ANTHRACITE:

ENERGY ALTERNATIVE FOR THE 80's

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Dorothy Dickson Darte
Center for the
Performing Arts

WILKES COLLEGE
WILKES-BARRE, PA.

ANTHRACITE: ENERGY ALTERNATIVE FOR THE 80'S

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SANDRA A. BEYNON
DR. UMID NEJIB
DR. ANDREW SHAW, JR.
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FOREWORD

The objective of the regional conference "Anthracite: Energy Alternatives For The 1980's" held at Wilkes College on April 23, 1980, was to acquaint local leaders in business, government and industry, as well as any large users of energy, with current technology available for the utilization of anthracite as an energy source.

The conference stressed the practical aspects of domestic anthracite coal as an energy source, its cost benefits and its drawbacks, as well as the impact of revitalization of the industry on Northeastern Pennsylvania.

Included in this document are the presentations of conference speakers who represent a variety of official and unofficial views. These speeches reflect the opinions of anthracite coal producers, government policy toward revitalization and growth of the industry and environmental considerations.

The meeting afforded an opportunity to establish a dialogue between industry officials and representatives of regulatory agencies and environmentalists. This resulted in many suggestions, recommendations and understandings. The statements herein presented are indicative of the many facets of the controversy surrounding the efforts to revive the supremacy of "King Coal".

On behalf of the organizing committee, I would like to thank all the participants, organizations and agencies for their time and effort - for their interest, frankness and cooperation.

Dr. Umid Nejib
Editor

WELCOME/OPENING REMARKS

Robert S. Capin
President
Wilkes College

Ladies and Gentlemen! Good Morning.

One of the pleasures of being President of an institution of higher education is the opportunity to welcome groups such as yourselves, to the College. And I have that opportunity in a number of occasions. As a matter of fact, after I welcome you, I'm going next door to welcome a group of students from all over the state to a Yearbook Conference. So, it is a delight to meet new people and to have people visit our campus. But, as a President of an institution of higher education, I remind you and tell that we have two missions at Wilkes College. One, of course, is to provide academic programs and proper environment for study for the students. But, secondly, and just as important is that because of our physical location and because of the commitment of this institution to Wilkes-Barre and Northeastern Pennsylvania, we also have the mission to provide programs that are of principal concern to the citizens, and which affect the quality of life of our citizens.

I can think of no more important subject matter than the title of this conference today. All one has to do is to read the newspapers, and of course, you know immediately that the subject matter is one of prime importance both internationally and nationally and will become increasingly important as we now go down into some very difficult years. The implications are difficult to describe. On a more personal note, I would like to tell you that the College has a budget of approximately $14 million a year. The utility bill for Wilkes College next year will be in excess of $750,000. and we're not partial, by the way, because we use every kind of energy possible except coal and solar energy. So the implications for this institution so far as tuition and the operating costs are

concerned is of prime concern to me as President and, of course, to the staff of the College.

You have a very important session today, and I know you have very outstanding speakers. Much time has been dedicated into planning the conference. I want to personally thank, in particular, Dr. Shaw, who you met, and Dr. Nejib, Chairman of our Engineering Department, who will be introduced to you as one of your speakers. However, there are many people who worked hard to put this Conference together. The proof is we have some very, very outstanding people here today. I'm proud to meet you and while, unfortunately, I cannot be with you for the entire day, I do hope that you have a very profitable and successful seminar. Thank you very much.

WELCOME/OPENING REMARKS

Dr. Andrew Shaw, Jr.
Dean of Management
Wilkes College

Ladies and Gentlemen, Good Morning!

About three years ago we put on a conference here on Microprocessors and Microcomputers, and we anticipated about 30-25 people showing up for that conference. And indeed the registration amounted to about 30 people until the very morning of the conference where about 100 people showed up. That set the stage for a whole series of seminars in the entire region on the subject. The Seminar we have today is following the same cycle. We anticipated having about 25-40 people, it looks like we're going to have about 90 people. We're hoping that this will be more of the start of a resurrection of the Anthracite Coal Industry.

Many of us have attended a good many conferences on coal and a few on the anthracite coal industry, in particular. However, we came back feeling all of this sounded great, but nothing concrete has happened. And so, Dr. Nejib, head of our Engineering Department, myself, and Miss Sandy Beynon, Director, Small Business Development Center, Wilkes College, in a joint effort, sat down and reorganized the responsibilities of Wilkes College and our commitment to the community. We determined that perhaps this was the most appropriate place to have a conference on Anthracite and the potential of Anthracite. And we went about trying to put together a realistic and a professional meeting.

We invited a good number of people from all phases of the industry. People who are interested in that industry. People who have investment in the industry. And as you look through your program, you will note that we have people from the national level, the state level, and the local level. We have manufacturers of equipment, we have producers of coal and we also have the users

of coal. As our President pointed out to you, we use all sources of energy to heat and maintain our buildings and it's true that we don't use coal directly. But since we're customers of the Wilkes-Barre Steam Heat Company, we do indirectly use Anthracite Coal.

Mayor McLaughlin was to be with us this morning but when we planned this conference, we overlooked the fact that it occurred the day after the election. I'm sure they're still counting votes. The Mayor may stop a little later and if he does, we will introduce him to you.

I guess every conference or every seminar has a few announcements. I'd like to acknowledge a few people who have really helped us pull together this entire body of people. We, here at the College, work as a team. We rely upon each other very heavily. I'd like to introduce our Dean of Academic Affairs, Dean Jerry Hartdagen; our Dean of External Affairs, Dr. Thomas Kelly. We have a mail-o-gram here from U. S. Senator Dick Schweiker, who we invited but Congress is in session. "Deeply regret unable to join you for the Anthracite Energy Alternatives for the 80's Conference. Anthracite possesses unique qualities and that is low sulphur energy efficient fuel which, if properly exploited, could compete with low sulphur western coal which has been putting additional pressure on already depressed eastern coal markets. As a location for virtually all the significant anthracite deposits in the U. S., Northeastern Pennsylvania stands to gain a great deal from the revitalization of the Anthracite Industry. Coal will play a major role in energy's future. And Pennsylvania Anthracite should have a leading part in the coal renaissance. Consequently, I wish you the greatest possible measures of success in your efforts to foster a greater awareness of Anthracite potential as a major alternate energy source".

We do hope that this Conference will achieve its positive goals. This institution and the sponsoring groups is committed to the welfare and progress

of this region. The coal resource we have here is a viable one and cannot be ignored or neglected.

I welcome you and wish you the best.

THE OBJECTIVES OF THE ANTHRACITE COUNCIL

Michael Clark
Anthracite Coordinator
Appalachian Regional Commission
Washington, D.C.

Thank you, Dr. Shaw, and congratulations to you, to the Engineering Department, President Capin, and to the College for taking the leadership in putting this conference together today. I don't really have that much to say other than I think it's fantastic that we are continuing the momentum in revitalizing the anthracite industry in this area.

Approximately four weeks ago, President Carter hosted a National Conference of Coal Industry at the White House. The specific item on the agenda that day was to receive the Rockefeller Commission Report on the future of coal in the United States, and also to present a study on the backlog of legislation on coal. As a part of that conference, we put together a special group of industries and federal people to evaluate what the problems of anthracite coal are. One constant theme was stressed time and again -- nothing seems to get done. It is that concern and point of interest what the Anthracite Council in Washington is focusing on. The first good news, for the benefit of the coal industry is, that we did not create another bureaucracy. We have no staff and no budget. We have no formal offices as such. We are working with the various areas of the federal government which can help in anthracite and potentially can give some new support to our programs. We did set forth an agenda.

Our immediate concern is keeping the anthracite industry going. Then we will get into examining other related items such as new technologies and things like that. You have many gifted and experienced speakers who can talk of the on-going programs. I am sure they will have some interesting things to say to you today. However, I should point out that the biggest single factor in keeping

the anthracite industry going in terms of coal sales is the annual purchase by the Department of Defense of Anthracite. This is used in our defense installations, primarily in West Germany. This fiscal year, the United States Department of Defense is going to purchase roughly 380,000 tons of anthracite coal. By way of comparison, in 1965 the federal government bought 1,650,000 tons of anthracite coal but its purchase has dropped to a figure of 380,000 tons. This represents approximately, by the time it is shipped to Europe, forty to fifty million dollar economic factor. This factor impacts not only on the anthracite industry but also on the trucking industry, the rail industry, and others. Now the people in the industry know very well that this sale is vital to them and others. If the European order gets washed down, then the industry will face a very difficult time.

We have as as our second item of concern, the thorough analysis and I hope action, to get something going in the area of conversion. We hear time and again that we must make greater use of anthracite coal. The hard facts are that the public buildings, both state and federal, do not burn anthracite coal. Most of them are converted to oil. The new ones were built using oil. Two weeks ago, I had Mr. Al Smith up here. He works on our task force and is also the federal co-chairman of the Appalachian Regional Commission. We started out in Scranton and the first stop on our agenda was the site for a very major building for the postal facility in Scranton. He was very incensed as we learned that there were no plans to use coal in that new building which is being built on top of anthracite coal. In Washington, we did some checking with the construction division of the United States Postal Service and found that there were five sources of fuel considered by the postal service, architects and engineers. Of the five, none was coal ... bituminous or anthracite. Coal was never considered, and this was only two years ago. So this is the kind of thinking we are dealing with at a time when we are trying to put the national coal policy into use. The

Penn State survey on the conversions of federal and state buildings back to coal - which in many cases means anthracite - has been finished and will be published very shortly. The Anthracite Task Force is immediately going to begin to see what it would cost to get public buildings back on the track and back into using anthracite. We do not have any idea what it is. We have talked to some of the state people and have been told there is great interest. The Appalachian Regional Commission is acting as the monitoring agency for all of the anthracite programs. We are getting great cooperation out of them.

The third area of our concern, this again very familiar, is the problem of transporting anthracite. Conrail is the major carrier of anthracite coal. As things stand, you might as well take the coal and build another dike with it because the problems of transporting anthracite coal away from the coal working areas are just unbelievable. The rail service is terrible, the tracks are in awful shape, and the road beds are in bad shape. By the time you get the coal, particularly the coal that goes to Europe, down to Philadelphia, you find out that the docks and the whole loading system there is a total wreck. This delays the shipment of coal to Europe as much as six months. However, five million dollars has already been appropriated to fix these docks, and we hope to add another twenty million dollars shortly.

Finally, the theme of this conference is "Anthracite, An Alternate Source of Fuel". Many of you know that an alternate source of fuel tends to be a very technical and legal thing. Anthracite is legally considered a part of coal. We are starting a very big effort to see what can be done to get legislation together which considers and makes anthracite coal an alternate source of fuel. We found out from our various meetings in Washington that the anthracite profile, while it has been in Washington for years, is not all that high in energy areas. Actually, it is higher in some areas that do not deal specifically with energy like EDA and the ARC. We are trying to get it spelled

out in writing that anthracite is an alternate source of fuel. Once we do that, I think those of you who work with the bureaucracy know then our work is much easier.

We have the full cooperation of the legislators who are concerned with anthracite. The four Congressmen from this area - Mr. Musto, who was just elected, has pledged his full support. Mr. McDade is always behind anthracite programs; so are Mr. Yatron and Mr. Earl from Williamsport. Senator Schweiker has been a friend of the industry for years but then he is leaving. Senator John Heinz has extended an absolutely fantastic support for the anthracite programs. The Senator has assured me personally that he would continue to cooperate with anything we propose.

Basically, that is what it is all about. We are not into the areas of building super anthracite structures or getting into multi-million dollar projects. We are interested in keeping the industry going and keeping the export projects underway and expanding them. I would like to have the input of anybody at all at this conference today who is willing to help in any way. I will be watching with great interest, the proceedings of this meeting.

Thank you for your time, and thank you for your cooperation.

ENERGY OUTLOOK FOR THE 80'S

Dr. Umid Nejib
Chairman
Wilkes College Department of Engineering

Thank you, Dr. Shaw. Ladies and Gentlemen!

I would like to apologize for my voice and for my accent, and for the information I'm going to give you on this nice day. I would like to welcome you on behalf of the Department of Engineering and its staff. We are attempting to bring to this region, its industry and community, as much of the technical innovations and know how that it long seeked and needed. My presentations, which is going to concentrate on the energy outlook for the 1980's is not as bright as this day. It is awfully bleak. However, the solutions are always there and what I'm going to propose to you is maybe an idea that many of you thought about but never really put into effect.

