

Energy Roadmap Workshop on Hydrogen

Written and edited by Trina Karolchik Waffle, WVU NRCCE

With support from Richard Bajura, WVU NRCCE; Tom Witt, WVU Bureau for Business & Economic Research; Calvin Kent, Marshall University; Curt Nakaishi, National Energy Technology Laboratory

Workshop Overview

The goal of the Hydrogen Workshop was to assess, in a preliminary fashion, West Virginia's potential for participating in the hydrogen economy.

A program planning committee was convened to outline the means by which this goal would be achieved. Committee members included:

Richard A. Bajura, (committee chair), Director, National Research Center for Coal & Energy at West Virginia University

Patrick Esposito, Sr., Founder and CEO, Augusta Systems

Jeff Herholdt, West Virginia Development Office Manager of the Energy Efficiency Office

Calvin Kent, Dean (now former), Marshall University College of Business

Curtis V. Nakaishi, Business Area Coordinator, National Energy Technology Laboratory

Trina Karolchik Waffle, Associate Director of the National Research Center for Coal & Energy at WVU

Tom Witt, Director, Bureau of Business and Economic Research at WVU

The committee derived three strategic objectives for reaching the goal, namely to educate key stakeholders in the state about the status of hydrogen as the future energy carrier, to allow the stakeholders an opportunity to network with one another to begin establishing relationships, and to use the information and the relationship building as the foundation for future actions to be derived from the workshop recommendations.

Approximately 60 people participated, representing electric utilities, the chemical, coal, natural gas, and automotive industries, economic development and research organizations, energy entrepreneurs and private investors, environmental groups, and other interested individuals.

The one-day event featured presentations by experts regarding various facets of the possible hydrogen economy. President George W. Bush's challenge that the first car driven by a child born today be powered by hydrogen, and be pollution-free, has sparked national interest in hydrogen. Governor Bob Wise's Energy Task Force urged consideration of West Virginia's role in the potential hydrogen economy.

Experts from the coal, electricity, chemical, automotive, and venture capital industries and the research community provided background for participants to use to generate ideas for a West Virginia hydrogen roadmap. Presentations included (with links to slides at the WV Energy Roadmap Workshop web site):

Energy, the Role of Hydrogen, and the NETL

Rita A. Bajura, Director, U.S. DOE National Energy Technology Laboratory

http://www.wvenergyroadmapworkshops.org/presentations/03Nov_Hy_Bajura.pdf

Hydrogen Production and Distribution Issues

State Activities: Governor's Energy Task Force Report, *Patrick Esposito, Sr., Augusta Systems and Chair of the Governor's Energy Task Force*

http://www.wvenergyroadmapworkshops.org/presentations/03Nov_Hy_Esposito.pdf

Coal to Hydrogen, *Jeff Withum, Consol Energy*

http://www.wvenergyroadmapworkshops.org/presentations/03Nov_Hy_Withum.pdf

Hydrogen and the West Virginia Coal Industry, *Bill Raney, West Virginia Coal Association*

Hydrogen and the West Virginia Chemicals Industry *John M. Maher, Chemical Alliance Zone*

Distribution of Hydrogen, *Robert Miller, Air Products*

http://www.wvenergyroadmapworkshops.org/presentations/03Nov_Hy_Miller.pdf

Applications, Markets, and Resource Issues

Future Market Situation for Hydrogen in West Virginia, *Mark Burton, Marshall University Center for Business and Economic Research*

Transportation Markets, *Ian Sutherland, GM Fuel Cell Activities*

http://www.wvenergyroadmapworkshops.org/presentations/03Nov_Hy_Sutherland.pdf

Personal Power Market, *Craig Hartzell, Azimuth*

Distributed Generation Market *David Nichols, American Electric Power*

http://www.wvenergyroadmapworkshops.org/presentations/03Nov_Hy_Nichols.pdf

Coal to Chemicals, *Craig Schmidt, Eastman Gasification Services*

http://www.wvenergyroadmapworkshops.org/presentations/03Nov_Hy_Schmidt.pdf

Capital for Early Stage Energy Companies, *Michael DeRosa, EnerTech Capital*

http://www.wvenergyroadmapworkshops.org/presentations/03Nov_Hy_DeRosa.pdf

Why West Virginia—comments in reaction to the presentations and a call to creativity

Scott Rotruck, West Virginia Council on Economic Development

Federal Hydrogen Initiatives

Ellen Lutz, Director, U.S. DOE Philadelphia Regional Office

Ms. Lutz noted that West Virginia was the national leader in establishing a States program for the (DOE) EERE Industries of the Future initiative and West Virginia has the potential to be a leader in the hydrogen arena as well.

