

U.S. Congress



UNITED STATES

OF AMERICA

# Congressional Record

PROCEEDINGS AND DEBATES OF THE 91<sup>st</sup> CONGRESS  
SECOND SESSION

VOLUME 116—PART 8

APRIL 1, 1970, TO APRIL 10, 1970

(PAGES 9923 TO 11270)

Federal Communications Commission decides between competing applicants for use of the airwaves. The Civil Aeronautics Board allocates air routes among commercial airlines. The Department of Agriculture regulates the rate at which timber may be cut, and charges for each tree felled. Water is one of the few resources which have not, until now, been so protected. We can no longer afford such a luxury.

Mr. President, is it not a bit incongruous that the administration is willing to charge for the use of its waste treatment facilities, but hesitates to impose a charge for the use of our public waterways? Surely our waters are a far more valuable commodity.

The new Interior Department regulations are a step in the right direction, and I applaud the administration for making a start. But it still has a long way to go.

I ask unanimous consent that a Department of the Interior news release on this subject be printed in the RECORD.

There being no objection, the news-release was ordered to be printed in the RECORD, as follows:

**SECRETARY HICKEL PROPOSES NEW POLLUTION CONTROL RULES IMPLEMENTING PRESIDENT NIXON'S ENVIRONMENT MESSAGE**

Secretary of the Interior Walter J. Hickel announced today he is implementing President Nixon's Environmental Message with proposed new water pollution controls—including cost recovery for cleanup of industrial wastes, and comprehensive river basin plans to assure efficient use of Federal funds.

"As the President pointed out, abating some of the pollution in a waterway is a waste of money if new pollution comes in to take its place and old pollution continues," Secretary Hickel said. "We have not done enough to see that the cleanup is coordinated.

"Design and operation of local plants often are inefficient. In some areas, industries are getting a free ride, and the wastes they pour into a municipal system are not treated adequately."

The proposed new rules would apply to new construction grants to help communities build new treatment plants.

In the President's message to Congress for a four-year, \$10 billion program to provide modern municipal waste treatment plants in the nation, he proposed to "institute major reforms . . . by administrative action" to ensure that new Federal-aid money would be wisely invested.

Secretary Hickel is proposing new amendments to Title 18 of the Code of Federal Regulations to carry out this mandate for administrative action. Interested persons are being invited to submit comments within 45 days after the proposed new rules are published in the Federal Register.

The proposed new rules would require that:

Comprehensive river basin-wide programs for pollution abatement must be developed, and new treatment works would have to fit in with such programs, as well as with metropolitan and regional plans, to be eligible for Federal aid.

In evaluating new applications, the Commissioner of Interior's Federal Water Pollution Control Administration may demand detailed data on the entire river basin's sources of pollution, volume of discharge from each source, character of effluent, present treatment, water quality effect and other items.

No new Federal grant would be made to any system designed to treat industrial wastes only. If some industrial wastes are to be treated as part of the system's operations, industry would have to pretreat those

wastes to ensure they would not interfere with efficient operation of the community system.

A system of "cost recovery" would be required if some industrial wastes are to be treated in a new plant built with federal aid. Such cost recovery by the municipality would assess the industries a share of the operating costs, and costs of amortizing the debt, in proportion to their contributions to the total cost of waste treatment.

State water pollution control agencies must inspect new federally-aided facilities for efficiency and economy at least once each year for the first three years of operation, and periodically thereafter, under standards set by FWPCA.

Design of any new federal-aid treatment plant would have to be approved in advance as economical, efficient, and effective under FWPCA requirements.

Design of any new federal-aid treatment plant would have to be approved in advance as economical, efficient, and effective under FWPCA requirements.

"President Nixon's message stressed that both new legislation and new administrative action would be needed to improve the quality of our waters," Secretary Hickel said. "These proposed new rules are aimed at meeting the specific goals he outlined for administrative action.

"The job ahead will be costly. We want to ensure that the Federal funds invested in the cleanup will be spent effectively and fairly," the Secretary said.

Since the construction grant aid program began in 1956, some \$1.5 billion has been awarded to some 9,600 municipalities and sanitary districts to support construction of \$6.6 billion in new and expanded facilities to treat wastes.

