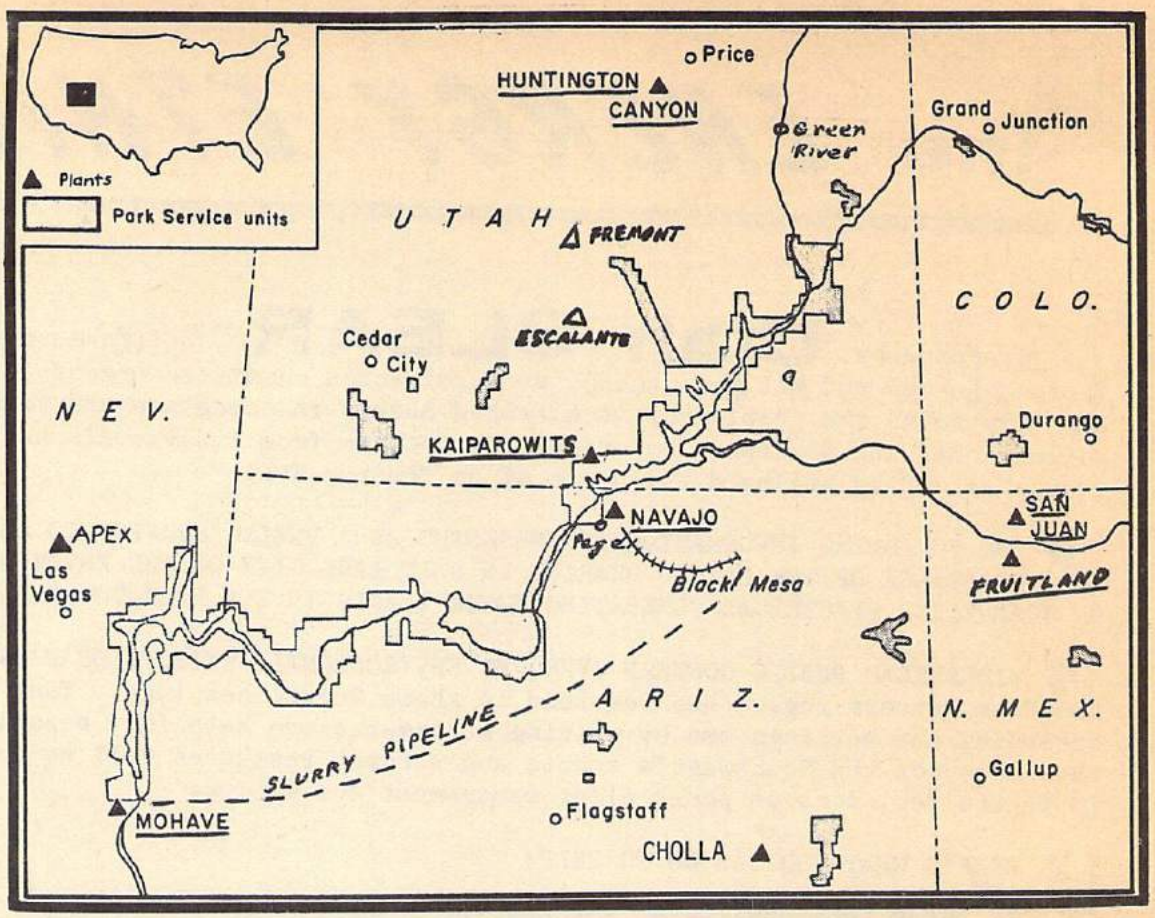
* Senator Frank E. Moss will chair the hearings to be held at either the State Office Bldg. Auditorium or the Salt Palace Little Theater. Watch paper for exact location. Power concerns will testify from 9:30 a.m. to noon. Environmentalists will testify from 2:00 p.m. to 4:30 p.m. If you can't come the entire day, come to the afternoon session. Individuals who will present the major testimony have already been selected, but if you wish to testify, request to do so at the end of the scheduled period. YOUR PRESENCE AT THE HEARING TO CONVINCE THE SENATE COMMITTEE OF CITIZEN CONCERN IS EXTREMELY IMPORTANT. (Hearings also being held May 24, Albuquerque, N.M.; May 25, Las Vegas, Nev.; May 27, Durango, Colo.; May 28, Page, Ariz.

** Statements and letters need not be long or stated in scientific terms. Simply state your beliefs, giving any information you think pertinent. Mail to:

Honorable Henry M. Jackson, Chairman
Senate Committee on Interior and Insular Affairs
United States Senate
Washington, D. C. 20510

Request that your statement be made part of the hearing record. Statements will be accepted any time before the hearing, and until about June 9, 1971. FIFTY COPIES OF YOUR STATEMENT ARE REQUESTED BY THE SENATE COMMITTEE. HOWEVER, if you cannot send that many, and few of us will be able to, send as many as you can -- even it it's only one copy. It will probably be accepted. (Send a copy to your Senators and Congressman. We would appreciate receiving a copy, too.)

THE FOUR CORNERS AREA -- WHERE THE ACTION IS --



● FOUR-CORNERS AREA HEADED TOWARD BECOMING POWER GENERATING HUB OF NATION. The cluster of coal-fired plants planned for the area would supply electricity to portions of several southwest states. Most of the power produced would go to the Los Angeles area. Two plants are in operation (Fruitland and Mohave), and three are under construction (Navajo, San Juan, and Huntington). The huge Kaiparowits plant (twice as big as any of the others) is in the advanced planning stage. At least a dozen more are in one stage or another in the Four Corners states, Wyoming, and Nevada.

● AN END TO CLEAR SKIES IN SOUTHERN UTAH AND ADJACENT REGIONS. The scenic Southwest -- including Grand Canyon, Lake Powell, Zion, Bryce, Capitol Reef, Arches, Canyonlands, Monument Valley, and countless other areas -- is at present most famous for vast scenic views under clear, blue skies. When (or if) the power plants are built, tons of fly ash, sulfur oxides, nitrogen oxides, and other pollutants spewed into the air as waste products from the burning of coal (to produce steam to generate electricity) will put an end to clear blue skies, distant views, and fresh air.

● LOS ANGELES SMOG AT LAKE POWELL? More of a certainty than a possibility. The Lake Powell area is prone to inversions. The two plants to be built at the edge of the lake will burn 70,000 TONS of coal PER DAY. They will produce 1,100 tons of sulfur oxides per day (three times the amount put out by Kennecott in Salt Lake, and four times as much as all Los Angeles); over 100 tons of fly ash per day (as much as Los Angeles); and over 650 tons of nitrogen oxides per day (as much as all the cars in Los Angeles emit).... From only two plants.

● DANGER TO HUMAN HEALTH. Significant increases in the U.S. death rate from lung cancer and emphysema are directly related to increases in air pollution, particularly sulfur oxides and particulates. Fewer people live in the Four Corners area, but their lives are none less valuable than those of people living in cities. Particulates, sulfur oxides, and nitrogen oxides have long range, cumulative effects on all living things. We don't fully understand what the total impact of these poisons might be. Is it wise to dump huge quantities into the air without knowing?

Plant Site & Size (MW)[1]	Plant Owners	Complete Date	Coal Burned Daily (tons)[2]	Fly Ash Emitted Daily(tons)[3]	Sulfur Oxides Emitted Daily(tons)[4]	Nitrogen Oxides Emitted Daily(tons)	Water Used Annually (Acre ft.)[5]
Fruitland 2,085 MW	Units 1-3, Ariz Pub Svc Co, 100%; Units 4-5 APSC 15%; So Cal Ed 48%; El Paso Elect 7%; Pub Svc Co of NM 13%; Slt River 10%; Tucson G&E 7%	7-1-70	22,000 (0.7% S) (21% ash)	320 (to be reduced to 38 by late 1971)	384	182	34,000
San Juan 1,035	Pub Svc of NM 50%; Tucson G&E 50%	6-1-73, (1st unit)	10,000 (0.7% S) (21% ash)	18 (99.5%)	141	93	20,200
Mohave 1,580 MW	So Cal Ed 56%; L.A. Dept W&P 20%; Nev Power 14%; Slt River 10%	10-1-70, complete 6-1-71	14,000 (0.5% S) (8% ash)	30 (97%)	157	140	33,000
Navajo 2,310 MW	BuRec 24.3%; Slt River 21.7%; L.A. Dept W&P 21.2%; APSC 14%; Nev Power 11.3%; Tucson G&E 7.5%	7-1-74, complete 7-1-76	24,000 (0.5% S) (8% ash)	14 (99.5%)	210	204	34,000
Huntington 2,000	Utah Power & Light 100%	1974, complete 1978	17,000 (0.5% S) (7.5% ash)	6 (99.5%)	170	180	35,000
Kaiparowits 5,000 MW	BuRec; So Cal Ed; San Diego G&L; APSC (% not known)	1978	45,000 (0.0% S) (8% ash)	98 (97%)	880	450	102,000

[1] MW = 1 million watts. Total output of plants about 14 billion watts.

[2] Average life of coal-fired plant roughly 35 years. 35 x 365 x coal burned daily = total amount to be burned.

[3] For plants already in operation, actual fly ash emissions are given; for those not yet constructed, we assumed 99.5% fly ash recovery. Initial Kaiparowits plans indicate 97% anticipated recovery. It should be noted that neither of plants in operation now are achieving the 99.5% optimum figure; actual recovery closer to 97%.

[4] Power companies say, "No technology exists to remove sulfur oxides". Many scientists dispute this. At any rate, no plants will have sulfur oxide removal capability until that great "technological breakthrough". No plans at all for removal of nitrogen oxides. (Kaiparowits plant: Fly ash removal at 97% removal instead of 99.5% efficiency will provide about 100 tons rather than 17 tons per day.

[5] Acre Ft. = 325,850 gallons (Sufficient to supply water needs of 6 persons for 1 year.)

● POOR USE OF WATER IN OUR ARID REGION. The Colorado River Basin is one of the most water-short areas in the country. The immediately planned power plants will consume enough water to supply a city twice as large as greater Salt Lake City. Since much of the power will be used outside the Colorado Basin, we are essentially exporting this valuable resource to areas with more abundant sources of cooling water.

● DAMAGE TO THE LAND. The most significant damage comes from strip mining of coal. (Over 400 acres per year at Black Mesa.) Failure to restore lands abused by strip mining in the East has resulted in a strong movement in Congress and State Legislatures to ban strip mining. We should not allow extensive strip mining to even begin in the Southwest. Roads, fly ash disposal areas, railroads, pipelines, transmission lines, and dams and reservoirs add to land destruction.

● INDIANS ONCE MORE BEING FORCED FROM THEIR LANDS. Navajos and Hopis -- How many injustices from the white man must they endure? Their clean air, their water and land is being taken from them by the power "needs" of far-away urban areas. Their peaceful pastoral existance is threatened by activity which may lead to the end of their way of life. Few at Black Mesa speak English. Hundreds of them are being displaced. "Relocated" is the term. But to where? For traditional Navajos (not the urbanized, Anglicized progressives of Window Rock who signed the lease contracts) there simply is not any place to go. All other favorable areas are occupied. Functionally illiterate and unemployable for industrial and urban life, these people will be refugees. This is progress...

● A PROBLEM FOR THE FUTURE. Pollution, health effects, water waste, land damage, Indian injustice. All that is bad enough, but the most serious problem is the accelerating rate of consumption of energy resources. This too-rapid consumption may deprive future generations of their needed power -- AMERICANS USE 50 TIMES AS MUCH

POWER PER CAPITA AS THE REST OF THE WORLD. If we could but convince ourselves that we could get along with only 25 times as much power, we would only need half as much power. Half as many dams. Half as many power plants. Fewer strip mines, transmission lines, poles, and wires. THE ESTIMATED POWER OUTPUT INCREASE IS 500 PERCENT IN THE NEXT 30 YEARS. Are we intelligent and responsible enough to recognize this prediction as a warning signal, and reduce our consumption rather than increase it?