The energy crisis that was supposed to be a myth, is in fact a reality. We have heard the federal government and the local government state that they are trying to implement energy plans. Many of us were involved directly or indirectly with "bureaucracies". However, the salvation of this industry and region, at this day and age, is not going to be the government alone. I think the federal government now is looking at a national crisis on a national scale, and the priority for Northeastern portion of Pennsylvania is not high. The government is looking to get out of being dependent on foreign oil and is trying to get away from what is defined as political blackmail. It is trying to implement policies on all levels outside and inside. That leaves the problem of solving the energy crisis in this region to the people of this region. I think for the 1980's for a region like this, it is very much imperative that you assess and reassess the resources.

Personally, I do not like coal. It does not look nice. It does not

burn clean. It creates acid rain. However, I would rather live next to a coal-fired power station than a nuclear fueled one. The reasons are both economical as well as scientific. A coal-fired power plant can be brought on line in about half the time needed for a nuclear plant. However, looking at the energy alternatives available for this region, the problem has to be attacked from various points. I do not think that should be attacked entirely through anthracite alone. A complete turn around is not healthy by any means. The approach should be made on a balanced format.

One and foremost in my opinion, is the adequate education of the community, the industry and the people regarding the energy outlook. With that, you can possibly link conservation measures. I am pretty confident that conservation measures in this region will reduce the energy consumption by approximately 20 to 25%. This will have a stronger impact when coupled with a realistic set of laws and regulations. The state of Pennsylvania is very much behind in terms of energy laws. There is no such sun laws in Pennsylvania. You upgrade your house, for example, by means of adding a solar system. Your house will probably be reassessed into a higher tax level. These things could be rectified. It does not have to be done on a national level; it could be done on the local level. An effort should be made to return the large users of energy back to coal. The steam plant that we have here in the city, has done a tremendous job in that respect. The major pollution aspects of anthracite will be discussed at this seminar today, but if you really put a cost effective figure on scrubbing the pollutant, you will still be ahead and be competitive with oil.

In the short term, as far as what is defined as the national energy plan, I would like to recommend that this area should establish a regional energy plan. Go to implementation and get it out of the debate part, that has been going on for the past four or five years.

I would like to recommend that a commission be established that will

have powers to implement a regional energy plan. I would like to recommend that the commission have a majority of industry people, with representatives of the people living in the region, and a representative of the government. The reason I say this is because I am a firm believer that if anybody is going to take the ball and run with it, it's going to be industry and not the government.

The limitations and the discussions against utilizing other sources of energy in the region are not acceptable. What we have to look for is new and innovative use of anthracite and on solar and all their aspects. You should not look to anthracite as a coal to burn only, but to expand that into its gasification and liquification potentials. Two years ago we had an energy seminar here where most of the participants had no detailed ideas about energy or technology. In two weeks this group was able to bring forth a study and recommendation for the area. One such idea was the situation of a burning mine.

Your first reaction to a burning mine is to extinguish it. Which is correct. The problem was realized that extinguishing burning mines is a long and complicated task. Nobody could, in reality, do anything about it fast enough. In the meantime, you're wasting all that heat, so why not top it and use it in a fashion similar to a geothermal source. Now we looked into that problem, and we think it is feasible for small scale - say to melt the sidewalk, but it's not feasible for establishing a major power station.

If we look at the power plant, we can always say that we really have heat pollution from the cooling towers, or heat pollution from the cooling water that's been actually returned to the river. However, you can look objectively and say that heat pollution is really wasted heat. It should be topped and used and a method should be developed to do just that. If you build a coal-fired power plant, then you might be able to use that water and recycle it throughout the area. That approach has been done in Europe very successfully. And I think it's been done in the States in a few places.

I don't like to give you many figures and numbers here. I think that should be left to a technically oriented seminar. But, what I am proposing is that something has to be done. The technical capabilities are available, as well as political structure and a motivated people. I think we have the commitment from the industry and the need. All we have to do is put it together and get it off, looking toward a federal solution.

COAL AS AN ENERGY SOURCE: NATIONAL OUTLOOK

Dr. Jerry Pell
Director
Division of Anthracite
Office of Coal Supply Development
U.S. Department of Energy
Washington, D.C.

You know the old joke about I'm from the federal government and I'm here to help you. There are various versions of the other two parts of that joke and I'll spare you any one of those versions. The last time I was in Wilkes-Barre at Wilkes College was on October 12, 1979 and our generous and gracious host, Dr. Shaw, had the idea back in October to take us outside on the lawn for a group photo and it was much colder than today. So, Andy, if you want to take pictures today, I'm much more receptive. It was a cold day in October.

The occasion of this meeting could not have come on a better day. So much has been happening in the news. Most of you are aware that yesterday was Earth Day, and not only was it Earth Day but it was the Tenth Anniversary of Earth Day. The first of which was in 1970. This has a significance for me because I was involved with anthracite through the Anthracite Task Force since '77. Since I had an environmental shop in what was then the Federal Energy Administration, I was brought in to help out with regard to the Clean Air Act implications for anthracite. So, Earth Day, to me represents the bridge that I crossed from being an environmentalist and an air quality meteorologist to anthracite. So you have the sky above and earth below.

It is also a day after the Pennsylvania Primaries. I spent a good part of last night watching the returns on TV. For the Wilkes-Barre area, the election of a new Congressman to represent perhaps the single greatest force in support of anthracite ever. I can't tell you how delighted I am to see that Mike Clark is with us today. The kind of continuity that Mr. Clark can bring

will do us all a great service and I'm really thrilled that you're still going to support the Northeast. There are no other domestic energy resources in the northeastern part of the United States other than anthracite. That fact, I've been drumming and trying very hard to impress upon the bureaucracy in Washington.

It is almost the second anniversary, short by about one month, of the Division of Anthracite which I officially acquired in May of 1978. I have heard there is a certain amount of rumblings up here in the anthracite area that is not related to the volcano in the state of Washington. Rumbling with regard to just what is Jerry doing in Washington the last two years. You really have to be very cognizant of what Washington is like, to appreciate the kind of delay time that is required from the creation of a new program or project or office to the time you start seeing some results. In the few minutes I have available to me this morning, I hope to familiarize you with at least some of the things we are doing and some of the studies that are now about to hit the street. It does take time, and it does require patience. The one person who is at least patient is the person who is standing before you today, yours truly. I am the one who suffers the red tape and delays in getting these programs initiated. And let me tell you, it is just a matter of biting the bullet and keeping your fingers crossed and waiting for the wheels to churn slowly. Nevertheless, we are doing some important things.

The subject of my talk assigned to me by Wilkes College is "Coal as an Energy Source: National Outlook". Once you use the word national, it means that I have to diverge a little bit from anthracite to discuss coal in it's generic sense with regard to the nation's energy resources of coal. This includes, of course, a certain amount of bituminous coal. I am not active personally in pursuing bituminous coal. However, I think it's instructive to look at what the Department of Energy's official policy is with regard to coal in general. One of the advantages in considering anthracite as a part of coal is that it does

come under the umbrella of any policy statements that are issued by Washington, either by the administration per se or by the Department of Energy. Secretary Duncan appeared before the House Committee on Science and Technology on January 31, 1980 and issued what he refers to as the Department of Energy's posture statement. I am going to read to you a very few paragraphs that I've extracted from that posture statement as they pertain to coal. Please, when you hear them, think not only in terms of national energy resource but also what it could mean for anthracite specifically. One of the things that Mr. Duncan pointed out is the fast rate of increase in coal use can only be achieved by resolving such issues as stringent environmental controls and the high cost of handling, transporting and using coal. These barriers and the problems they represent may be overcome through technological advances in the conversion of coal, synthetic gas, through the development of systems that will burn coal in a more efficient and environmentally acceptable manner, and through financial incentives to utilities to encourage substituting coal for petroleum based fuels. With regard to the United States energy supply, Secretary Duncan said the country is not energy poor and that is a very important point. We have not made sufficient use of our abundant domestic resources and I don't think anybody knows that better than the people in this room this morning. The Secretary goes on to identify the demand for electricity is expected to grow by about four percent per year between now and 1985. The major share of the primary inputs to power generating plants will be provided by coal and nuclear energy. Let me just say being in the state that hosts Three Mile Island, I happen to be a firm proponent of nuclear power regardless of Three Mile Island. I think that these two energy sources - coal and nuclear energy - certainly for the short haul, are going to be vital to our national energy posture. Secretary Duncan goes on to say coal consumption by utilities will rise from about 500 million tons in 1979 to nearly 700 million tons by 1985. Oil and gas utilities will decrease by 1985, but the

level of savings will depend largely on measures taken to replace oil fired utility plants. Renewable sources, and this goes back to the remarks we heard from the earlier speaker, Dr. Nejib, hold great potential for the future but demand cannot be expected to increase significantly by 1985 because of the time required to develop cost effective and efficient technology. Then there is the short term realities of the renewable resources. As the price of oil rises, United States coal will capture an increasing share of industrial energy and electric utility markets. Eventually will become a feedstock to the production of synthetic fuels. Abundant domestic resources of coal will insure sufficient supply for all our energy requirements. The deployment of technologies currently under development, synthetic liquids produced from coal, will grow markedly after 1985.

In my own office, which as I noted, came into existence almost two years ago. We've had under contract for almost a year now, Berger Associates of Harrisburg, Pennsylvania, which is the undisputed authoritative firm on anthracite. You can always tell the federal bureaucrats by the consultants they bring with them. I 'm delighted that Richard Miller and Norman Muchler of Berger Associates are with me today. You will see more of Richard Miller this afternoon on the panel discussion, and I cannot tell you how delighted I am with the work that he and his Associates have been doing for my office. They are right now pursuing four specific tasks on Anthracite. The first of which, and perhaps the most important, is an assessment of the Anthracite Task Force final recommendations. Most of you are aware that the Task Force report was submitted to the DOE in November 1977. Of the twenty-six recommendations, there are twenty-one that are pertinent which Berger is going to put into context for their priority of implementation. That report in draft form should be submitted to me sometime next month, and I am waiting with baited breath to see that.

The second major effort Berger is doing is the Utility Market Study

in light of the flue gas desulphurization exemption that we obtain from EPA in June of 1979. I regard that in new source performance, standard regulation with the exemption from scrubbing requirements for anthracite. Historically, that event is a milestone in the history of the anthracite industry, and the beginning of a turning point for the industry's revitalization. The third task that Berger is doing is an inventory, a catalog of all federal involvement in anthracite projects and programs which is an immensely resource document for me. This means that under one cover I can see who is doing what with regard to anthracite within the Washington scene. I consider this to be an immensely valuable source document which I'll be extremely proud to distribute and make available. It is used as a reference volume of federally funded projects for anthracite. Now, I'll come back to that in a few moments to tell you some of the highlight of the information that Berger Associates and their subcontractors were able to present.

The newest task that I have asked Berger Associates to help me with is an assessment of EPA's proposed new source performance standards. This time not for the utility sector but for the industrial sector which EPA plans to promegate regulations on in final form in 1981. This is a two-prong effort. I have Berger Associates helping me out on the marketing side of the industrual analysis and on the Environmental Clean Air Act side. I have now under contract as of only about three weeks ago, Environmental Research and Technology, Inc., out of Massachusetts. Ms. Karen Pearson is with us today from Massachusetts representing ER&T. You'll notice that some of our consultants are prettier than others. ERT is going to do for me on industrial sources the equivalent of what they did for me on the utility sector. To those of you who are familiar with ERT, they are the country's largest environmental consulting firm and most recently were acquired as a subsidiary of COMSET. I cannot think of a more prestigious association that I could possibly have to help me in the vitally

important area, because if the industrial regulations on the air quality side are favorable for anthracite then this could play a major role in revitalizing the industry not only by making it an attractive fuel for utilities but as an attractive fuel for industries. There is an awful lot of possibilities of medium and fairly large users going to anthracite or converting back to anthracite if the environmental climate makes it economically favorable.

A part from what my own office is doing in the Department of Energy, there's another major element in DOE. I am under the Assistant Secretary for Resource Applications. The Assistant Secretary for Fossil Energy, Mr. George Fumick, which includes a segment of the Bureau of Mines which was folded in the DOE in 1977, has the expertise and the know how when it comes to mining. And through the good graces of Congressman Alan Ertel in 1980, this part of the agency has one and one-half million dollars for Anthracite Mining R & D. They also have under contract to them, Skelly and Loy, which is now doing a needs assessment for Anthracite Mining R & D. They are busy at work with regard to the mining and reclamation aspects of anthracite. Again, through the good graces of Congressman Ertel, as I'm sure many of you know from reading the local press, he has taken an initiative to add two million dollar line item to the fossil energy for anthracite; specifically for an open pit mining demonstration program. This, I am absolutely thrilled about for many reasons. Perhaps the most important reason is that this could be a vehicle for assisting the Allegheny Electric Cooperative proposed power plant project. So, despite the fact that sometimes the news from Washington is slow in coming, there are exciting things happening back there in the Capitol. Very briefly, I want to give you the benefit of some of the Berger Associates Inventory Study. Berger, their consultants, and subcontractors came across with forty-two projects out of Washington related to anthracite. Eight of which are in the general area of research and development and Research Demonstration and Development. Six are in the area of

environment, eight in the information and data gathering area, sixteen in terms of general studies and four miscellaneous projects. There are forty-two, either on-going or completed projects related to anthracite coming out of Washington one way or the other. Those add up to a total of 27.1 million anthracite dollars. This does not include reclamation money. It also does not include the vast majority of money spent on data analysis and publication of data summaries, or any expenditure for purchase of anthracite. I think that this is an absolutely crucial piece of information, and we hope to do more. Thank you.