**ENVIRONMENT: RHETORIC OR COMMITMENT**

Mr. MONDALE. Mr. President, the present methods of production of electric power contributes to our environmental crisis.

There seem to be detrimental factors in every major method of producing electricity. Nuclear powerplants discharge radioactive materials and cause thermal pollution. Fossil fuel plants foul the air with their smoke. Hydroelectric powerplants alter the natural courses of rivers.

But we must have electricity, and have it in increasingly larger amounts. So we must constantly look for new and better ways to produce it.

One technique being explored is called "magnetohydrodynamics," or MHD. Experiments show that this process may be capable of creating electricity in such a manner that it will not be accompanied by pollution.

Russia and Japan have moved ahead with major investments to develop MHD projects. One Russian pilot plant was estimated to have cost as much as \$100 million.

A presidential panel of academic and industrial specialists recommended to the President last summer that we spend at least \$2 million annually for MHD research. The new budget, however, proposed only \$400,000 for MHD research.

While I am glad that the President was willing to request funds for the project, it is disappointing that a more sizable appropriation was not sought.

We have heard much about the administration's campaign to improve our environment, but we have not seen a

willingness to commit any significant resources to combat pollution.

Conversely, the administration was willing to request \$314 million for fiscal year 1971 toward the development of the SST—or nearly 800 times as much as MHD research will receive. This appears to be yet another example of our misplaced priorities.

Two articles concerning MHD published recently in the National Observer and the New Republic discussed the possibilities of this method and the shortage of funding to develop it.

Mr. President, I ask unanimous consent that the articles be printed in the RECORD.

There being no objection, the articles were ordered to be printed in the RECORD, as follows:

[From The National Observer, Feb. 9, 1970]  
**MAGNETOHYDRODYNAMICS—CONCERN OVER POLLUTION LIFTS HOPE FOR NEW POWER GENERATING PLAN**

EVERETT, MASS.—Billowing smoke from coal-fired generators enrage air-pollution fighters. Nuclear-powered plants discharging heat into water stir the opposition of ecologists. And even hydroelectric-power enthusiasts seem close to being outflanked by conservationists.

Perhaps there isn't any way to produce electricity so as not to make anybody mad. But to the gratification of certain researchers here, President Nixon last week proposed in his budget that the Federal Government renew efforts to perfect a promising method that theoretically would offend only the most ardent environmental purists.

The technique is called "magnetohydrodynamics," or MHD for short. And for more than a decade, Dr. Arthur R. Kantrowitz, director of Avco Corp's Everett Research Laboratory here, has been extolling its virtues.

How MHD works can best be described by comparing it with more conventional energy-generating units. The latter burn fuel and air to make steam that is expanded in a turbine to produce mechanical power. This power is transmitted through a shaft to turn an electric generator. The actual electric power is produced by the motion of a copper wire armature moving through a magnetic field. A nuclear plant operates in a similar fashion with the reactor replacing the furnace-boiler system.

In MHD operation, hot combustion products of fuel are seeded with potassium and become, in effect, the "armature." These hot gases move at high velocity through a magnetic field where electric power is generated directly. Thus, power is produced by a one-step process as opposed to the more conventional three-step method.

Then, the products of combustion, the sulfur dioxide and the oxides of nitrogen, are not transmitted into the atmosphere as many power plants do now. Instead, these pollutants are retained and processed for commercial use by a chemical process that is an inherent part of the MHD power system.

All of this remains theoretical, of course. The truth is, very high combustion temperatures of the MHD process actually produce more polluting oxides, not fewer, than more conventional generating methods. The hope is that the very abundance of these pollutants would make reclaiming chemicals from them profitable.

Sitting somewhat impatiently in his second-floor office in Avco's spanking new research-laboratory building, Dr. Kantrowitz points out mementos highlighting his work with MHD. One is a small, gray model of wood and wire, a souvenir of the first MHD unit at Avco more than a decade old.

Another is a photograph of a model of an MHD complex designed by Russia, where a 75-megawatt pilot plant is supposed to go into operation this year. "I estimate the cost of that is \$50,000,000 to \$100,000,000," he says wistfully.

Japan, too, has started a national MHD project. West Germany also has a government-sponsored MHD project with funding being increased at the rate of 25 per cent a year.