● MUCH OF OUR DEMAND FOR ELECTRICITY IS ARTIFICIALLY PRODUCED. Much of the "need" for power plants has been caused by intensive and often irresponsible advertising by utilities and appliance companies. We do not, nor does any power company, have "Power to Spare". Producing electricity from coal is also very inefficient. The following quote is from Outlook for Energy in the United States, Energy Division of Chase National Bank N.A.: "...utilities are trying to eliminate or minimize the seasonal aspect of the demand by promoting the use of electricity for heating. Their efforts, thus far, have been vigorous, imaginative, and fruitful. And with the prospects for much more extensive use of air conditioning in the future, there is the accompanying likelihood of a rapidly growing use of electricity for heating, too... And because the use of electricity for heating is less efficient, the consumption of primary energy will need to be correspondingly greater."

● DEVELOPMENT OF AN ENERGY ETHIC IS LONG OVERDUE. We are rapidly destroying our environment by wastefully consuming energy sources. Our civilization -- which prides itself on its philosopical and theological developments, on its social and moral ethics -- has failed to develop an Energy Ethic. We must realize that energy sources are finite -- once we consume what are now stored, they will be gone.

● IF YOU BELIEVE AS WE AND HUNDREDS OF THOUSANDS OF OTHERS DO, THAT --

1. A moratorium on building of power plants in the Four Corners area should be declared until the true need for power can be established, and until adequate pollution controls can be designed for any that must be built;

2. Overpopulated cities like Los Angeles should not be allowed to have cheap electricity at the expense of polluting the air and endangering the health of people in the Four Corners area;

3. Irrational exploitation of coal resources may degrade the quality of life of future generations;

4. The public must be educated to reduce consumption of electricity and to stabilize the population;

5. And that advertising for increased use of electricity by utilities and appliance companies should be illegal;

THEN JOIN US IN SUPPORTING THESE BELIEFS by coming to the hearings on May 26, and by writing statements for the record.

Larry Jensen, PhD Joe Andrade, PhD Leroy Kuehl, PhD

Jack McLellan Polly Schmidt

(Contributions would be gratefully accepted to help pay for printing and mailing costs, and to further our development of an Energy Ethic.)

Send to: Utah CLEAR, 1133 S. 1400 E., Salt Lake City, Utah 84105.

For information, phone Jack McLellan at 277-7214, or Larry Jensen at 328-9263.

AN ENERGY ETHIC

By Joseph D. Andrade, Jr.
6009 Highland Dr.
Salt Lake City, Utah, 84121

A Statement Submitted to:

The Senate Committee on Interior and Insular Affairs
Senator Henry Jackson, Chairman

and presented at the Hearings held on May 26, 1971 in Salt Lake City, Utah; Senator Frank E. Moss, Chairman

It is requested that this statement be made part of the Hearing Record.

I am opposed to the uncontrolled expansion of electrical power generating capacity in the Southwest and throughout the United States for a reason which has not been strongly emphasized yet today. Electrical power generation is today dependent on the consumption of irreplaceable natural resources -- gas oil, coal, or fissionable materials.

I submit that the so-called "demand" for electricity -- a doubling every ten years -- is artificially produced and may even be transitory. Exponential growth statistics cannot continue forever. Our industrial complex and the economy of this nation have grown at a very rapid rate. We are a young nation -- and we have grown as a child. But eventually Nature insists that growth slows down and ceases -- to enable adulthood and maturity to be reached. The same may be true of nations and economies. It is time our Unlimited Expansion Ethic gave way to a Finite Economy Ethic.

You may ask, doesn't a finite economy imply a stagnant economy? Does adulthood and maturity imply stagnation? I don't think so. Companies and industries can still rise and fall, and those who compete the best will still succeed

the most. A finite economy can be a dynamic economy. The finite nature of our nation and planet will insure that this will come. We can help make the transition smoother if we can but see the handwriting on the wall.

Fossil fuel resources are finite. Most of the experts agree that at present and projected rates of consumption, the fossil fuels will be gone in 1 or 2 centuries. We are already seeing shortages of natural gas. These same fossil fuels are also the raw materials for the organic chemical industry -- for plastics, agricultural chemicals, drugs, and medical products.

The rational question we must pose is: What should these finite resources be used for? I submit that there may be far more important uses for them than in the generation of cheap electrical power which is wastefully used by industry, commerce, and individual consumers. Coal is a resource which Utah has in quantity -- a resource which will become more and more valuable as the world's coal reserves continue to dwindle. The use of this resource for short-term economic gain today will deprive the future residents of Utah and the Southwest of their rightful resource heritage. I question the right of power companies, government officials, and the general population to plunder from the unborn citizens of tomorrow.

The same general argument holds for water resources. Can the Southwest afford to have a significant proportion of its available water allocated to huge, unneeded, power plants for the next 30 to 40 years? Utah certainly can use that water much more effectively.

Man is destroying his environment by wastefully consuming irreplaceable natural resources. Man is acting irrationally, illogically, and irresponsibly. The society which has prided itself on its philosophical and theological developments, on its social and moral ethics,has failed to develop an Energy Ethic. Such an Ethic is long overdue. We must examine our consumption and utilization of energy. We must realize that the energy sources in use today are finite -- and this includes nuclear sources for the foreseeable future. Once these sources are consumed, civilization as we now know it will not be able to exist. We must further realize that there is NO GUARANTEE that science and technology will develop new sources of energy -- thus it is possible that there may be no scientific or technical solution to our finite energy problem.

A man in the middle of a desert or an ocean conserves his water; he doesn't expect to find fresh water tomorrow.

The Committee you gentlemen represent has already considered the difficult task of eastablishing a National Energy Policy -- an Energy Ethic, if you will. There have been many proposals as to how we might begin. We can begin by:

1. Considering advertising advocating increased consumption of electricity as against the national interest -- and restricting or banning such advertising.

2. Providing power companies and other industries with tax incentives for the development of electricity from renewable sources of energy -- such as solar, wind, tidal, and geothermal.

3. Providing tax incentives for the recycling of "waste" materials -- particularly those which require large amounts of power in their initial processing, such as aluminum and copper.

4. Imposing a rate restructuring which would in essence provide for higher rates with increasing consumption.

5. Providing Federal R and D funds for the development of renewable or nearly limitless sources of energy -- solar, wind, tidal, geothermal, the breeder reactor, and fusion.

6. Making it a National Policy -- from the White House on down -- to conserve electricity and natural resources.

These proposals could be incorporated into an Energy Ethic. But until that Ethic is firmly established, let us not allow the perpetuation of the present unsatisfactory state of affairs into the future. As long as we permit the Fruitlands', the Navajos', the Huntington Canyons' -- and particularly Kaiparowits -- to be built, we are simply postponing making the policies and decisions that should have been made a decade ago.

Thank you.

Signed: /Joseph D. Andrade/
Joseph D. Andrade, Jr. Ph.D.

cc: President Richard Nixon
Governor Calvin Rampton
Dr. William Ruckelshaus
Honorable Rogers Morton
Senator Frank Moss
Senator Wallace Bennett
Representative Sherm Lloyd
Representative Gunn McKay

Common Carrier: Society Needs 'Energy Et

2-15-1971

By Joseph D. Andrade, Jr.

Electrical power generation is today dependent on the consumption of irreplaceable natural resources — gas, oil, coal or fissionable materials.

Joe Andrade

I submit that the so-called "demand" for electricity — a doubling every 10 years — is artifically produced and must not be permitted to continue. Fossil fuel resources are finite — even coal. Most of the experts agree that at present and projected rates of consumption, the fossil fuels will be gone in one or two centuries. We are already seeing shortages of natural gas. These same fossil fuels are also the raw materials for the organic chemical industry — for plastics, agricultural chemicals, drugs, and medical products.

Determine Use

The rational question we must pose is: What should these finite resources be used for?

I believe that there may be far more important uses for them than in the generations of cheap electrical power which is wastefully used by industry, commerce, and individual consumers.

Coal is a resource which Utah has in quantity — a resource which will become more and more valuable as the world's coal reserves continue to dwindle. The use of this resource for short-term economic gain today will deprive the future residents of Utah and the Southwest part of the country of their rightful resource heritage.

I question the right of power companies, government officials, and the general population to plunder from the unborn citizens of tomorrow.

Need 'Energy Ethic'

Man is destroying his environment by wastefully consuming irreplaceable natural resources. Man is acting irrationally, illogically, and irresponsibly.

The society which has prided itself on its philosophical and theological developments, on its social and moral ethics, has failed to develop an "Energy Ethic." Such an ethic is long overdue. We must examine our consumption and utilization of energy. We must realize that the energy sources in use today are finite — and this includes nuclear sources for the foreseeable future.

A national energy policy, an "energy ethic" must be established. We can begin by:

1. Considering advertising advocating increased consumption of electricity as against the national interest — and restricting or banning such advertising.

2. Providing power companies and other industries with tax incentives for the development of electricity from renewable sources of energy — such as solar, wind, tidal, and geothermal.

3. Providing tax incentives for the recycling of "waste" materials — particularly those which require large amounts of power in their initial processing, such as aluminum and copper.

4. Imposing a rate restructuring which would in essence provide for higher rates with increasing consumption.

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Editor's note: The accompanying "Common Carrier" was written by Joe Andrade, 6009 Highland Dr. (1600 East). Mr. Andrade is assistant professor of materials science and engineering at the University of Utah and assistant research professor of surgery at the University Medical Center. His article discusses what he calls "energy ethics."

Views expressed in "Common Carrier" do not necessarily reflect those of The Salt Lake Tribune or the "Common Carrier" board of lay editors.

"Common Carrier" features articles submitted by individuals or recognized organizations. The public is encouraged to submit statements for consideration. Articles are reviewed by a lay board of editors which works independent of The Tribune's reportorial and editorial policies.

Articles should be short, to the point, timely, of one theme and pertain to the political, economic, or social well-being of the Intermountain Area.

Mail articles to "Common Carrier," The Salt Lake Tribune, Box 867, Salt Lake City, Utah, 84110.

Police Aide Supports Range Site

Continuing construction at

Sheet Rock Missing

Police have reported that 12,648 square feet of sheet rock, valued at $642, has been missing from a storage yard at Capitol Building Materials.

Energy Ethic' for Resource Use

Salt Lake Tribune, A 21
Sunday, August 15, 1971

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opment of renewable or nearly limitless sources of energy — solar, wind, tidal, geothermal, the breeder reactor, and fusion.

6. Making it a national policy — from the White House on down — to conserve electricity and natural resources.

These proposals could be incorporated into an "energy ethic." But until that ethic is firmly established, let us not allow the perpetuation of the present unsatisfactory state of affairs into the future. As long as we permit the power plants to be built — Fruitland, Navajo, Huntington Canyon and particularly Kaiparowits — we are simply postponing making the policies and decisions that should have been made a decade ago.

The public can take an active part in the development of an energy ethic by rationing its use of natural resources, particularly electricity, and by informing the power companies and others of its feeling and intents.

If one claims to be concerned about the quality of life and conservation of resources and does anything less, he is a hypocrite.

A Archuleta

Post- 4 Corners Hearing:

"We have not yet begun to fight (?)"

Next meeting:
Wed., June 9, 7:00 p.m.
1269 3rd Ave., SLC.