PENNSYLVANIA COAL - HOW CAN WE USE IT?

Fred W. Taylor
President
International Boiler Works Company
East Stroudsburg, PA

Good Morning!

The International Boiler Works Company in East Stroudsburg, Pennsylvania, is a wholly owned subsidiary of Combustion Equipment Associates, Inc., of New York.

Last month, in our annual corporate planning session, I was asked what the Corporate R&D Department could do for International Boiler Works in the next two years. My reply, in typical Irish arrogance, was nothing as we did not have any programs we wanted delayed five years or screwed up. Needless to say, this was poorly received by Corporate, however, the record proved I was correct and I am in hopes that my blockbuster at corporate will result in a change in attitude and objectivity with our Corporate R&D Department. In fact, I can almost guarantee it as I've been assigned the task of supervising their performance and efforts.

My story has a parallel in the Federal and State scene.

Four years ago, I was on the lecture circuit, beating the drum on the use of domestic coal to reduce our dependency on foreign oil. President Ford's program was beginning to show signs of action, then came the election, and the new administration's declaration of war on energy. The Department of Energy was formed with cabinet status. You have to understand the workings of the Washington bureaucracy to know the problems this created. Energy oriented departments of almost all federal agencies were transferred to DOE and the Pyramid Club began. Based on the old Washington status, measurement of people in numbers, DOE grew to a multi-billion dollar agency overnight. It was utter confusion spread over the whole city. DOE became the monster composed of all the misfits from other

agencies. It's a fact, and this came directly from Schlesinger's Congressional Testimony. The monster grew and all the public relations goals and objective became secondary to combating the enemy. The Environmental Protection Agency, who was determined to be the biggest agency with maximum control. The battles are a matter of record. DOE would issue a policy and EPA would immediately counteract it to make sure it wouldn't work. It is fact, and in the meantime, our progress towards utilization of domestic fuel sources took steps backwards, not forward. DOE established areas of technology to develop, most of which had already been developed. EPA's definition of "Best Available Control Technology" became whatever was the most expensive not what could do the job.

As I said, we, the boiler industry, were on the speaking circuit in the 70's and contributed much time and effort into educating the public as to what could be done and what couldn't. I spoke in over six states and Washington and our general theme was the same. Coal is the most expeditious and practical domestic energy source that can be utilized to reduce our dependency on foreign oil. Despite the technology gap of twenty-five years, the industry does have the capability to bridge this gap and can, if given the markets and incentives.

The meetings in the late 70's became all alike -- someone from DOE and the various Governor's Energy Councils would get up and give the for motherhood, against sin speech on using coal as the answer to the problems. This was the theme at the outset and all rallied around the flag until after the first coffee break. Then it started with DOE explaining all the regulations, reports, impact statements required to use coal. EPA followed shortly and contradicted most of what DOE said, then a parade of characters like you've never seen all with their hands out. The railroads needed more federal funds to provide rail service. The Fish and Wildlife Lobby is fantastic in telling everyone why no matter what is done, it will adversely effect the streams and environment. Don't forget the union's, they were there as well. Additional restrictions and costs to mine

operators for increased benefits, health programs, etc. Then came OSHA saying we haven't established the regulations yet, however, you are in violation. DOE and EPA vacillated on so many policies and decisions that industry, all industry just stopped industrial construction until the two agencies agreed on something. That was three years ago and they have yet to agree.

Myself and my colleagues grew totally disgusted and withdrew from the circuit. I recall my last talk was to the American Boilers Manufacturers Association Convention in 1978 and my final recommendation was that the Department of Energy and the Environmental Protection Agency should be combined into one agency, The Department of Power and Environment, DPOE.

Prior to this, I had become totally disenchanted with Pennsylvania. As a matter of fact, I was ashamed. Governor Shapp's Energy Council was a joke. They published reams upon reams of coal information with little or nothing to show for it. The V. W. Plant in New Stanton was supposed to be a coal fired high temperature water system as preferred by V. W. However, when the system costs were included in the loan, all of a sudden, a large reserve of natural gas was found to use the inefficient gas rooftop units installed. The horror of this was that this gas was found while Pittsburgh's mills, plants, and schools were all closed down because of a natural gas shortage.

Here's another winner. Miller Brewing Company had all but consummated a deal to build a major plant in the Williamsport area. It was a fast track job and they prepurchased two coal fired steam boilers from a competitor and friend. Pennsylvania Department of Environmental Resources gave Miller so much static about pollution and would not approve the mechanical collectors proposed for the coal-fired boilers but insisted on a system twice as expensive. Miller said, forget it, and built the plant in New York State exactly as originally designed. It works fine and they recently doubled the plant. That's 1300 jobs Pennsylvania lost.

By now you're perhaps saying who in the hell invited this S.O.B. and how can he contribute to this conference.

Well, let's say this is my last shot. I'm here today at the invitation of Dean Shaw and Tom Lynott, two people who share with me a bit of pride in Pennsylvania and have the guts to fight the bureaucracy and use Pennsylvania coal. Pennsylvania, with its greatest natural resource, coal, should be a leader in the coal utilization, not the follower it is.

I'm here to set a secondary theme to this conference. That is "Pennsylvania Coal - How Can We Use It?" not the prevalent attitude of why we can't.

I challenge every speaker to take a positive attitude and approach of "How Can We Burn Coal?" - "Not Why We Can't". As I tell my employees, "bring me solutions, not problems.

No, I'm not through yet. Let's go back to square one -- 1973, the first gas shortage and energy crisis. Oil was still cheap, however, the imbalance of payments and our foreign oil dependence was being recognized and people were assessing coals potential.

It was just like it is today, however, now that fuel oil exceeds a dollar a gallon, it becomes more economically feasible.

Here's the situation.

Twenty-five years ago the last of the coal-fired residential and industrial stokers were designed. Nothing has been done since from a technical or development standpoint. The designers have long since been retired or passed away. Only a few boiler and stoker manufacturers remained that knew anything about coal and solid fuels firing. The market, in the past twenty-five years, had not demanded or justified technical development. Add another five or ten years due to the new environmental laws and regulations and we have a thirty year technology gap in solid fuels firing.

This technology gap can be bridged by industry, the talent, capabilities and facilities are readily available. The gap will not be solved by an Energy Council of Do Gooders, it will not be solved by a massive bureaucratic agency. It is not going to be solved by two federal agencies, dedicated to over-power and overrule each other politically. Only industry can solve the problem. Given incentives, markets and no government intervention, the gap can be solved, and in two to five years not twenty-five to thirty.

Let's take a look at three other key factors. Nuclear power must and can be our energy source of the future, but safe, reliable nuclear power was two decades away before Three Mile Island, and now, is perhaps three or four decades away. Thus we cannot expect nuclear power to solve our energy dependence until the year 2020. COAL MUST BE THE INTERIM FUEL.

The inflation, economy and reputation of the United States depends on it. President Carter was told this directly by the World Powers in Bohn in 1978 when they told him the value of the U.S. Dollar was going down because the United States was not doing anything about their energy problems. The imbalance of payments by foreign oil was deflating the dollar abroad. U. S.'s dependence on foreign oil made us the hostages of the O.P.E.C. Nations, and a war would see us immobilized in ninety days if our supplies were cut. As a World Power, we were slipping fast as a direct result of our failure to address our energy problems.

Now, let's look at another key economic factor. One of the proven methods to spark an economic recovery was to stimulate the construction industry. This was the fastest and most direct way to get dollars flowing and spark a recovery. It worked in recessions past because the Federal Government always had large construction programs on the shelf ready to go. Today, however, we don't. We are overbuilt on Veterans Hospitals, Federal Office Buildings, Military Bases and Post Offices. Thus, this key economic tool is not available in the Federal Sector. What's Left? Industrial Construction? Sure, a surge of industrial

construction would provide a major economic lift, it would provide construction jobs as well as new industrial jobs. There's only one hitch. Industrial construction is now at a virtual standstill due mainly to industries total distrust of the government. The vacillation, over-regulation and total failure to enact any meaningful energy and tax legislation has industry at a standstill. Industry is waiting for the Administration to get its act together before they move. The high interest rates also are a major deterrent to progress.

What can we do as Pennsylvanians? What can we do to show the world as one of the largest coal producing states we can utilize our own domestic energy source, coal, to solve energy, economic, and world problems? What can we do to set an example for the world to follow?

First, let's recognize that Pennsylvania has more boiler manufacturers than any other state. We have the talent, technology and capabilities right here in the Keystone State.

Let's take a hypothetical case. A new plant calls for a 50,000#/HR. boiler. A gas/oil system installed would run $250,000. A coal-fired system would cost over $1,250,000. and this does not include a 25% cost increase for a larger building, nor does it include coal receiving and storage facilities. The rule of thumb is a coal fired plant will cost ten times as much as a gas/oil-fired unit. Let's assume our coal unit cost is $2,500,000. The present 10% extra tax credit for non-oil units doesn't even pay the interest on the loan. The difference between a gas/oil unit and coal unit should be allowed an accelerated tax write-off of at least 25% additional, and tax free loans should be made available through Industrial Development Authorities to encourage coal utilization.

The present energy policy is based upon penalties not incentives, and will remain a deterent until it is changed. Incentives should be established with the knowledge that coal utilization reduces our balance of payments and dependency upon OPEC. It sparks industrial construction and expansion and provides

jobs in the coal industry as well as equipment and transportation, all right here at home in our State and Country, and our dollars to the OPEC camel drivers is drastically reduced.

State and federal energy and environmental agencies have got to get their act together and change their whole attitude. It must be changed to "HOW CAN WE" and not "WHY WE CAN'T".

Industry can and will solve the problems given the markets for products and incentives and the technology gap will be bridged in short order.

Environmental standards must be practical and economically achieveable, not impossible and theoretical. Declare a moratorium on the impossible standards, allow mechanical collectors, then establish a test program to determine what they can do. Work with the industry to improve standards. The federal and state agencies have got to change their approach and work with industry to first define the problems then seek solutions not by establishing impossible standards and changing them monthly.

As I said at the outset, I came here as a favor to Dean Shaw and Tom Lynott as they are two people who recognize the true problems and impact and are trying to do something about it. We have been working with Tom in the hopes that something can be done. This is a last chance for Pennsylvania to lead the way as a coal producing state, to set an example for other states and the Federal Government to follow.

It can be done, it should be done, it must be done. We as an industry have the answers and are ready to help. However, we've been pushed around, over-regulated, dictated to by federal and state agencies who are not technically qualified to dictate, we must see a new attitude, you must demonstrate a "Can Do" attitude, recognize the problems, not the symptoms and formulate a positive solution plan not more regulations, paper work and controls.

I call upon each member of this conference to approach their subject

on a positive attitude of "HOW CAN WE" not "WHY WE CAN'T".

It's fist or cut bait time, gentlemen. Let's show the world the old fashioned American shirt sleeve approach still exists right here on top of our wonderful coal field.

This might be our last chance as the lights are going out. You can make a bet on that.

"HOW CAN WE WIN", "HOW CAN WE SURVIVE", "HOW CAN WE SHOW THE WORLD".

THE ROLE OF THE ANTHRACITE TASK FORCE

Attorney Abe Frumkin
Anthracite Task Force
Pottsville, PA

Somebody doesn't like me very much or they wouldn't have me follow Mr. Taylor. My topic is one that leads to some recapping, but I think you will find that I, as well, will have some things that are a little strong to say. On April 29, 1977, President Carter gave us his first energy address in which he was looking for an increase by two thirds in the coal production through 1985. Here we are almost exactly three years later and the production of both anthracite and bituminous has dropped. But all has not been lost from anthracite's point of view.