Ms. Bajura noted that urban pollution worries, climate change concerns, maturing fuel cell technologies, energy security priorities, and increasing political will are today's drivers for a hydrogen economy tomorrow. She explained that no technology matches the efficiency that can be obtained from fuel cells for both stationary and transportation power. But cost remains a barrier: fuel cells cost between \$1,600 to \$4,500 per kilowatt while internal combustion

engines cost about \$35 per kilowatt. Hydrogen, however, can be produced from any of a number of feedstocks relatively affordably. She named biomass, natural gas, and coal through chemical routes to hydrogen and nuclear, and solar, wind or other renewables through electrolysis of water as other options.

Mr. Schmidt of Eastman Gasification Services Company championed coal gasification as the primary near-term technology for making enough hydrogen to meet the nation's annual demand for transportation fuel. Gasification is a chemical process in which coal is partially combusted in either pure oxygen or air mixed with steam to produce large amounts of hydrogen and carbon monoxide the building blocks of many man-made goods.

It is a little-known fact that Institute, W.Va., is the birthplace of synthetic rubber made from gasified coal and Belle, W.Va., is the birthplace of nylon also made from gasified coal. Both breakthroughs provided strategic materials needed for WWII.

An added benefit of gasification technology is that it generates electricity at the same time. Further, gasification is gaining acceptance in the environmental community, since it is inherently lower in SO_x, NO_x, and particulate matter, and is potentially the lowest cost technology for mercury and CO₂ removal and capture. Renewables such biomass from timber and farm waste can be gasified, either alone or with coal.

Mr. Nichols of American Electric Power cautioned that the cost of gasification is an issue for power production. Mr. Sutherland of GM Fuel Cell Activities noted that the hydrogen fuel cell which powers vehicles is ten times more expensive than today's standard internal combustion engine, although he said GM is very confident that the cost will decrease significantly. He was less confident though about technologies for storing hydrogen on board a vehicle.

Mr. DeRosa of EnerTech Capital said EnerTech was one of the pioneers of venture capital investing in such technologies said that there are substantial venture capital opportunities in this area.

Mr. Hartzell described the intense need for small, portable, lightweight energy packs for military troops to carry to the battlefield. He said that fuel cells to replace batteries have long been considered by the Department of Defense and that his company, in Morgantown, has been engaged in research along those lines. The soldier of the future will depend more and more on portable power to make a greater array of field-deployed warfare technology operable. As portable energy needs increase, the need for hydrogen fuel cell technology and its significantly reduced weight compared to current personal power sources becomes vital, he said.

Mr. Raney commented on the value of workshops such as this one for helping the industry identify new opportunities. He noted that the coal industry continues to play a major role in the West Virginia economy, as an employer and a generator of tax revenue, having contributed \$224 million to state coffers in 2002. Coal is responsible for more than \$3.5 billion to West Virginia's gross state product, nearly 13% of the total.

Energy has always been one of West Virginia's greatest strengths, said Mr. Rotruck. The state has an excellent energy industry and research support in its academic institutions and the national laboratory. The challenge is to make sure West Virginia remains an energy leader in new era energy industries, he said.

Participants were challenged to ‘think outside the box’ for other routes to hydrogen and to generate ideas for making hydrogen-powered products affordably.

Upon completion of the education portion of the workshop, participants joined one of five breakout groups to discuss two questions:

What and/or where are the opportunities for West Virginia (in the broadest sense)?

What are the three key actions that West Virginia state government, executive and legislative branches, can take to position the state well to participate in the coming hydrogen economy?

Workshop Results

Program planning committee members acted as facilitators for the small group discussions. Groups characterized question one as being about opportunities and question two as being about what the state can do to move the hydrogen agenda forward. It is clear that in the limited amount of time available, the groups made broad, sweeping recommendations in most cases. But the careful reader will likely discern a general consensus forming around certain topics.