Utah CLEAR

Some Utah CLEAR supporters who were available met Wed. afternoon, June 2, to discuss further efforts to stop air pollution. The group considered many avenues of continued action. Discussion included both the group's approach (remaining an ad hoc committee or becoming a membership organization) and the group's area(s) of concentration. No one wished to see it disbanded at this point, but there was much discussion over the appropriate focus for our size group. Interest areas discussed by the group included:

(1) continued efforts to block power plant construction in southern Utah or at least efforts to insure adequate controls

(2) work on S.L. Valley air pollution problems (esp. Kennecott)

(3) support of efforts of national orgs. and Congress to formulate a sound energy ethic

(4) further public education on power waste, pernicious advertising, limited fuel sources, etc.

(5) campaign against power company rates

(6) study and "lobby" for good emission standards

(7) consideration of mounting a campaign urging share-holders to affect "power" policy by their votes.

(8) concentration on educating decision-makers by encouraging the media to dramatize key aspects of the energy crisis

(9) other ideas?

Please attend the next meeting this Wednesday when we will decide the following:

A. Size and type of group we want to be, with appropriate leadership & organization

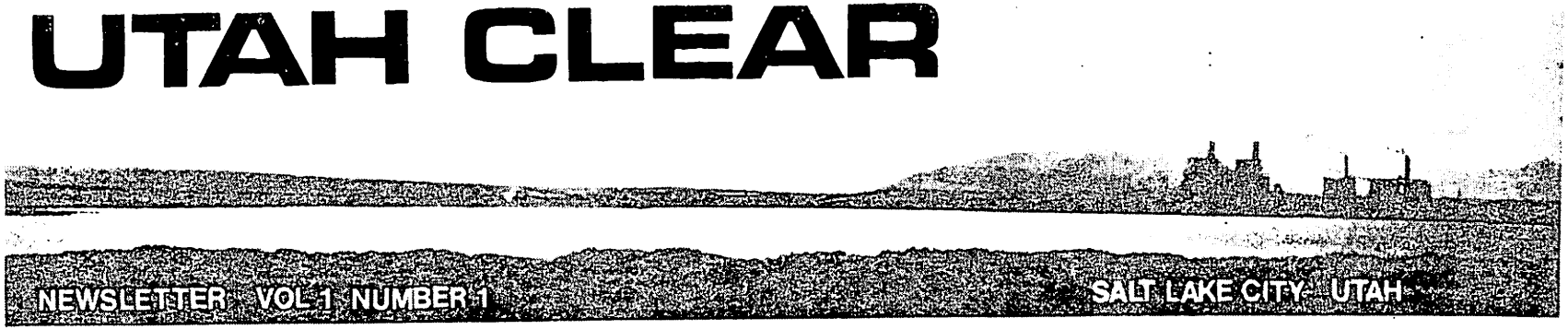
B. What problems to focus on

C. Short-term and long-term goals of the group

D. Best strategy and tactics to use.

If you cannot attend, but wish to be part of the group by registering your opinion on the 4 above agenda points to be determined, please call Janet Schoenhals (487-0022) or Polly Schmidt (364-6959).

UTAH CLEAR



NEWSLETTER VOL 1 NUMBER 1 SALT LAKE CITY UTAH

THE DESERT IS DYING

BY BILL MARLING

The Colorado River is a narrow muddy torrent which cascades through the most desolate and beautiful wilderness in the United States. Over a period of time man can only guess at, the river and its tributaries have cut a deep canyon lacework into the arid Southwestern Plateau. This empire of earthworks defied the civilization and progress of the white man as he moved west, and thus became a refuge for wildlife and a last outpost for the ancient cultures of the Hopi and Navajo.

But the desert is dying. Soon it will be spotted with huge electrical power plants belching out hundreds of tons of fly ash and pollutants every day. Coal to fire the plants will be strip-mined in ugly swaths on Indian lands. Railroads, pipelines and thousands of transmission towers will criss-cross virgin mesas. Temperature inversions may cause smog buildups obscuring the great spread of land from view.

Today you can find catfish struggling against the current in the Colorado River. Strange little sparrows live in niches high on the canyon walls. In a strong sun, the red rocks glow like burning embers and alkali seeps make brown and yellow streaks on orange walls. Redbud trees and maidenhair ferns nestle in the corners of deep canyons. Up above on the plateau, snakes and lizards lie still in the shadows of rocks because an eagle floats high in the brilliant sky. At the mouth of a grassy wash, a Navajo family lives in their mud hogan and their sheep graze around it. In the spring their children run through patches of desert flowers. The people of the desert, like their land, wear a delicate breath of color and radiate a beauty born of toughness.

plant at Waterflow, N. Mex., and the huge Kaiparowits Plant on the Kaiparowits Plateau in Utah. The utilities expect to have both of these operating by 1977.

WEST is comprised of 23 power companies in seven western states. The prime movers in the group are Southern California Edison Co. and the Los Angeles Department of Power and Water. WEST was formed in 1964 when these California utilities began to wonder where they could get the additional electricity they needed. The southern California area was consuming power at a tremendous rate (and still is), and wanted more.

Huge Electric Consumption

In the 4,000 square miles of Los Angeles County alone, there are 8 million people, driving 3.4 million autos, using about 24 million electrical appliances. They live by their televisions and radios, with the help of their electric razors, electric carving knives and electric can openers. To relax, they turn on the stereo and air conditioner. When they go out to the movies or rock concerts, they drive past illuminated billboards on well-lighted freeways.

Such consumption means enormous electrical needs in the future. Utilities encourage this power consumption because, like any enterprise, they have a product to sell. When utilities make predictions of future power needs, there are a few people who can argue with them because the layman does not know about kilowatt hours or generators. Thus, simply on the basis of the predictions by utilities, new power plants are built. This might be acceptable if the product were shoes or cereal. A manufacturer who made too many shoes would pay for his mistake by himself. But when the product is power, it is different. When a utility produces and encourages consumption of too much power, everyone pays for his mistake because the environment is damaged.

Anti-pollution Laws in L.A.

So in 1964, California utilities banded together with a few others to exploit the huge desposits of low-grade coal in the Southwest desert. Until they needed power, they saw nothing special, nothing of value in a "desert." Nobody much lived there, except Indians, so nobody would object to the air pollution. The outcome of the 1964 WEST meeting was the decision to build the Four Corners plant immediately.

End of a Way of Life

The peaceful little towns of Shiprock, Waterflow and Fruitland didn't know what they were in for. They didn't know it meant the end of a way of life; the end of old Navajo men herding their sheep down the highway, the end of blue sky, the end of that rolling mountain in the south. That's what the Four Corners plant did. What will it be like when there are five more like it?

The WEST plants are unusual. They are huge and no single utility could afford to build one. They use enormous amounts of low-grade coal, most of it stip-mined on Indian land. They buy water at $7 an acre-foot from the Department of Interior, whereas the commercial rate in the area is $28 to $30. Their expected life is only 35 years—then all the coal will be gone.

This exploitation of the Southwest for the benefit of California has caused tremendous criticism of the California utilities by conservationists. Southern California Edison Co.'s vice-president, Howard P. Allen, defended his company's position this way.

Utility Backs Down

"Eight years ago, when we started negotiations, the Indians had a great desire to create jobs and income, the states wanted a larger tax base and we wanted to help with air pollution here (California) by locating in those areas

Desert Ends in 1977

Today you find all that. But you won't in 1977. By then a consortium of power companies called Western Energy and Supply Transmission Associates (WEST) plans to have six huge power plants in operations in the Colorado Plateau desert. Two of the plants are already completed. The Four Corners power plant at Fruitland, N. Mex., began operation in the summer of 1970 and the Mojave Plant at Bullhead City, Ariz., was finished in November, 1970. The Navajo Plant at Page, Ariz., is in construction and should be operating by 1974. The Huntington Canyon plant near Price, Utah, is also being constructed now and should be done by 1974. Plans are being finalized for the San Juan

Citizens of southern California have grown tired of the acrid, eye-smarting air that is presently part of the price for electricity. Strict new state and local anti-pollution laws have been passed. These make it economically impractical for utilities to build new operations in the areas they serve, because fossil fuels produce more pollution than the law allows. Other power sources seem closed. Everyone is paranoid about geo-thermal power, sources of hydro-electric power have been used up, and even the proponents of nuclear power seem frightened of its inevitable radiation.

air pollution here (California) by locating in those areas and diversifying our fuel resources. At that time we were welcome. We were not considered damaging to the environment. As we look back now, it does not look so good."

Edison feels the heat of criticism and the threat of new pollution laws in the Southwest and says it will probably not participate in any desert plans after the construction of the Kaiparowits Plant, which is the last and biggest of the planned WEST plants.

Edison also issued a booklet titled "Edison and the Environmental Crisis," in which it explains its dilemma to its customers. "As one way to meet increasing power demands, Edison has been turning to power-generating

Strange little sparrows live in niches high on the canyon embers and alkali seeps make brown and yellow streaks on the corners of deep canyons. Up above on the plateau,

sources which are distant from Southern California. Resistance has developed, however, even in such remotely located projects. People living in these areas oppose the power plant because they feel their local resources should be used to serve their own local needs. Many who live along the routes of the overhead transmission lines required to bring the electricity to Southern California express opposition for aesthetic reason."

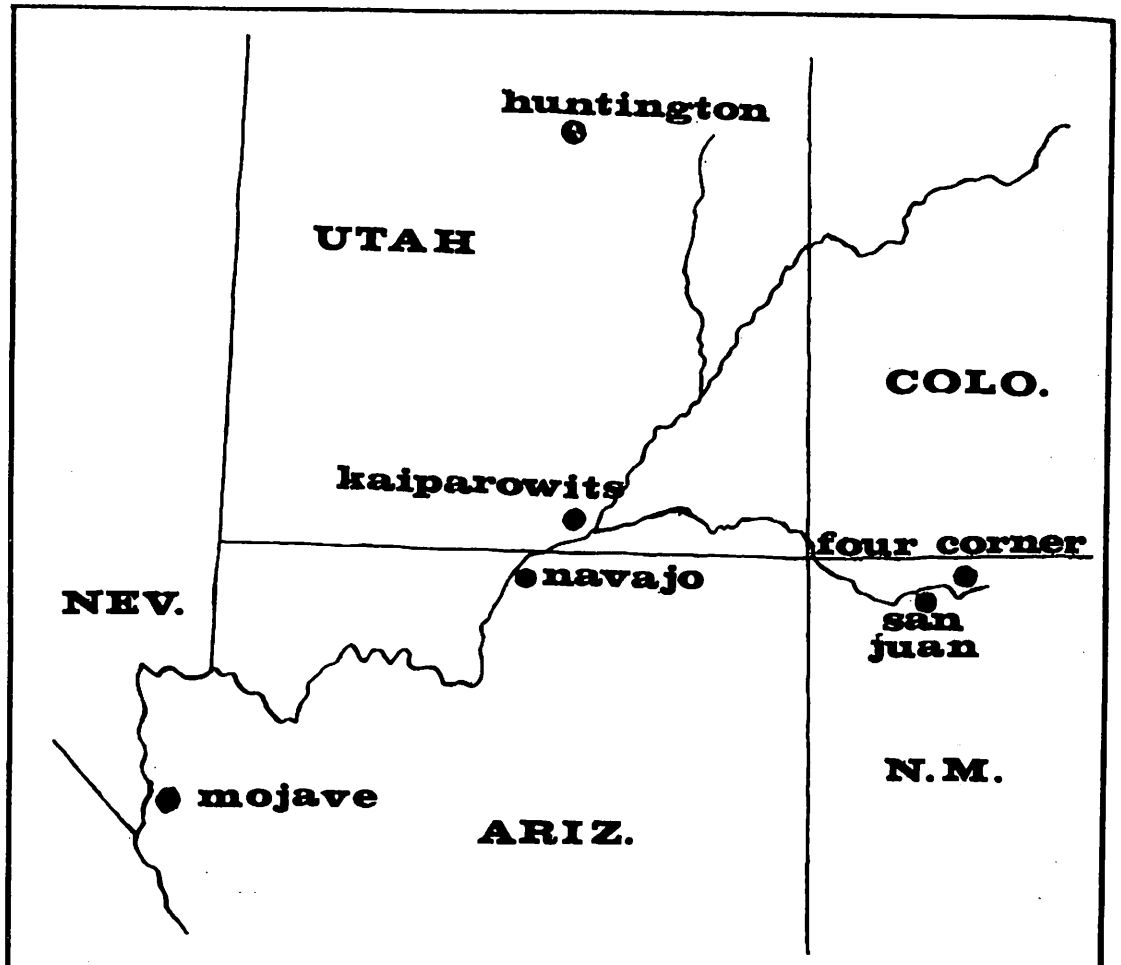
One of the men in charge of building and operating the power plants doesn't feel there is any environmental problem.