Anthracite Task Force, which I've been asked to speak about, was established in May of 1977 at a meeting called the Pennsylvania Congressional Delegation. It was attended by Jim Schleshinger and FEA Administrator, John O'Learia, who turned out to be a great friend of anthracite. There were five meetings of the full Task Force and five meetings of each of the five subcommittees from June through October of '77. In addition, there was a public meeting in Hazleton in September. The final report was delivered on November 18, 1977. There are a couple of points to be made from that little boring story. First, in answer to one false complaint frequently heard, I would remind you that it was the Pennsylvania delegation in Congress that initiated the formation of the Task Force. I am sure Mr. Mike Clark had a very significant part in that as did Dan Flood. Our political representatives can be, and frequently are, most helpful. Indictments to the contrary, I believe, are not appropriate, valid or constructive. Second, I point out to you, that many private citizens in and out of the coal industry, environmentalists, industrialists and others gave innumerable hours of their time to review the status of anthracite and came up with

recommendations. People do care. This anthracite task force was really my first experience with organized anthracite efforts. Although I was born and raised in this region, I was impressed by the interest and dedication of most of those involved. It was also my first experience with the regions Greek chorus of Nasares, who delighted saying over and over again that nothing would be accomplished that might benefit the industry. I was, and remain, unimpressed with that. Dr. Pell spoke of twenty-six objectives that the Task Force delineated. He neglected to point out that the first two of those were the establishment of the dedicated anthracite office and the amending of the regulations under the Clean Air Act to exclude anthracite where appropriate.

On May 19, 1978, the anthracite office was created. Albeit not one quite as large as we would like but an office nevertheless. In addition, throughout the course of the Task Force, we made friends within DOE, that proved to be most important to us. Let me give you an example of how important having a friend in Washington can be. Even just one man. The hero of this story is Mr. Jack Daley, Director of the Task Force, who has maintained his interest in anthracite. In early 1979 when it appeared that we would be successful in procuring exemptions for anthracite, Mr. Daley called, in somewhat of a panic, to inform me that he had been told by EPA that they would not grant an exemption because they had become aware of some of the difficulties that some of our producers had faced in this region. As a matter of policy, they were not going to be cooperative. Fortunately, Daley knew the facts. He had spent time with the people in the industry and he personally procured the cooperation of the Justice Department in getting them to speak directly to the EPA and the objection was withdrawn and the exemption was granted. The key point that I make by this is that every step that is taken on behalf of anthracite by anyone, eventually benefits all of us even if in a small direct way. Every friend we make is important. I'm sure that Dr. Pell, being in Washington, has had an affirmative

impact on things like the Korean business, which has been generated in the anthracite business. Although sometimes I wish he would be a little more affirmative and aggressive, he is much more polite than I am. The fact remains the word anthracite is now attached to an office in the Department of Energy. It is manned by an aggressive and an active young man who operates within a bureaucracy that probably makes it almost impossible for him to work.

When the initial regulations of the new source performance standards for coal-fired electrical generating facilities were published, it was agreed that a response on behalf of the anthracite industry would be required. The Joint Anthracite Committee was formed in Pottsville on June 13 of '78 and met a second time in October of that year. This group was the beginning of a broad people based effort in the region. At the same time, few of the producers organized together in an adhoc group called Anthracite Development and Utilization Association to fund the kind of technical response that was required to deal with the questions raised by EPA. They also funded the hiring of a Washington council with expertise in dealing with agencies like EPA. United States Senator John Heinz's help was solicited and procured and by September 19, 1978, the Senator was in a position to announce that President Carter supports the position of the Joint Anthracite Committee directly with the Environmental Protection Agency. On December 12 of 1978, a formal presentation was made to EPA in Washington on behalf of ADUA and the Joint Anthracite Committee. On June 11, 1979 the exemption was granted. This, as was pointed out earlier, was the high-water mark of efforts on behalf of anthracite. Unfortunately, from the moment when it looked as though anthracite could win in the Washington area, those who had the most to benefit turned their back on efforts to aid the industry.

The producers, who have the most to gain, appeared to prefer to quarrel with one another than work together.

One of the things that I will never be able to understand since I was

born and raised in this region, is the inability of the industry to pull together to coordinate their efforts to do things like advertise the benefits of anthracite, lobby in Washington and Harrisburg, and deal with those questions and problems that face the industry across the board. There just seems to be no interest. However, while the producers may not be motivated when it comes to such matters, they certainly are nosey. There always seems to be a person who is not involved in anthracite directly that has taken an interest in the industry with a view of increasing employment in our region. Most important of those individuals since his inauguration in January 1979 has been the Lt. Governor of the Commonwealth of Pennsylvania, Mr. William Scranton.

Mr. Scranton has recognized the fact that when you talk about anthracite in the United States, you are talking about Pennsylvania. And that when United States anthracite is competing in the world market it is essentially competing with other governmental entities. The Commonwealth of Pennsylvania has begun to act and become actively interested in the problems of anthracite internationally. It has reached a point where it might be accused of opening its own Department of State. Bill Scranton also took a direct, aggressive interest in the development of an anthracite fired utility plant within our region. His efforts were substantially responsible for focusing on the importance of generating jobs within our region. Those efforts have been most effective. One of the blessings and curses of the recent past has been the emergence of the so-called Korean business, as it is generally referred to. Problems generated in connection with business have been faced by the Lt. Governor's office. It has held direct informal discussions with the Office of Supply of the Republic of Korea as well as with the representative of the Prime Minister's office. Step #1 in the solution to the problems that have resulted in recent reduction in the amount of United States anthracite going to Korea, has been the preparation of a prequalification process and the recommendation of that process. This has been

developed by the Commonwealth to help insure the Korean trading companies purchasing anthracite in the region are buying from people who are in a position to deliver the anthracite. The Lt. Governor's office has developed the thesis on which they have procured the cooperation of the U. S. Department of Commerce and the U. S. Department that maybe twenty or twenty-five percent of the four or five million tons a year of anthracite that Korea must purchase overseas, should be bought in this country. The office argues that the United States producers should not be penalized for the shipping distance. If you look at costs, F.O.B. the coal mine, the price of U. S. anthracite compares very favorably. The Korean government has been encouraged to reduce the number of their trading companies in the region. There have even been efforts to interest the European and the Korean governments in shipping anthracite from the mines through our ports. It is this kind of level of involvement that is absolutely invaluable to the industry.

Looking over the foregoing list of what has occurred since the formation of the Anthracite Task Force, I am pleased that what has begun at that time seems to have moved forward in a solid way over an extended period of time. I would be remiss if I did not comment on the fact that none of the progress that has been made quite so easily or effectively without the cooperation, contrary to Fred's comments, of the United Mine Workers'. Mr. Savitski agreed at the first meeting of the Joint Anthracite Committee that the union could work together with non-union operators in order to help the entire industry. This has been a significant factor, particularly with the sophistification of the mine workers in lobbying using the EPA regulations. I would also be doing a disservice if I did not recall to you the strenuous efforts of Mr. Lesarchick, Mr. Succos of Pottsville, and Mr. Ziolkowski. I personally felt that the deep mine project, which is important not so much to any one producer, established the principle that anthracite can pay and will play an important part in the energy situation in this

country. When this project ran off the track because of a problem, Chuck Minula had already solved the problem. This was unbelievable to me. Yes, we have had significant progress. Unfortunately, there has been an interruption in the course of that progress and I am pleased to note from Mr. Clark today that he has picked up the ball and moved forward on behalf of anthracite. I don't think that we could have anybody more effective working in our behalf. But, let me tell you a story which I passed on to him about how progress can be thwarted.

At Mr. Len Ziolkowski's invitation, I attended a meeting of people interested in anthracite with Dr. Gene Eidenberg, one of the President's representatives. He was extremely bright, receptive and very interested. We followed up with Dr. Eidenberg and eventually set up a meeting with his assistant, Mr. Hilmenski, who impressed us not only with his interest but also with his understanding of the fact that it was not words but action that were required. Not study committees but working groups. The end product of which would not be another report but an agreement on how specific projects might move forward. He talked about bringing together representatives for DOE, the Treasury, Office of Surface Mining, the utilities and industry. I could not have been more excited since it coincided with efforts to bring the anthracite-fired electric utility into being. An extremely productive meeting was held in the White House with Al Pierce of Gilbert, Frank Succos of the Joint Anthracite Committee, Nat Goldhober of the Lt. Governor's office, representative of DOE and Ed Helminski. All I could think of was, imagine that, anthracite has made it to the White House. Plans were made to move forward. Very specific objectives were agreed to and set forth. All that was missing was the letter to authorize forward movements. No publicity, no noise, just cooperation between government and industry. And as Mr. Clark pointed out, no bureaucracy. For awhile, I thought I was dreaming. The letter never came. The whole project stopped.

I'm happy to note this morning for the first time that the effort has begun again but on a slightly different track. As far as I'm concerned, and this is one thing that I hope everybody is in agreement on the anthracite issue is jobs. The issue is putting our people to work again. In my view, there is no way that this can be a political issue. I'm not working for the coal producers. When I take time to speak on behalf of anthracite, I'm concerned about putting our people back to work. On a broader picture, I want to help this country find its way to some energy independence. The basic issue is jobs and dignity for our people. It is my hope that the momentum which has been lost will be regained, and we will move forward together. There is much to be accomplished. The rail and port situations are an example.

Believe it or not, the Department of Energy has finally recognized the importance of stock piling. When the President was in Japan at the International Energy Conference, one of the things that he presented was the establishment of stock piling in this country so that any European country which relied on us to supply them with coal in lieu of oil was assured of the supply. Even is there was a strike in this country or even if there was some interruption in transportation. It is interesting that after all the years which anthracite producers have been talking about the stock piling concept and getting nowhere, the federal government can see the importance of the idea when it comes to an industry located in Holland, but fails to see the reality of it when it comes to an industry located in Pittsburgh. As long as the idea has finally surfaced in a meaningful way, it should be broadened.

The agenda of required action is endless but not hopeless. I would certainly hope that the industry finds itself in a position to finance the kind of work that is required. Mr. Clark said the project that he is working on was moving forward without a federal bureaucracy, but somebody has to pull together the data and establish a central office. I don't care what you say.

You take the bureaucracy for what it is. You can stand here and cry about it twenty-four hours a day and make jokes about it, complain about it, but it's there. The thing that distinguishes me from most people is I believe we can move it and we can make it work. We have proven it can be made to work in one instance. It can be done if we all work together, if the producers fund these efforts so that reports like the Franklin Reasearch Group Report can be developed.

I am always reminded when I think in terms of the anthracite producers, of Hemingway's "For Whom The Bell Tolls", but in reverse. Ask now for whom the bell tolls but when a bell tolls well for anyone in anthracite, it tolls well for everyone in anthracite. The industry is too small to really be able to isolate a benefit. During World War I anthracite contributed 100 million tons to our efforts. During World War II, 50 million tons in one year. Now we are engaged in yet another war. A war for our economic survival. Hopefully, anthracite will once again have the opportunity to contribute its fair share.

You can be sure the people of the region are ready. They always have been. Let us hope their leaders are not found wanting. Thank you.

COAL GASIFICATION IN NORTHEASTERN PENNSYLVANIA

Hugh Campbell
Technical Director
EBECO Associates
Hazleton, PA

Mr. Taylor will be interested to know that there is still another Federal Agency being formed. As you know, the acid rain we've been reading so much about is caused, in part, by scrubbers which utilities were forced to use according to EPA regulations. This is similar to what happened years ago in automobiles when we had more pollution rather than less as a result of the efforts of the EPA. The new agency is called the PEPA. This is the agency charged to protect the environment from the Environmental Protection Agency.

The gasification project in Hazleton actually started in 1941 when my grandfather bought the Well & Galusha gas producer for the Hazleton Brick Company, and we subsequently bought three more. The Glen Garry Brick Company bought a total of fourteen. As President of Cando in 1973, I suggested, after the oil embargo, that we build a coal gasification plant in an industrial park. This process would soon be more economical than fuel oil or natural gas. I had a great deal of difficulty convincing the board that the process would work and that I was not a screwball for recommending it. I think I've managed to convince them ultimately that it will work, but I'm not sure about being a screwball.

The plant is now under construction and I will run through how the thing works briefly. Coal is stored, for the most part, outside the plant. We maintain about three or four days supply inside to take care of us in the winter months. It is loaded into a coal hopper, elevated to an upper storage bin, where it flows by gravity down to the gas producer. The lower storage bin flows by gravity down to the gas producer. The lower storage bin acts as a lock hopper. The valves in the bottom and top of the lower bin are interlocked so that the

bottom valves are closed when the top ones are opened and vice versa.

In the gas producer, we simply set the coal on fire. Burning the carbon in the coal will give off carbon dioxide. We also utilize water vapor in the process of burning the coal. That passes through the coal as steam. Above the fire bin the hot carbon reaction of the carbon dioxide and the water vapor breaks down to hydrogen and carbon monoxide. Hot rod gas comes out of the gas producer and is used directly in many industries. It is that easy.

At the Humboldt Park, we will be firing it somewhat different to make it more acceptable to a variety of users. We pass the half-gas through a waste-heat boiler to make steam which is used later in the process. We then scrub the gas, compress it to about five pounds, scrub it again and then run it through a chiller. The purpose of the chiller is to take out all of the moisture that was put in during the scrubbing process. The chiller is cooled by cold water from an absorption refrigerator which runs on the steam that was made in the waste heat boiler earlier. The gas is then reheated to about ambian temperature, again using some of the earlier made steam. The gas is then distributed throughout the Park. That is one way the plant will work at Humboldt.

The plant is currently under construction. We have installed the gasifiers in the past two weeks. The expected completion date of the plant is November of this year. The purpose of this project is to create jobs, and not to demonstrate a new technology. We should not forget that in Wilkes-Barre, Scranton, Hazleton and Philadelphia, years ago, the only gas we had was gas made from anthracite. It is an old technology and it works like a charm. The gas producer gives us clean compressed gas. We get about 85% of the energy that was in the coal.

There is no reason why this process should be restricted to the Humboldt Industrial Park specifically or to industrial parks in general. There is no reason, for example, why a gasifier should not heat Wilkes College. There is

no conversion cost. You do not have to take out the boilers that are now in use. They currently use fuel oil and natural gas. The impact of the process on environment is minimal. EPA estimates show the process generates about 20% of the pollution that is expected from the direct burning of coal.

There is no limit to the size of gasifiers. Years ago, these gas producers were made small enough to power automobiles. At one time, there was a regular ferry service between New York and London on the boats powered by small gas producers. There is nothing new about the technology. You can gasify, incidentally, just about anything that has carbon in it. That includes, President Carter will be happy to know, peanut shells. It is simply a question of economics. Twenty years ago it was economical to make gas out of anthracite coal. Ten years ago it was not, but today it is.

The cost of todays fuel oil is about $6.00 per million BTU. The cost of coal gas in the Humboldt Industrial Park will be about $2.50. Prior to working full time on this project, I reenergized the gas producer at the Hazleton Brick Company, which happens to be thirty years old. Our gas bills used to be $50,000. a month. The coal bills now are $20,000. a month. So, this process is not a theoretical exercise, but a reality which is being done right now in Hazleton and will be done this time next year in the Humboldt Park. It is one efficient way of using coal that we have not heard much about. We have heard about coal gasification but when you look a little further you find that they are talking about a pipeline quality gas. I do not think that it is necessary to bail out the oil companies by building $40 billion gasification plants that have the sole purpose of substituting gas for oil and natural gas in pipelines. It should be pointed out that to burn one volume of natural gas requires eleven volumes of air, but coal gas requires something less than one cubic foot of air for the complete combustion of one cubic foot of gas.

The burners of the tunnel kiln at the Hazleton Brick Company do not

distinguish whether they are hooked up to natural gas or coal gas. Either gas works just as well. There is no reason why this process cannot be duplicated throughout the northeast, or for that matter, throughout the nation. Everyday we see trains of various companies bringing 14,000 tons of bituminous coal into the PP&L plant at Montoursville. These trains leave the region empty. There is no reason why they cannot carry anthracite back to Pittsburgh and Virginia for gasification facilities. I should point out that anthracite is the ideal fuel for gasification. It does not have the problems of bituminous coal, such as tar formation or high sulphur emission. With anthracite, there is no caking or swelling. Bituminous coal plants or gasifiers have investment in the cleanup of equipment equal or greater than the investment in the gasifier itself. That is not true of an anthracite plant.

So, we have an ideal fuel for coal gasification in anthracite. We have the means whereby we can use coal to replace oil and natural gas. And I guess my question to you is - Why don't we do it more often? Thank you.

FLUIDIZED BED PROJECT - WILKES-BARRE

Carl Ungvarsky
Chief Engineer
Wilkes-Barre Redevelopment Authority
Wilkes-Barre, PA

My topic is the prototype Fluidized Bed Boiler as it is used in the Wilkes-Barre Steam Heat operation. The city of Wilkes-Barre has a central steam heat plant that delivers heat to buildings in the downtown area. This central steam heat system was first installed in April of 1886, and the first steam introduced into the lines in November of that year. For the past 94 years, anthracite coal has fired the boilers. Last year the plant used 25,000 tons of anthracite coal and this fuel accounts for approximately 80% of the entire annual budget. With the use of the fluidized bed that burns anthracite culm, we anticipate approximately 50% cost in fuel savings.

Six years ago the former owners/operators of the company began to install oil burners in a move toward the conversion to oil. They went into bankruptcy shortly afterward. Now all of you know what happened to the price of oil since 1973, and whether this or poor management contributed to the failure of the former owners. I do not know. The city of Wilkes-Barre took over the steam heat operation in August of 1976 in order to continue service to the 280 customers, who would have had to install individual heating systems. In fact, this had already occurred with some former customers of the central heat system because of the impending bankruptcy of the steam heat company during that period. Since taking over, the Steam Heat Authority began the gradual reconstruction of the plant including the underground piping that had been allowed to deteriorate for many years. Simple preventive mantenance had not been performed and this was the first order of business.

During the heating season the plant operates with two anthracite-fired

Keeler Boilers with traveling grate stokers and a combined capacity of 180,000 pounds per hour steam. In addition, three smaller oil fired York Shipley Boilers serve as back up to the main boilers and are used for light load because of their turn down capability. The turn down capability for the coal units was removed when four smaller Babcock and Wilcox Boilers were taken out of service, disassembled and stripped for parts when the oil burners were installed. The underground lines were leaking in many areas, and especially on one major feed line on Union Street. Taking this line out of service for replacement would require heat cut off to a large portion of the downtown area. So, through the cooperation of the city government, a major feedline was installed using a double pipe insulation system and heat was maintained throughout this period by installing a temporary line on the surface of Market Street. Maybe some of you remember that the steam line was used as a traffic line divider during the winter of 1976. This line leaked so bad that the city street department saved on snow removal each winter, as the escaping steam melted the snow as it fell. The underground lines were gradually replaced as part of the city reconstruction program, and the result of this line replacement could readily be seen in the improved delivery system. The peak output required to meet demands for steam dropped from 170,000 pounds per hour to 125,000 pounds per hour because of these insulated and improved steam heat lines - approximately 3 1/2 miles of lines.

The plant itself was also rehabilitated. The boilers were broken down and replacement and repairs were made where possible. There was nothing we could do about an inside coal storage bunker that the former owners installed to house 30,000 gallon storage oil tanks. This base, as you probably can realize, could be utilized for inside coal storage thereby eliminating outside storage with related moisture problems. Bob Betzler, Wilkes-Barre City Engineer and Project Manager for the Fluidized Bed Boiler Project, noted that the engineers who were in the process of converting the plant to oil back in 1972, were dealing

with oil at .18¢ a gallon which may have been a major factor for the conversion.

In any event, we now have a city-owned central steam heat distribution system. The underground lines have been replaced as part of the city's rebuilding program. The plant generates stem using two anthracite fired Keeler Boilers and three oil burners for backup and light load. Any long-range planning would require an additional coal boiler for backup with a capability to meet light loads so the oil burners would not be needed. The city of Wilkes-Barre had the opportunity to apply to the Department of Energy to co-sponsor the design, construction and operation of a prototype anthracite-fired fluidized bed boiler. The objectives of the program are first, to establish the technical and economic feasibility of firing anthracite culm in an atmospheric fluidized bed steam generator producing steam for district heating in downtown Wilkes-Barre; and second, to establish the relationship among the variables of excess air, bed temperatures, culm analysis, feeding value and limestone to coloration in order to identify commercially, acceptable operating conditions for the combustion of anthracite, culm and/or anthracite coal mixtures in an atmospheric fluidized bed steam generator; and third, to limit sulphur dioxide and nitrogen oxide emissions to air quality standards.

The project was approved by the Department of Energy and the city of Wilkes-Barre then called upon the Foster-Wheeler Corporation to design, supply and erect the fluidized bed boiler, and the engineering firm of Pope, Evans and Robbins to design the balance of the plan. The boiler was originally planned to burn a blend of anthracite coal and mine refuse and that may be its use in the future. However, testing has revealed that material in area culm banks with a 50 to 55% ash content is suitable for burning with no blending. I would like to refer you to the booklet that includes a technical paper that was presented by the Foster-Wheeler Boiler Corporation to the Sixth International Conference of Fluidized Bed Combustion in Atlanta, Georgia, on April 10th of this year.

This booklet describes in detail the anthracite fluid bed steam generator for Wilkes-Barre. The city of Wilkes-Barre was looking for a high reliability and availability, east of maintenance, low turn down and simplicity of design. The fluidized bed boiler is designed with a four to one turn down capability. Therefore, the steam heat operation can use the fluid bed boiler because it has the flexibility for base load as well as for light load.

At this time, Phase I, which consists of the pilot plant tests, the design of the boiler and the feed systems has been completed. The detailed drawings and specifications are now under review by the Department of Energy and the city of Wilkes-Barre. Construction is planned for this summer for the fluidized bed and to be on line for the 1981-1982 heating season.

In conclusion, I would like to state that the successful operation of the Wilkes-Barre project will demonstrate the ability of a fluidized bed to generate steam from a poor quality fuel in an environmentally and economically acceptable manner. My point here, is that this boiler is designed to burn low grade fuel in an economically and environmentally feasible manner. Thank you.

KEYNOTE ADDRESS

The Honorable William W. Scranton, III
Lt. Governor
Commonwealth of Pennsylvania

Ladies and Gentlemen! I am very pleased to be here in such a lovely setting on such a beautiful day. I hope this weather is auspicious as far as our mission is concerned. I am very happy to be able to meet with you and talk with you at some length about anthracite coal. And whether, indeed, it does or does not have a future. I am one of those who firmly believes that it does, however, that future will not be an automatic one. It is a future which we are all going to have to work terribly hard together to achieve. One of the questions that I get asked very often, and I am sure many of you are asked very often and that is, we have heard over the last several years all kinds of rosy descriptions of what is going to happen to anthracite coal, and yet what has actually happened? What has been accomplished?

I think it is a fair question to ask, a question that we have to ask continually. It will only be until we actually can see and measure the results. Only then can we claim victory over the problem of revitalizing anthracite coal.

Some very important things have happened and it is important, I think, that we review them and recognize them. Since the time that we took office a little over a year ago, the outlook for anthracite coal has changed dramatically for the better. Not because we took office, I don't mean to take credit for that, but because of the dynamics of the energy situation.

The very first thing that I did as Lt. Governor was join many of you in putting the weight of Pennsylvania government behind the proposal to exempt anthracite coal from the Environmental Protection Agency source performance standards. That we did immediately upon taking office in January, which is not, as you know, a minor accomplishment.

For the first time, anthracite coal became a marketable commodity to a much greater extent than it ever was before. That exemption went a very long way in clearing up one of the major problems in the further development of anthracite coal for various markets.

Then, Three Mile Island occurred. Now, many people have claimed a variety of things as a result of Three Mile Island. However, one of the main consequences of that accident was a tremendous uncertainty in the mind of many people about the viability of the nuclear power industry. Those people are not among those who advocate that it is absolutely unsafe, or those people who think it is the salvation to our energy problem. Those people are the ones who have to make decisions whether to invest their companies money into nuclear power or into coal-fired plants. As a result of Three Mile Island, the answer has invariably been, in Pennsylvania and in other states, into coal-fired plants. Coupled with the EPA exemption, a dynamic situation has been developed that we did not enjoy for many years.

Another thing has occurred since we took office, and that was the fall of the Shah of Iran. This event has impacted strongly on the international energy situation. Although we had hints about it in 1973, we never realized the full extent of it, as a nation or as a group of allies until last year. Suddenly, nations such a Korea, Taiwan, and the european countries, have seen the necessity to import coal. There is no reason why anthracite coal cannot be part of that, if we get together and work hard. So, if people say to you, what has happened to give you the feeling that something good can come about anthracite coal, you can point to those three items which have really revolutionized the prospects for this industry.

You know and I know that a great deal more has to happen before anthracite coal enjoys the resurgence that we think it should have. I don't want to raise unrealistic expectations about what can happen to anthracite coal. Those

of you who know anthracite coal, know that its production peaked in 1917 about one hundred thousand million tons a year. We are now producing a little over fifty thousand million tons a year. To get back to anywhere near one hundred thousand million tons would require a miracle, though I don't think anyone here expects that. We do expect, however, a major expansion of the anthracite coal industry within the next few years and maybe over the next decade. There are real possibilities now that we can double the production. I think anybody who looks at the dynamics of the energy situation, and if we are smart and work together to put together a package that can be marketed easily, we can do much better between now and the year 2000.

The question that I really have to answer and should continue to answer to you, is the what the state government intends to do about it? I would forewarn you by saying that the state government is not going to be able to guarantee a market for anthracite coal anymore than the producers are going to guarantee a market for anthracite coal or anymore than the federal government is going to be able to guarantee a market for anthracite coal or anymore than Conrail is going to be able to guarantee a market. Working together in a consorted, coordinated, and intelligent way, we can guarantee a considerable larger market for the anthracite coal.

There are a number of things that we in state government feel particularly responsible for. One is, to set an example, by undertaking a study of state buildings and state-owned boilers to determine which can begin to convert back to anthracite coal. I am pleased to say that such study has been completed and I think you will see some movement in that area. That is obviously not a major market for anthracite coal but it is important we put forth our best foot forward and set an example. I am happy to say that the house that I live in burns anthracite coal, so I pass my winters snugly and securely. This is not true of every institution in the Commonwealth.

The second is the very real and troublesome problem of coal transportation. This is a problem that the state government has to begin identifying but we need assistance from the federal government and the help of each of you by making your voice heard. We have come up with a coal transportation package through the entire state. A great deal of which will impact on anthracite coal of about eight hundred million dollars. This includes the rebuilding and the reactivization of Conrail tracks. The restructuring of about eighteen hundred miles of roads and bridges. Finally, the very important rejuvenation of the Grenwich Pier at the Port of Philadelphia. That is a thirty million dollar package and we are very hopeful we will get that through. As you know, Conrail has decided to put five million dollars into that immediately, but we hope very strongly to push for the thirty million dollar package which will double the capability of that Port to export coal. And we are going to push it.

If President Carter is serious about his coal policy, and if Mr. Mondale meant it when he came to Pittsburgh a couple of weeks ago and declared by 1985 coal production in this state will double, then they cannot afford to neglect the very important problem of the infra structure for transportation in the state. We have put together a state package which I outlined, and we have taken it to our Congressional delegation. You will see a very vigorous push on our part, but we need your help to get it through. This is absolutely the key for any kind of coal development in Pennsylvania.

The next thing the state has to do is take a leading role in facilitating the export of Pennsylvania anthracite. I have sent a representative of my office over to Korea earlier this year to meet with government and industry leaders there. I intend to undertake a trip in May to try and get an agreement from the Koreans to import a specific percentage of their anthracite needs from Pennsylvania. This will help guarantee a market which we can build up into a fair size. It will also help guarantee financing for the infra structure changes

that have to be made, and for producers who are going to develop the capability of producing larger quantities of anthracite coal in the years ahead.

I think there is a real market in Korea. I think there is a real market in Europe, and the state government is working very hard to facilitate that. We are extremely interested in seeing that developed because we think it is a major market for anthracite coal in the short term as well as in the long term.

Next step that we have to take as a state government, is to put our money where our mouth is when it comes to synthetic fuel projects. We were very fortunate to have some part in the opening of the Cando Coal gasification plant in Hazleton. We are extremely interested, and have recommended now the help with state and federal funds to open the Nanticoke coal gasification project. Many of you may not know this but Pennsylvania leads the nation in coal gasification plants and intends to remain being the leader. Anthracite coal has very real potential in synthetic fuel production but it requires state dollars. We intend to determine which of those projects are well founded and back them with state economic development dollars so as to make them happen.

Finally, the jewel in our crown, for anthracite production has been the large scale anthracite project of the Allegheny Electric Cooperatives. It was an idea that we inherited from the energy council that proceeded us. It has gone a long way in that time with the help of Mr. Ebner who is sitting here, and the Allegheny Electric Cooperative. To become a reality, Allegheny Electric has made a commitment to it, PP&L has made a commitment to it, and Philadelphia Electric has made a commitment to it. If this becomes a reality, then there is a possibility of increasing the output of anthracite coal by 60%.

There have been very real interests, both inside Pennsylvania and outside Pennsylvania, to be involved in the mining operation. We are going to continue to work on that and develop it. I think now you are beginning to see

the utilities understand the logic of using anthracite coal. Our administration will be more than happy to be as helpful as we can, not only in this project, but in any other similar project. We intend to coordinate the effort of state government, in so far as licensing and permits, DER and all those very complicated issues which involves the environment. I am glad to say, Mr. Cliff Jones has given his personal pledge to see to it that the project works and any other project like it will work. So, I think you see very briefly, a real possibility now for increased production in anthracite coal.

It is not something that people are just talking about. It is very real. Obviously, that you people who work in it on a day to day basis, has some very real problems that have to be addressed. There is no doubt about it. But for the first time in a long time there is optimism and there is real grounds for a bright future in the anthracite coal region. It will be our fault, and I don't mean the state government, but all of us in this room including state government, if that optimism does not come to fruition. We must work extremely hard and understand with each other that we all have responsibilities and a partnership. That, if one of us lets down, we are going to disappoint the entire project and the entire effort.

As you know, and I can be very frank with you because you know it, anthracite coal has not had the best possible reputation either nationally or internationally for a long time. There is no reason for that. There is no reason we cannot overcome that, and we are going to work terribly hard to overcome it. The anthracite coal is a resource of tremendous value. It is a coal of tremendous quality. It is a coal that in time of crises will be the main energy source for Pennsylvania and our allies throughout the world. We, in state government, are determined to do our best to make it happen. I would only ask you in return to keep very close in touch with us. Tell us what you are doing and what you would like to see us do and understand that we are all working in

partnership here.

This region of the state deserves better than it has received for many, many years. The economy of this region, the image of this region, and the pride of this region, now has the opportunity to develop itself in a tremendous fashion. The responsibility lays on all of our shoulders. If we understand that, and if we don't let ourselves begin to gripe at ourselves and worry about the fact that things aren't moving fast enough, but just keep constantly on the road of developing what we have now, and that is a very fine and marketable product.

I think we are all going to see a major resurgence of anthracite coal between now and the year 2000. Thank you very much.

PANEL DISCUSSION
COST AND CONSEQUENCES OF COAL CONVERSION

Thomas J. Lynott, Chief
Economic Development Division
Bureau of Human Resources
Department of Community Affairs
Harrisburg, PA

Good afternoon! Thank you very much for your patience today. I will like to just briefly outline how and where the Department of Community Affairs is involved in our efforts here. In the Department of Community Affairs we have what is known as the 601 Program which is designated for coal impacted counties. This is a federally funded program under Farm Home Administration, and unfortunately, in Pennsylvania there was only one county in the anthracite region, Northumberland County that was funded the first time around. So, the Department of Community Affairs asked me if I would work a few days a week with the coal operators in the northeast region in particular, the anthracite region. The objective is to develop a dialogue, and see if there is a possibility of an eight per cent increase in production to qualify for the 601 Program and get the county certified. It is not that difficult to reach this objective. With all the ideas, the plans and enthusiasm available, we do hope that there is going to be an increase in anthracite production and an increase in employment.

We presently have the Columbia County representatives here working with the commissioners in planning. Their county has the necessary documentations in for the program certification. I am presently working in Schuylkill County with the tremendous cooperation of the county-wide community action agency. Ms. Dawn Cagerese has made available four of her staff members to go to each of the coal operators with a very simple one page form to ask them if they have an increase in their production. Be it in the deep mines, strip mines or in transportation.

We are working also with the agency here in Luzerne County. This,

however, is a rather large task because I know when some of the people in the industry get a form from the government requesting production increases projections, they will chuck it in the basket thinking it is just another form. What we would like to do is to combine the community and our efforts with those of the coal operators to build and maintain central fired anthracite units. If we are going to acquire ground in the anthracite region and work with you people, we are going to try desperately to work with your interest in mind. If it is a new site or an existing site and we are going to do anything in housing and economic development, the first things we are going to do is to take a good hard look at using a central fired anthracite unit. Whether it is high temperature water or a gasifier is not important. The proof what we say and do is in Northumberland County. Mr. Grennon represents Northumberland County, would attest to this.

So, the Department of Community Affairs will attempt to promote and use anthracite in its programs and development projects. This means wider market, more industry, and jobs. Thank you.

PANEL DISCUSSION
COAL AND CONSEQUENCES OF COAL CONVERSION

Louis Pagnotti, III
Pagnotti Enterprises, Inc.
West Pittston, PA

I am an engineer with Pagnotti Enterprises, Inc. Our company and its subsidiaries have been continuously engaged in the mining, preparation, and marketing of anthracite coal for forty-eight years.

The anthracite industry, located almost entirely in northeastern Pennsylvania, is more than one hundred fifty years old. At its peak, the industry produced one hundred million tons of coal per year, employed one hundred fifty thousand men, and was the primary source of space heating energy for a significant part of our country.

Since 1925, when fuel oil began to make inroads into normal anthracite markets, and, subsequently, with the availability of natural gas in these same markets, the utilization and production of anthracite coal has steadily declined. It was virtually impossible to meet the competition of these low cost, laborless fuels and the conveniences they afforded.

Anthracite coal production has continued, nevertheless, even though at a drastically reduced rate, and there remains to be mined in excess of seven and one-half billion tons. These reserves are available, partially by Open Pit Mining and partly by Deep Mining. In addition, we have mined and have stored above ground, nine hundred million tons of anthracite waste/refuse material in more than eight hundred fifty banks located throughout the region.

Given the above reserves, the anthracite industry can be an abundant DOMESTIC source of fuel, which is a most important strategic issue considering our dependence on foreign sources for our basic energy requirements.

Probably the most important issue preventing expansion of the

anthracite industry is a long-term increasing market. Accordingly, we wish to submit the following recommendations:

1. All conversions from coal to natural gas and fuel oil should be discontinued, and all installations which have the equipment to burn anthracite should be required to convert from natural gas and fuel oil to coal.
2. Anthracite coal should be designated as the preferred fuel for utilization within an appropriate geographical radius of the anthracite producing region.
3. Federal, state, county, municipal, and school buildings should be required to burn coal rather than natural gas and fuel oil.
4. Commercial, industrial, hospital, apartment, and housing units should be required to utilize coal instead of natural gas or fuel oil.
5. Public utilities in the general area of the anthracite-producing field should be required, encouraged, directed, and assisted in the design and construction of generating plants which would use anthracite coal.
6. Encourage the use of small gasification units such as the Galusha, Riley-Morgan, and Lurgi processes for industrial park complexes and similar industrial installations.
7. Relaxation of the Environmental Protection Agency's Industrial New Source Performance Standards to allow the use of coal containing 0.7 to 0.8 percent sulphur.
8. Adequate Research and Development Funds should be made available for the development of new burning methods, advanced equipment design, and the construction and operation of a Demonstration Plant to further the efficient utilization of anthracite coal.
9. An appropriate program should be established which would give tax credits, accelerated depreciation, or some other form of benefits to those who convert from natural gas or fuel oil to coal, or for those who provide for the use of coal in new installations.

10. Establish a Federal Stockpiling Program which will permit the uninterrupted operation and expansion of the anthracite coal industry. This would make it possible for the industry to acquire necessary mining equipment, perform the required development work, and expand its production to meet the anticipated marked demands if the program outlined herein is adopted.

It should be noted that anthracite coal does not lose its energy value as a result of stockpiling and, since it has such a high fusion point, it is not subject to spontaneous combusion.

It would be desirable to consider the establishment of Coal Stockpiling Facilities at certain strategic locations so that this energy fuel would be immediately available when and where it is needed.

I am thankful for the opportunity to present our views to you and I am ready to answer any questions you may have.

PANEL DISCUSSION
COST AND CONSEQUENCES OF COAL CONVERSION

Kenneth R. Harrison
Product Manager
International Boiler Works Company
East Stroudsburg, PA

International Boiler Works has been around since 1886 and we have been manufacturing coal-fired boilers I think, since that time. The basic design on the International Boiler has never really changed, and we have no limitations so far as output is concerned.

We currently catalog high temperature boiler up to 200 billion BTU, and we could probably go to 250 billion BTU. We currently have orders for 360,000 pound per hour steam generators and coal-fired. Yesterday, I understand, we were the low bidder on one for 50,000 pounds per hour unit. Now, for the small user, there is a great economical advantage in burning anthracite coal. Up to approximately 7 1/2 million BTU's, the stoker coal firing equipment and a boiler combination is relatively inexpensive compared to what happens when you get into chain grade stoker in the area of about 8 million BTU's on up. Once you get around 8 million BTU's and for cost/benefit ratio, you start getting into the area of bituminous coal-fired boilers.

We basically have no limitations on pressure. Boilers can be designed pretty much for what you want although we try to cut off around 500 to 600 PSIG. There are few things we have to concern ourselves with when we design a coal-fired boiler plant and basically we call it the three T - temperature, time and turbulence. When you are talking about the combustion of coal, these things are very important. There is an advantage with anthracite because the amount of time and turbulence is not the same as bituminous. Generally, thereby cutting down the cost of the furnace setting and ultimately saving some money.