Opportunities

Group 1: Group one, facilitated by Pat Esposito, Sr., suggested that a mine-mouth demonstration plant be established as one opportunity. This plant would be a mine-mouth gasification plant to produce hydrogen to showcase the state of technology and to use West Virginia coal. Another was to develop a simulation/modeling center of excellence to maximize the talent and capabilities of the public and private research institutions and businesses throughout West Virginia to develop a modeling capability to assess various hydrogen production schemes and improvements to those schemes. A third was to focus on the role of methanol and other fuels for transportation applications. A fourth was to develop a carbon sequestration expertise to complement the gasification and hydrogen production initiative. *(as reported by Pat Esposito, Sr.)*

Group 2: Group two, facilitated by Calvin Kent, recommended the development of a template for working with different interest groups. There needs to be some way to build a coalition among those who are/will be involved or affected by the development of a hydrogen economy in WV. Not all groups have the same outlook or see costs/benefits the same. West Virginia needs to have everyone on a common page so dialogue can continue and result in action plans supported by all, said this group.

They also recommended that West Virginia resources be used to create WV jobs. The focus was to make sure that promoting hydrogen resulted in jobs and economic development of West Virginia, not for other states. The group did not want hydrogen to become an export commodity which was produced here and then used elsewhere to "add value" to the final product/service.

The group recommended that more detailed, systematic research on the economics of hydrogen be conducted to determine the "best" alternatives for hydrogen development

and how those alternatives could be developed in West Virginia. Best alternatives for other places may not be the best for West Virginia, they said, and the state's resources and efforts should go to those with the highest WV payoff.

The group recommended that ways for using waste and by-products from hydrogen production be explored. This may be essential to getting "buy-in" from groups with a strong environmental leaning. Some fear that the negative affects from coal production on the environment may be repeated (in a different form) from hydrogen production

West Virginia's focus should be on industrial uses of hydrogen and its production rather than consumption of hydrogen as an end-product, the group said. The group saw little possibility that large amounts of hydrogen could be consumed in the West Virginia economy and hydrogen would have to be an export product or used as an industrial fuel. *(as reported by Calvin Kent)*

Group 3: Group three, facilitated by Curt Nakaishi, suggested finding opportunities relevant to the various regions of the state. The various regions (north, south, east, and west) in West Virginia may be better suited for different aspects of the hydrogen economy. Therefore, instead of looking at it from a whole state perspective, we should use the advantages of each of the regions of the state to position WV for opportunities. For example, hydrogen research and development could occur in north-central West Virginia centered around WVU and the NETL, production in the southern coal fields, storage and transportation using the existing natural gas infrastructure and industrial users.

The group suggested capitalizing on energy-intensive industry clusters to use power and process heat from a hydrogen production facility to maximize overall efficiency. For example, co-locate a coal gasification plant with an energy intensive user.

The group recommended that West Virginia become a center of research and training in hydrogen-related industries, from the laboratory to the plant floor. Build a state-wide program to train researchers to solve some of the barrier issues associated with hydrogen such as the high cost of fuel cells, and train workers on the operation and maintenance of a hydrogen production facility.

The group said that the hydrogen economy afforded West Virginia an opportunity to develop a new vision for itself, becoming the "hydrogen state." They also thought the challenge of hydrogen storage on board vehicles represented an opportunity that the research expertise resident in the chemical industry in the Kanawha Valley could meet. There are still a lot of people with Ph.D. degrees (many retired, but still very capable) in the Kanawha Valley that know chemistry, who, given funding and a focus, could work on finding solutions to the storage issues. *(as reported by Curt Nakaishi)*

Group 4: The fourth group, facilitated by Tom Witt, suggested that the focus be on coal to hydrogen. They also believed that opportunities exist to manufacture the equipment used in systems and/or subsystems of a hydrogen production facility of small to medium size. Given their emphasis on coal to hydrogen, the group saw the need for science-based studies of the environmental impact of mountaintop removal mining so that future permitting of new coal mines is more straightforward. And they suggested that college-level fuel cell courses at WVU's and Marshall's engineering programs be established. *(as reported by Tom Witt)*

Group 5: Group five, facilitated by Richard Bajura, had as its top priority the pursuit of the FutureGen demonstration plant. FutureGen is the Department of Energy’s proposed \$1 billion program to “...build the world's first integrated [electricity generation, carbon] sequestration and hydrogen production research [coal] plant. The project is intended to create the world's first zero-emissions fossil fuel plant. When operational, the prototype will be the cleanest fossil fuel fired power plant in the world.” (*from the U.S. Department of Energy FutureGen web site*)

The group recommended exploiting and saving any existing infrastructure in support of hydrogen. For example, gas pipelines may be able transmit and deliver hydrogen. Also, the Kanawha valley’s concentration of chemical companies and highly educated workforce would be an outstanding asset for positioning the state to be a leader in the hydrogen economy. And its research capabilities at WVU, Marshall, and the National Energy Technology laboratory could position it as a developer of technology needed to support hydrogen production, storage, and use.