For now at least, these foreign developments seem much larger than U.S. efforts so far. President Nixon proposed that in the fiscal year beginning July 1, MHD research contracts be negotiated for \$400,000 worth of work. The contracts would be let by the Office of Coal Research (OCR), whose function is to find new ways to increase coal consumption. Large-scale MHD generators probably would use coal for fuel.

Earlier a Presidential panel of academic and industry specialists studied the current status of MHD development and recommended last summer that Mr. Nixon ask Congress to authorize spending of \$2,000,000 annually for more research about the technique. The panel's report said such research efforts by the power-generating industry had slackened in recent years perhaps because it was difficult to predict the benefits of large-scale MHD plants.

"Whatever the reasons," the report to the President said, "the panel does not expect MHD work to continue at an appreciable and useful level unless the Government provides the major support. . . ."

Actually about \$16,000,000 has been expended to date on MHD research in this country, about half of it coming from utilities led by the American Electric Power Co., Inc., of New York City and Avco and half from the Department of Defense for Air Force work. With these funds, a number of small MHD units were constructed, some in the Boston area and others at the Arnold Engineering Development Center in Tullahoma, Tenn.

—HARRIS SMITH.

[From the New Republic, Jan. 24, 1970]

#### HOW MUCH, HOW SOON FOR ANTI-POLLUTION?

Anti-pollution is the fashion. What we need to know is how much money the Administration (and the corporations) will invest in it. A little known—and little-funded—Interior Department agency, the Office of Coal Research (OCR), has in its files data on a half dozen or more techniques that promise to eliminate major environmental pollution. But OCR has never got more than \$12 million and until recently no one in Interior or the White House has been disposed to ask for more. OCR's technologies remain undeveloped.

Take magnetohydrodynamics. MHD is a way of converting coal and other fossil fuels to electricity almost directly, without intervening boilers, turbines or generators. It is about 50 percent more efficient than conventional coal-fired generating plants—which, in turn, are about 50 percent more efficient than nuclear plants. MHD would significantly reduce the "thermal pollution" created by most present power generation (with the exception of hydroelectric plants, which make up only a small percentage of the total and which sometimes create their own kind of environmental damage). Thermal pollution is the heating of water in streams, lakes or the ocean, often with severe detriment to the balance of life.

MHD also offers great promise for reducing air pollution. Because it is more efficient, it burns less fuel per kilowatt hour than other power-generating techniques; you get less pollution from producing the same amount of power. The fuel for MHD must be "seeded"; that is, an ionizable substance must be added to it to make hot gases electrically conductive. The seed must be removed from the leftover gases, a necessity

which becomes a virtue because pollutants can be removed at the same time.

A major source of air pollution—second only to automobiles—is the fuel-burning industrial installations, primarily power plants. Almost without exception, they give off sulfur oxide, and a fine, abrasive ash. Although the sulfur oxides or the particles alone *may* not be harmful to health (there's no conclusive evidence), in combination they are highly destructive to lung tissue, according to HEW's National Center for Air Pollution Control. Sulfur oxides, alone, are harmful to plant life. (The acrid sulfur oxides produce the foul taste in your mouth in highly air polluted areas.) HEW under the Air Pollution Control Act, has set "criteria" for the amounts of these two pollutants that can be emitted from industrial plants. But the criteria, applied by state and local governments, are flexible enough to "meet local needs." HEW's enforcement powers are minimal; the amount of money available here is in inverse proportion to the enormity of the problem.

But the criteria *plus* the techniques now in OCR's files could get the job done, if the technologies can be turned into commercial hardware. Then, instead of depending for clean air on corporate willingness to obey the law (and the willingness of state and local government to enforce it) the corporations might find it in their interest to adopt the new technologies voluntarily, because of their greater efficiencies.

MHD is not the only technique OCR has in mind. A process for dissolving raw coal in anthracene solvent, which would carry off all the potentially polluting materials, is another. The leftover would be almost pure carbon—in a form that could be extruded, ground, melted or handled in numerous other ways. Diesel-electric locomotives and perhaps diesel trucks could burn this clean substance. But once again, the potential would be greatest for power production, especially in congested urban areas such as New York City.