L.M. Alexander, associate general manager of the Navajo Plant said, "Electric energy has been and continues to be, one of the most effective ways man has found to improve his environment. Because of electricity, the environments of our homes, factories, offices and public places are vastly more comfortable in daytime and nighttime, in summer and winter. In terms of everyday life of the ordinary citizen, I think it fair to say that electricity has vastly improved the quality of his environment."

Alexander predicts power rationing unless the Navajo Plant is operating by 1974. "Our responsibilities as utilities are to make sure there is enough electricity to operate every air conditioner, heater and other type of electrical appliance our customers may want to use," Alexander says. It is Alexander's feeling that the whole future of Arizona hinges on this project.

Other people feel the ecology of a unique piece of earth and the last remnants of ancient Hopi and Navajo culture will be destroyed in realizing such a future. Sierra Club, the John Muir Institute and the Central Clearing House of Santa Fe (an environment organization) are decidedly opposed to the WEST concept.

"The power consortium is concerned with producing cheap electricity to fill mushrooming demands and makes no attempts to find ecologically feasible alternatives," a Clearing House bulletin says. "If an area as rich in culture and beauty as the Southwest is allowed to undergo the worst form of environmental degradation, there is little hope man can survive his own act of exploitation."



WEST, a consortium of 23 power companies, plans to build six coal-fired electric plants in the high desert of the Colorado Plateau. These will pollute the last major unspoiled wilderness in the U.S.

Black Mesa is an island of grass, pinion and juniper in the high desert plateau of northeastern Arizona. Navajo hogans cluster against its base on the north side, while on top Indian ponies browse on clumps of grass and the sheep move slowly among the small shrubs. Standing on the north edge of the mesa you can see Navajo Mountain rising blue and black in the distance. It is a holy mountain and marks the traditional north border of Navajo lands.

Conservationists are particularly upset about the strip-mining of coal on Black Mesa, which is located in

will return the land in as good condition as received except for "normal wear and tear and depletion incidental to mining."

After mining the coal, Peabody will ship some of it via an 80-mile railroad to the Navajo Generating Plant and will pump the rest of it in slurry form (half coal, half water) through a 275-mile pipline to the Mojave Generating Plant. Over 2,500 gallons of water a minute are required to slurry the coal. This water comes from five wells 4,000 feet deep. Pumping that much water out of an already arid region has led scientists to speculate that

San Francisco. Utah Construction will take 44,000 acre-feet per year out of Navajo Reservoir on the San Juan River (tributary to the Colorado) until the year 2005; then it renegotiates the contract if the coal is not gone.

Coal for the Four Corners Plant comes from yet another strip mine, again on land belonging to the Navajo Indians. The operation is the biggest working strip mine in the country. Cone-shaped piles of rock and dirt overburden have been dumped one next to another,

the Hopi-Navajo joint use area. They call this "the rape of Black Mesa."

This is the last outpost of the Hopis as well as the Navajos. These people of the desert have continued uninterrupted in their ways for over 1,000 years. The world has changed around them and the land has been conquered, but they remain a cultural island above and remote from the white man. They prefer simple marginal lives of sheepherding to white man's welfare and government housing.

Recently many Indians have begun to push for economic development of the reservation however, and they have taken control of tribal councils. The only thing they have to sell is coal—16 billion tons of coal on Black Mesa.

Peabody Coal Co., a subsidiary of Kennecott Copper, negotiated with the Department of the Interior for Black Mesa Coal in 1964. In 1966 they offered the Indians a deal. Apparently they were sure the tribes would accept because they advised WEST to proceed with a $100 million purchase of generating equipment from General Electric two years before an agreement was signed. The agreement pays the Hopis $14.5 million and the Navajos $58.5 million over a 35-year period. Over this same time Peabody gets $750 million, which is over 98 percent of the coal purchase.

A tribal leader at Window Rock, Ariz., said: "It's an old story. Our water and land resources will be drained, taken out of the reservation. And in exchange we get a handful of jobs and a small payoff. What will be left of our way of life? They say the Indians must join the market economy, but they force us into a colonial economy. This is not economic development, this is economic termination of the reservation."

The developers counter by pointing out benefits to the area. Royalties and lease payments paid to the Indians exceed $1.8 million annually, and participants are providing financial assistance to the Navajo Community College. Qualified Indians will be given job preference. Some 650 new local jobs will generate a payroll of $5.9 million and Arizona schools and tax districts will receive $6.4 million a year in new revenue.

In order to strip-mine Black Mesa, Peabody has graded huge roads, 200 feet wide in some spots, straight across the mesa. These clearings are wide enough to accommodate a freeway. The roads violate all concepts of modern road engineering and will cause flooding, sliding and washouts because they were built without culverts. In the course of mining, Peabody is ousting over 600 Indians from their homes and pastures, forcing them to relocate elsewhere.

Peabody's coal shovels, huge machines six stories high, will eat up 400 acres of land per year. Some of the coal seams are near the surface, but most are covered by 120 Indian wells, only 400 feet deep, may run dry in a few years. Peabody pays the Indians $7.50 an acre-foot, whereas the going commercial price is $28 to $30. In addition to the water problem, Indians are beginning to worry about restoration of the stripped-over areas.

Though Peabody agreed to return the land in good condition, except for "wear and tear" due to strip-mining, it does not appear they will make any restoration efforts. The environmental planning status report for the project says: "It has been Peabody Coal's experience that stripped over areas tend to increase the water table due to the added porosity of the stripped-over material, provided that excessive grading is not required. Since the coal seams on the Black Mesa Mine are underlain with an impervious fireclay, any open pits left after mining will tend to collect and hold water and should make acceptable lakes for stock and recreation purposes." Apparently Peabody plans a Kentucky-style lake on the arid plateau.

If such lakes did collect water, it would only compound the problem of acidic drainage from the mines. The interior of Black Mesa drains into Moencopi Wash where many Indians live. Acids in subsurface materials would drain into the wash and make soil unfit for farming or grazing.

Shortly after Black Mesa operations started, construction of the Four Corners Plant started. It began generating power this past summer, and radically altered life in the quiet little towns of Waterflow, Fruitland and Kirtland.

These three hamlets nestle between Route 550 and the San Juan River in northwestern New Mexico. Navajos comprise most of the population. They graze sheep on Hogback Mountain in the south and by the shores of deep blue Morgan Lake. There used to be an airy warmth and relaxed pace of living here which infected you. But that is gone now.

Between Hogback Mountain and Morgan Lake, WEST operates the Four Corners Plant. Intended as prototype that the other plants could be modeled after, it has proven a poor example.

It spews out 320 tons of particulate matter a day, more than the combined daily emissions of all New York City and all Los Angeles. There are no controls of sulfur dioxide or nitrogen dioxide emissions, consequently 384 tons of SO2 and 182 tons of NO2 pollute New Mexico's air daily.

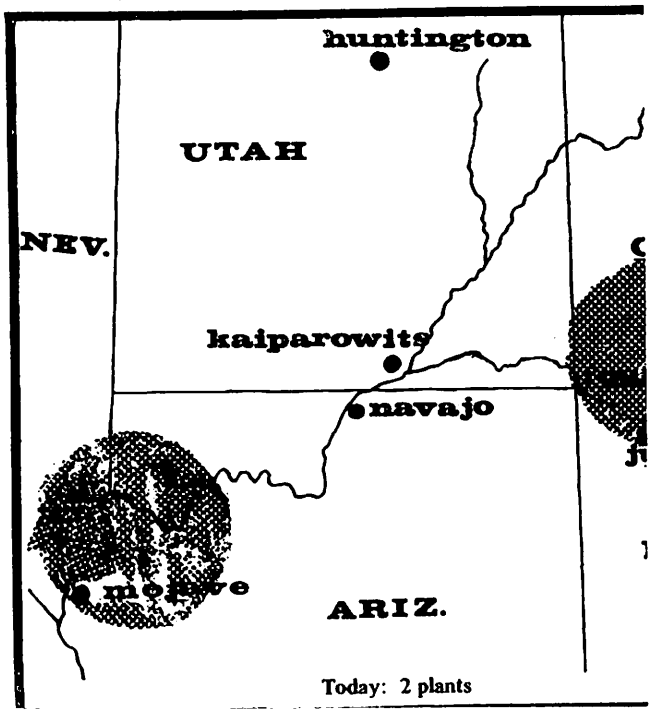
The Arizona Public Service Company, which operates the plant for the consortium, failed to install state-of-the-art pollution-control equipment. It purchased and installed only one third of the equipment specified in its contract with the Department of the Interior.

Water contracting presently is done through Utah Construction and Mining Co., a curious outfit registered

The five generating units produce 2.1 million kilowatts. The first three units are owned by Arizona Public Service Company, but they account for only one-third of the plant's power. Southern California Edison Company owns 48 percent of the fourth and fifth units, which produce 1.5 kilowatts. Other participating utilities are Arizona Public Service (15 percent), New Mexico Public Service (13 percent), Salt River Project (10 percent), Tucson Gas and Electric (seven percent) and El Paso Electric Company (seven percent).

Just a few months after Four Corners began operation, the Mojave Plant at Bullhead City, Ariz., began generation. It sits just west of the Black Mountains below Davis Dam on the Colorado River. In the west Mt. Manchester marks the California border and reflects shades of magneta and pink in the setting sun. Mojave Valley, a wilderness of delicate desert flowers in the spring, sits south of the plant.

The Mojave Plant is 275 miles from the Black Mesa coal. An 18—inch steel pipeline, longest of its kind in the world, will carry the coal in slurry form. The pipeline route cuts straight across the virgin earth of northern Arizona to Bullhead City near the Nevada border. Peabody Coal Co. has subcontracted the pipeline and slurrying operations to the Southern Pacific Pipelines, a Los Angeles firm. The Mohave plant will consume 17,000



tons of coal per day, and a minimum of 117 million tons over its 35–year life.

Water for the plants will total around 32,000 acre feet per year. This will be drawn from Lake Mohave behind Davis Dam. None of this cooling water will be returned to the river.

The 1.6 million kilowatts produced will be divided between Southern California Edison (56 percent), Los Angeles Department of Water and Power (20 percent), Nevada Power (14 percent), and the Salt River Project (10 percent).