The group saw a state-wide industry-government-university consortium as one way to move forward. Such a consortium could spawn partnerships in response to federal government research and development funding opportunities.

Group members also thought marketing West Virginia’s assets such as its coal, inexpensive power, and chemical industry expertise to potential development firms would help position the state as a hydrogen player. They recommended that carbon dioxide sequestration “sinks” such as unmineable coal seams and depleted gas reservoirs be exploited, that the state play a lead role in overcoming the problem of storing hydrogen, that an educational program be established, and that liquid fuels from a coal gasification plant be pursued as an intermediary step to hydrogen. (*as reported by Richard Bajura*)

State Actions

Group 1: With regard to specific actions the state could take to position West Virginia as a leader in the hydrogen economy, group one proposed that the state facilitate creation of a public-private partnership specifically focusing on hydrogen production and transportation capabilities. They recommended streamlining and improving the permitting and regulatory processes for plants and production. They recommended the state establish an educational outreach program for stakeholders and tax incentives to stimulate small business energy research and development. In addition, the State should establish an energy research and development fund that would allow both public and private entities, including industry and academia, to access state research funds. Finally, they suggested the state should recruit a private-sector energy R&D engineering center to locate in the state. (*as reported by Pat Esposito, Sr.*)

Group 2: This group recommended that the state support development of hydrogen educational material for all levels. The group felt that hydrogen would never be accepted unless a considerable effort was made to overcome misinformation and negative perceptions about hydrogen among the population. This should be a K-12 and beyond effort, and should make use of the media as well.

The group recommended the removal of the existing regulatory and political barriers to the hydrogen economy in the state. Members felt that the current regulatory environment did not reflect the reality of hydrogen and its potential.

The group suggested getting a strong legislative commitment to the hydrogen economy. Key to this was to provide incentives for hydrogen development similar to those given for other types of investment in West Virginia.

They recommended the formation of a coalition of business and academia to lead the hydrogen initiative in the state. The group felt that business which would use or produce hydrogen, and academics with knowledge and interest, could do the best job of promoting a hydrogen initiative which would be credible.

The group said the state should remove uncertainty regarding the state attitude toward hydrogen. This relates to all of the above and was considered crucial. Without public acceptance and enthusiasm, the hydrogen economy is not likely to gain any traction. In an uncertain environment, it is unlikely that investment will be forthcoming. Without that investment the hydrogen economy will pass West Virginia by. *(as reported by Calvin Kent)*

Group 3: Group three wanted to see the state remove barriers and increase incentives in the areas of permitting and taxes. They recommended the deployment of capital and the provision of seed money. They recommended that barriers to the direct sale of power be removed and that the electricity industry be restructured to promote increased electricity production and sales to markets outside West Virginia. While there are many options, this group recommended that the state identify specific energy technology options to pursue as a strategic economic development focus: in other words, “Choose one pathway up the mountain.” They said that West Virginia state government should work tirelessly to ensure that the FutureGen plant is located in West Virginia. Finally, echoing earlier recommendations, they suggested that a pool of state funds be created for business studies, pilot operations, and research and development. *(as reported by Curt Nakaishi)*

Group 4: The fourth group, facilitated by Tom Witt, suggested that the focus be on coal to hydrogen. They also believed that opportunities exist to manufacture the equipment used in systems and/or subsystems of a hydrogen production facility of small to medium size. Given their emphasis on coal to hydrogen, the group saw the need for science-based studies of the environmental impact of mountaintop removal mining so that future permitting of new coal mines is more straightforward. And they suggested that college-level fuel cell courses at WVU’s and Marshall’s engineering programs be established. *(as reported by Tom Witt)*