As far as the EPA guidelines are concerned, we can generally get by

with mechanical collectors in series up to about 40,000 pounds per power. In the State of Pennsylvania, the curve drops down. I think around 50,000,000 it drops down to 0.1 pound. I do not believe there is a major manufacturer who is going to guarantee the 0.1 pounds level of EPA. The lowest I have gone with mechanical collectors is approximately 3.2 and I am planning to go to 0.25 by using bag hoses. As soon as you put bag hoses on they get relatively expensive, but they do a good job.

I would like to give you an idea of the amount of coal now. IBW has done a lot of work in Wyoming installing four systems there. These are coal-fired boiler plants. We do design work on the complete coal-fired boiler plant and Campbell Company of Wyoming apparently has enough bituminous coal to us. It currently has enough coal to provide the needs of this country at the current rate for sixty years. And that's just one county in Wyoming.

I would also like to point out that the price of anthracite coal seems to me out of line. I don't know, maybe I'm out of line. If you are to compare anthracite coal to bituminous coal, you are talking of $50. and $60. a ton versus $23. a ton. This is a great disadvantage to anthracite and I do not know what can be done about getting that cost down. The price of a ton of coal has killed some of the jobs I worked on. The coal I mentioned to you at $23. a ton is a very high grade bituminous and it is readily available, especially throughout the South - Tennessee, Kentucky and Alabama. I know, for instance, in the State College area, there are people shipping bituminous coal and ther are bituminous coal mines in the region. I'd also like to point out that in our office generally, since I work primarily on coal-fired boilers designing coal-fired boiler plants, I get the impression that anthracite is almost a dead thing. We have inquiries occasionally and I will sit down, I will design the system and I spend quite a bit of time, but the system is off because of the cost. I would like to point out that design time is generally not as long as required for bituminous plant

because they get rather cumbersome. These systems cost $120,000. - $125,000. for a small boiler. It is going to save you a tremendous amount of fuel cost, but these are big figures to small firms and they just do not have the capital to spend.

In one case two years ago, I proposed a 30,000 pound per hour job for about three quarters of a million dollars. This is relatively low for a 30,000 pound power boiler. They put an oil fired boiler in, and now are very sorry for the action. I have since quoted them again on a small anthracite coal-fired boiler and they have been sitting on it for three months. I don't know how you get the people to move. It is a lot of work and it doesn't seem to be proving beneficial to us at this particular time. Possibly it will break open.

There was also a lot of talk here about studies being done. Studies, studies, that's all I ever hear. I will tell you what happens with a lot of studies. I get calls from some engineering firm, from some guy who doesn't know basically what the hell he's talking about. He spends about one-half an hour on the phone with me and apparently he writes his report from what I told him. What I tell him is not incorrect but rather an abbreviated discussion. If, on the other hand, he wants to do a study, I would advise him to come out to our plant and sit down and plan to spend some time - like several days. Also, to go and visit the coal companies. You can't have somebody inexperienced who knows nothing about coal-fired boilers doing a study over the phone in twenty minutes. It won't work. That's just another point I'd like to make.

I would like to recommend that you people here today give a lot of thought to what is the most serious and important question you have regarding coal-fired boilers. So, when you leave here today, you should get the feeling of satisfaction, and that it was a worthwhile coming here. That is the only other recommendation I would have.

PANEL DISCUSSION
COST AND CONSEQUENCES OF COAL CONVERSION

Louis Beltrami
President
Beltrami Enterprises, Inc.
Hazleton, PA

First of all, I would like to take this opportunity now to thank Wilkes College, the faculty and all the people responsible for putting together a fine program. I don't think I heard the word anthracite spoken many times in one day as I have had today. I want to thank Wilkes College again for the time and their efforts in the promotion of anthracite coal.

I own a coal company. I don't know if that's good or bad. I am trying to figure it out and I cannot come up with the right answer yet. I have heard all the speeches in the room today and I want to sum it up by saying this. "What can we do to revitalize the anthracite area? Is it a dead area or is it a dead issue?" None of this is true.

We are producing coal to the tune of 2.7 million tons of anthracite coal from surface mining. The figures used in here this afternoon that the anthracite industry is producing 5 million tons of coal is not correct. The actual surface mining of coal is no more than I would use the figure 3 million tons. My company is working seven days a week trying to produce the coal that I need for the market.

I hear everyone saying in the room that we must find a market for anthracite coal and to do this, we must go to Russia. We must open foreign markets. We must make the utility companies go to coal. That is an impossible task. The reason is obvious, to produce a million tons of coal takes a lot of equipment. A lot of equipment. People think that we just go, take the coal out of the ground and take it to the preparation plants. But that is not the case. To produce a million tons of coal a year, approximately 300 million dollars is

needed to purchase the necessary equipment. That is one problem - Money! The second big problem, if we had the money, is how do we get the equipment? It takes five years to get the type of equipment that we would need to produce an extra million tons of coal annually.

It will take five years before the shovels and proper equipment would be set on the jobs. Building new preparation plants takes time. We are talking about a very strong commitment.

What is needed here is for the coal companies to have some form of insurance from federal, state or local government. Assuring us that they are going to start a conversion process. Converting their buildings that once burned coal that are now using oil or gas back to coal. If someone would come from overseas right now and say, Mr. Beltrami, I need a million tons of coal for friends, I would have to say no to him. Now as a small company that started off with thirteen cents and a lot of guts, where would I get the money to go out and purchase this equipment? The banks, the financial institutions would say not because I'm in a yo-yo business. There are some years, some months we sell all we could produce. Then, the next month, we are back working four days a week. Right now we are working seven days and I can't tell anyone of you people in the room how many days we will be working by next month. So, we are in the yo-yo business. There is never a guarantee,

So, if you people are interested in coal, and the federal government is sincere, and Lt. Governor Scranton is sincere about converting state buildings over to coal, then I would recommend that he have some type of a stock piling program. A stock piling program would give us the right to go to our own financial institutions to borrow this money that temporarily we would have a market to sell this coal. Unless we have that stock piling program, the coal companies are going to produce what they are producing now.

The next thing I have respect for is DER. I have respect for OSN. In

turn, I asked those same people to have respect for the coal company. Every law that was written was written with common sense. Everything you do in life, depends on common sense. I say that for us to produce more coal in the future, we must sit down in a more gentleman-like manner and discuss the problems that the DER or OSN or OSHA sees. I'm sure everyone will be cooperative. We cannot go on with state and federal inspectors coming on our jobs writing us up because they want to write a report; or because we are ten feet out of a prime rate area that has already been mined twenty-five years ago.

We need better communication. We need more meetings. We have to be invited to Washington. We must be invited to Harrisburg so that we could sit down and help in writing these laws so that we could all live with them. My brother-in-law is an OSM inspector. He wrote me up three times in the last week in Wilkes-Barre, but he still comes over to my house and drinks my beer on Easter. Why should they write, write, write? Why can't they just come and talk?

Last week I had a meeting with DER for putting some water into a creek. It wasn't my fault. The letter I received from Harrisburg says that I have an alternative; either two to five years in jail or a fine of $20,000. I'm a criminal because I am trying to be a productive man.

This must change.

We must think more of productivity in this country. We must work together. If we must have these offices, if we must have these rules and regulations. The government cannot regulate us to the degree of putting us out of business. They must help us and assist us so that we can go on producing to satisfy the energy needs of this nation. Thank you.

PANEL DISCUSSION
COST AND CONSEQUENCES OF COAL CONVERSION

John J. Wilkes, Jr., P.E.
Regional Air Pollution Control Engineer
Bureau of Air Quality Control
Department of Environmental Resources
Wilkes-Barre, PA

The Department of Environmental Resources has a positive position now on anthracite. DER would like to see anthracite used wherever possible and burned in an environmentally sound manner. The policy has changed somewhat. We are changing the way we are writing some of our permits. For example, we used to take the maximum rate of capacity of units and used that as a basis for permit issuance and the type of controls that had to be put on it. Today, we basically tailor make a permit that will allow for a reactivation of similar units. It also contributes to the installation of less costly control equipment that requires less sophisticated control equipment in conjunction with operating restrictions.

The Lt. Governor stated that the policy of the administration now is to attempt and help anthracite as much as possible. It is interesting because one ton of anthracite coal is equal to about 122 gallons of No. 2 fuel oil. So, everytime we burn a ton of coal, it's that much less dependency on oil from overseas.

The only reason for changing policies is that agencies like ours react to situations; problem situations. Some of the people in here remember going back a few years when DER came to be and prior to that an agency in the Health Department. There were things like burning coal, refuse areas in the valley which people had to live next to. There were other conditions that people were subjected to live next to in some locations. They have been corrected and what we are doing now is addressing priorities as they occur.

A very evident example which is a little out of air quality line, but I guess I might as well use it. This case happened in Pittston at the Butler Tunnel. The people who are with DER and responsible for a ten county area, number to a total of three people. That was it. They are responsible to oversee all solid waste disposal; all hazardous wast disposal - everything.

There was a plan to beef up the organization, but there was no funding for it. It wasn't done. Now that this situation has occurred up here, the funding was made available and everything was, in fact, done. Now it may have prevented something like that from occurring. So, we're back into the same thing. Where there is a problem, it occurs, and you react accordingly.

PANEL DISCUSSION
COST AND CONSEQUENCES OF COAL CONVERSION

Richard M. Miller
Berger Associates
Harrisburg, PA

I have to start out by saying that this is such a nice day outside, but I am not really sure it is my day. I heard this morning, why hire a consulting firm from Harrisburg that does not pay enough attention to come to you and talk to you in detail about your problems. On top of that, I have to go back tonight and negotiate with the police force on a new contract. And now I follow Lou Beltrami's presentation. I mean, this is not fair.

Setting all this aside, I want to just make a couple remarks supplementing Dr. Pell's comments this morning. But before that, I do think it is proper that I establish the credentials of Berger Associates.

Many of you in this room recall the work that was done by Berger Associates for the Bureau of Mines in 1975. We are very proud of that report. We think it did a good job in describing the industry, and pointing out the problems. One of the reasons we think it was a good job because it is not a Berger report but a Berger-Rydall report. So, when we pass ourselves off as authorities, we do also use as much information from the industry and with the people in the area as we possibly can. If we go out and talk to a boiler manufacturer, we try to find out exactly what it takes. I am not an engineer, I am an economist which makes it even worse, I guess. Our organization includes engineers that know what they are speaking of.

Dr. Pell mentioned the task assignments that we have been given. The inventory which is imminent, will be out in just a very short time. I think it is a very good report and the first single source of information on the federal projects and programs.

Let me put something in perspective here. The 27.1 million dollars mentioned for RD&D for studies and environmental projects, and the European markets of the Armed Forces which is about 33 million dollars. So there, for whatever it's worth, the federal effort is 33 million dollars for buying the coal and 27 million dollars for research studies and environmental projects. I think that's important.

In the past, Mr. Clark mentioned, that the market has declined since '63, but it is still, I think, substantial considering the current situation. The Task Force recommendation, which is another study that will be out in about a month includes twenty-one recommendations. Some of which were market oriented, some are production related, and others are mixed. Among the latter is stock piling, which could help both the market and the producers. I just want to mention that our task in the project is to assess its economic feasibility and its impacts on the private sector.

I am not prepared at this time to talk about the individual recommendations and our assessments. It would be wrong and premature, since the report is not yet given to our client, the Department of Energy. I will only add that we hope to send it to Dr. Jerry Pell within the next month and hope it will be made public soon after that. I won't go into the other assignments that Dr. Pell mentioned, but I will discuss a couple other things that get less exposure and visibility but are important.

At the end of last year, we were reviewing some EPA data regarding the use of anthracite in residential areas and school districts in Philadelphia. That data was wrong. And if EPA bases its decisions on this kind of data, it will be wrong. Our recommendation to Dr. Pell was to go and find exactly what the school districts in Philadelphia are using. The same was extended to include the New York area. The results were very interesting.

The New York State and New York City is a good market for anthracite.

Three-hundred sixty buildings in the New York City school district burn anthracite. That amounts to something like 70,000 to 100,000 tons a year, and they seem to live with their environmental problems. By contrast, Philadelphia has a five year plan to replace the anthracite fire equipment. This restriction in Philadelphia is not even based on the air regulations or requirements of DER or EPA, but rather on the Philadelphia City codes. That is the problem they face.

This kind of constructive information was passed on to EPA through Dr. Pell's office as part of the documentation on which proposed regulations are based on.

In the course of doing the New York City and the Philadelphia investigations, a survey of available residential and commercial stokers was provided to Dr. Pell. His office not only analyzed the potentials of anthracite use but also in disseminating that information. This is the advocacy role that is very important. These are the kind of things that are not usually seen in a report. I mentioned them for that sole reason but they did go to EPA directly. In my opinion, it is this kind of information which is necessary for the decision making process.