The air pollution emitted by this plant is incredible. There are no controls on sulphur or nitrogen dioxide emissions. Estimated emissions are 13,000 pounds of SO2 per hour and 12,000 pounds of NO2 per hour. Between 20 and 30 tons of fly ash fill the sky every day. If this plant were in Los Angeles, where most of its power is going, it would be limited to 200 pounds of SO2 and 140 pounds of NO2 per hour, under Rule 67 of the Air Pollution Control District. Instead it spews out 65 times as much SO2 and 86 times as much NO2 as Los Angeles law allows.

With two power plants operating and two huge strip-mines supplying them, WEST is only beginning. Two more plants are under construction, and two more will follow them. More mines will supply coal.

Page, Arizona, was established in 1957 by the government as a city to service the Glen Canyon Dam. It sits on a rise of the Colorado Plateau and overlooks the Marble Canyon of the Colorado, Lake Powell, the Paria Plateau, and Wahweap Basin.

If you stand on the Kaibito Plateau south of town at sunset, the river is a curling silver ribbon. On every side the land is a different color. Navajo Mt. is purple and humped in the east. Slightly north the Kaiparowits Plateau is red with black and shades of iron grey. Paria Plateau is farther west and catches more of the sun's fire, a lot of orange, yellow, lines of grey marking precipitous edges. Looking west and southwest into the sun, the horizon is hazy, but you can see an eroded plain as intricate as Swedish lace draining into Marble Canyon, and Marble Canyon twisting into Grand Canyon, and the Colorado River cascading to the sea. It is all around you and it is alive and immense. That is the desert.

But the desert is dying. WEST plans to build the Navajo Power Plant at Page. This plant will burn coal from Black Mesa transported by an 80 mile long railroad. The $41 million line, dubbed the Black Mesa and Lake Powell Railroad, is being built by Morrison-Knudson Inc. The route, instead of following roads and minimizing despoilation, cuts a ragged swath across the Kaibito Plateau.

The train will carry 23,000 tons of coal per day to the Navajo Plant, which is being constructed on 1,021 acres of land leased from the Navajos. Another 765 acre site has been leased as an ash disposal area.

The Navajo contract allows for 40,000 acre-feet a year of water to be removed from Lake Powell, but plans are to use only 34,100 acre-feet

When operating at full power the plant will generate 2,310,000 kilowatts. California gets 45 percent of the electricity.

The Navajo Plant is adjacent to Lake Powell, an area subject to long term temperature inversions. Once the plant begins operation, high smog concentrations seem likely, for the stacks will emit an estimated 229 tons of sulphur dioxide per day and 204 tons of nitrogen oxides per day. Particulate emissions come to 15 tons per day. Los Angeles County standards would specify no more than 240 pounds of particle emissions per day if the plant were in California.

The coal ash left after burning will be hauled off to a 765 acre site, where it will be dumped into a box canyon.

Besides being a polluter, the plant is an eyesore. It has three smokestacks 775 feet tall which will be painted in alternating bands of red and white. In an area of large flat features it will be hard to overlook three pillars nearly 50 stories tall. WEST plans to have this plant operating by 1974.

Also generating power by 1974 will be the Huntington Canyon Plant twenty miles southwest of Price, Utah. Not many people live in the canyon, just a few small houses surrounded by fruit orchards. A good clear stream cuts through cottonwood and spruce before tumbling into Huntington. The right side of the canyon is a redrock cliff, while the left side is more of a steep mountain. It looks very similar to parts of Capitol Reefs National Monument in southern Utah.

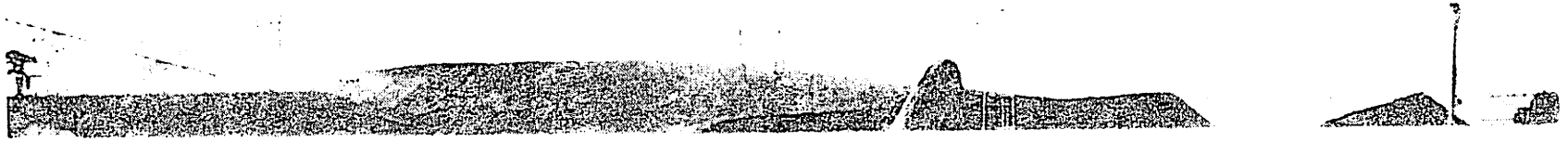
Utah Power and Light is the sole owner of the plant. Coal will be transported from an underground mine by a four–mile long conveyor belt. Some 800,000 tons of coal will be burned every year. Utah Power and Light buys 6,000 acre-feet of water per year from the Bureau of Reclamation, which is tapping Huntington North Resevoir and Joes Valley.

The plant is being built to operate at 43,000 kilowatts, but has a potential output of 200,000 kilowatts. Although fairly small in power output, Huntington Canyon will probably be an excessive polluter because the coal it uses has a greater percentage of sulphur than coal used in any of the other plants. Under average conditions, the stacks will allow 334 tons of SO2, 150 tons on NO2, and 41 tons of fly ash to darken the sky every day.

The plant is also being built without any SO2 or NO2 controls; the contract with the Department of the Interior calls for installation of such equipment "when comercially proven processes become available." The only section of this contract protecting the land is this weak phrase: "The company will take appropriate measures to blend the plant into the environment and give due recognition to the ecology of the area."

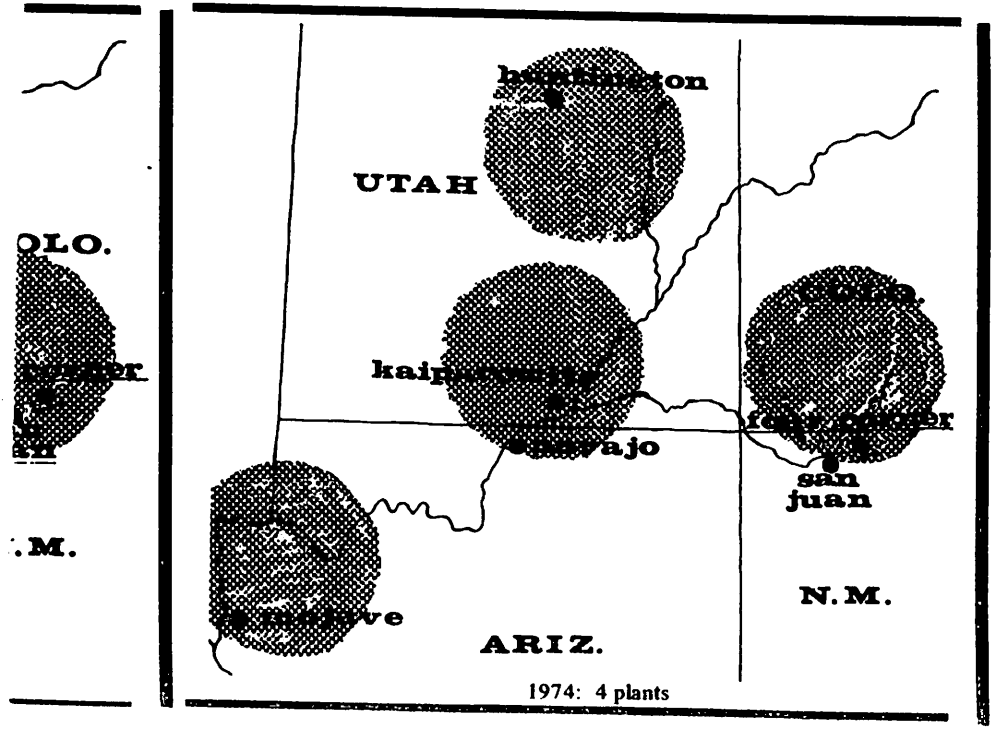
By 1977 WEST hopes to have the complex of super-plants finished. The final two plants – San Juan and Kaiparowits – will start generating. The San Juan plant is planned for Waterflow, New Mexico, only two miles from the Four Corners plant. In 1977, what once was a sleepy little Indian town will probably be as grey and sooty as New York. Fifty percent of the power here will go to the New Mexico Public Service Co., which will operate the plant, and fifty percent will go to Tucson Gas and Electric. Coal will come from the same strip mine serving the Four Corners plant and water will again be supplied by Utah Mining and Construction. They will draw 44,000 acre-feet yearly from the San Juan River and 10,100 acre-feet mon per year after 1976. Both operations pay only $7 an acre-foot for water. Michael Williams, scientist at the John Muir Institute in Albuquerque, predicts the San Juan plant will pollute the sky with 171 tons of SO2, 88 tons of NO2, and 18 tons of fly ash every day when operating.

The final WEST plant will be located on the Kaiparowits Plateau in Southern Utah. This plateau juts abruptly up out of rolling desert sageland. On the east side the steep Straight Cliffs drop 2000 feet or more before reaching the wilderness of the Escalante River. On the west, the land works down through a redrock maze to drain into Last Chance Creek. Immediately south of the plateau and across

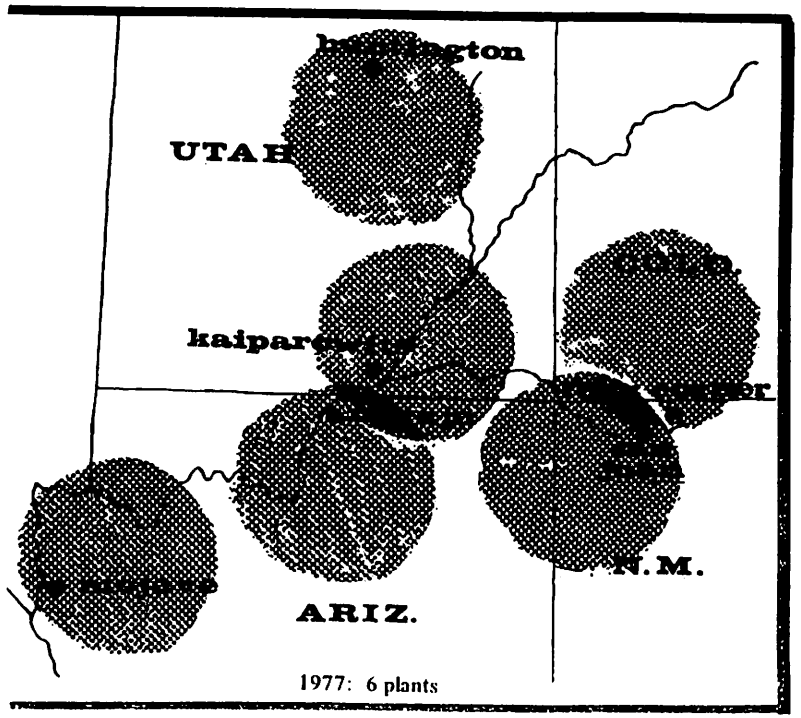


Coal at Four Corners is strip-mined nearby at the largest strip-mine in the country. Land is owned by the Navajo tribe. Immense piles of overburden cover hundreds of acres, with hundreds more acres slated to be stripped to feed power demands in distant California.

Photos by Bill Marling



1974: 4 plants



1977: 6 plants

the Colorado River is the holy mountain of the Indians – Navajo Mountain. Kaiparowits Plateau sits square in the middle of this last untouched chunk of American desert. But there is coal in five zones beneath the plateau.

The power plant WEST wants to build here is massive; it would be bigger than any two of the other plants combined, the biggest thermal-electric plant in the United States. When completed, the super-plant (two units) will use 60,000 tons of coal per day. Some of this coal will be mined underground, and some of it may be strip-mined. It will come from the Kaiparowits zones or fields near Kanab.

Water to cool the generators comes from from Lake Powell, and when the plant is in full operation it will use 102,000 acre-feet a year. The water contract lasts 40 years.

