MEETING NOTES

EAST TENNESSEE CLEAN FUELS COALITION
16th Stakeholders Meeting ~ August 14, 2003

Where: Copper Cellar on Cumberland Avenue in downtown Knoxville
When: 11am to 1:15pm
Lunch: From a menu of four lunch items; sponsored by Ted Russell Ford, a Founding Partner in the ETCFC.

Attending (total of ?? people) [Unsure if the italicized people attended]
Jack Barkenbus - UT Energy Environment Resources Center (EERC)
Doug Bishop – City of Sevierville
Buster Brackins – Sevier County Utility District
Ted Buel - GT Designs Inc.
Teresa Cantrell – Great Smoky Mountains National Park (GSMNP)
Bob Colby – ATTI & Chattanooga/Hamilton County Pollution Control Bureau
David Deputy – AmeriGas Propane
Reed Detring – Big South Fork National Park
Mark Downing – ORNL/National Transportation Research Center (NTRC)
Greg Engleman – Interested Citizen
Bryon Fortner – City of Sevierville
Pete Gale – McNutt Oil Co.
Doug Gordon – Interested Citizen
Barry Greenberg – Knoxville Area Transit (KAT)
Teresa Guy – AmeriGas Propane
Brian Headrick – Knoxville Utilities Board (KUB)
Johnny Hickam – Gatlinburg Trolley
Jerry Hickman – City of Sevierville
Dejim Lowe – TVA
Scott Marine – Fun Time Trolley/City of Pigeon Forge
Glenn Mauldin – Ebus
Jeff McCarter – Sevier County Utility District
Richard Molsbee - Plasma Gasification Consultants
David Myers - U.S. Dept. of Energy/ Oak Ridge (ORNL)
Jonathan Overly – Coordinator, ETCFC
Amy Parkhill – Dream Works Printing
Jessica Parkhill – Dream Works Printing
Buddy Parton – Gatlinburg Trolley
Jerry Sanders – ATTI
Tom Shannon – UTK Dept. of Mech., Aerospace and Biomedical Eng. (MABE) Dept.
Brooke Sinclair – Knoxville Utilities Board (KUB)
Ron Sternfels – Plasma Gasification Consultants
Randy Underwood – Sevier County Utility District
Kelly Vaughn – Knox County Division of Air Quality Mgmt.
Parks Wells – Tennessee Soybean Promotion Board
Evelyn Winther – Interested Citizen
Gary Wynn – UT Knoxville
Carla York – Ebus

Other participant information:
A total of 6 new people attending this meeting.
Thus far, a total of **118 different people** have participated in the 15 meetings, representing **62 different companies and organizations**.

Meeting Content
1. Called meeting to order ~11:15am.

2. Briefly described outline for the day and discussed the documents that were provided to the group (see the 14th Meeting Agenda on the Web site - www.etcfc.org under "Documents," which includes a list of what information was handed out). See agenda for the main information that was discussed that day.
3. Noted the dates and locations for the next 5 months meetings - through the end of 2003 (see the agenda).

Meeting Notes submitted by Jonathan Overly.

Working Committee Notes

AFVs & Infrastructure WC Notes
(not received)

Attendees:
Doug Bishop – City of Sevierville
Bob Colby – ATTI & Chattanooga/Hamilton County Pollution Control Bureau
Reed Detring – Big South Fork National Park
Bryon Fortner – City of Sevierville
Pete Gale – McNutt Oil Co.
Barry Greenberg – Knoxville Area Transit (KAT)
Brian Headrick – Knoxville Utilities Board (KUB)
Johnny Hickam – Gatlinburg Trolley
Dejim Lowe – TVA
Glenn Mauldin – Ebus
Jeff McCarter – Sevier County Utility District
Amy Parkhill – Dream Works Printing
Jessica Parkhill – Dream Works Printing
Buddy Parton – Gatlinburg Trolley
Brooke Sinclair – Knoxville Utilities Board (KUB)
Randy Underwood – Sevier County Utility District
Kelly Vaughn – Knox County Air Quality Mgmt.
Carla York – Ebus

No notes! Notes were destroyed when a Palm Pilot was "shot down" (failed and lost all data).

Education & Marketing WC Notes
(received ??/??/03)

Attendees: (are any of these correct for attendance?)
Tom Shannon – UT Mech., Aerospace and Biomedical Eng. Dept (co-chair)
Buster Brackins – Sevier County Utility District
Teresa Cantrell – GSMNP
Mark Downing – ORNL & Trans Tech Volvo/BMW
Scott Marine – Fun Time Trolley/City of Pigeon Forge
Jerry Sanders – ATTI
Parks Wells – TN Soybean Promotion Board

Xxxxxxxxxxxxxxxxxxxxxxxxx

Meeting notes taken and submitted by ???? ????????.