There are several ways, some pioneered by OCR and others by Interior's Bureau of Mines, to convert coal into producer or pipeline gas. If coal can be converted to pure methane—or pure hydrogen or pure carbon monoxide—leaving the pollutants behind in the coal residue, then the gas can be burned with little harm to the environment, in almost any kind of fuel-burning installation and with minimal conversion costs.

The Russians plan to have a part-MHD, part-conventional, plant in commercial operation in 1970; the Japanese are also advancing rapidly in this technology. The President's Office of Science and Technology last June recommended a full-scale MHD research program, as did the Interior Department's own Energy Policy Staff a year earlier. Support for MHD in the scientific community is almost unanimous. Yet, not a penny for MHD was left by the Budget Bureau in OCR's fiscal 1970 budget request. Efforts by Montana Senators Lee Metcalf and Mike Mansfield to get money for MHD into the 1970 Interior appropriations bill failed. The 1971 budget OCR submitted to Interior officials included a miserly \$400,000 for MHD, which was then entirely eliminated by a budget officer. The two Montana Senators asked that the money be reinstated. And last month, the Minerals, Materials and Fuels subcommittee of the Senate Interior Committee, chaired by Senator Moss of Utah, held hearings on MHD, at which scientists gave the new technology strong endorsement. So now the Interior Budget, as it goes to the Budget Bureau, will contain "somewhat more than" the \$400,000 earlier asked, though less than the \$2-million suggested by OST.

Meanwhile, with electrical needs doubling every 10 years, the electric utility industry has indicated through the Edison Electric Institute that it will make some contribution to MHD, at least for research into "peaking"

or emergency plants. HEW and the Atomic Energy Commission may also ante up some funds. Meyer Steinberg, a scientist with AEC's Brookhaven National Laboratory, has suggested that giant MHD plants burning coal be built at mine-mouth in thinly populated Western coal states (including Utah and Montana), the power produced to be transmitted to population centers via "superconductors" or other ultramodern "electrical superhighways." It is possible that AEC is motivated by its awareness that nuclear plants are a serious contributor to environmental damage through thermal pollution and difficult-to-dispose-of radioactive wastes. Or the well-funded AEC (\$2 billion since World War II to develop nuclear power) may see MHD as a technique applicable to nuclear fuels. AEC's entry could make MHD go, if the President gets solidly behind environmental quality.

Of course, technology alone won't keep our environment clean. Scientists are coming to regard the formerly innocuous carbon dioxide as a pollutant, at least in urban "micro-environments." In these areas, higher levels of CO<sub>2</sub> will soon begin to cause rotting of the mortar in urban buildings. Burning fossil fuel *always* creates carbon dioxide, and the final solution to the CO<sub>2</sub> problem will have to be reduced burning of fuels. Moving industrial plants into thinly populated areas would help. But what would help more is fewer people and a lower per capita rate of consumption, including fewer automobiles or prohibitively high tolls for their admission into urban areas.

—RICHARD H. GILLULY.

#### NOMINATION OF JUDGE CARSWELL

Mr. DOLE. Mr. President, the opposition to Judge Carswell has been very vocal—if misleading—in attempting to convince the Senate that the experts and the professors are on their side.

The truth is, the people on their side are largely those so-called experts and other who view the Constitution as a document to use to instigate social reform, not those who view it as the keystone of our Republic.

It may surprise many of Judge Carswell's opponents that the White House has received a number of letters and wires supporting the constitutional arguments in the President's letter to the Senator from Ohio (Mr. SAXBE) regarding the appointment of Judge G. Harold Carswell to be an Associate Justice of the Supreme Court.

President Nixon contended that his constitutional duty could be frustrated if the Senate should withhold consent for other than strong or special reasons. The President said that such a case had not been made against Judge Carswell.

Messages of support for the President's position have come from James William Moore, Sterling professor of law, Yale University; Erwin A. Elias, professor of law, Texas Tech University; Michael J. Vaughn, assistant professor of law, Baylor University; Edward C. Banfield, professor of government, Harvard University; Howard Penniman, professor of government, Georgetown University; and James M. Brown and Edward A. Potts, professors of law, George Washington University.

I ask unanimous consent that the messages be printed in the RECORD.

There being no objection, the messages were ordered to be printed in the RECORD, as follows: