

MINUTES OF THE MEETING  
FINANCE AND CLAIMS COMMITTEE  
MONTANA STATE SENATE

April 20, 1981

The forty eighth meeting of the Senate Finance and Claims Committee met on the above date in the State Capitol Building in room 108. The Chairman called the meeting to order at 9:18 a.m. , roll call was taken and all members were present except Senators Story and Stimatz.

CONSIDERATION AND DISPOSITION OF HOUSE BILL 767: Senator Himsel explained to the committee that the sponsor of this bill had asked that it be tabled, but he felt the action should come from the committee.

MOTION by Senator Dover that House Bill 767 be tabled in committee. Voted, unanimous passage of those present except for Senator Boylan who voted no.

CONSIDERATION OF HOUSE BILL 603: Representative Burnett, District 71 said this is a short project down in my district. \$590,333 was appropriated and now reappropriated. The money that we had last time, plus the fact that the Department has negotiated a loan from the Bureau of Reclamation for the water users.

Rick Bondy, Department of Natural Resources said this is money to reappropriate to Cooney Dam in Carbon County. There is \$1 1/2 million from the Federal Water Service, \$260,000 from Federal recreation fund and \$591,000 from the State of Montana. The project was delayed one year due to Federal funding. We expect the design to be opened this summer, the Federal money is lined up.

Ron Holiday, Parks Division, said that 2 years ago they argued for management of the recreational area. It is the 8th most heavily fished area in the state of Montana. We are assured by Representative Burnett and DNR for the possibility of using BOR money. They have discovered that a pro rata share is indeed legal and is waranted. We have discussed on the land and conservation fund may not be forth coming. I thought I should bring that to the committee's attention.

There were no further proponents and no opponents, and the Chairman asked if there were some questions from the committee.

Senator Aklestad: What was the original appropriation amount? Burnett: \$591,330 from the indemnity trust fund. Bondy: \$591,330 is right, but it has to be reappropriated.

Senator Boylan: Is this actually going to get started? Bondy: You bet.

Senator Van Valkenburg: How is the loan going to be repaid? Bondy: By an assessment on the water users.

Senator Van Valkenburg: What do we do to come up with this money if the Federal grant does not come through? Bondy: Try to scale the design down and hold the cost down a little bit. We do have the new water development fund. The Governor has written a letter asking that the money remain for this project too.

Senator Aklestad: With the money from the federal, if it does not come and the other money in question, will the money automatically revert back again? Bondy: I would believe that it would be negotiated between the Department and the Water Users to come up with the money.

Senator Aklestad: What my problem is if there is not federal money then are other monies available? Would it revert back? Bondy: If we don't spend it on this project, it would revert back.

Senator Himsel: Would you review the financing? Bondy: The Financing, \$1 1/2 million, \$1,440,000 comes from a loan Water and Power Resources Service. \$580,000 is state funding and \$260,000 general land and water conservation funding. That is a small part of the funding. That is the old BOR monies. The \$260,000 is the BOR Fish and Game type money.

Senator Himsel: What is the projection from the Water Users Association? Bondy: The water users repay the \$1 1/2 million loan.

In closing, Representative Burnett said that the committee was well aware of the project. If it were not for the 100 year flood plan we would not be here, but we are now at this point.

Senator Himsel declared the hearing closed.

CONSIDERATION OF HOUSE BILL 847: Representative Ryan, District 49, chief sponsor of House Bill 847 said this is a bill that would appropriate money to repair the boat ramp at Hell Creek State Recreation Area. This is 24 miles north of Jordan and there is quite a chunk of country that comes in here. The boat ramp needs some work on it. They need an extension on the boat ramp. One of the best recreation areas on the lake for at least 100 miles.

Ron Holiday, DNR, said Hell Creek is federally owned, but has been part of the State Parks system since early in the 1950's. The boat ramp just can't reach the water. We have full commitments from the people in Jordan and Miles City. The people are going to do all the work, this is the money to buy the concrete.

There were no further proponents, no opponents, and the Chairman asked if the committee had any questions.

Senator Boylan: If it rains a lot and got the water backed up would you need the money? Ryan: We would still need it.

Ron Holliday: We have asked that it be effective on passage. There is a severe drop off here and it is an emergency. They are looking at a long period of low water for Fort Peck.

Senator Aklestad: Why wasn't this in the other appropriations? Why weren't the Fish and Game in before? I understand this is to appropriate funds to Fish and Wild Life. Holliday: We probably should have been more on top of it in the beginning of the session. We did not anticipate this last spring and summer when the executive budgets were prepared.

Representative Ryan: We were not aware of the problem until recently, and I was not aware of it until I was home. After the mid break, and I put in the bill then. Representative Ryan put this bill at my request. We had gone through and appropriated the money. We had estimated this and put the money in a separate bill. After we saw it we had a better understanding of the problem launching boats.

Some snap shots of the launching dock were shown around the committee and showed the drop from the end of the launching ramp to the water making it impossible to put a boat in the water.

Senator Himsel: How could it be engineered so far off? Ryan: The lake was up. It dropped way down and they put an extension on it. Now it has dropped way down again. Sometimes they will drop it 20 ft. in the fall.

Holliday: The fluctuations can be minute and still fluctuate a lot down the lake. One year we put a 24 ft. extension even below the water level. This just shows what a severe water shortage is occurring there.

Senator Smith: When the lake is real high, it is almost impossible to pour the concrete under water. They have had to let more water out to continue to float the barges down the river.

Representative Ryan said he did not need closing time, but would urge the committee to pass this bill.

Senator Himsel declared the hearing closed on House Bill 847.

CONSIDERATION OF HOUSE BILL 478: Representative Spilker, House District 32, chief sponsor of House Bill 478 said this is one of three bills that relate to the same project. The renovation of the Capitol. Senate Joint Resolution 21 was an effort to give the Legislators some input as to how the Capitol building will be renovated. 872 expands the Legislature on the planning committee. It gives the Legislature more say on what happens. This is a once-in-a-life-time thing. The Supreme Court and the Attorney General will be moved out. It will give us an opportunity to do things that we will not have another opportunity to do. These are controversial things. There are some important things not to overlook. The Life Safety Codes here are not

being met. Fire codes are being violated. Those things will be brought into compliance with the codes. This building is not heated properly or efficiently. We need to get a sprinkler system in and a fire alarm system. There are some other things to be worked out. If the Senate Chambers are moved into the law library, and the Senate Chambers goes into committee rooms. If there are no decisions made, then the Department of Administration will make the decisions. They have given us the opportunity to have a say in what happens in the building. We are asking to sell \$5 million in bonds. The cost presently is \$6 million, but the interest on the \$5 million would make up the rest. Certain monies are set aside for the Capitol complex. Suddenly the interest going to that account have increased drastically, from oil and gas, timber sales etc. In 1975 there was each year about \$174,000. This year in 1980 it was around \$943,000.

Representative Bob Marks, House Speaker, District 80 said he was here to try to urge the committee to pass the bill. It is important that we take action to do some of these things in the Capitol. I would hope you would address this question in this bill. The outside of the building and if you will go up to the Judiciary room you can look at the cornice work. We are losing some of the valuable architecture on the building. If the Senate decides that they don't want to move to the law library then give them some direction. I would hope you could support this bill since there has to be some sensible use of the space.

Representative Moore, Chairman of the Long Range Building Committee said there is a schedule for this thing. This month in April and by July of this year a professional consultant will go to help the committee. In September it is proposed to sell the bonds. In September of 1982 the plans are to be completed. In October of '82 the Justice Building and State Law Library and the Attorney General should be moving into their finished building, and the contract will be awarded for organization of the construction schedule. After Legislature the Contractor will begin work on the Legislature part of the building. The 1985 Legislature should be using the new facilities for the first time.

Gene Huntington, OBPP, said this bill provides a very good way of financing and setting out a long term plan. It can earn considerable interest on the bond proceeds after they are sold. The construction is set out over 4 years and could reduce the cost to the state by knowing now how you will be financing the project.

There were no further proponents, no opponents, and Senator Himsel asked if there were questions from the Committee.

Senator Dover: How much money are you planning to renovate the outside of the Capitol and when do you get on it? Phil Hauck, Department of Administration said that is one of the items we feel has to be addressed. It is several hundred thousand dollars. We would like to proceed with that immediately. This is the type of thing we could go ahead with on this.

Senator Himsel: Didn't we appropriate money before to do this? Hauck: Yes. A lot of filling and caulking but it did not stop it.

Senator Dover: Are you going to change some of the windows? Hauck: Yes. We plan on putting in some new windows.

Senator Smith: On your last remark. There was money appropriated and something done. How much was spent and how much did we get for our money? Hauck: \$35,000 was spent. We reprimed and recalked all the joints and sprayed the concrete with silicone. We thought we could retard it. If we cut it 50% we still cut it. We have to replace some of the bad ones.

Senator Aklestad: What are you going to do different this time? Hauck: We will have to continue that process. Replace windows and replace the badly eroded ones with new ones and then cover some of the areas with copper flashing. There are a lot of ledges on this building. The silicone is not doing the job. It is not taking care of the flat surfaces.

Senator Johnson: You said that Mr. Brussett and those that have the authority have asked for our imput. Spilker: For the assignment of space, yes.

Senator Johnson: Unless this bill goes through, then what? Spilker: There would be no renovation.

Senator Dover: Some of the stones have to be replaced? Hauck: There are ways to reconstruct this stone. It is literally a stick-on process. There is some risk in it.

Senator Dover: They have some concrete hardners? Hauck: They plastered some concrete on the building and part of it took on a bad appearance. They say it does make more of a problem by stopping it from breathing. We sand blasted it off before we put the silicone on it.

Senator Van Valkenburg: The total cost is estimated at \$6.7 million. \$5 million would come from this bond account. Spilker: Yes.

Senator Van Valkenburg: Why stop there? Spilker: If we sell \$5 million now it will be invested and that investment will yield the extra amount.

Senator Van Valkenburg: I am still curious as to exactly how the renovation of the Senate Chambers and moving into the Law Library. You have the authority. If we appropriate

the money you make the decisions? Spilker: First, it depends on what happens to SJR 21. If a conference committee is appointed and they come to some firm agreement -- that is the first guidelines. Then Representative Moore's bill expands the Legislative membership on the planning commission to 12, and it is presently at 4. The group in the interim would be working with the architect, the Department of Administration, etc. in watching the work. Details of the work will be part of the master planning commission.

Senator Van Valkenburg: Representative Spilker, what if 872 passed and HJR 21 died in conference committee? Spilker: There would be some difficulty. It is the intent here to get them to progressing immediately and come to some agreement we could not reach in SJR 21.

In closing, Representative Spilker said, I think this beautiful Capitol building is something all the people of Montana do identify with. We owe it to them to keep this building in an up-to-date condition and safe for the people working in it. I would hope you would concur in the bonding authority bill.

Senator Himsel declared the hearing on House Bill 478 closed.

CONSIDERATION OF HOUSE BILL 872: Representative Moore said this bill is based on HJR 21 and the previous bill, H. B. 478. There is by statute a 4 member planning committee. We had several discussions on LRB and decided to put in a bill that would increase from each house a number of members from 2 to 6. 6 Senators and 6 Representatives to serve on the Legislative part of the committee. The only other part, page 3, line 12-- this committee would serve as the state's representative. In this capacity they may decide the space following any remodeling.

Representative Bob Marks, Speaker of the House, said the purpose of the bill is to expand the committee. It gives better representation from both Houses. There is one appropriation to provide for funding, the accomodation of the committee to function. If this committee would decide they could possibly call for a hearing for those Legislators who are interested in what they were discussing.

There were no further proponents, no opponents, and the Chairman asked if there were any questions from the committee.

There were no questions from the committee and Representative Moore closed by saying there is an appropriation for \$15,000 for the operation of the committee over the biennium. It was taken out of the Capitol Land Grant Account.

Senator Himsel declared the hearing on House Bill 872 closed.

CONSIDERATION OF HOUSE BILL 841: Representative Brown, District 83 said this is a bill to upgrade the neutron activation and gamma radiation detection and analysis equipment by the Montana College of Mineral Science and Technology. His testimony is attached.

Representative Moore spoke as a proponent of the bill and said that on LRB committee we were very enthused as to how this prospered. \$180,000 in equipment already has been donated by General Foods Corporation. This is one of the finest school of Mines in the country. This also includes a leaded box. The Committee decided to give them some seed money and let them go to private industry for the rest.

Dr. DeMoney spoke as a proponent of House Bill 841. He said the structure received a high priority in Tech and on the Regents list of priorities. 2. The lab itself fits very well into the academic programs of Mt Tech, because directly or indirectly 2500 students will benefit from this type of equipment and the know-how of what goes with it.

Alex Vadbury, Chemical Professor said I am a professor it is difficult to be brief. 1. The work on coal we are doing is important to the state and for the nation. We will do much coal research. Oxygen is one major component of coal. There was no possibility to tell this component until recently. Coal can be characterized much better when dealing in oxygen. We can detail all the many properties of not only the coal but the other minerals depend on oxygen. The radio activity we generate is a plus. It is completely safe and no danger of any exposure. The radiation we generate is dead within 2 minutes of the time we generate it. Students need to understand in order to protect and understand how to deal with the safety and health aspects. It is an economic machine and we are lucky to get it. There are very few places in the United States that have it. We are in possession of a very up-to-date piece of equipment.

Nick Thiemen, Western Energy Corporation supports all the practicality and immediate effectiveness. Coal is most difficult to refine. Doctor Vadbury characterizes it as it goes into a boiler. He characterizes it to bring out the best efficiency and the least pollution. We strongly support this bill.

Hal Bram, Construction Trades Council said, we were at the LRB and asked to testify today for Sid Groff, Montana Tech, Jim Ferguson, Missoula, and Dr. Rice of Billings and William (?) all heartily endorse this program.

There were no further proponents, no opponents, and the Chairman asked if there were questions from the committee.

Senator Johnson: \$215,000 that has been donated. \$180,000 from the general fund. Who donated besides General Foods? Dr. V. The other \$45,000 will be put in by Montana Tech. Montana Tech contributed by bringing in the machinery and also by providing some operating money and some monies to run the machinery.

Senator Johnson: What Montana Tech has given is the difference? Dr. V. The \$15,000 that was in the contract of the leaded vault has been included but has since been removed.

Senator Johnson: Western Energy said they are supportive. Do you have a cover plan to put any money into it? Answer: We clearly support it and we probably will. We do have an interest in it.

Senator Johnson: I still don't think you answered my question. If this bill went down would you donate some money toward the project? I cannot speak for the company, but I think they might.

Representative Brown: This was too big a bite. If we can get this we should have a chance to pick up the rest.

Senator Himsel: The equipment is in place. The additional money is to upgrade? Brown: Two pieces were broken in transport, we need to get it installed, etc. Dr. V. We have received exact estimates from the place they sell this equipment and different transfer systems. Specifically it is necessary according to the key man since there must be overhaul and replacement of the transfer system. It will cost \$20,000 for the timer it needs. It needs the timer device to time the fast transfer. That timer would be \$11,500. One of the 8711 heads, this has to be rebuilt at \$7,200. The necessary equipment for Gamma Rays, \$37,000. I have prepared a separate list to an oil company since this is money we may not get from the bill. Some equipment was broken and it will be \$6,720. We need this because of the tunnel sets.

Mr. V. listed other things such as the trips for the special engineers, special tanks, etc. which brought up the total cost of putting the machine into the proper working ability to do the work they wanted it to do. He said it a total of \$96,830 for the wages and trips for the engineer.

Senator Himsel: You have the basic material but you need other adaptations to be functional for the educational process? Dr. V. We will change from specifically nitrogen to the ability to determine oxygen, silicone and other minerals.

Senator Aklestad: I am wondering--the funding that was given to the university. Do the Board of Regents have anything to say and we would like to know what the federal and private revenue account is.

Representative Moore: The federal and private revenue account is just that they will have to raise it from private sources. We told them so it has been under that account. We told them to raise the other \$36,000 from private sources.

Senator Aklestad: It is not raised yet? Moore: The equipment is already there. There is some \$215,000 that came up in the testimony before.

Senator Aklestad: Does the Board of Regents have any input in this? They approved Tech getting this type of equipment. It was originally supposed to be raised from private sources. That appeared not possible and rather than have the equipment there and not operable we decided to come in and see if the legislature would provide additional funds. Moore: The \$15,000 for the underground box was number 9 on the regents project and was in the LRB.

Dr. DeMoney: On the contribution. The college has made some major contribution in regard to a building to house the neutron activator. Dr. V. thought it was in operating condition. When examined in detail some things weren't there. The evaluation dropped then. This is a realistic estimate to put it into operation for this work and the student work. It is a little different use than the original one.

Senator Etchart: I was wondering, why did General Foods change their machine? Dr. V: This is the latest field accelerator. General Foods put in for nitrogen alone. They decided that the Kel Dohl method with a fewer functions would cost them less and started looking for donating the machine and found it too expensive to run for just nitrogen.

Senator Aklestad: I am having a little trouble following this. The original bill was for \$97,000 to purchase this equipment and now the upgrading is going to cost \$11,000. Brown: That is what happens when a freshman legislature doesn't talk to the people. It should have been upgrade originally. They already had the purchase.

Senator Aklestad: Why more to upgrade? Brown: That is \$80,000 for donation.

Senator Aklestad: At first you thought you could purchase it. Brown: They never did. I had the bill drafted wrong. Dr. V.: Part of this included purchase of certain parts that are irreplaceable. Some are not available and have to be built.

In closing, Representative Brown said one reason he had sponsored the bill, I thought Montana Tech was important before I ever moved there. Now all of a sudden, coal is the important thing to do, and there are enough people around to help out. Obviously, this will help many people coming into the coal industry. This kind of equipment will help.

Senator Himsel declared the hearing on House bill 841 closed.

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CONSIDERATION OF HOUSE BILL 563: Representative Bardanouye, chief sponsor of House Bill 563 said he had made a motion on the House floor that this bill do not pass and many of the members almost had a heart attack. Without this bill most of the LRB bonding part will fail. This is the bonding bill which provides the money for the LRB projects. There is about \$31 million worth of bonds it authorizes. It will cost over \$6 million to finance the proposal and the interest on the bonds. If we want to enter into a program beyond the cash program, this is essential. If all the projects survive, it will cost what went through the House. The section on page 2, beginning on line 2 is for the workman's comp payments to the state Government. We will build a \$4 million Workman's Comp building and it will be funded through funds generated from within the Department on earnings off the Workman's Comp program. There will be annual payments made to retire the bonds. This section is necessary so that the state will be able to receive the money and we will retire the bonds. Section 3 will do the same for the Employment Security Division. This federal money is earmarked as so much money for Capitol building on rent. The federal government will reimburse over the life of these buildings. The new section, number 4 makes sure the bonding companies are involved in the payment from the Employment Security and the Workman's Comp to Montana. It merely clarifies it.

Representative Moore spoke as a proponent of the bill. He said the reason we encourage this so much was to provide for LRB. Those on the Long Range Building committee thought this was a way we might as well go ahead with and get things done. Construction costs are rising and it could put some people to work and help the economy too.

Representative Bardanouye added on line 17, page 1 there were some amendments made, and the figures have changed. On the floor it was calculated the interest before the money was used up. The amount of money will depend on how the bonds are sold and at what rate, but there is a profit to be made on the bonds. I decided it was not necessary to leave that much money which will earn around \$3 million. It depends on how quickly the building will be built and the rate we receive. I took the animal lab out of the bill. The amendment put that in the cash program and will be in a cash program instead of a bonding program. We save us nearly \$1½ million the first year.

Gene Huntington, OBPP, said this appears to be the best way to finance if the Legislature so approves. This would be the most advantageous way to finance the projects.

There were no further proponents, no opponents, and Senator Himsel asked if there were questions from the committee.

Senator Dover: What is it that gives security for the bonds? Bardanouye: Actually, the secret was in the cash. Security of the full faith and credit of Montana. The general fund pays these bonds off. In essence it comes out of our general fund. Remember the pipe line system where the money goes around in these and if not used, it will flow back into the general fund. The 11% of the income tax and a percentage of the

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corporation license tax goes into the pool to retire the bonds. If we would not issue the bonds a higher amount would flow back to the general fund.

Senator Dover: We see more of this in H. B. 666. How long have we tied ourselves into this? Will there be funds to consider these? Bardanouve: Last time they worked at this they didn't do it--that was about 4 years ago.

Senator Dover: There is only so much money to pay these back. Bardanouve: That will be the reserve in the "pipe lines". Wherever we have money coming into the general fund. The reserve will be there. Earmarked revenue is subject to drop off. We will get better interest here. The cigarette tax drops and we have to make our bonds more secure. General fund is the highest form of finance and the most secure way to finance them.

Senator Himsel: Isn't it fair to say, using the \$9 million in cash, \$31 million in bonding we are making a commitment of all the funds now?

Senator Dover: What next time? Bardanouve: The cigarette revenue is coming in. You can use more against the bond pipe line system capacity. I would urge you not to get hooked on this bonding capacity. We are relatively low on bonding process now.

Senator Haffey: Given how we pay the principal and interest on the bonds now suppose we wanted to use that pipe line fully, how big a bond program could we use? Bardanouve: It would be substantial. Subject to 11% of the income tax and 11% corporate license.

Senator Haffey: Like twice what it is? Bardanouve: I don't know, it could be quite large. Huntington: If you pledged all in the sinking fund it would probably be about 10 times the size it is recommended in this bill. Somewhere over \$300 million.

Senator Himsel: It would also depend on the market for selling. Huntington: Your interest rates would go up too.

Representative Moore: We felt to be on the safe side about 4 times now. The 11% goes into the pipes, 11% on cigarettes and that amounts to 4.35¢ per package of cigarettes sold.

Representative Bardanouve: I looked at the figures issued by NCSG. It shows Montana as 28th per population in the nation on bonding indebtedness. There are 27 states that have more bonding indebtedness than we do. Over all we are smaller in population. We are up in the 40th somewhere.

Senator Keating: \$6 million a year to service this in the next biennium. About \$3 million a year to service this debt.

Senator Johnson: If all the projects in 666 do not survive the dollar amount in 563 will go down automatically. It will be reduced dollar for dollar in the bonding area. In the cash area.

Senator Aklestad: It started out at \$12 million. Bardanouye: No, at \$31 million. It increased and then decreased by putting the animal lab in the cash program.

Senator Keating: The \$3 million to service the debt. Interest or principal or both? Bardanouye: Both. Keating: So what do they sell for? Bardanouye: Now it might be 8%, 9% or even 10%.

Senator Smith: Is there two new buildings in this? Himsel: No. Bardanouye: No. Himsel: This uses up the cash and also adds the total bonding.

Senator Van Valkenburg: What would the term be? Bardanouye: Usually \$19 million two years ago and they were 20 year bonds. Representative Moore: They propose 20 year bonds this time. If purchased around September it would be the optimum time.

Senator Regan: What is the total bonding indebtedness in LRB? Huntington: Currently, outstanding, LRB bonds are \$1.8 million. I don't have the total of the bonds outstanding with me now. The important amount is \$1.8 million. Some of the bonds will retire through the University and the current indebtedness is \$1.8 million a year.

Representative Bardaonouye: We have a very high rate on the bonding market.

Senator Dover: There is \$31 million a year that can be used for payments on the bonding? Bardanouye: Most of the cigarette tax goes into the cash bonds. There are several projects in there that will be financed by the cash bond. The rest of the projects will be from this. Maintenance and repairs and some building is out of the cash part.

Representative Moore: About \$25 million going through this each year. The 4.5 on cigarettes goes into this. The rest goes into the cash bond.

Senator Himsel: The 11% is only a back up. If the annual receipt falls below they would have to draw on the 11%. The experience is that it flows back.

Senator Smith: Why so much emphasis on a big selling spree all of a sudden? Bardanouye: It seems to be the "in" thing to do. Inflationary cost has increased from 10 to 20% in the next biennium. There has been needs we have not been

meeting and it seems this is the time everybody wants to meet them.

Senator Smith: We were looking at 500 and all the added general fund monies it has added. When you build the building they will fill it up with employees and that is a bigger drain on the state.

Representative Bardanouve: An example is the Fine Arts Building in Missoula. Maintenance and repairs are to run about \$487,000 for maintenance, heat, lights, etc. The T.V. facility will be something like \$267,000 a biennium for this type of services. The first cost of the building may be actually the smallest cost. They will probably hire more people to put in them.

Senator Dover: We have never had to obligate general funds. For maintenance do we have to budget so much security over the biennium? Himsel: The 11% money is in the law and if they meet the obligation it flows right back into the fund.

Representative Bardanouve: It doesn't revert, actually. It just flows back in. It is regarded by many people as a very sound responsible way of building the buildings. If you make a pork barrel out of this, you will get into trouble.

Senator Himsel: Up to 10 years ago we limited it to a cash basis. Then apparently it developed we are neglecting needs and there seems to be a whole difference in attitude in using this power. The bonding program started 2 years ago on a limited scale and this time used most of it.

Senator Haffey: What do you mean, we have used it? Himsel: The amount here. \$10 million in cash and they added \$20 or \$30 million that we could go up on the bonding program.

Representative Bardanouve: There is one danger. If there should be a disaster in an area like happened in Butte and they couldn't make the payments it would have to be paid.

Senator Himsel: The decision you have to make is to stay on the cash basis or go on the bonding one. Bardanouve: If you go on the bonding, then how much bonding?

Senator Regan: Bonding is like a blank check, and it is not good.

Senator Keating: If we go on a cash basis we will have to mortgage the building to build these buildings. If on a cash basis we can't raise enough money. Do we have enough money to pay for it?

Representative Bardanouve: If we don't pass H. B. 250. You make the decision if you give the tax relief in cash or in bonds.

Senator Keating: Do we finance a mortgage? I am not sure how you are paying for it.

Representative Moore: The Long Range Building Bond Proceeds are an insured account. Right now we have \$9,267,248. This is the cigarette money and the bond interest in the cash account. You are operating from a straight bonding cash account plus the Capitol Land Grant account in House Bill 666, we have broken it down.

Representative Bardanouye: In essence, if you want to go on cash you are actually to take general fund dollars one way or another. It is the money that flows back into the general fund.

Senator Himsel: On a cash basis, a \$10 million building program. If you stay on cash these programs could be limited to \$10 million in the building program. If you go to bonding you increase it about \$30 million.

Senator Regan: \$40 million all together.

Senator Keating: If we stay on a cash basis you build smaller and it would take longer to get it.

Representative Moore: We started our Long Range Building meetings earlier this year. We looked at all the requests that have been in for up to 12 years. We did not build them. They are not the cost of construction. They have been increasing about 16% a year. We need a lot of these buildings. We have to stop and regroup and start building. Down the road, we may not be able to do it.

Representative Bardanouye closed by saying if you want a building program to build more buildings then you will have to pass this bill for some amount.

DISPOSITION OF HOUSE BILL 603: Motion by Senator Keating that we concur in House Bill 603.

Senator Regan: Is the money there from the Resource Indemnity Trust Fund or is it over spent?

Senator Himsel: From BOR \$1 ½ million, \$597,000 from the state, and \$260,000 from Fish and Game and in the event something does not appear available, they will have to cut down in size on the development of the dam.

QUESTION was called, the motion was voted, passed unanimous with those present. Senators Story and Stimatz absent, Senator Himsel will carry the bill.

Senator Himsel: This does not generate any new tax but makes a slush fund to put it where the need is the greatest.

Senator Smith: I think we could create a real serious problem here. Some districts allocated a certain number of dollars and they can take money from there and put it somewhere else.

Senator Shontz: There are a number of projects around the state that are ready to go, districts have borrowed from each other and they are already at their maximum.

Senator Boylan: Could you give us an example? Shontz: A project about 20 miles of highway. They are ready for construction and have been for 6 years. The district has borrowed to the maximum and never able to accrue enough to finish the projects.

Senator Boylan: 5 miles here and 5 miles there? Shontz: In another district in the state they have the same problem. It will take 5 to 6 years to create enough money to do 5 miles.

Senator Nelson: How will it help if there is no money to transfer, where is the money to visit--to make the slush fund? Shontz: The money that would be for this fund would be an increase in gas tax. It will create some over and above the match for the Federal and these funds would come from this.

Senator Johnson: What happens to this bill then? Himsel: Instead of the money allocated from districts there would be \$4 million a year to be appropriated wherever they saw fit. The Department does a deficiency rating on every mile. The money allocated to a district would be depleted by that amount unless the tax went in.

Senator Smith: What about the areas where they have the funds built up about to where they are ready to start a project. Would it jeopardize that? Shontz: I don't know.

Representative Shontz closed by saying \$8 million would allow one or two projects in a biennium where the need is the greatest. The Highway system in Montana is falling apart, slowly and surely. The Highway Department could see if this is a better experiment and meeting the needs of the motorists in Montana better than the way we are doing it now.

Senator Himsel declared the hearing on House Bill 868 closed.

CONSIDERATION OF HOUSE BILL 867: Representative Nordvedt, district 77, chief sponsor of House Bill 867 said that during the Legislative session there has been some efforts to get negotiations started concerning a state investment and a right-of-way from Miles City. Any kind of serious negotiations could not be terminated during the session. This would give the Governor's office a chance to continue the negotiations. It was felt the right-of-way should be kept for the use of some sort of commercial corridor and if it came to pass, they

did not use it, they could dispose of the land in an orderly manner.

There were no further proponents, no opponents, and the chairman asked if the committee had questions.

Senator Aklestad: Is it not true the right-of-way would be in sections? Nordvedt: From Miles City to Butte it would be intact. West of Butte sections have been sold off.

Senator Aklestad: Lawyer after lawyer we were billed for and appropriated money to. Isn't there somebody in all that that can look into this? Nordvedt: This would be in the Department of Transportation Division.

Senator Smith: I don't know whether this is a question or a comment. If we are successful in getting passed through the Senate and House the Ernst bill, there will be some money within the Department of Commerce. Don't you think they will have the expertise there to handle this along with the staff the Governor already has? Nordvedt: I suspect one could probably find the funds.

Senator Himsel: I got the impression that if the state could buy it and have the right to sell it. Some pieces are held in all sorts of things, reversions, grants, etc. Nordvedt: If you buy it not as an operating railroad you would not have all the exemptions. The next step would be to look at what the state's legal cost would be to settle it.

Senator Himsel: Is it your feeling the state should run the railroad? Nordvedt: No, just get the land.

Senator Aklestad: If we obtain the right-of-way won't we have fencing, insurance, etc.? Nordvedt: Liability, yes. A casual estimate to match it, the number is about \$½ million possible cost of managing it. Some could be less if adjacent land occurs.

Senator Regan: I would believe you are not serious in asking for this appropriation. Is it necessary or not? Nordvedt: It is very hard for me to make a strong statement if with the negotiations the money would not be available for it.

Senator Regan: I have not had the opportunity. Is the money needed or not? Is there enough money in the Transportation Division and is the expertise available?

Bob Robinson, LFA: There is no one there with expertise. Another bill went through that expands the transportation. It creates and expands the staff by \$100,000 a year. They could possibly use that money if it is a high enough priority.

Senator Haffey: It doesn't include any position for this type of work. The right-of-way is finite. There is nothing there to do this. What is your real opinion? Nordvedt: Very "iffy".

For one who hasn't seen the budget and knowing how tied up it is. If you share out some of the problems and then see if it is worth continuing the negotiations with the Milwaukee. Then you could know how best to set up the support for the negotiations.

Senator Smith: When introduced there was no knowledge of the transportation plan or anything. Nordvedt: That's right.

Senator Himsl declared the hearing closed, said he would recess for now and the committee would meet later at the call of the chair.

Recessed at 11:57 a.m. Reconvened at 4:08 p.m.

CONSIDERATION OF HOUSE BILL 869: Representative Meyers, chief sponsor of House Bill 869 said this bill deals with appropriating funds from the coal severance trust fund created by the constitution. The question you will probably ask is what will it do for Montana? This will give us the technology to make 50% more energy from a ton of coal, and will also burn the coal cleaner. The coal severance tax is threatened in Montana. We will demonstrate to congress that we are going to do this and it will result in cheaper energy for Montana and the nation. It will provide jobs in Montana and broaden the enconomic base in Montana. The coal severence tax was approved in 1975. In 1976 the constitutional trust said they are to be locked up forever. I feel it is time to tap into the fund. It is a one time thing. If it will help with our technology to get it on the line faster it is time to do it now. I would ask you to carefully look at the benefits. Polution is considerably below the EPA standards. The money stays in Montana to help Montana.

Senator Pat Goodover, Senate sponsor of the bill spoke as a proponent for House Bill 869. He said, I stopped in and looked at the MHD plant. He passed out some exhibits. He said the money that is asked for in this bill would not be used unless the federal government continues funding the program under its present level. At the present time it appears it might be dropped. All indications are that the congressional delegation is working to get the funding. I think you have all read that they are planning on turning on the facility in Butte. I would like to bring to our attention portions of the headline in the Tribune, titled "Discovery" and talked about an Easter egg hunt. Senator Dover read the article to the committee. He said, the article says science is a discovery, and MHD is also a discovery in technology to give us a lot more power--clean power.

Mr. Burmington spoke in favor of House Bill 869 and passed out exhibits. He showed the charts and explained them. He said there are no moving parts, we use a topping and bottoming cycle. This would be co-located with the plant out of Great Falls. This bit used of the coal severance tax would be a good use.

Nearly \$1 million was raised on the other side to lobby. We appropriated \$500,000 to lobby. I would like to read very briefly a letter dated April 3. Is the MHD funding really in jeopardy. This is a letter from J. Edwards, Secretary of Energy. He said he would pass out a letter dated April 10. Both letters were read to the committee. The recognition given to the successful development to date and the high pay off potential. He said any attempt to save MHD nationally would come back in a year or two and will come back to Montana. When you look at \$1 million in a 2 year time period, I feel it is important. If it does not get funded there is an additional 240 people working or closely associated with the MHD process. There are about 800 employed with ETF in the big period. This is germane to all of Montana. It is in trouble nationally now.

Larry Fasbender, Representative of the Liason between the Governor and the Legislature said he would urge concurrence.

George Shotte said he was speaking as a citizen, and not on anyone's payroll. The reason I am involved is that I was in an organization in 1975 and Dr. Plunkett came to us and asked if we could give the land on which to build the facilities. When he came to us in 1975 he told us that it was not a proven technology. Now, 5 years later we find out if it will work. They have made reasonable progress. We are told a few years later it had a 70-30% chance. Now they are getting ready to try it. It is a proven technology and it will be successful. The Anaconda company came along with a process they thought was very very good and they wou d up with the arbitrator plan. It was proven in several stages but it could still go bad and it is no reason to believe it will not succeed.

Dennis Burr, Montana Taxpayers Association said they support the bill. First you have to decide if it is a vital effort. Once you get past the first hurdle then you have to decide the coal severance tax trust fund is a reasonable place to get the funding from. This seems to be a proper investment for coal tax money. It is probably a better investment than the method we are using now.

There were no further proponents, and the Chairman asked if there were any opponents.

Representative Bertelsen said this is the strangest thing I have ever seen. There is nothing to say how many dollars. No control of how the money is spent. No guarantee that the money will result in any success. We heard the statement that if the \$2.8 million is given this year it is a one-shot proposition. Under the present bill we are putting a siphon into the trust fund that could drain it. We are talking about \$6 million more. In 10 years it could be \$10 million but nothing when passed against the total impact of the MHD process. I think it is a sacred trust fund, and we as Legislators should be very careful of taking any money from the trust fund. If we want to feel some pain, fine, but let's not take it from the trust fund. I would hope you would vote to stop the invasion

of the trust fund.

There were no further opponents, and the Chairman asked if there were questions from the committee.

Senator Johnson: You said September 19/5. Are there any other states? Burmingtonham: It is the only federal project that is on schedule. We are under budget and to my knowledge we are the only federal project that is.

Senator Jacobson: How many countries besides the United States are working on this project: Burmingtonham: We have had visitors from Japan, Russia, etc.

Senator Dover: Do you have any idea where the money is coming from? Bertelsen: If we really believe this is the type of thing we want to get involved in, let's take it from the reserve.

Senator Keating: Is there any cooperation between private industry and the Federal government on this? Burmingtonham: Montana Power has a proposal and conceptual design. It is matched at \$5.5 million for this facility.

Senator Keating: Any private industry up to now? Burmingtonham: I could not give you the actual dollar amount.

Senator Keating: This is a design for the more effective burning of coal. It is a test process. Where do they get the coal to test it? Burmingtonham: One advantage of having the CDIF, we are using western coal but can use high or low sulphur. Right now in the first test, we are using oil. \$2.3 million is going for a magnet super conductor. It is very definitely not going to wages. We will be moving coal to the facility and build a building to keep the coal. \$550,000 to convert from oil to coal.

Senator Keating: I have real difficulty with this because a large number of people from the House and Senate co-signed the bill. I notice those that are in favor of the promotion of the MHD project to test coal, many of these people have opposed the various bills to make it easier to develop our coal in the United States. They have an objection to selling coal to this sort of entity, opposition to streamlining it, opposition to the Colstrip plants. Everybody who wants to get money for this is against coal development in the state.

Senator Story: Two years ago we had the Russian scientist here. I have heard that at the same time he was here giving us the message he was glomming onto the big magnet. Is that true? Burmingtonham: The one that was to go to Russia is still sitting on the boat. Story: About which year will we be ready? Have they built a full-scale plant yet? We spend another \$1/2 million to study a site to put in to demonstrate to the chance that we run it. Burmingtonham: The funds will be up in July of this year. DNR matched, matched by the Department of Energy.

Mr. Berry, DNR: It was re-appropriated. They have not touched it yet. We had a solicitation to the Federal government to match it. The money has not been spent. It was to be used for a match for Federal to find a place and start on some ground work. The Federal request for proposal was sent back last month. If Congress does allocate this money we will assume they will make the request for the proposal. If it is not funded, the money will revert.

Senator Story: When? Where was I? Senator Jacobson: I carried a resolution. Senator Story: Where did you do it?

Berry: In DNRC in HB 500. Story: When we went over it somebody said it is there? Senator Van Valkenburg: What is the total amount you request from Congress for the coming fiscal year? Berry: Initially the Senator Galt request was for \$60 million. Now they are probably looking at \$45 million. We would hope we would get about \$10 million. The State of Montana would offer something into the 30%.

Mr. Berry: 2.5%. How did you come to that? We have to have a building built for it. It is all material and supplies. No wages. The \$550,000 goes into the change from oil to coal.

Senator Van Valkenburg: What is the total amount in the constitutional trust fund now? Larry Fasbender: I think it is about \$30 some million. Berry: By 1983 it should be about \$100 million going into the trust. In 1981 \$94 million went into the trust fund.

Senator Johnson: On the bill on page 4. What if the money doesn't come in? Meyer: Then it will not be spent. It is all contingent on federal money.

Senator Himsel: In the first place this process has been proven and is known to operate and Russia is doing it now with oil. They have the technology and my concern is that it is a testing facility and the whole purpose is to test the component parts of the process and I didn't get the impression they had to have a new magnet.

Mr. Burmington: The permanent magnet. The super conductive magnet coming in is more powerful and will cost \$2.3 million. If any new components and development they will be a certain percent when it comes in.

Senator Himsel: It is in the process testing. I don't know what business Montana has to get into the testing process. Why not private industry contributing to testing the facilities?

Burmington: When it gets through the next stage. The commercialization on a larger scale than that becomes the next process.

Senator Himsel: What business does Montana have in testing that?

Burmington: The problem as far as research and development is that they don't have it in the rate base. "Can electricity build and go up three times". If they had to fund this type of thing your electricity bill would probably go up 20 times.

Senator Himsl: You are asking us to do a very serious thing. This is to invade the corpus of the sacred trust. We will give it some serious question.

Senator Story: On your picture here, it has one big burner barrel and some nozzles. How many gallon per minute of oil does it take? Do you have it gallons per hour? Birmingham: I don't. I am not an engineer, and I don't know.

Senator Boylan: If energy is really short, why did the Federal government get disinterested in it? If they can't afford it, how can we?

Senator Johnson: I want to know who makes up Mountain States Incorporated. Ans. It is the subsidiary of MERDI. Montana Energy Resource Development Incorporated. We are just the prime contractor for just the MHD process.

Senator Johnson: Are other corporations like Western Energy etc., in it?

Senator Himsl: We are told this is a non-profit organization and that they own MERDI, which hopes to become a profit making organization.

Representative Meyer in closing said I believe House Bill 869 seeks a one-time appropriation. It looks like we are greasing it through here. We have 80 in the House. Anytime you do this you are not greasing legislation through. I think there is a number of facts brought out. This is basically what the coal trust was locked up for in the first place. This is something you have to gamble on a little bit. \$2,850,000 is a small amount to put out to do this. This is one way.

The Chairman declared the hearing closed, and the meeting adjourned until tomorrow. Adjournment time 5:08 p.m.

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Senator Himsl, Chairman

## ROLL CALL

FINANCE AND CLAIMS COMMITTEE

DATE Apr 20, 1981

COMMITTEE ON

## VISITORS' REGISTER

(Please leave prepared statement with Secretary)

Amendment to House Bill 872

Third Reading Copy

1. Page 3, line 18.

Following: "remodeling."

Insert: "Allocation of space shall include adequate space in the Capitol Building for the staff of the Legislative Finance Committee, Legislative Audit Committee and the Legislative Council."

AMENDMENTS

TO H.B. 872

Line 12: omit the word "state's" and  
insert the word "legislature's"

Line 16: following the word "capitol" insert "other than the second  
floor"

1. HOUSE BILL NO. 841
2. INTRODUCED BY Dave Brown
- 3.
4. A BILL FOR AN ACT ENTITLED: "AN ACT TO APPROPRIATE MONEY
5. FOR THE PURCHASE OF NEUTRON ACTIVATION AND GAMMA RADIATION
6. DETECTION AND ANALYSIS EQUIPMENT BY THE MONTANA COLLEGE OF
7. MINERAL SCIENCE AND TECHNOLOGY."
- 8.
9. BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MONTANA:
10. Section 1. Appropriation. There is appropriated
11. \$96,830 from the general fund to the Montana College of
12. Mineral Science and Technology for the biennium ending
13. June 30, 1963, for the purchase of neutron activation
14. and gamma radiation detection and analysis equipment.

-End-

I N T R O D U C E D B I L L

HB 841

## Montana Tech Fast-Neutron Activation System Proposal

Neutron Activation Analysis is a non-destructive method of obtaining elemental composition information for samples of solid material. The basic scheme involves spraying neutrons (one of the normal constituents of atomic nuclei) at the sample. Most of these neutrons are absorbed by the nuclei in the sample, and these nuclei subsequently emit gamma radiation. This gamma radiation leaves the sample and can be detected by external apparatus.

Nuclei of different elements respond differently during this procedure. The following characteristics are especially relevant to neutron activation determination of sample composition:

1. The average time delay between neutron absorption and gamma emission is different for each element.
2. The energy of the gamma radiation emitted is different for each element.

These two characteristics allow elemental constituents of the sample to be determined by examining the emitted radiation, albeit with some complexities in the analysis not necessary to discuss here.

Dr. Alexis Volborth is proposing the installation of a "Fast-Neutron Activation" analysis system at Montana Tech. (The "Fast" part of this refers to the speed of the ingoing neutrons. The primary effect of this is to select the set of elements for which the method is most sensitive.) The facility at Tech would be used to develop means of rapid analysis of coal samples, and would support the development of a coal research center at the school. Dr. Volborth's primary interest seems to be measuring oxygen concentrations; however, very modest enhancement of his proposed configuration would provide much broader analysis capability. Commitments for a total of \$215,000 in equipment and facilities have been obtained so far; the major contribution was from General Foods, Inc. of Chicago for \$180,000 in equipment now on-site. An additional \$96,830 is required for gamma radiation detection/ analysis equipment.

The budget for the \$96,830 in equipment appears to represent a reasonable and frugal sum for the equipment as requested by Dr. Volborth. This equipment is required to establish a first-rate facility.

The neutron-activation technique is already in use within the coal industry. Facilities to allow use of this method of analysis at Montana Tech should permit the school to

establish a respectable state-of-the-art capability in coal analysis research. Such capability would be of significant assistance to the coal industry in terms of increasing the useability of coal.

Publications of the Electric Power Research Institute indicate that a continuous coal analysis system, using neutron activation, is to begin operating in a test at the TVA's Kingston Steam Plant in early 1981. The system is intended to provide on-line analysis of boiler feed, including BTU/lb, % sulfur, % moisture, % ash, and principal elements. The benefits are expected to include better emissions control, avoidance of slagging/fouling in the boiler, and more advantageous process control in coal preparation and conversion. Successful conclusion of the project could increase the acceptability of using coal in large boilers to both industry and the general public.

This research is likely to be of even greater importance for new or novel uses of coal, such as MHD power plants. Coal analysis requirements for MHD systems are likely to be much more stringent than for conventional generating plants. This would mean that the success of coal fueled MHD plants might depend to an important degree on coal analysis technique development. The technical staff at MERDI are in agreement with this view.

The principal investigator has been involved in this area of research since 1962, when he originated and successfully used this technique at the Oak Ridge National Laboratories, and has since published some 40 papers on this subject. He has had major support from the National Science Foundation, Department of Energy and the National Aeronautics and Space Administration. Dr. Alexis Volborth is presently at Montana Tech as a Full Professor of Chemistry and Geochemistry.

The full text of Dr. Volborth's proposal, including the technical resume and budget breakdown, is available upon request. For further information, contact Representative Dave Brown, District 83.

MONTANA COLLEGE OF MINERAL SCIENCE AND TECHNOLOGY

BUTTE, MONTANA 59701

406/496-4101

Office of the President

December 18, 1980

Gentlemen:

This letter concerns the proposal of Dr. A. Volborth for the installation and operation of a fast-neutron activation system at Montana College of Mineral Science and Technology.

Montana Tech's Administration enthusiastically endorses Dr. Volborth's proposal from scientific, educational, and financial viewpoints. The College intends to support financially the project by providing land and a basic building for the laboratory. In addition, other resources will be made available for operating costs and maintenance of the facility once it is operational.

We look forward with high expectations to the establishment on Tech's campus of the Fast Neutron Activation Facility.

Very truly yours,

  
Fred W. DeMoney  
President

FWD/pl

cc: Harold A. Braham



# *The Big Sky Country*

## MONTANA STATE HOUSE OF REPRESENTATIVES

*Senate testimony*

Representative Dave Brown  
District 83  
3040 Ottawa  
Butte, Montana 59701  
406-792-3604

Committees:  
Natural Resources,  
Judiciary

March 27, 1981

~~MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE~~

~~FOR THE RECORD MY NAME IS DAVE BROWN, REPRESENTATIVE FROM~~

~~DISTRICT 83, BUTTE, MONTANA~~

*originally was*

HB 341 ~~IS~~ AN ACT TO APPROPRIATE \$96,830 TO AID THE MONTANA COLLEGE OF MINERAL SCIENCE AND TECHNOLOGY IN ~~ACQUISITION~~ <sup>upgrading</sup> OF NEUTRON ACTIVATION AND GAMMA RADIATION DETECTION AND ANALYSIS EQUIPMENT.

LET ME EXPLAIN:

NEUTRON ACTIVATION ANALYSIS IS A NON-DESTRUCTIVE METHOD OF OBTAINING ELEMENTAL COMPOSITION INFORMATION FOR SAMPLES OF SOLID MATERIAL. THE BASIC SCHEME INVOLVES SPRAYING NEUTRONS (ONE OF THE NORMAL CONSTITUENTS OF ATOMIC NUCLEI) AT THE SAMPLE. MOST OF THESE NEUTRONS ARE ABSORBED BY THE NUCLEI IN THE SAMPLE, AND THESE NUCLEI SUBSEQUENTLY EMIT GAMMA RADIATION. THIS GAMMA RADIATION LEAVES THE SAMPLE AND CAN BE DETECTED BY EXTERNAL APPARATUS.

NUCLEI OF DIFFERENT ELEMENTS RESPOND DIFFERENTLY DURING THIS PROCEDURE. THE FOLLOWING CHARACTERISTICS ARE ESPECIALLY RELEVANT TO NEUTRON ACTIVATION DETERMINATION OF SAMPLE COMPOSITION:

1. THE AVERAGE TIME DELAY BETWEEN NEUTRON ABSORPTION AND GAMMA EMISSION IS DIFFERENT FOR EACH ELEMENT.
2. THE ENERGY OF THE GAMMA RADIATION EMITTED IS DIFFERENT FOR EACH ELEMENT.

PAGE 2  
MARCH 27, 1981

THESE TWO CHARACTERISTICS ALLOW ELEMENTAL CONSTITUENTS OF THE SAMPLE TO BE DETERMINED BY EXAMINING THE EMITTED RADIATION, ~~ALbeit~~ <sup>That's a little</sup> ~~with some complexities in the analysis~~ <sup>just</sup> ~~not necessary to discuss here.~~

DR. ALEXIS VOLBORTH IS PROPOSING THE INSTALLATION OF A "FAST-NEUTRON ACTIVATION" ANALYSIS SYSTEM AT MONTANA TECH. (THE "FAST" PART OF THIS REFERS TO THE SPEED OF THE INGOING NEUTRONS. THE PRIMARY EFFECT OF THIS IS TO SELECT THE SET OF ELEMENTS FOR WHICH THE METHOD IS MOST SENSITIVE.) THE FACILITY AT TECH WOULD BE USED TO DEVELOP MEANS OF RAPID ANALYSIS OF COAL SAMPLES, AND WOULD SUPPORT THE DEVELOPMENT OF A COAL RESEARCH CENTER AT THE SCHOOL. ~~Dr. Volborth's primary interest seems to be measuring oxygen concentration; however, very modest enhancement of his proposed configuration would provide much broader analysis capability.~~ COMMITMENTS FOR A TOTAL OF \$215,000 IN EQUIPMENT AND FACILITIES HAVE BEEN OBTAINED SO FAR; THE MAJOR CONTRIBUTION WAS FROM GENERAL FOODS, INC. OF CHICAGO FOR \$180,000 IN EQUIPMENT, NOW ON-SITE. AN ADDITIONAL \$96,830 IS REQUIRED ~~for installation and upgrading~~ <sup>from private sources</sup> FOR GAMMA RADIATION DETECTION/ANALYSIS EQUIPMENT. ~~for gamma radiation detection/analysis equipment.~~ <sup>ed</sup> ~~talk from self~~ ~~origin~~ ~~upgrading~~ ~~as requested by Dr. Volborth~~ ~~THIS EQUIPMENT IS REQUIRED TO ESTABLISH A FIRST-RATE~~ ~~Facility.~~

THE NEUTRON-ACTIVATION TECHNIQUE IS ALREADY IN USE WITHIN THE COAL INDUSTRY. ~~Illinois & Kentucky~~ FACILITIES TO ALLOW USE OF THIS METHOD OF ANALYSIS AT MONTANA TECH SHOULD PERMIT THE SCHOOL TO ESTABLISH A RESPECTABLE STATE-OF-THE-ART CAPABILITY IN COAL ANALYSIS RESEARCH. SUCH CAPABILITY WOULD BE OF SIGNIFICANT ASSISTANCE TO THE COAL INDUSTRY IN TERMS OF

PAGE 3  
MARCH 27, 1981

INCREASING THE USEABILITY OF COAL.

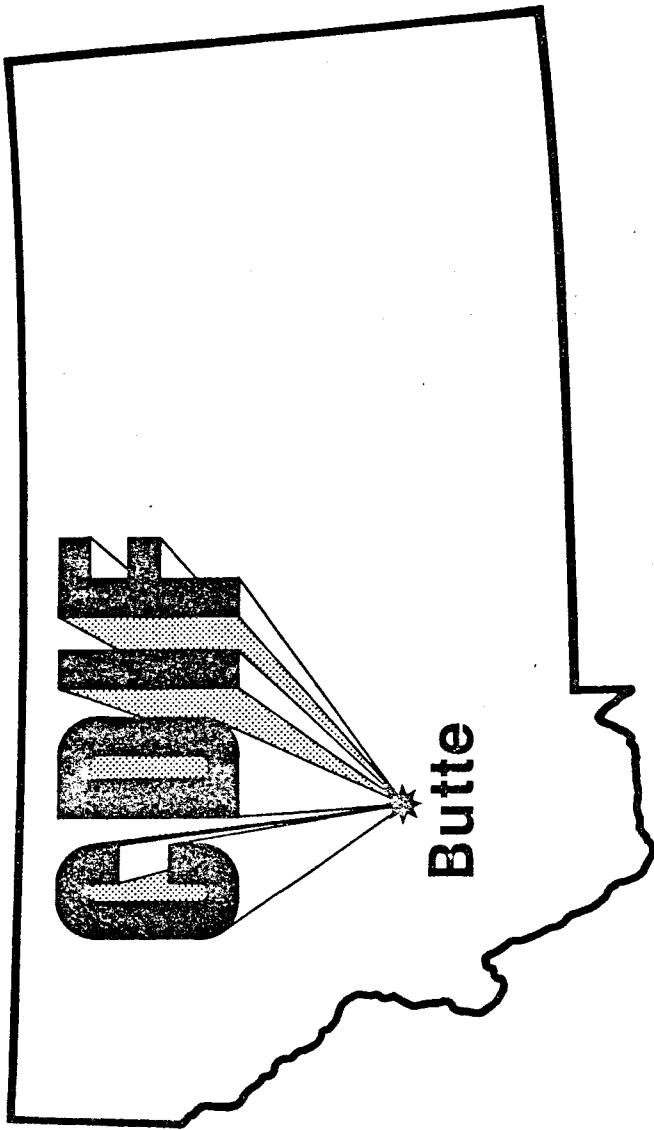
~~THIS RESEARCH IS LIKELY TO BE OF EVEN GREATER IMPORTANCE FOR NEW OR NOVEL USES OF COAL, SUCH AS MHD POWER PLANTS. COAL ANALYSIS REQUIREMENTS FOR MHD SYSTEMS ARE LIKELY TO BE MUCH MORE STRINGENT THAN FOR CONVENTIONAL GENERATING PLANTS. THIS WOULD MEAN THAT THE SUCCESS OF COAL-FUELED MHD PLANTS MIGHT DEPEND TO AN IMPORTANT DEGREE ON COAL ANALYSIS TECHNIQUE DEVELOPMENT.~~

DR. VOLBORTH HAS BEEN INVOLVED IN THIS AREA OF RESEARCH SINCE 1962, WHEN HE ORIGINATED AND SUCCESSFULLY USED THIS TECHNIQUE AT THE OAK RIDGE NATIONAL LABORATORIES, AND HAS SINCE PUBLISHED SOME 40 PAPERS ON THIS SUBJECT. ~~HE HAS HAD MAJOR SUPPORT FROM THE NATIONAL SCIENCE FOUNDATION, DEPARTMENT OF ENERGY AND THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION.~~ DR. ALEXIS VOLBORTH IS PRESENTLY AT MONTANA TECH AS A FULL PROFESSOR OF CHEMISTRY AND GEOCHEMISTRY.

*What will provide*  
~~MR. CHAIRMAN, I RECOGNIZE THAT THE APPROPRIATIONS COMMITTEE HAS BEEN GOOD TO THE UNIVERSITY SYSTEM IN ACTION THUS FAR AND IT WAS WITH RELUCTANCE THAT I INTRODUCED THIS BILL.~~ THE COAL INDUSTRY, VARIOUS ELEMENTS OF LABOR AND FRIENDS OF MONTANA TECH CONVINCED ME OF THE UNIQUE OPPORTUNITY PROVIDED FOR MONTANA TECH AND MONTANA BY ESTABLISHMENT OF THE FAST-NEUTRON ACTIVATION SYSTEM. I'M ALSO AWARE OF THE TIME AND EFFORT THAT HAS BEEN SPENT IN ATTEMPTING TO ACQUIRE THE ADDITIONAL PRIVATE FUNDS NEEDED TO COMPLETE THE INSTALLATION OF THE SYSTEM---ALL ATTEMPTS HAVING FAILED. I THEREFORE AM HERE ~~BEFORE~~ ~~COMMITTEE~~ AS A LAST RECOURSE AND HOPE YOU'LL AT LEAST GIVE THIS PROPOSAL YOUR MOST SERIOUS CONSIDERATION.

~~THERE ARE SEVERAL WITNESSES AND THEY WILL ALL KEEP THE INFORMATION~~  
~~SECRET.~~

**Mountain States Energy Inc.**



**For the Department of Energy**

# PRESENTATION OVERVIEW

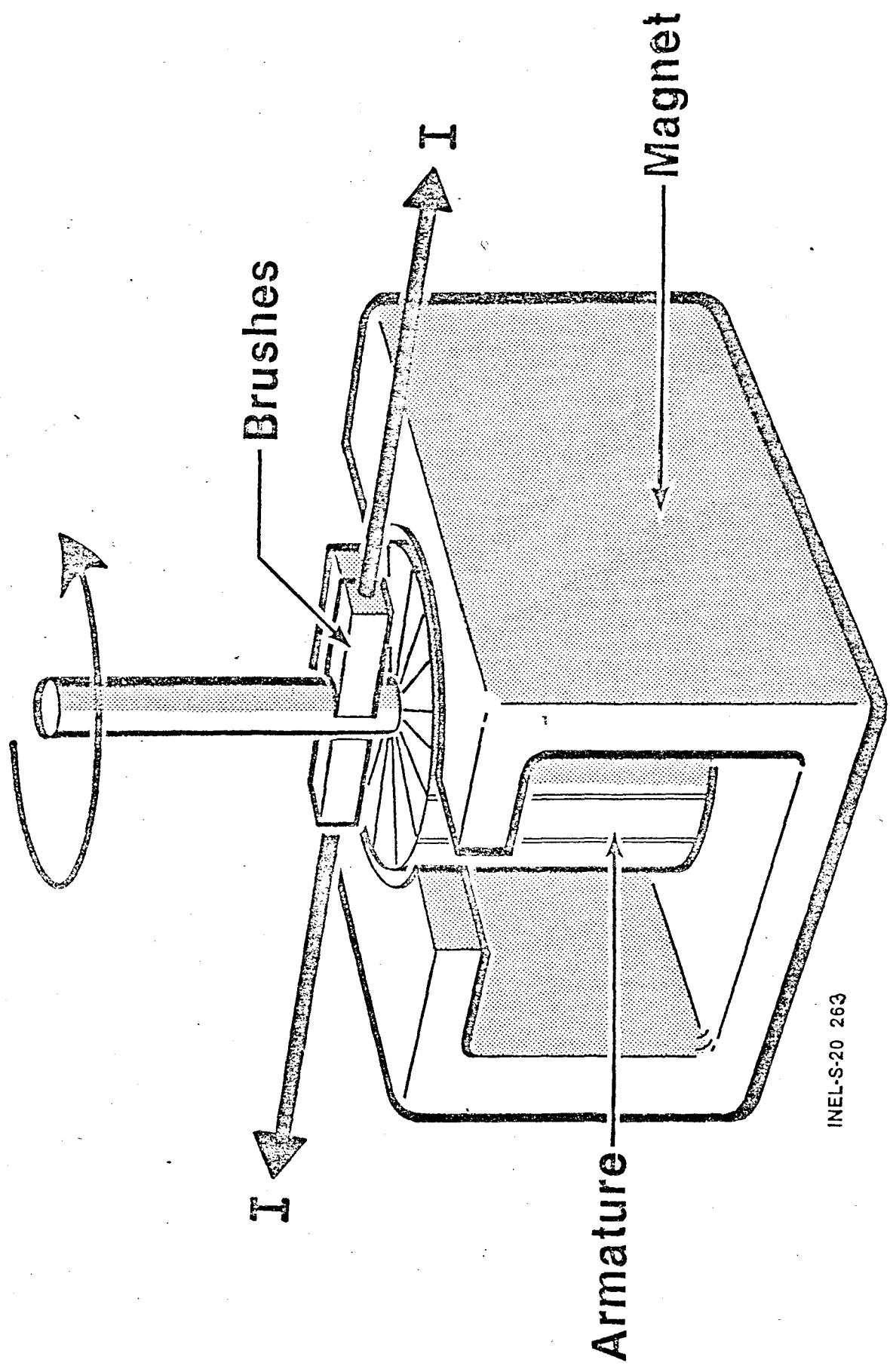
- MHD
- CDIF GOAL & ORGANIZATION
- ACCOMPLISHMENTS
- FUNDING & SCHEDULE

# MHD

## Magnetohydrodynamics

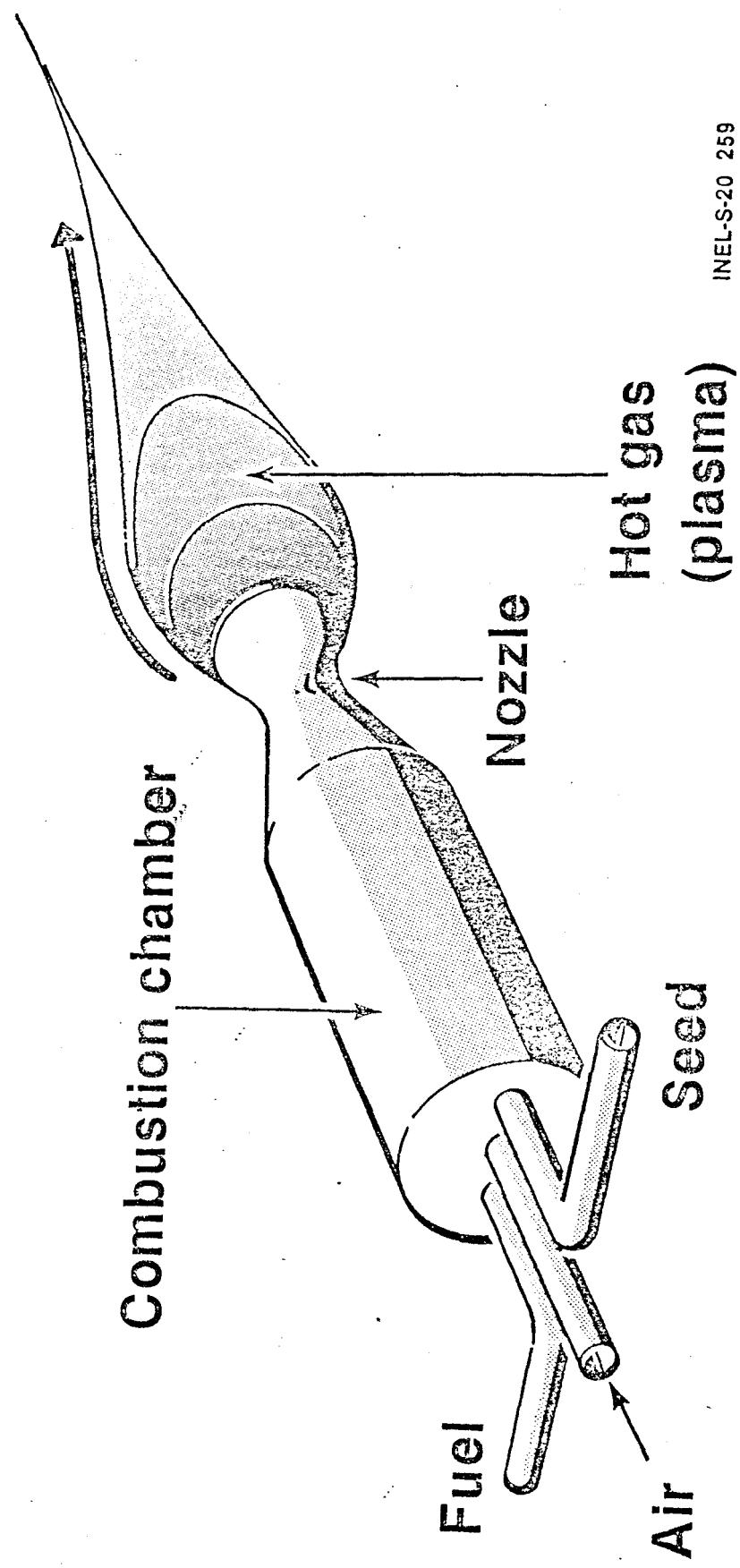
The generation of electric power by passing  
a fluid conductor through a magnetic field.

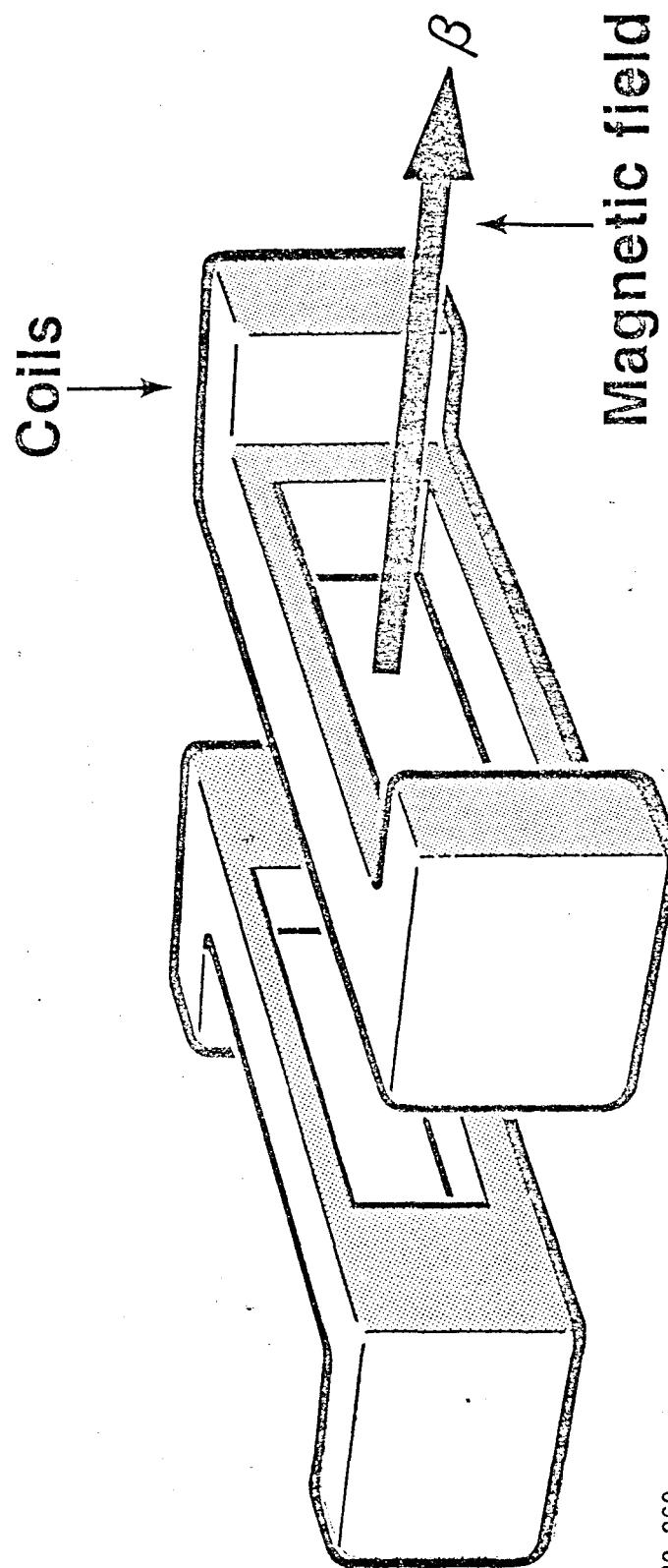




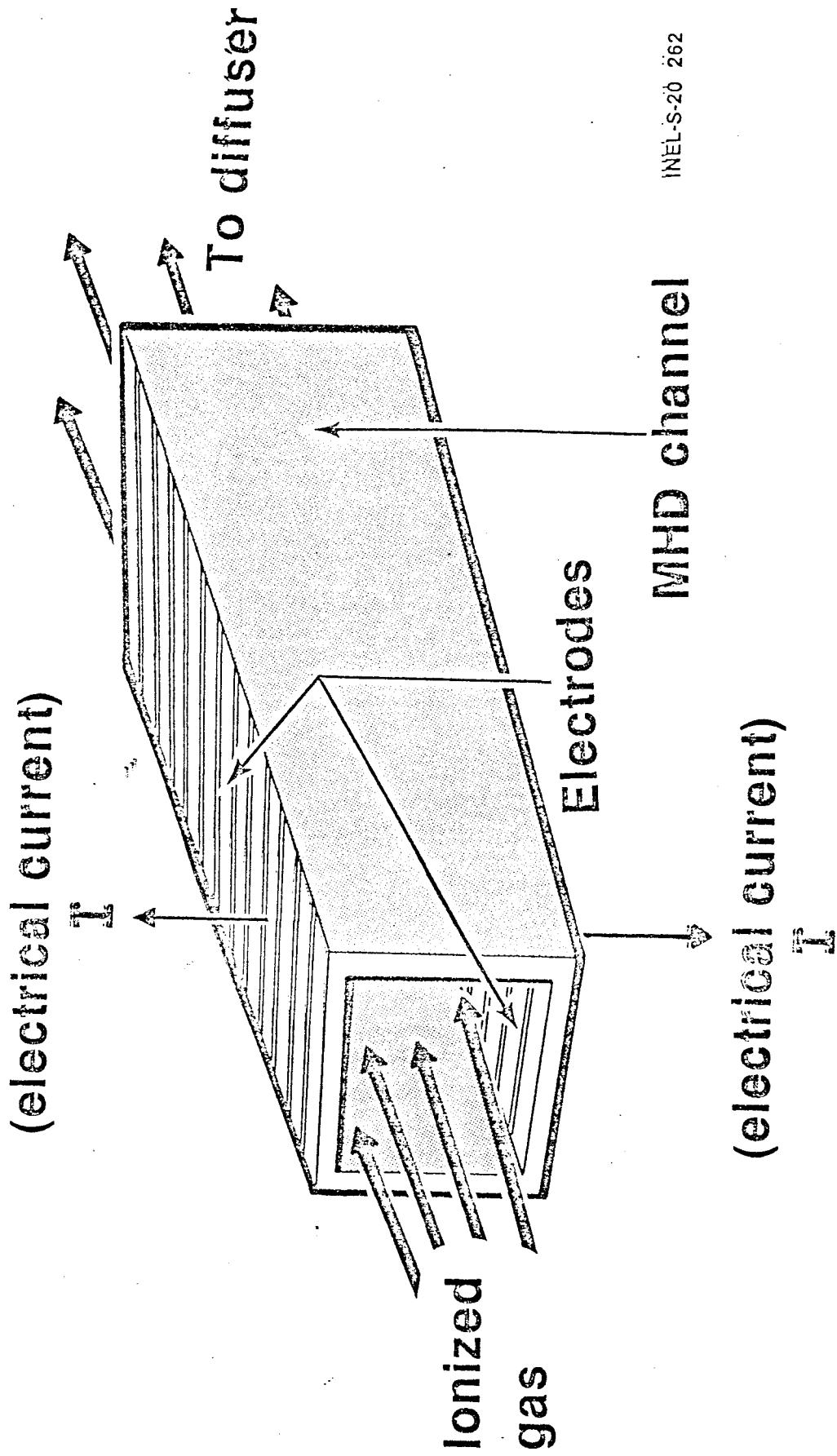
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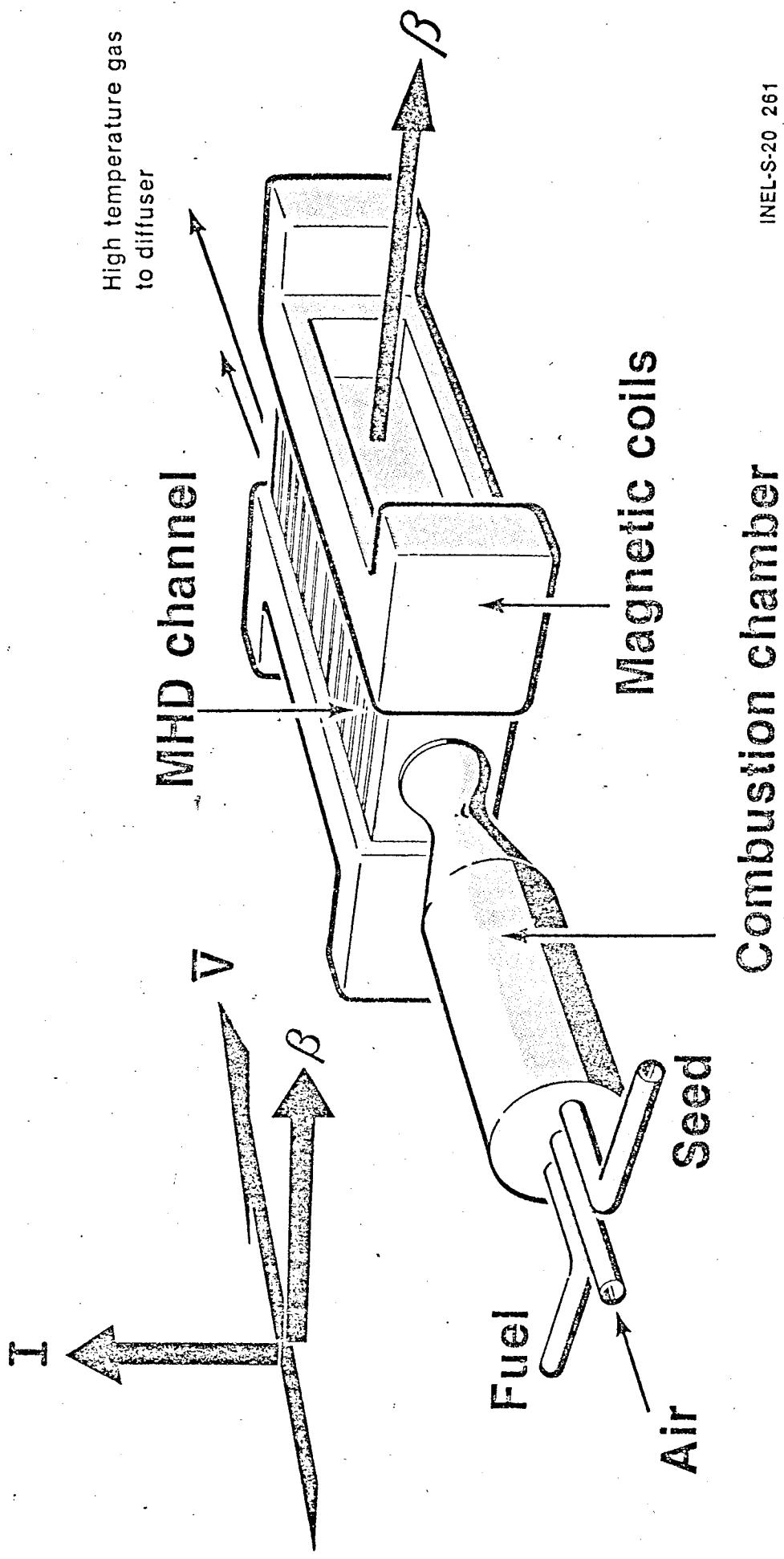
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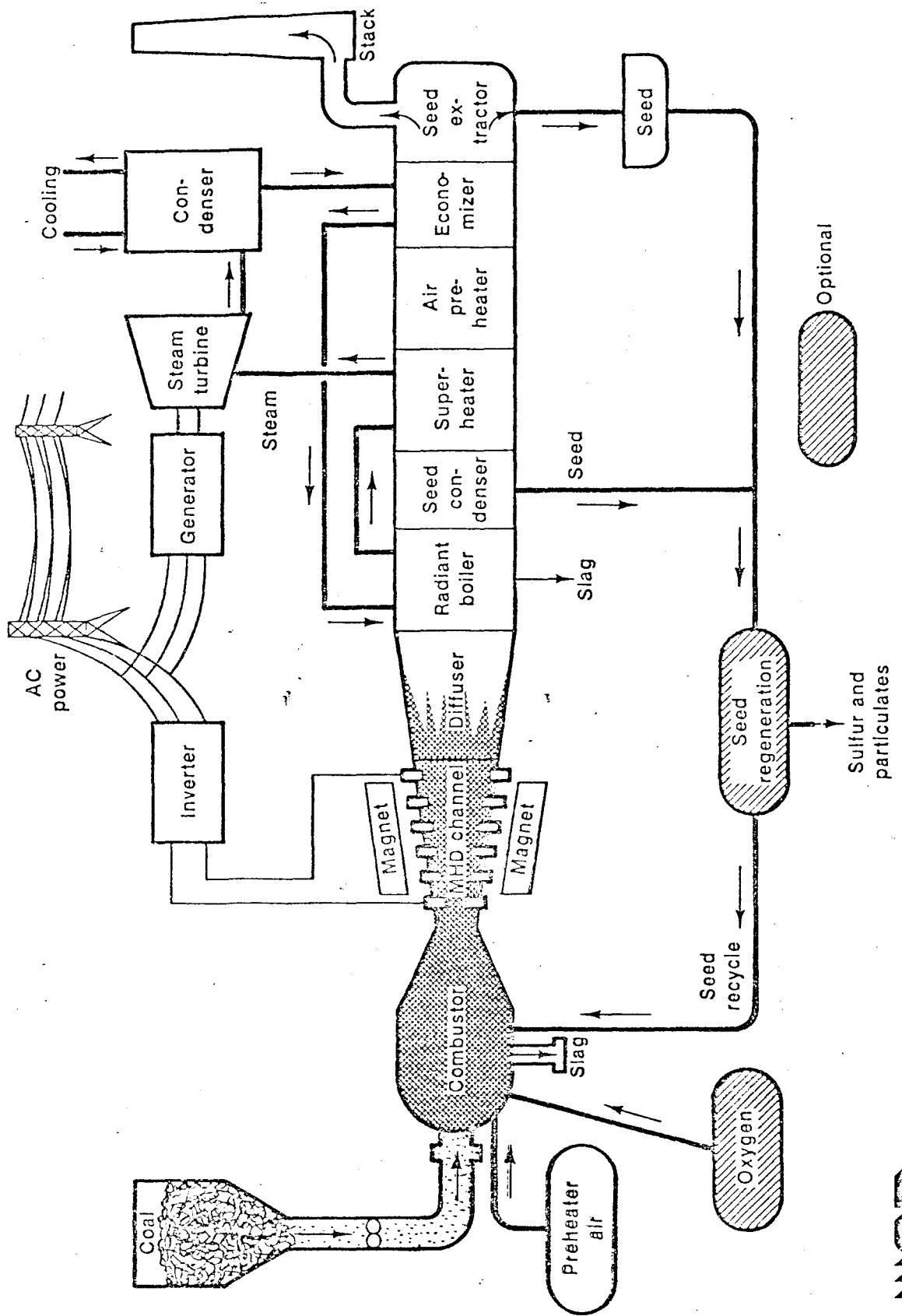




# MHD channel







## CDIF's Goal

The earliest and continued cost effective production of quality data, within the resources and direction provided, to support a national commitment to MHD engineering development and commercialization as the most economically and environmentally acceptable use of our coal resources for electrical energy production.

**INSTITUTE**

October 16, 1980

# CDIF Purpose

## A. As stated by DOE:

- "Verify and improve component and subsystem designs, . . ."
- "Provide the necessary design data for the next generation of test facilities (scale-up data)."



# CDIF Purpose

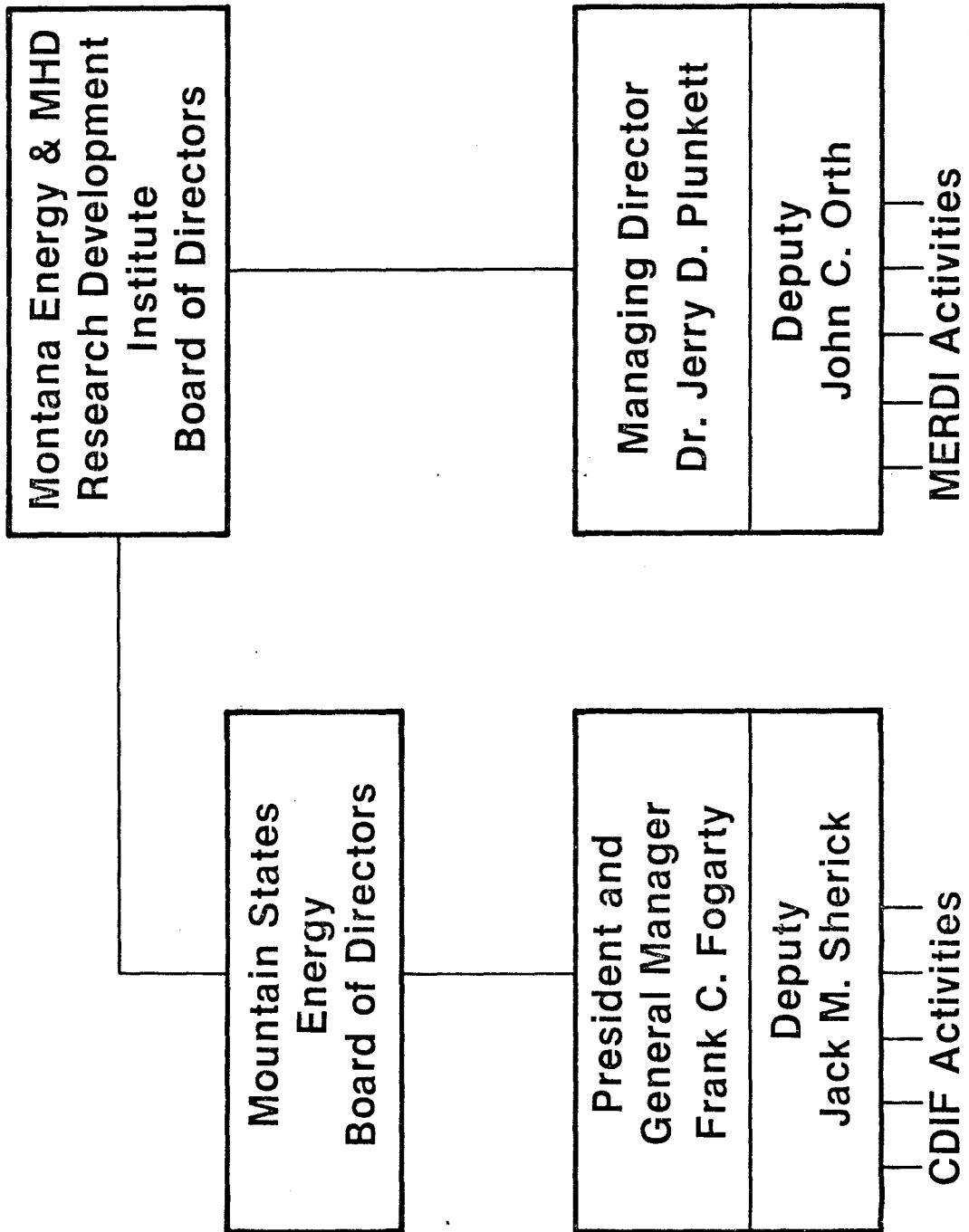
- B. As required by MHD technology:
  - 1. Scientific aspects of performance and scale-up
    - Basic parameters for coal
    - Verification of theory and math models
    - Impact of nonuniformities, anomalous conditions
  - Identification of detrimental effects

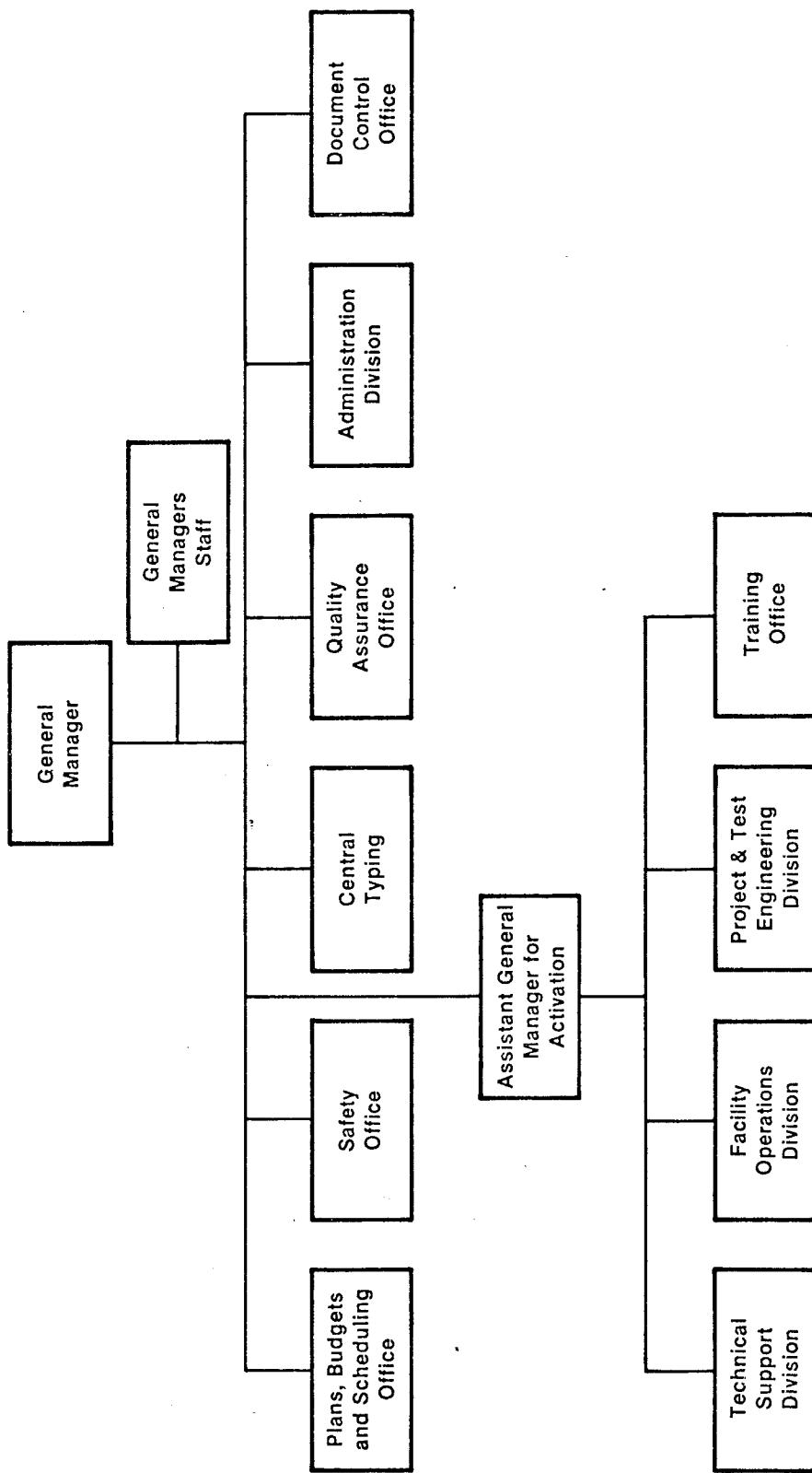


# CDIF Purpose

- 2. Engineering aspects of design
  - Definition of gasdynamic characteristics
  - Data base for larger systems
  - Economics performance tradeoffs
  - Acceleration of commercialization







October 16, 1980





# MSE Staffing

	Funded	On board
General Manager & Staff	6	6
Administration Division	42	38
Technical Support Division	39	39
Facility Operations Division	49	48
Project & Test Engineering Div.	9	8
Plans, Budgets & Scheduling Office	10	7
Safety Office	7	6
Quality Assurance Office	6	5
Document Control Office	6	6
Training Office	2	2
Central Typing	14.5	13.5
As of 2-2-81		
	TOTAL	190.5
		179



# CDIF Accomplishments

## Since May 1979

- Established and initiated project, operations, and configuration management systems
- Assimilated facility operations from FAC
- Assumed facility schedule responsibility
- Reorganized and staffed project
- Initiated plant activation
- Submitted 100 MW power enhancement feasibility and conceptual design

# CDIF Accomplishments

## Since May 1979 (cont'd)

- Negotiated industrial type union contract
- Formulated, obtained DOE approval, and implemented a completely new personnel job family classification system for all employees
- Obtained authorization for new office and maintenance buildings
- Moved personnel and equipment from trailers and uptown offices into new buildings

# CDIF Accomplishments

## Since May 1979 (cont'd)

- Completed transition to new organization & extended CPFF contract
- Obtained necessary additional FY-81 funding
- Relocated O<sub>2</sub> system
- Supported the establishment of the MIS
- Fired combustor utilizing majority of facility support systems
- Phased movement of warehouse capabilities from uptown location to on site

# CDIF Funding Overview \* \*

## (in millions)

	Submitted	Presidential	Funded
FY 80	13.4	10	10.963
FY 81	13.8	11	12.26
FY 82	19.34	*	

\* To be furnished by DOE HQs 1/81

\* \* Doesn't include operating construction funds



October 16, 1980

# CDI Schröder

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Initiate  $\rightarrow$  1-A- $\rightarrow$  Initiate  $\rightarrow$  Initiate  $\rightarrow$  Complete

plant component integrated first power

## activation testing generation test



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INFORMATION SHEET  
MAGNETOHYDRODYNAMICS (MHD)

Magnetohydrodynamics (MHD) is a process which generates electricity by passing high temperature gases obtained from coal combustion through a magnetic field. The process converts the energy of the hot gases directly into electricity.

After passing through the MHD generator, the exhaust gases are still hot enough to be used to produce steam which can power a turbine generator, as in a conventional power plant. Thus, MHD would compliment the conventional steam generating process.

This "double generation" capacity gives the total MHD plant the potential to significantly increase the amount of electrical energy obtained from a ton of coal. MHD is capable of producing up to 50% more electricity from a ton of coal than a conventional power plant.

In addition, MHD plants are flexible in that they can use both Eastern or Western coal, including coal with high sulfur content, and meet current and projected environmental standards. Also, electricity from MHD plants would be generated at significantly lower costs than other existing power producing technologies because of the improved efficiencies and reduced fuel use. MHD has many potential technological spinoffs, including use in nuclear fusion generation systems, Defense application of lasers and cogeneration in energy intensive industries like metals and chemicals.

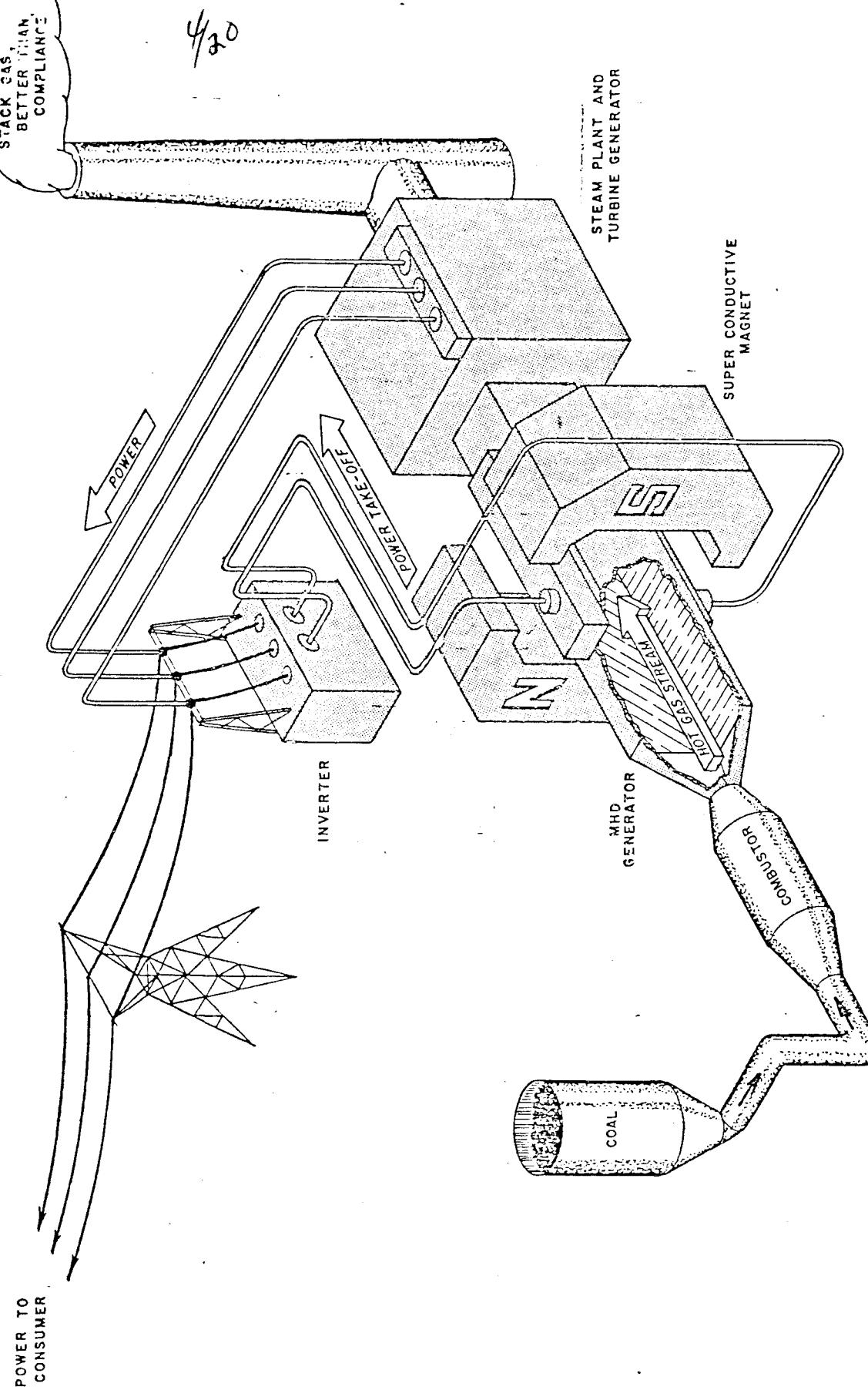
Magnet through which →

Heat is forced which results in →

Direct conversion to electrical energy.

# MHD - POWER PLANT

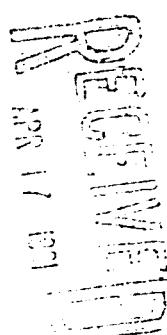
DW: N. JASMIN 3-21-81



I-025938C106 04/16/81 ICS IPMNAWA WSH HLA  
10070 MGM NEW WASHINGTON DC 200 04-16 0703P EST

HONORABLE TED SCHWINDEN  
GOVERNOR  
STATE OF MONTANA  
HELENA MT 59601

CONFIDENTIAL  
APR 17 1981



DEAR TED:

I KNOW OF YOUR STRONG, PERSONAL CONCERN FOR THE  
CONTINUATION OF MHD RESEARCH IN MONTANA, AND I WANT YOU  
TO KNOW OF MY SUPPORT FOR ANY FURTHER ASSISTANCE MONTANA  
IS ABLE TO GIVE THE MHD EFFORT.

AS YOU ARE AWARE, THE MONTANA DELEGATION IS FIGHTING  
AN UPHILL BATTLE TO SECURE ADEQUATE FUNDING FOR CONTINUED  
MHD RESEARCH. THE ADMINISTRATION'S DETERMINATION TO  
TERMINATE THE PROGRAM AT THE END OF THIS FISCAL YEAR  
MAKES THIS THE MOST SEVERE CHALLENGE TO THE PROGRAM IN  
ITS HISTORY.

I BELIEVE THE SUPPORT YOU HAVE GIVEN TO THE DELEGATION'S  
EFFORTS HAS ALREADY BEEN SIGNIFICANT. I WOULD ONLY EMPHASIZE  
THAT FURTHER FINANCIAL BACKING OF THE MHD PROGRAM BY THE  
STATE OF MONTANA COULD PROVE VERY HELPFUL AS WE WORK TO  
CONVINCE CONGRESS TO REVERSE THE ADMINISTRATION'S DECISION  
TO END MHD RESEARCH.

THANK YOU FOR ALL OF YOUR WORK TO DATE AND FOR ANY  
FURTHER ASSISTANCE YOU ARE ABLE TO OFFER.

WITH BEST PERSONAL REGARDS, I AM

SINCERELY,

MAX BAUCUS  
1921 EST

MGM/COMP MGM



Department of Energy  
Washington, D.C. 20585

APR 3 1981

Mr. Joseph A. McElwain  
Chairman of the Board  
Montana Power Company  
200 East Broadway  
Butte, Montana 59701

Dear Mr. McElwain:

Secretary Edwards has asked me to respond to your letter of February 20, 1981, submitting to him your company's proposal for cost sharing a "Feasibility Study for an ETF/Commercial Prototype Hybrid MHD Power Plant." This proposal is in the process of being reviewed by the Office of Coal-Fired MHD Systems. We have already had some preliminary and highly laudatory comments from that Office concerning the contents.

Our offer to share the burden of bringing this potentially promising long term technology to early commercial use is in keeping with this Administration's economic revitalization plan and you are to be commended for your initiative in fulfilling the President's expectation that private industry will shoulder more of the large scale precommercial actions needed to bring the fossil energy technologies into the market place. However, there is considerable uncertainty at this time as to whether the MHD program will be continued beyond the current fiscal year.

As you may know, the Administration is recommending to the Congress that all program activities in MHD power development be discontinued at the conclusion of FY 1981. While the MHD development program has been quite successful to date and has a high payoff potential, this decision reflects the fiscal austerity necessary to effectively deal with the current national economic situation, and a recognition that under these circumstances the Federal Government cannot afford to pursue all potentially promising long-term options. Accordingly, direct government funding of the activity is not proposed for FY 1982. The development of other very promising advanced coal technologies—such as high temperature gas turbines and fuel cells—will be continued and are expected to provide the capability for the improved utilization of coal in the electric power sector in the future.

I have taken special note of your need for a timely consideration of the proposal and have directed the Office of Coal-Fired MHD Systems to provide you with an early evaluation and disposition for this action. We are aware

- and sensitive to the urgency associated with commercialization plans and the responses required to permit industry to integrate new technologies into their current program. I have asked the Office of MHD to provide you with information or responses to your queries concerning progress in a timely and expeditious manner.
- Please be assured that we will give every consideration to your proposal and to the sense of urgency you have expressed.

Sincerely,

*Roger W. A. LeGassie*  
Roger W. A. LeGassie  
Acting Assistant Secretary  
for Fossil Energy  
*RL*

# MONTANA POWER COMPANY

GENERAL OFFICES 40 EAST BROADWAY BUTTE MONTANA 59701 • TELEPHONE 406/723-5401

JOSEPH A. McELWAIN

CHAIRMAN OF THE BOARD  
AND  
CHIEF EXECUTIVE OFFICER

April 10, 1981.

Secretary James B. Edwards  
U. S. DEPARTMENT OF ENERGY  
Washington, D.C. 20045

Dear Secretary Edwards:

I was pleased to receive the April 3, 1981 letter from your Mr. Roger Le Gassie in response to The Montana Power Company's proposal "Feasibility Study for an ETF/Commercial Prototype Hybrid MHD Power Plant."

It was gratifying to learn that your department personnel feel the contents of the proposal were appropriate and useful. Perhaps more important is the recognition given by Mr. Le Gassie to the successful MHD development program to date, and the high payoff potential. This confirms the continuing review of the technology which The Montana Power Company has made. It also reinforces our belief that MHD is the only advanced power source technology which is of baseload utility scale, and can directly combust coal with high efficiency and low environmental intrusion.

I am extremely supportive of President Reagan's austere budget recommended to the Congress, particularly if I can convince myself that a rational, logical process has been employed in selecting the specific cuts. But I cannot subscribe to a national energy program which fails to support the development of technology which can directly utilize coal -- as the utility industry has always done -- and which offers, apparently, the only hope for lower specific fuel consumptions and lower product cost. This is not to criticize the selection of the fuel cell and high temperature gas turbines -- they are elements of a total electric power utility package. However, they require coal gasifiers and are more suited to peaking service, rather than baseload. Certainly, they have application to specific utilities operating in very high population density areas, but the majority of the utilities in the U.S. will be able to utilize them only to a limited extent. Meanwhile, in the absence of MHD, U.S. utilities face no technological answers to replace or augment the industry standard, steam - Rankine cycle plant, other than marginally small technical fixes. I am certainly not heartened by this situation.

I am still not willing to concede a decision to discontinue the MHD program in FY 1982. I am not proposing that the overall research and

Secretary James B. Edwards

-2-

April 10, 1981

development budget be increased; but that prudent energy priorities in this country dictate that it is much more in our interests to keep MHD as a viable program than it is to continue the solar and renewable budget at the level of \$241 million and the fusion budget at \$460 million as indicated for the FY 1982. The money would be much more wisely spent if \$100 million of those budgets were reallocated to the MHD program. I sincerely urge you to consider this option.

So serious is my concern, that I would like to have from you the comparative technology studies which your Department must have accomplished in order to recommend no MHD funding in FY 1982 to the President. Perhaps I may find in those studies sufficient justification -- which has heretofore been absent -- to convince me that The Montana Power Company should suspend its very strongly supportive program of the advancement of MHD technology. To this date I am strongly of the feeling that the MHD program is the only one that offers a major opportunity in the way of conservation of our vast coal resources in the United States by upgrading the efficiency of the direct coal combustion process which is the only process on the drawing boards that can be utilized without other intervening problems by the electric utility industry in the United States.

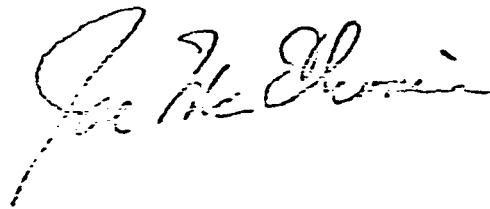
I again point out that sixteen electric utilities have supported our unsolicited proposal. You might also be interested in the fact that the Montana legislature is in the process of appropriating an additional \$2.8 million to support the national MHD program at the MHD/CDIF facility in Butte. If successful, this will be a total of \$3.3 million that Montanans have put forward in expression of confidence in that technology.

I look forward to a positive reply to our proposal by the Department of Energy. I would point out that our proposal indicates if your study cannot be initiated in time to affect Resource '89 design, our proposal does not preclude studying retrofitting to the Resource '89 or integrating an MHD power train with a future MPC coal-fired steam power plant. However, the economic penalties and delayed availability of the technology will affect both the government program and the utility industry.

Very truly yours,

JAM:bw

cc. Senator John Melcher  
Senator Max Baucus  
Congressman Ron Marlenee  
Congressman Pat Williams





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## CONGRESS OF THE UNITED STATES

HOUSE OF REPRESENTATIVES  
WASHINGTON, D.C. 20515

PAT WILLIAMS  
MONTANA  
WESTERN DISTRICT

COMMITTEES:  
EDUCATION AND LABOR  
INTERIOR

WASHINGTON OFFICE:  
1233 LONGWORTH BUILDING  
WASHINGTON, D.C. 20515  
TELEPHONE: (202) 225-3211

TOLL-FREE NUMBER  
1-800-332-6177

April 20, 1981

The Honorable Gary C. Aklestad  
Montana State Senate  
Capitol Station  
Helena, Montana 59601

Dear Gary:

My efforts, and those of the other members of the Montana delegation, to seek continued federal funding for magnetohydrodynamics technology, have been enhanced by the possibility of the Montana Legislature's passage of HB 869, the bill to appropriate funds to the new Department of Commerce from the Coal Severance Tax Trust Fund for the MHD facility in Butte.

The Montana Legislature's commitment to MHD demonstrates the state's resolve to make optimum use of Montana and the nation's coal reserves, while protecting the West's water resources and clean air.

Federal funding for this vital research and development effort is more tenuous now than at any time in the project's history. Affirmative action by the Montana Senate on HB 869 will give a major boost to my efforts here to convince the House Appropriations Committee of the support for and necessity of the continued development of the MHD technology.

In my judgment, this use of Montana's coal severance tax dollars to aid in the national energy independence effort will strengthen our arguments as we work in Congress to preserve Montana's coal tax rate.

Because of my belief in the importance of this technology to the nation, I am sending this personal appeal to each member of the Montana Senate.

Best regards.

Sincerely,

Pat Williams

THIS STATIONERY PRINTED ON PAPER MADE WITH RECYCLED FIBERS

House Bill No. 869 seeks a one time appropriation of \$2.85 million from the coal severance tax trust fund to accelerate the MHD technology and is contingent upon continued U.S. funding. Here are some facts about the national situation and what the loss of the national program will mean to Montana.

Nationally

- I. Our delegation needs good tools to fight in Congress to save the coal severance tax; House Bill No. 869 will be a definite asset to them.
- II. Funding for the MHD program is in serious jeopardy for 1982.
- III. If funding is later restored, Montana would have to fight for a continued role in the national program.

IF FEDERAL FUNDS ARE DISCONTINUED, MONTANA'S LOSS WOULD MEAN: ✓

Loss of Dollars:

University system .5 million each year (FY 1982 and 1983)	\$ 1 million+ ✓
Test Facility Wages, services, etc. (FY 1982 and 1983)	22 million
Future capital funds for test facility	<u>25 million</u> <u>48 million</u>
ETF (Engineering Test Facility) construction	<u>\$600 million</u>
TOTAL	<u>\$648 million</u>

Loss of Jobs:

	<u>Future</u>
CDIF & University System (Now 240)	
Butte & University System	240
ETF Operations (estimate)	175
ETF Construction/Peak (estimate)	800

Three service related jobs will be created for each of these basic jobs.

Taxes:

Personal income and other taxes would be lost

If coal severance tax were cut from 30% to 15%  
(1982 - \$53.3 million, 1983 - \$64.7 million)

\$128 million

This is an effort to save MHD FOR MONTANA. If we can bring this about, we will truly have been of service to our constituents and to future Montanans.

HB 869 amendments:

1. Title, lines 18 and 19.

Strike: "TRUST FUND CREATED BY SECTION 5, ARTICLE IX, OF THE MONTANA CONSTITUTION"

Insert: "component of the general fund"

2. Page 3, line 23.

Following: "from the"

Strike: "PRINCIPAL OF THE"

Following: "fund" on line 24

Strike: "TRUST FUND CREATED BY SECTION 5, ARTICLE IX OF THE MONTANA CONSTITUTION"

Insert: "component of the general fund"

HB 869 amendments:

1. Page 4, line 18.

Following: "TECHNOLOGIES."

Insert: "It is the intention of the 47th Legislature that the sum of \$2.85 million hereby appropriated from the principal of the constitutional trust should be restored to the trust from the earnings of the trust by the 48th Legislature."

# STANDING COMMITTEE REPORT

April 20

19 81

President  
MR. ....

We, your committee on .....  
**Finance and Claims**

having had under consideration .....  
**House** ..... Bill No. ....

(Thomas)

Respectfully report as follows: That .....  
**third reading bill, be amended as follows:** .....  
**House** ..... Bill No. 872,

1. Page 1, line 19.  
Following: "speaker"  
Insert: "and minority leader"

2. Page 1, line 21.  
Following: line 20  
Strike: "committee on committees"  
Insert: "president and minority leader"

3. Page 3, line 12.  
Following: "as the"  
Strike: "state's"  
Insert: "legislature's"

4. Page 3, line 18.  
Following: "remodeling."  
Insert: "Allocation of space shall include adequate space in the capitol for the staff of the legislative finance committee legislative audit committee, and the legislative council."

And, as so amended,  
**BE CONCURRED IN**

# STANDING COMMITTEE REPORT

April 20 1931

MR. President

We, your committee on Finance and Claims

having had under consideration House Bill No. 841

(Jacobson)

Respectfully report as follows: That House Bill No. 841

BE CONCURRED IN

~~EX-PASS~~

STATE PUB. CO.  
Helena, Mont.

Senator Himsel

Chairman.

# STANDING COMMITTEE REPORT

April 20

81

19

President

MR. ....

## Finance and Claims

We, your committee on .....

having had under consideration .....

House

478

Bill No. ....

(Hims1)

Respectfully report as follows: That.....

House

478

Bill No. ....

BE CONCURRED IN

XXXX

XXXXXX

STATE PUB. CO.  
Helena, Mont.

Senator Hims1

Chairman.

# STANDING COMMITTEE REPORT

April 20 1981

MR. **President**

We, your committee on **Finance and Claims**

having had under consideration .....

**House**

**603**

Bill No. ....

**(Hims1)**

Respectfully report as follows: That.....

**House**

**603**

Bill No. ....

**BE CONCURRED IN**

~~DO NOT PASS~~

# STANDING COMMITTEE REPORT

.....April 20.....19 81.....

MR. **President**

We, your committee on **Finance and Claims**

having had under consideration .....

**House** 847

Bill No.....

**(Etchart)**

Respectfully report as follows: That.....

**House** 847

Bill No.....

*Ha*  
**BE CONCURRED IN**

~~DOXPASS~~

## SENATE COMMITTEE

## FINANCE AND CLAIMS

Date 4/20Bill No. 391Time 11:26

NAME	YES	NO	ABSENT	EXCUSED
Senator Etchart	✓			
Senator Story		✓		
Senator Aklestad		✓		
Senator Nelson	✓			
Senator Smith	✓			
Senator Dover	✓			
Senator Johnson	✓			
Senator Keating	✓			
Senator Boylan	✓			
Senator Regan	✓			
Senator Thomas	✓			
Senator Stimatz		✓		
Senator Van Valkenburg		✓		
Senator Haffey	✓			
Senator Jacobson	✓			
Senator Himsel	✓			

S 51

Sylvia Kinsey  
SecretarySenator Himsel  
Chairman

Motion:

# STANDING COMMITTEE REPORT

April 20

19 81

MR. **President**

We, your committee on **Finance and Claims**

having had under consideration .....

**House**

Bill No. **871**

**(Thomas)**

Respectfully report as follows: That..... **House**..... Bill No. **871**

W.C.  
**BE CONCURRED IN**

**DO PASS**