Hydrogen Economy WC Notes
(received 9/17/03)

Attendees:
Jack Barkenbus - UT Energy Environment Resources Center (EERC)
Ted Buel - GT Designs Inc.
Mark Downing - ORNL/ National Transportation Research Center (NTRC)
Jerry Hickman - City of Sevierville
Richard Molsbee - Plasma Gasification Consultants
David Myers - U.S. Dept. of Energy/ Oak Ridge (ORNL)
Ron Sternfels - Plasma Gasification Consultants
Evelyn Winther - Community volunteer

General Overview of Topics Discussed:

> Hydrogen from municipal waste streams: production and distribution.
> RFP Solicitation
> Hydrogen Technology Learning Center: plans and partners.
> Auto makers' commitment to H2/ partnership with DOE
> Practical ideas for service stations, etc.

- Hydrogen production from municipal (and medical, industrial, etc.) waste streams: Plasma gasification (PG) is a process which uses high temp. (up to 8000 degrees F) plasma arc technology in an oxygen starved environment to convert waste to recovered fuels such as hydrogen (H2). Our group discussed possible uses of this technology in the local area.

Jack B.: If such a process were to be set up using waste water in Knoxville (Neyland plant), UT could be the recipient of the generated fuel gases for its energy needs.
Richard M.: There is currently a medical waste facility project which uses CO generated by PG to produce all of its own electricity. PG Consultants uses a 99.9999% or better destruction efficiency in its process (minimized emissions).
Ron S.: Considering the high cost of medical waste removal etc., PG is a system which can turn a negative into a plus.

- RFP Solicitation: Our group should get on board with the DOE's initiative to promote H2 production, delivery, and research. They are soliciting submissions for financial assistance applications. If approved, DOE will provide a 20-25% cost match to aid in furthering technological advances, lab work, and local govt. initiatives. The solicitation may be accessed at <energy.gov> and <e-center.doe.gov>.

Jack B.: DOE is earmarking $1.5-1.7 B for this project. Between the NTRC, ORNL, and ETCFC there is a lot of potential for funding.
Richard M.: There are program managers at the NTRC working on this but I am not sure of the details. There is between $200-300 M set aside for the first year alone. We need to find local interested parties and connect entities where possible. [Any and all grant writers out there - let Jonathan know if you are interested in this project!]

- Hydrogen Technology Learning Center: plans and partners: The idea for this center is to create a museum/ demonstration project which will bring in students and workers in the area. This needs to be a multi-state project, perhaps involving a traveling display. Since the location must be associated with UT, the NTRC may provide a good starting point. It has an operational stationary fuel cell unit already. A response to sponsors will be made by mid-September.

Jonathan O.: It would be great to have H2 production on site, a fuel cell operating and generating electricity to the UT grid, and a transportation based filling station all surrounding the learning center.

- Auto makers' Commitment to H2/ Partnerships with DOE: The US Council for Auto Research is promoting a partnership for a new generation of vehicles (PNGV). In Jan. '02 they launched this project to move toward fuel cells and H2 as a carrier fuel, hoping to decrease US dependence on foreign oil. There is now a partnership between the three major US auto makers and the DOE, with the government concentrating on infrastructure and the auto makers focusing on the vehicles.

Mark D.: The main decisions DOE is having to make before this can move forward are: where will the fueling stations be located and what form will be used (i.e. fillable canisters or pumping stations?). Ford is addressing

the transition by looking at the possibility of using existing internal combustion engines while GM is striving for a mass production fuel cell line in 10 years. The military offers a "Fuel Cell Gator" off road vehicle.
Ron S.: When considering the locations of the fueling stations, if there is demand for H2 beyond vehicular use the whole process could be sped up.
Jerry H.: City managers need to know specifics on the specs for H2 vehicles when making decisions about future uses. For example, in Sevier County we couldn't demo a fuel cell bus because our elevation changes were beyond what the buses could accommodate at that time (200 ft. change). Even the flattest part of town - from downtown to the baseball stadium - went outside that range. Sevier County is at 900 feet while Gatlinburg is 13,400 ft.!
Richard M.: The technology must be improved since Chicago uses H2 buses and has elevation changes of around 600 feet.
Jerry H.: Private citizens may balk at investing in a vehicle they are going to have to go out of their way to fill up. Maybe a good starting point for our area would be to rent AFV's in the form of jeeps, water craft, motorcycles, etc.
Ron S.: What about H2 buses on the Cades Cove loop? [Teresa Cantrell: we need your input!]

- Practicalities for service stations, etc.: When we have an ideal situation, there will be access to gas, biodiesel, propane, CNG, and H2 at filling stations. How are we going to address the practical problems that may occur with driver confusion and prevent mistakes?

Ron S.: There need to be "fool proof" standards developed for Joe Public - similar to the fill valves which are standard only for propane, etc.
Mark D.: These are in the works, as are testing standards and certifications for stations.
Evelyn W.: We may have to go back to the old style of having full service stations again.

Meeting Notes taken and submitted by Evelyn Winther.