Group 5: Top on group five’s list of recommendations for the state was that an appropriate state agency be charged with developing a full-fledged hydrogen roadmap for the state. This group recommended that the state be in a position to quickly permit CO₂ sequestration sites. They encouraged the state to identify appropriate FutureGen sites and that the state promote tax incentives to advance hydrogen technology development. Again, they believed the state should take the lead in marketing its hydrogen-related resources. Like the other groups, this group recommended that the state establish an R&D fund, but with the specific goal of providing cost-sharing dollars to match federal research funding opportunities. The group wrestled with the question of whether to pursue technologies that were based on central production of hydrogen with its subsequent transmission and delivery and the attendant technical problems, or rather to pursue technologies that converted a hydrogen carrier such as

methane or methanol to hydrogen at the point of use, such as on board a vehicle. The group recommended that a decision one way or the other be made. *(as reported by Richard Bajura)*

Event Evaluation

As part of the feedback process, evaluations were distributed to all participants to gauge participant satisfaction with the event and to garner additional ideas.

Twenty evaluations were completed and submitted to the workshop organizers. The somewhat low return may be due to the fact that West Virginia was experiencing a major flood on the day the workshop was held, and many participants left early.

Evaluation of Presentations: Of those who responded, 90 percent agreed or strongly agreed that the presentations were very helpful in educating them about the issues. And 80 percent agreed or strongly agreed that presenters had sufficient time for their presentations, even though the presentations were highly condensed due to the amount of information to be shared and the time constraints involved with a one-day event. Even though the question and answer session was held during lunch for all the morning presentations, 65 percent of respondents said that enough time was spent on Q&A. However, 30 percent strongly disagreed that there was enough time. Comments about the presentations include: “A good mix of talks.” “Excellent.” “A good mix of content.” “I think government (legislative and executive) involvement will be helpful in the future.” “More discussion on inherent (physical property) limitations was needed.” “Rushed-needed Q&A time.”

Evaluation of Facilitated Session: 80 percent of the respondents said they agreed or strongly agreed that the breakout session was effective in generating discussion, ideas, and/or recommendations. 15 percent were neutral and five percent disagreed with this statement. 75 percent believed that the results of their session were accurately reported, while 10 percent were neutral and 5 percent felt disagreed with the reports as given. Again, 80 percent agreed or strongly agreed that they were welcome to express their ideas and opinions and 85 percent personally agreed with the ideas, opinions, or suggestions that were presented. Some of the comments regarding the most important ideas generated from the breakouts include: “Exploring FutureGen...” “The coal to hydrogen relationship.” “R&D investments.” “The need for education.” “Encourage the government, legislature and West Virginia Development Office to focus on energy technologies as economic development strategy/focus area.” Respondents also offered their opinion regarding the topics to move West Virginia forward in the hydrogen area: “Cooperate with neighboring states.” “Partnerships.” “Include social and environmental aspects in all strategies.” Respondents described the session as: “Excellent.” “Technical [information] was very good.” “Rushed but good.” “Well done and productive.”

Conclusions

It appears from all group reports and the evaluations that there is consensus for pursuing coal-to-hydrogen through the federal FutureGen opportunity, focusing on gasification technology, with carbon sequestration to occur in coal seams or in saline formations that underlie the state.

Also, most wanted to see the state adopt some sort of incentives to promote technology investment and deployment, through a state-supported research and development fund and through tax incentives for the private sector.

And most wanted to see education as a focus, first targeting key stakeholders, to position the state as a leader, then targeting the workforce, from the research lab to the plant floor, and finally targeting school children, all to ensure the long-term position of the state as “the hydrogen state.”

Finally, most wanted the state to examine its current regulatory and tax environment to remove barriers in the existing industries—coal, chemical, natural gas, electricity—that would be vital to the hydrogen economy and to establish a regulatory environment that would promote the adoption of hydrogen-based production, distribution, and manufacturing facilities and the associated carbon sequestration capabilities.

(Participant Evaluations Follow on Remaining Pages)

PARTICIPANT EVALUATION RESULTS
West Virginia Hydrogen Workshop
 November 19, 2003
 Stonewall Resort, Roanoke, WV