Southern California Edison, San Diego Gas and Electric and Arizona Public Service have banded together to build the plant.

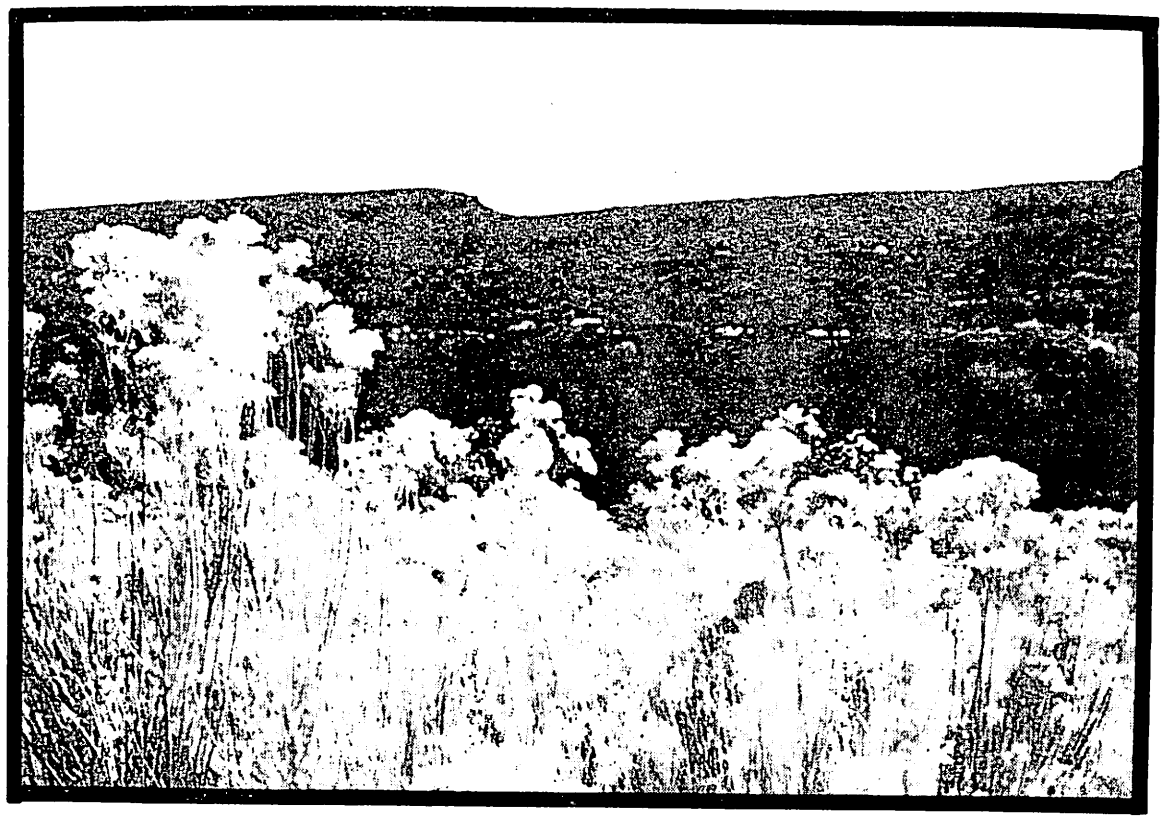
The contract with the Department of Interior on this plant calls for use of particle precipitators which are 99.5 percent efficient, but only if they are "economically feasible." If the consortium decides such equipment is not feasible, they may install processes 97 percent efficient. Efficiency may drop to 96 percent for a period not exceeding 24 hours.

Under average conditions (97 percent efficiency) the two units of the Kaiparowits Plant would emit 880 tons of SO2 per day. Also fouling the air will be between 346 and 531 tons of nitrogen oxides. About 98 tons of fly ash will enter the air each day.

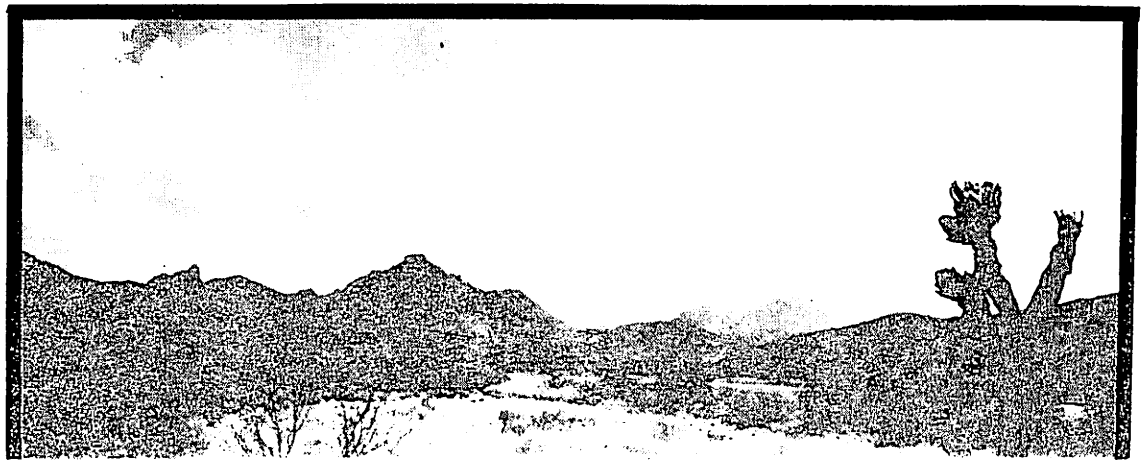
Combined with the Navajo Plant at Page, Arizona, just 30 miles south, and the long thermal inversions common to Lake Powell, the Kaiparowits operations will produce incredible smog. Michael Williams, research scientist at the John Muir Institute, gives his view: "In what used to be the wide open spaces, we will have more SO2 than New York City, more dust than Los Angeles and oxides of nitrogen comparable to those emitted by the autos of Los Angeles. When higher ash or higher sulphur content coal is used, these tonnages can soar to higher levels."

Numbers seem meaningless. Tons of coal, tons of ash and acre-feet of water do not relate to us. We cannot comprehend a system using 290,000 acre-feet of water a year or burning over 150,000 tons of coal a day. It is incredible, impossible and staggering. The plans of engineers, the drawings of architects are things of the future and modern man lives in a today world. He will not believe what he cannot see or smell or touch.

But at Four Corners, New Mexico, you can see poison in the air. You can taste it and it is acrid and you would swear you can feel it touching you. This is the price of more air conditioners, more stereos, more electric carving knives.



We will pay for electricity in pinon, cactus, and banks of long waving grass. Can we afford that price?



And the price involves more than the disappearance of good air; it is also ending an ancient culture and the destruction of an ecological island. We will pay in pinion, cactus, mesquite and banks of long waving grass. We surrender those long moments when a man stands in the desert sunrise, and, seeing the changing pinks and purples, feels he is one with the Earth. The eagle, the lizard and the ancient cottonwood are part of the price. And what about the Navajo and the Hopi? Are we richer for strip-mining sacred Indian lands and replacing grazing lands with roads 300 feet wide, in order to illumninate theatre marquees on Sunset Strip?

In quest of progress, we destroy our roots; we end the things which make us human. The desert is dying. Can we afford to pay that price?

This award-winning reportage was first published in the "Daily Utah Chronicle".

We need your help. If you are interested, contact Larry Jensen Phone: 328-9263

If you receive an extra copy, please give it to a friend.

UTAH CLEAR
1133 S. 1400 E.
Salt Lake City
Utah, 84105

Andrade (15)

THE SOUTHWEST ENERGY STUDY SUMMARY DRAFT
COMMENTS BY UTAH CLEAR -
a Utah Corporation
June 14, 1972

1. Preface

The most important part of any study or report is the set of assumptions utilized. The assumptions outlined in the Preface to the Summary Draft essentially determine the basic tenor and philosophy of the entire study. These assumptions are subject to question.

"... nor can the quality of life be raised or improved without increasing dependence on energy." (p. V) This depends on one's definition of quality of life. Only if one equates quality of life with an increasing number of appliances, gadgets, and material goods can it be said that this "quality" can be improved only with increasing dependence on energy. It seems to us that quality of life is more synonymous with satisfactory interpersonal relationships, a state of reasonably good health, freedom from covert and overt pressures, and aesthetic values which have little to do with energy conversion, except as such energy conversion mars the aesthetics through its accomplishment or in the manner in which that energy is utilized.

"It (energy) ... is needed ... to improve the quality of the environment." (p. V) The only energy which improves the quality of the outdoor environment is the solar input. It is true that energy input is required to carry out pollution control, but this is not improving the quality of the environment, but rather an attempt to prevent it from getting any worse. Further, since those pollutants are themselves the result of energy conversion processes in virtually every case, one can see that energy conversion, more than any other factor, has been the source of environmental degradation.

"Need for facts ... was the genesis of the Southwest Energy Study." (p. VI) On page 10-1 of the April draft: "Base line information concerning the atmosphere, water, land, biota, and aesthetics, against which changes resulting from the plants, existing and under construction, could be measured, was lacking. The definition, quantity, rate of production, dispersion, and ultimate disposal of the many waste elements resulting from the operation of the generating plants and their respective support systems also are lacking in sufficient specificity. Measurements of the effects of the waste elements on the biota ... including the health of human beings, aesthetics of the area, recreation use and the preservation of antiquities and archeological features are all insufficient."

In other words, the two plants now in operation plus the three being built are proceding in the absence of sufficient data regarding their effects on the environment and their effects on human health. This appears to be a lack of common sense of the most elemental kind, because we know, for example, what the effects of sulfur dioxide are on the biota. See "Air Quality Criteria for Sulfur Oxides," U.S. Dept. of Health, Education, and Welfare publication, January, 1969.

"Demand for more but clean electric energy ..." (p. V) Demand is largely a Madison Avenue advertising and promotion phenomenon. Demand and need are relative to the promotional exposure, education, and awareness of the consumer. A definite change in energy industry promotional practices could greatly reduce or even eliminate the increasing "demand" for energy. The myth that electrical energy is clean or (implied) cleaner than other sources should be exposed. This myth certainly should not be promulgated in government documents.

2. Study Summary

a. The study has been limited to the "... effects of existing, proposed, and potential coal-fired electric generating plants in the Colorado River Basin." (p. S-1, 4/72 Draft)

This is unfortunate, as plans are already being formulated for extensive coal liquification and gasification plants in the southwest. By limiting the study to electric generating plants, the study loses a great deal of its potential usefulness.

b. The study has considered 4 levels or phases of power development, up to a maximum level of about 30,000 MW through the year 1990. This is inadequate. Water rights applications are presently pending in the state of Utah for new electrical generating plants with a cpacity greater than 30,000 MW. Massive strip mine-mouth plants have been proposed for Wyoming, for a capacity of 50,000 to 100,000 MW or greater. Thus the study implicitly underrates the extent of proposed electrical generating capacity, and gives the highly misleading idea that there are sufficient resources for the proposed electrical generating capacity in the southwest.

c. The study area has lumped together the densely populated urban regions, in particular Los Angeles, San Diego, Denver, Phoenix, with the sparsely populated rural areas of the Southwest. The study does accurately state that in 1990 85% of the projected population (31 million) will live and walk on less than 3% of the land. We challenge the implicit assumption that these urban areas will continue to grow, even at the "lesser rate" projected in the study. There is growing evidence of a rapid decrease in birth rate (refer to 1970 U. S. Census) and a steady state or even declining population by the year 2000. There is evidence for migrations out of heavily urbanized areas, by both citizenry and industry.

d. The energy use projections used in the study are based on the 10 year doubling figures used by the FPC and the electric power industry. This is highly unrealistic. Public Utility Regulatory Bodies throughout the nation have been telling their utilities to decrease or even eliminate entirely promotional efforts. New rate schedules, which tend to economically discourage increased electrical energy use, havebeen promulgated by a number of regulatory bodies. Seethe journal Public Utilities Fortnightly for details. The citizens' interests and environmental groups are only now becoming aware of the fundamental role of excess and inefficient energy conversion as a major contributor to environmental and perhaps social degradation.

e. Water considerations are inadequate. "An estimated 450,000 acre-feet could be made available for electric energy generation." (p. 3-6) The Kaiparowits plant proposed for southern Utah (5000 MW) would consume about 1/4 of all the water which "...could be made available." How, then, can one extrapolate to 30,000+ MW? And if such water is made available, what does this mean in terms of agriculture, residential development, and clean industry development in the rural areas of the Southwest? Such questions are inadequately considered in the Summary Draft.

Southern Utah is now sufferring an intensive drought -- water is needed for irrigation and stock, as well as for residential and commercial use. Are we justified in permitting big industry to barter and sell water rights -- as Utah Power and Light Co. has done for its Huntington Canyon plant?

Mr. Daniel Lawrence, Director of the State of Utah's Water Resources Division has said that there may have to be significant changes and perhaps controls over the buying and selling of water rights in the very near future. It is thus highly possible and perhaps probable that the 450,000 acre-feet would not be made available.

The Draft correctly states that California has essentially no Colorado River Compact water available for power generation. Arizona's water is also in very short supply. The Draft's Phase One recommendation is equivalent to saying that Utah should ship a portion of its share of Colorado River water to Los Angeles and Phoenix, thereby encouraging their overgrowth at the expense of Utah's needed growth. Our views on this subject are presented in the ad on the next page. This ad recently ran in three southern Utah weekly newspapers, and presents a case rarely heard. This case should be noted in the Southwest Energy Study.

Washington County News
St. George, Utah Thursday, May 25, 1972

VIRGIN

Edna J. Flanigan, Reporter

Mr. and Mrs. Dennis Wilcox and family of Bountiful were here over the week end visiting relatives. And helping his father, Bp. Lee Wilcox with his work.

Speakers in sacrament services was Zion Stake High Councilman Herschel Hall, whose subject "The Sabbath," and Owen Sanders who treated the subject on "Honesty." Solo, "Oh Divine Redeemer," Myrna Wadsworth, accompanied by Allen Derrington. There was sixteen visitors present to enjoy the services.

Alma E. Flanigan was a business visitor to Cedar City the morning of the 22nd.

Mr. and Mrs. S. L. Wilcox visited with the Ted Gublers Saturday afternoon. He reports he is feeling much better at this writing.

Springd

Sylvia Gifford, Reporter

Our weather this month has been warming up with several

Community Education Sponsors Children's Program

The Community School program of the Washington County School District will be completing the spring term this week. A very successful year has been reported by Ross Taylor, community school director of the St. George area.

Some of the outstanding activities have been classes for children in singing, dance and group guitar. The instructors for these classes, Mrs. DeLanna Hamblin and Mr. Gene Bennett are preparing a final review for their students. An evening of song and dance will be offered to the community on Thursday, June 1 at 8 p. m. The place for this event is set at the West Elementary Multipurpose room. All community members, especially parents of young children are urged to attend this program.

Canada produces about 85 per cent of the continent's ducks, most of its geese and almost all of its swans.

f. "...comparisons between coal-fired generation near the mine and near the load center appear to show little difference in economics." The word economics here refers only to transmission and transportation costs. The Study should consider total energy utilization efficiency as well as slurry pipelines, unit trains, and transmission lines. Plants located near load centers could be designed so that their "waste" heat could be effectively utilized. Such designs have been very successful in urban Finland (near Helsinki). There is simply no excuse for wasting all of the excess heat -- the Draft ignores this most important consideration.

3. Findings and Conclusions

a. "No viable alternatives exist for Phase I power development"(p. FC-5). This is a highly misleading and perhaps irresponsible statement. It is entirely based on a set of assumptions which are largely based on extrapolating the past rather than anticipating the future. Where in the Draft is a consideration of no further power development? Where is there a consideration of advertising policies and rate structures which could assure a fair distribution of energy within the constraints of existing generating capacity? Why do we always insist on "solving" a problem by a method which simply insures that the problem will grow?

The Draft does discuss (P. FC-8) public education and awareness programs, pricing systems, and augmented R and D efforts. The discussion is terribly brief and buried at the end of the Conclusions. The discussion and recommendations are weak in contrast to such strong statements as:

"...no viable alternatives exist..."

"...nor have claims of significant adverse impacts been substantiated."

"Both water and coal resources are available..."

"This will necessitate some trade-offs with environmental values."

b. Alternative Uses of Coals. The sole recommendation of the Work Group on Alternative Uses of Colorado River Basin Coals was omitted from the Draft. Quoting from p. 6 of that Appendix:

"There is an urgent need to conduct more detailed economic, environmental and related studies of the potential alternate uses of Colorado Basin Coals in order to determine how they may best be used to provide a significant and needed share of regional and national fuel requirements. Efforts should be concentrated on coal gasification and liquification potentials with due regard for water availability and environmental impacts. Such a study should also incorporate the potentials for synthetic gas and oils formshale, and the impact of water availability on both coal and shale utilization."

On p. 50 of the same appendix: "...in the year 1990 synthetic gas and liquids from Basin coals could consume several times the amount of coal needed in that year for

electrical energy generation."

What they are saying is a matter of common sense: petroleum and gas resources are limited, and the most desireable use of our coal reserves may not be for fueling power plants (for which alternatives are or can be made available). Rather we should use the coal for uses for which there are no alternatives.

c. Alternative Resources for Electric Energy Generation, Appendix III, is not adequately covered in the Summary Draft. P. 104 of App. III states that the Meinel approach to solar energy use "...would require an area of 5 square miles...for a 1000 megawatt plant." It further states that "This sheme is being considered by several utilities in the study area, but requires demonstration of technological and economic feasibility."

Our recommendation is that studies be carried out immediately to determine whether or not the approach is feasible. In the long term we shall have to rely on solar input; the sooner we start, the longer we shall have coal and petroleum reserves remaining for our petrochemical requirements.

Note that on pp. 6-24 and 6-33 of the Draft that about 14,000 acres or 22 square miles of Black Mesa are to be stripped to fuel the Mohave plant of 1500 MW. As reclamation efforts appear to be unsuccessful so far (p. 6-12 of Draft), it would appear that if the land is to be permanently damaged, why not use the 20 square miles to gensrate 4000 MW of solar-fueled electric power? One gets more energy, it isn't used up after 35 years, and the coal remains in reserve for future needs.

Only one page in the Mining Appendix is devoted to a weak appraisal of solar energy, concluding: "It doesn't promise to be a significant electrical energy source in the near and intermediate future." This is an erroneous and perhaps irresponsible statement.

d. The Summary Draft essentially ignores all specific recommendations made by the Biota and the Recreation and Esthetics Work Groups. The Recreation and Esthetics group recommended a moratorium be instituted after the completion of Phase I, in order to determine the effects of Phase I power generation and to anticipate the effects of later Phases. The moratorium recommendation was totally ignored in the Draft.

If the Southwest Energy Study expects to be taken very seriously as an authoritative and objective document, it must consider the recommendations of its own Work Groups.

e. Draft p. 3-7 states "...a plan of operations must be submitted to the Geological Survey for approval before a lease or permit holder can begin mining coal on public and Indian lands... The plan must include descriptions of...(3) a suitable system for reclaiming disturbed areas." Such a suitable system may not exist for the Southwest. The final draft must take some definitive stand on mined land reclamation. It should at least consider the impact of pending mined land reclamation legislation on the Southwest energy picture.

4. Utah CLEAR's Recommendations (refer to the Work Group reports on Biota and Recreation and Esthetics).

1. A moratorium be declared on development of coal-fired power generating plants or component units and ancillary facilities beyond the Phase I level, such moratorium to be lifted only when adequate and detailed studies have been made and technology has been developed and pollution control equipment planned for installation to assure that there will be no long lasting significant adverse environmental impacts on recreation lands or their aesthetic integrity.

2. When the moratorium is lifted the Environmental Protection Agency submit an environmental impact statement, pursuant to Section 102.2.c of the National Environmental Protection Act, encompassing the entire scope of the then anticipated power development in the Southwest.

3. In the continued operation of existing Phase I coal-fired plants and prior to the operation of those Phase I plants now under construction, the most stringent environmental standards that exist in the Southwest shall be met.

4. Research be accelerated to determine the practical application of large scale solar, nuclear and geothermal energy generating systems as a countermeasure to coal fuel generating plants.

5. Powerplant sites

The following principles, most of which are in effect, should guide the planning, development, use, and final restoration of powerplant sites:

1. Avoidance of high-value biotic communities in the selection of plant sites.
2. Provision for appropriate mitigation of adverse impacts on important wildlife habitat.
3. Sealing of evaporation ponds and ash disposal areas to prevent movement of salts and other pollutants into adjacent soils and the affected watersheds.
4. Restoration of powerplant sites with regard for natural aspects including wildlife.
5. Use of the powerplant water supply for irrigation at the time of revegetation.

6. New urban areas

When powerplants will cause population growth nearby, zoning regulations should be considered by existing communities, and definitive environmental evaluations made for new townsites, to minimize detrimental effects on valuable habitat.

7. Require strip mine reclamation immediately following the removal of the fuel resource and continue until the vegetation or ground cover is as good as or better than prior to mining. Reclamation should include:

1. Removal and storage of topsoil before disturbance.
2. Re-creation of topography similar to predisturbance conditions.
3. Replacement of topsoil and supplementing where needed.
4. Fencing.
5. Reseeding and transplanting of native species.
6. Irrigation when needed.

8. Coal Conveyance

1. In the selection of routes for railroads and haul roads, due consideration be given to effects on habitat and the needs of wildlife and domestic animals. When the rights-of way are fenced, animal crossings or underpasses should be provided.
2. When railroads or trucking roads are abandoned they should be restored as nearly as practicable to original or alternately beneficial conditions.
3. Wherever needed slurry pipeline rights-of-way be revegetated immediately following construction.
4. Possible needs for animal passage be considered in the design of belt conveyors.

9. State air and water pollution standards vary. Consequently, siting becomes important in the amount of pollution allowed. There may be a choice of siting the plants in States with stricter standards, thereby reducing their environmental impact.

The question raised above is applicable to land use controls. Some areas have stricter controls in siting the plants and these controls could reduce the overall impact.

There are also choices as to elevation of plant sitings. The same amounts of pollutants at high altitudes often result in substantially more environmental damage than the same amount at lower elevations.

5. Summary

Our most serious criticism of the Draft is the set of implicit assumptions presented in the Preface and upon which the entire Summary Draft is based.

Throughout the manuscript we read of "needs" and "requirements" for energy through the year 1990. We have already discussed the erroneous nature of such an assumption. One of the first things a child has to learn (at least they used to) is that he can't have everything he wants. Nations should learn this also. And yet we proceed, the Southwest Energy Study proceeds, on the assumption that we can have all we want ("need"). There is simply no reason why our use of electrical energy need increase at the rate anticipated in the Draft. Perhaps it might even be advisable to formulate a policy of national energy conservation -- such a recommendation could be the most significant and useful the Southwest Energy Study could make.

We would be pleased to help.