PANEL DISCUSSION
COST AND CONSEQUENCES OF COAL CONVERSION

Dr. Bruce Berryman
Chairman
Department of Earth and Environmental Sciences
Wilkes College

It is true that there has been friction between environmentalists, coal producers and users. I think today, in view of the tone of this conference, I would like to try as much as possible, to talk about the positive aspects of anthracite mining in terms of its environmental consequences.

First and foremost, is the sulphur dioxide problem. We all know that anthracite contains small amounts of sulphur and SO_2. This property led the industry to receive a sulphur exemption. I think you are going to find in the future that this exemption will be worth its weight in gold. This is a direct consequence of the problems that we are facing now with acid rain. Everytime we look in a pond, everytime we look at a fish in the river, in a forest, we are finding strong evidence of severe acid rain. This is due primarily to sulphur dioxide. There is no question that as the years go by, the sulphur standards are going to be lowered further. So, if you are happy with the sulphur exemption now, you will be more so ten years from now. That I am sure of.

The next consequence of burning anthracite is the production of large amounts of ash. Right now ash can be used for roads in the winter to prevent accidents. It can also be compressed to make cinder blocks. So, if you are thinking of increasing your anthracite production by a factor of ten, then you should also begin to think about other uses for the ash. This way you can anticipate and avoid a possible environmental problem. Think now and plan.

I would like to compare anthracite with nuclear energy. Certainly, everyone is thinking about where the energy will be coming from in the future. Energy from coal and nuclear reaction seem to be in a battle right now. Here,

I think the coal people have it all over the nuclear people. The problems with nuclear are many. We have no known technology for dealing with waste, for example. With coal the technology is here and available. It may be expensive but at least it does exist, and that is certainly a point in your favor.

This area has a culm bank problem. It is perhaps the biggest, single problem left from the mining days. It affects the air when it is blowing around. It affects the water through the ground that percolates through it. It is an eyesore. It prevents people from wanting to move into the area and consequently, industry. If you can burn that stuff, every environmentalist in the country will be on his knees praising you. You will be eliminating tremendous problems in all aspects of the environment.

In a new article that came out yesterday, the new problems that people are worried about regarding coal burning carcinogens was discussed. These are the tars. The same type of tar that you get from your cigarettes and lead to cancer. The same stuff comes out of coal-fired plants and gives people cancer, too. However, you all know that anthracite is difficult to burn. The reason it is difficult to burn is that it does not contain the volatiles in it which are the hydro-carbons. It is these volatiles that produce the carcinogenic tars. So, there again, anthracite comes out on top.

Standards have gotten a lot of flack today. What can we possibly say optimistically about standards. Well, I heard this morning from someone who said he could live with the current standards. That is the first time that I have heard that statement in years. Everybody always wants to do away with the standards and make the rules more lenient. If the anthracite people can live with the current standards, that will be a tremendous optimistic note.

There are two problems, I think, that we have to face up to and cannot really segregate.

One, in this area, the problem of the social impact of mining is very

evident. Over the noon hour, I was interviewed by one of the media. He was asking about the environmental consequences of opening the mine, but did not want to hear about air pollution, water pollution, solid waste, or strip mining. He wanted to know about the black lung, the maiming and killing in mine accidents and cave-ins, and the subsidences. This, I think, will be your main problem in opening up the mines again. There will be many people who, in spite of the unemployment and low income, are not going to want to put up with the social headaches again in opening the mines. I think you are going to have to face up and plan to this situation.

Lately, we have been hearing about the carbon dioxide problem and its impact on the world's climate.

That is a real problem.

Unfortunately, when you burn coal and burn it efficiently to get the most energy out of it, you produce the most CO_2. I really have no answer to that problem.

I think, as of right now, CO_2 is not considered a pollutant. In the years to come, we may have to establish CO_2 standards. It can be considered as the ultimate waste. Burning anything that has carbon in it will result in CO_2 emission and you cannot get around.

Let me close on an optimistic note again. The thing that I find thrilling about the resurgence of anthracite, is that we are getting on the ground floor. We really are starting over again. I think some may disagree with that, but certainly, we are starting revitalization. It is easier not to make mistakes in the beginning than to go back and try to patch them later.

Getting in on the ground floor, we have that opportunity. I don't have to remind you that it is not only easier to do things that way but it is also less costly. Thank you.

PANEL DISCUSSION
COST AND CONSEQUENCES OF COAL CONVERSION

Paul Tetherow
Assistant General Manager
Allegheny Electric Cooperative, Inc.
Harrisburg, PA

I would like to keep my remarks short and to the point. I will start by saying who, what, where and how we, Allegheny Electric, got where we are at.

Who are we? We are the wholesale power supplier of thirteen distribution cooperatives in the state of Pennsylvania and one cooperative in the state of New Jersey. We supply the wholesale power to the retail cooperative. For years and years we purchased all of our power from the private power companies, and only lately have we been into the actual generation of electricity. Our first plant is not on line yet. This is the PP&L Susquehanna Nuclear Plant. Allegheny Electric owns ten per cent of it. We are involved in some hydroelectric power, and have one permit for a hydro site. Our corporate objective is to have a mix of generation.

Allegheny Electric is owned by about 650,000 people. They are the owners of the fourteen distribution cooperatives. We are located in Harrisburg, and we have been in existence really since the 1940's. However, unless you have lived in rural areas, you probably have never heard of the Allegheny Electric Cooperatives.

I would like to discuss our involvement in an anthracite generating station. It is a real short and simple story. Our engineers staff recommended that we should plan for two units at 600 megawatts each. So, we hired some consultants, some engineering firms and we went to work looking for proper sites and the necessary coal reserves in Western Pennsylvania. We also had long discussions with the Governor's Energy Council at the time, and were persuaded to think about anthracite. The facts favoring anthracite were many and made

sense. The air exemptions would be lifted, but more important than that, Mr. Chuck Manula's study had shown that with moneys set aside for reclamation, water treatment, etc., anthracite is competitive with soft coal. Allegheny Electric does not have any acts to grind with soft coal or anthracite. We can be a good citizen of the Commonwealth by helping the coal industry, by helping the clean environment, by providing some of the social benefits and work opportunities. This is possible if the cost is competitive and to us, it is.

So, we stopped our studies in western Pennsylvania and when the Lt. Governor then wrote us pledging the full support and the cooperation of the administration, we jumped on board. We were happy to know that since that time, PP&L has decided to enter the field, even though they spent a lot of money studying and anthracite power plant. Philadelphia Electric, I think, is also coming out with similar plans.

I want to make a statement or two about the cooperation of the state administration. It takes between seventy and ninety permits to build a power plant. Almost every one of those permits is subject to challenge by some group, or a coalition or an association or an agency. No plant will be built, if you do not have the assistance and the cooperation of the state government. We are happy that we do have that pledge from the administration.

I might add one other thought here that you people may or may not know about. Two or three years ago, there was a tax enacted on the gross sale of electricity exported out of Pennsylvania. We worked all year to have the Gross Receipts Act repealed. So, now if a new anthracite power plant does come on line, the power can be put into the PJM pool and exported, if necessary, without the penalty of a tax. This is another good incentive for us and we are looking forward to it.

There is much work to do. It is not going to happen overnight. This is what Allegheny Electric is doing and what we are looking forward to implement and plan.

PANEL DISCUSSION
COST AND CONSEQUENCES OF COAL CONVERSION

Leonard Ziolkowski
Assistant Director
Economic Development Council of Northeastern Pennsylvania
Avoca, PA

I now know how my daughter feels, who is in the fourth grade, when she comes home and says, "Dad, why is our name Ziolkowski. I am always the last one being called upon in school and I am in the last row."

All the people here today have given good representations regarding their views of what is happening to revitalize the Anthracite Industry. Some of you may know what the Economic Development Council is. We are a seven-county research planning and development organization that does many studies. Those studies are made in conjunction with local businessmen, Chambers of Commerce, industrial development groups, and also various state and federal agencies. In fact, we provide the regional inputs into at least ten or fifteen statewide plans.

Economic Development Council has worked very closely with George Ebner, when he was with the Governors' Energy Council, with Jerry Pell of the Department of Energy, with the people from the Berger Associates, and many others here. We were involved with a Pennsylvania coal allocation model with Dr. Manula, and the Federal Anthracite Task Force when it was doing the studies on the coal regions. In addition, we were involved with the joint Anthracite Committee of Abe Frumkin and the people of Schuylkill County, as well as the 601 Program with Tom Lynott and many other people.

EDC got involved in all these energy related programs because it has a study which outlines strategy and policy for the state and federal governments to spend their money in this region. We developed what is called the Area Action Program which identifies several developmental opportunities. One of these opportunities is that we have the capability of being an energy house for North-

eastern United States. When we were developing the case for exempting anthracite from the SO_2 standards, we showed that close to seventeen and one half billion tons of recoverable anthracite coal is available in this region. It averages about 0.6% to 0.8% sulphur content. This coal is within 300 miles of nine proposed or planned coal-fired electric generating plants; two proposed or planned coal conversion plants and twenth-three electric generating plants that have been ordered to convert to coal. We also have given a big description on how many tons of coal they can convert to, what their needs are, and when these plants are coming on line. If any of the coal producers are looking a market, we have already made a market for you. IGW or Babcock and Wilcox or some of the other people including Foster Wheeler can provide the various boilers.

In addition to that, we are involved in two or three other programs here that we are very excited about. The Nanticoke Coal and Methanol Project is one such project which, I am proud to say, our Council was directly involved with. That specific application went in yesterday for four million dollars to ascertain the feasibility of constructing a coal and methanol plant somewhere in northeastern Pennsylvania. The primary site for that facility is the Dan Flood Industrial Park in Nanticoke. There are also several other sites that are to be looked at. We did a deep evaluation of about eight townships in northeastern Pennsylvania. We identified twenty-eight potential sites that might be capable of accommodating this facility.

Now, let me give you some idea about this facility. It will burn anywhere from five to twenty thousand tons of coal a day and processing that coal into liquid methanol. The projected production is anywhere from twenty-five hundred tons to fifteen thousand tons of methanol a day. The facility will need a site around twelve hundred to fifteen hundred acres of which at least eight hundred will be for storage of coal and methanol or the disposal of waste.

This project will also provide approximately two thousand jobs for the area.

The Coal Methanol Project will cost in the neighborhood of 1.5 to 5 billion dollars, and will put many people to work directly or indirectly.

We are only a small part of the team. Some of the people involved in the team include the Energy Research Development Corporation from Nanticoke, Evasco Engineers of New York City, Babcock and Wilcox, and the Economic Development Council. Several utilities have decided they would support the feasibility study and are willing to serve on the advisory committee to monitor the project. They include mainly PP&L, Philadelphia Electric, possibly GPU and UGI. Several chemical firms are also possibilities and may include Gordon Chemical, Ashland Chemical and International Minerals and Chemicals. As the Lt. Governor stated, the administration has endorsed the feasibility study. We have dealt with several of the local coal producers to investigate the minimum need of about twenty to fifty million tons of coal over the life of the program.

Right now the bid hurdle that the project faces is the availability of water. This plant uses a minimum of seventy-one hundred gallons of water per minute. That means, anywhere between 3.5 to 15 billion gallons of water a year. These are some of the things we are going to have to look at in the feasibility study to see whether or not we can get that water from the river. Whether or not we are going to have to recycle it, whether or not we can recapture some of that water from the mine pools. By working with some of the people in the U.S. Department of the Mines and DER, we feel that if in the event the ultimate site for the plant is Nanticoke, there may be the possibility of tapping the South Wilkes-Barre, the Buttonwood, and the Nanticoke bore holes.

In closing, I would like to say that the Economic Development Council is very bullish about the revitalization of anthracite coal in northeastern Pennsylvania. Thank you very much.

CLOSING REMARKS

Dr. Andrew Shaw, Jr.
Dean of Management
Wilkes College

It has been a long day, but I hope it has been enlightening and intriguing. I also hope it has been somewhat controversial. I certainly know it has been thought provoking, and that you leave here with a challenge and many avenues for solutions to the anthracite problems. But, if you really want to do something about the revitalization of anthracite, keep on our toes, keep on our back. Let us know where we have been deficient, where we have done an effective job so that we can work with you and for you.

We are all in this together whether we like it or not. And so, anyway we can be of help to you here at the College, we will attempt to do so. I will reiterate, get in touch with me, with Dr. Nejib, or Ms. Beynon. We look forward to working with you. We do have a good track record of working with business and industry throughout Northeastern Pennsylvania. We have been doing it for a good many years.

That is what Wilkes College is all about. So, with those few remarks, I just want to leave you with that challenge and hope that it will set forth what we consider the dynamics of anthracite revitalization.

But, we have to work together.

If you feel that this conference was beneficial to you, then I hope we will continue to hold sessions that will zero on some specific areas of concern.

Thank you for coming, and we stand adjourned.