Total number of evaluations submitted:	20						
Presentation Session Evaluation	Strongly Disagree					Strongly Agree	
	1	2	3	4	5	No Answer	
Overall I think the presentations were very helpful in laying the ground work for generating a better understanding of the issues leading to new ideas	0.00%	5.00%	0.00%	50.00%	40.00%	5.00%	
The amount of time given to the presenters was just right	0.00%	10.00%	5.00%	45.00%	35.00%	5.00%	
The amount of time spent on Q&A with the presenters was just right	15.00%	15.00%	0.00%	50.00%	15.00%	5.00%	
Facilitated Session Evaluation	Strongly Disagree					Strongly Agree	
	1	2	3	4	5	No Answer	
The breakouts were effective in generating discussion, ideas, and/or recommendations.	0.00%	5.00%	15.00%	35.00%	45.00%	0.00%	
The facilitated session was accurately reported in the plenary session.	0.00%	10.00%	5.00%	25.00%	50.00%	10.00%	
I felt welcome to express my ideas and opinions in the facilitated session.	0.00%	5.00%	10.00%	15.00%	65.00%	5.00%	
I personally agreed with the ideas, opinions, or suggestions that were presented from the facilitated session.	0.00%	5.00%	5.00%	45.00%	40.00%	5.00%	
Logistics Evaluation	Strongly Disagree					Strongly Agree	
	1	2	3	4	5	No Answer	
The meeting space was conducive to a successful event.	0.00%	10.00%	5.00%	35.00%	50.00%	0.00%	
The event staff was very helpful.	0.00%	5.00%	0.00%	10.00%	85.00%	0.00%	
The hotel staff was very helpful.	0.00%	5.00%	5.00%	20.00%	50.00%	20.00%	
There was plenty of good food and beverages available.	0.00%	5.00%	5.00%	30.00%	60.00%	0.00%	
The website provided timely, valuable information.	0.00%	5.00%	5.00%	30.00%	35.00%	25.00%	
The online registration worked well for me.	0.00%	5.00%	5.00%	15.00%	55.00%	20.00%	
Overall this was a high quality event.	0.00%	5.00%	5.00%	0.00%	90.00%	0.00%	

Website	3					
Postcard	3					
Brochure	10					

The most helpful presentation for me was: <i>(Note: where comments could not be deciphered, we note them as "illegible".</i>
Air Products.
Craig Schmidt.
Eastman "illegible",
Eastman Chemical "unreadable".
Education.
Ellen Lutz, where to find "illegible".
Michael Derosa, attraction of venture capital will be critical to build H2 infrastructure.
Military applications and "illegible" presentation
None particular, "illegible"
Overview of H2, etc.
Rita Bajura.
Rita Bajura and Michael Derosa.
Rita Bajura, Craig Schmidt.
Rita Bajura, DOE roadmap.
Rita Bajura, good overview.
The overview at the end.

General comments about the presentations:
A good mix of talks.
Excellent.
Excellent.
Good mix of content.
I think state government (legislative and executive) involvement will be helpful in the future.
More discussion on inherent (physical property) limitations was needed.
Rushed - needed Q&A time.
Too short.
Very good.

In my opinion, the most important ideas generated in the breakout sessions were: <i>(Note: where comments could not be deciphered, we note them as "illegible".</i>
1) R&D investments 2) Reducing "illegible" 3) Exploring FutureGen and a coal / hydrogen "illegible".
Coal / hydrogen relationship.
Federal tax credits or R&D sponsorship. Removal of permitting obstacles.
Get a FutureGen plant BUILT in West Virginia!
H2 sharing of ideas.
Need to attract companies and venture capital to WV.
No discussion on ideas "illegible"
Regulatory.
The need for education.

To encourage the government, legislature and WVDO to focus on energy technologies as economic development strategy/ focus area.

To go forward in coal/ hydrogen activity.

Views from different "illegible".

Waste streams as feedstock education needs.

In my opinion, the following topics also need to be considered to move West Virginia forward in this area:

All my ideas were considered.

Cooperation with neighboring states.

Focus on technologies, they markets even if H2 markets do not materialize.

H2 users.

Include social and environmental aspects in all strategies.

Logical focus to get coal industry buy in is to promote hydrogen production as a customer for coal.

More support and relevance for coal industry.

Partnerships.

Regulatory impediments.

What question(s) should have been asked that weren't asked?

(Note: where comments could not be deciphered, we note them as "illegible".

How can we "illegible" benefit to every WV citizen?

Is FutureGen cost share feasible for WV?

Social and political, emotion shareholder interests.

Who should pay for this -- taxpayer?

General comments about the breakout sessions:

Excellent.

Excellent, technical was very good.

Good.

Rushed but good.

Well done and productive.

I leaned about this event through:

Invitation from Trina.

Morgantown.

General comments about logistics:

Excellent.

Excellent program.

Great place for meeting.

Lunch was excellent.

Well done, Trina!