June 14, 1972
Salt Lake City, Utah

J.D. Andrade, Chairman, Utah CLEAR, Inc.

Marga Raskin

J.D. Haselton

Sherm Janke

Jim Coots

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The Indian Work Group limited its investigation to the economic effects of power generation and related activities upon Indians as a whole. Whatever criticisms could be levied against the work group for this aspect of their report are trivial. The economic impact outlined in the report can be characterized as directed at Indian life at the tribal level; that is, Indians were seen as gaining important and significant new income at the level of tribal government for the leasing of hitherto unproductive mineral rights.

But the report should be criticized severely for its failure to consider the impact at the grass-roots level, or to consider the possible and likely deterioration of the land and livlihood of the average Indian citizen and his family residing within the areas threatened by the generation of power in the Southwest. The report made few references to non-economic effects at the local level, but even these were not directed at the local populace, but rather at some sprawling, anomalous group referred to as Indians and localized by tribes. For example, under Conclusions, (p. 103):

> "The present impact of coal-generated power development on Indian lands in the Southwest must be considered localized. Of the 98 million acres of Indian land in the study area, only 96,300 acres are under Black Mesa and Four Corners coal leases."

Apparently, the land on which mining operations take place is the only area threatened. Such a simple "conclusion" was truly conceived in ignorance. First, the Work Group

passed lightly over the testimony concerning the effects of air pollution given individually by Leonard C. Burch, Chairman, Tribal Council of the Southern Ute Tribe, and Albert Wing, Chairman of the Ute Mountain Tribal Council, at the Durango Hearings, 1971. ~~The Burch and Wing statements are appended to the report.~~ Second, the Work Group must have been out of touch with the mainstream of concern expressed about the environmental impact of stack emissions, particularly from the Four Corners Plant on the Navajo Reservation, by both Indians and non-Indians residing in the Four Corners area. This is especially strange, considering that the report had stated (p. 101) that "...The Indian interest in [the] area [of maintaining satisfactory air and water quality standards] does not appear to differ from that of the general populace of the region in similar socio-economic circumstances." Third, and perhaps most important, the Work Group was ignorant of the concern expressed by both the Biota and Land Use work groups for the possible long range and far reaching effects of stack emission pollutants. For example, the first point in the summary of the Land Use report states:

> "The most significant impact [on land use] can be expected from strip mining and residual stack emissions.... Such emissions could disperse over several counties and states."

Inasmuch as the effects of such pollutants are unknown, and as the dispersal area <u>is populated</u> by <u>human beings</u>, many of whom are Indian, the Indian Work Group should <u>not</u> have de-emphasized the possibly harmful, even lethal, effects

of airborne emissions.

Many other attempts by the Work Group to comment on social impacts in areas other than economics are contradicted by the findings of what appear to be more qualified specialists from other work groups. For example (p. 34):

> "The only impact the installation of the [Public Service Company of New Mexico] transmission line [across the Jicarilla Apache reservation] would have would be the funds derived from the right-of-way easement."

This statement shows lack of concern or insight regarding considerations stressed by the Land Use Work Group; namely, the impact of transmission lines on aesthetic (scenic) value, possible archeological sites, wildlife migration, biota, possible soil erosion, and recreational use.

On page 40, the Indian Report states:

> "Other sources of Indian income, such as, agriculture, manufacturing, and recreation, will not be affected appreciably by increased energy production in the Southwest study area, except as energy is used in the future development of Indian resources."

Aside from the fact that agriculture and recreation are mentioned only in terms of their income potential, questional sources of "income" to begin with, there exists real evidence that one of the major crops in the San Juan River Valley -- alfalfa -- is particularly sensitive to SO_2. With the increase in cropland acreage in the San Juan Valley expected to triple via the Navajo Indian Irrigation Project by 1980, there could indeed be an appreciable loss in agriculture in this particular area. In fact, "Gilbert Slade estimates that crop losses from SO_2 may approximate 10 percent per year." (Land Use, p. 77) In addition,

recreation viewed only as a source of income leads one to question the understanding of the 10 BIA officials comprising the Indian Work Group about the nature of life among Indians removed from the BIA Regional Offices in Flagstaff, Window Rock, Albuquerque, and other centers of acculturation. This position indicates a shameful depersonalization of the issues to the extent that the Work Group could not, or at least did not, recognize the recreation needs of the very population whose welfare they are charged with protecting.

It is apparent throughout the study that the source of support among Indians for the statements made by the Work Group is at the tribal government level. For example (p. 52):

> "The majority of the leadres of the tribes who were interviewed pursuant to this study were in favor of development activities that would benefit their constituents economically."

It is also apparent that statements that could possibly delay or disrupt energy production were played down, or even ignored. A good example is that despite religious and cultural objections to the destruction of Black Mesa topography in the quest for coal made by a half dozen religious leaders from the Hopi Tribe, the report stated (Summary, p. 4):

> "No evidence has been obtained that areas or sites of religious or sacred significance will be seriously altered."

In short, the report of the Indian Work Group is regrettably marked as a typical BIA document -- biased

toward white values, incomplete, dehumanizing, dishonest, and generally unworthy of representing the concern of any government toward its constituents.

It is suggested that the Recommendations section of the Indian Work Group report be ammended as follows, and that consideration be given these recommendations in the SWES Summary Report.

(1) Retain as stated (monitor health and safety factors concerned with coal mining).

(2) Retain as stated (monitor surface and sub-surface water quality and quantity).

(3) Amend to read:

The Bureau of Indian Affairs should supervise studies to determine the best uses for reclaimed land, especially at strip mine sites. Projected cost per acre for adequate restoration should be determined immediately, and performance bonds of the leasing mine companies increased to a level of at least twice the projected cost per acre for all acres under lease. The criteria for determining "adequate restoration" should be clearly defined, and restoration performance of mining companies supervised by the Department of the Interior until the criteria are met without variance. If the criteria for adequate restoration are not met within ten years following cessation of mining operations, the bonds should be forfeited.

(4) Deleted and replaced by:

The Department of the Interior should call a moratorium on construction of future power plants until the effects of stack emissions from Phase I plants -- especially submicron particulates, SO_2, NO_2, NO_x, and trace elements -- on biota, including human life, have been documented. The monitoring of biological effects of airborne pollutants should be conducted both near and far (up to, say, 200 miles) from each Phase I power plant in all directions. Criteria for allowing continuation in Phases II-IV

should be defined clearly beforehand, made public, and reviewed after analyzing the results from each phase.

(5) Retain as stated (determine economic value of fly ash and other generation by-products).

(6) Add:

The Department of the Interior should supervise research and evaluation of power transmission systems that would reduce the environmental impact of currently-proposed transmission lanes. Reductions should be sought both in the number of transmission corridors allowed and in the width and saliency per corridor.

(7) Add:

The Bureau of Indian Affairs should ensure that the civil rights of individual Indians residing in the mining, generation, and transmission areas, especially those whose lives and holdings are altered by such activities, are made known to them and protected by active BIA involvement. Further, special communication channels should be opened and maintained between BIA offices and Indian citizens in heavy energy production areas to ensure that local grievances and satisfaction over energy production matters become government input to the ongoing evaluation of the impact of power production on Southwest Indians.

(8) Add:

The surreptitious means by which current mining, water, and plant leases were contracted with Indian governments cannot be allowed to be repeated. The Bureau of Indian Affairs should take steps to prevent future contract negotiations between Indian governments and mining, power generation, and transmission line construction firms from taking place without full public notice to local councils or chapters, and without ample time and information made available to allow for discussion at the local level and informed local input to the final tribal decision.

(15)

Testimony of
J.D. Andrade,
President, Utah CLEAR, Inc.
Hearings on Glen Canyon National Recreation Area
House Parks and Recreation Subcommittee
Kanab, Utah May 27, 1972

My name is Joe Andrade. ~~I am a member of the faculties of the College of Engineering and the College of Medicine, Univ. of Utah, Salt Lake City.~~ I am here representing Utah CLEAR, a non-profit Utah corporation whose major objective is to inform the public of energy and energy-related issues.

Our main interest in Glen Canyon Recreation Area is fossil fuel electrical generating plants, particularly the Navajo plant outside of Page, Arizona, the proposed Kaiparowits plant on Nipple Bench 18 miles nowrthwest of Page in Utah's Kane County, and the proposed North Kaiparowits or Escalante plant west of the proposed Escalante Wilderness. We are also very concerned about the adviseability of dams and reservoirs on the Escalante River system.

There is no question but that such plants will adversely affect the visibility and thus the scenic grandeur of the Glen Canyon and Escalante areas. Computer studies indicate that visibility will be significantly decreased during adverse atmospheric conditions--even as far away as the Grand Canyon.

There is ~~also~~ no question but that the Garfield and Kane County coalfields will be developed--the national energy situation guarantees this. The question is how will it be developed-- and how rapidly? It is vitally important that areas with long term economic potential, such as scenic and tourist areas, be bufferred and protected as much as possible from the massive power developments proposed for this region of the nation.

Utah CLEAR recommends that the Subcommittee consider a Glen Canyon Recreation Area bill which will provide for extensive bufferring--as much land as possible--to insure that power plant and other industrial development not encroach anymore than it already has onto the scenic lands of the Southwest. We further recommend that the unique Escalante area be included in such a recreation area and be considered for wilderness designation--thus protecting this area from dams and reservoirs for power plant development. If such development is needed, it can be produced ~~without degradation~~ outside the Escalante region.

Utah's southern counties have some of the highest unemployment levels and lowest per capita incomes of any area of the country. It is therefore imperative that the economy of this area be strengthened and made more viable. Whether this will be done via power plant development or through other, longer term, cleaner, less degrading, and more healthful means is not the subject of this Hearing. However, if this area remains clean and scenic, it will grow and fluorish as a major tourist attraction. Roads and facilities will be necessary. The greatest road area and the plan providing for the greatest public access into these areas is the plan proposing to utilize existing roads -- the so-called environmentalist or ~~Sierra Club~~ Parkway plan. Such a road would bring tourists into southern Utah's communities and thus provide for a significant increase in the strength of the local economies. Southern Utah's economy could not be benefitted by a trans-Escalante highway, which would simply shuttle tourists from the Grand Canyon to the Colorado Rockies--stopping in Utah only for gas and for toilet facilities.

We therefore encourage the Subcommittee to consider a bill similar to Senate 27. Such a bill would do the most for strengthening the economy of Southern Utah and protecting her scenic regions to insure that that economy will remain viable into the indefinite future.

Thank you.

J.D. Andrade
May 27, 1972
Mt. Carmel Junction

2/9/82

Ms Mary Hall - Grants Coord
Sierra Club Foundation
530 Bush St
SF, Ca 94108

Dear Ms Hall --

Utah CLEAR was a non-profit environmental group formed about 12-13 years ago in Salt Lake City

Shortly after its formation, one of the members obtained a donation/grant from the Sierra Club Foundation.

The group wished to defeat the Kaiparowits Plateau coal-powered electrical generating plant in the early 70's

Most of the remaining money was placed in bank certificates the group disbanded 7-8 years ago.

Enclosed is a check of the remaining funds. Utah Clear's accounts are now closed and all assets are included in the enclosed check.

Thank you for your generous support.

/s/ Andrade

J. D. Andrade
6009 Highland Dr.
SLC UT 84121

cc S. Tanner —
Bozeman, Montana
L. Kuehl,
Salt Lake City

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February 9, 1982	**Sierra Club Foundation**	$**1,347.72**

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CASHIER'S CHECK

Louie E. Nash
AUTHORIZED SIGNATURE

TCD# 54-6903 & 56-35182 & DDA# 054-00333-21

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