

Minutes of the Montana Renewable Energy Association  
Quarterly Meeting, July 6, 2005  
National Center for Appropriate Technology, Butte

Present:

Dave Ryan (NCAT), President and Board Member  
Chris Borton (SMC), Vice President and Board Member  
Chris Daum (Oasis), Treasurer and Board Member  
Patrick Judge (MEIC), Secretary and Board Member  
Kathy Hadley (NCAT), Board Member  
Georgia Brensdaal (DEQ), Board Member  
Marla McCombie (BPA), Board Member  
Mikey Strickland (Dearborn Solar), Board Member  
Lu Marie Strickland (Dearborn Solar)  
Kathi Montgomery (DEQ)  
Tony Boniface (Independent Power Systems)  
Tony's sister (didn't catch the name)  
John Campbell (NorthWestern Energy)  
Jade Smith (Sunelco)  
Charles Day, Member

President Dave Ryan called the meeting to order at 12:45 pm.

Kathi Montgomery moved to accept the minutes from the April 11, 2005 meeting, with her amendment (clarifying it was "Beartooth RC&D" not "Blackfoot RC&D" that organized the Joliet wind conference). Dave Ryan seconded the motion and the motion passed unanimously.

**Treasurer's Report:** Chris Daum reported a balance of \$6175.92 (compared with \$6827.92 last meeting), and 29 members paid for 2005. The \$6175.92 is the current balance, after the \$1000 donation to the Sustainability Fair. Patrick Judge noted that all of the 2004 members had renewed, except one. Dave Ryan mentioned he had the check from NW SEED (making 30 members). Several organizations have paid their 2006 dues as well (or have credit toward their 2006 dues).

**Policy Report:** Patrick Judge and the group discussed some of the potential positives and negatives associated with Montana Public Power, Inc. (comprised of 5 Montana cities, Missoula, Great Falls, Butte, Bozeman, and Helena) and its offer to purchase NorthWestern Energy. Judge also gave updates on power plant proposals around the state, including the Judith Gap wind project, the Basin Creek natural gas plant (and the \$360,000 that is now available for a carbon offset project), and other plants. There was some discussion about the G8 meeting in London, and its focus on global climate change, and also about the federal energy bill which is now in conference committee. A lengthy discussion ensued about the environmental impacts of ethanol and other biofuels. NCAT will be doing a formal study. The energy balance and environmental harm probably

depend on the specific feedstock (whether it be a corn monocrop, cellulosic ethanol, or sugar beets for example).

Georgia BrensdaI gave updates about the Wind Powering America conference in May, and the BLM Programmatic EIS which was favorable toward wind development. There is now a NREL study available concerning the relative economic development value of wind energy vs. other resources, and which shows wind offering more to Colorado (as a sample Western state) than coal. The report is available on the Wind Powering America website. In June, Georgia attended a conference at Sandia National Laboratory in New Mexico, and gave an update on SB 415, "The Montana Renewable Power Production and Rural Economic Development Act." The region is doing relatively well with renewable development. The New Mexico RPS has a diversification requirement, which includes a slice specifically for solar. While at Sandia, Georgia was given a tour of new, large-scale, experimental solar systems of 50-100 kW nameplate capacity using tracking parabolic collectors focusing the sun's rays on Sterling Engines. The technology produces power in the 7-10 cent / kwh range.

**Other Business:** Kathy Hadley mentioned that next year was going to be the 30th anniversary of NCAT, and that a renewable energy festival might be a good way to celebrate -- to be located in Butte. Paul Babb (the current chief executive) used to work at NCAT, and would probably be supportive. It might be a good opportunity for MREA to pick up some new members. It could be held in association with a farmers market, could have a Maize Maze, and could be called "Livable Communities" or something like that (although the idea of "festival" was very popular).

There was continuing discussion on how to strengthen (grow?) MREA. Dave Ryan said the organization's purposes were to educate people, build the movement, and influence policy. The organization could go back to issuing its renewable energy awards, could sponsor additional events, and could offer a scholarship or internship program. Patrick Judge felt that if the organization was serious about going to the next level, it would probably have to hire a staffperson, establish an office, etc. No specific action was taken. Charles Day encouraged MREA to consider becoming a chapter of the American Solar Energy Society (ASES). Unfortunately, ASES membership requires all MREA board members to become individual members of ASES (@\$39 per year). Charles thinks that ASES does the best work on tracking and influencing national energy policy to benefit renewables. ASES publishes Solar Today magazine, and represents users in addition to manufacturers. There was some mention of other organizations that MREA could join, such as the NW Energy Coalition and the DC-based Sustainable Energy Coalition. No action was taken.

**John Campbell's Report:** John Campbell reported that \$30,000 in USB grants for the current year had been retracted -- the Bozeman library went from a 34 kW system to a 17 kW system (apparently, there's only 1 point difference between these in the LEED certification system, and that can be made up with a bike rack!) The Rocky Mountain Elk Foundation is not going to go forward with its solar wall, which represents an additional savings of \$12,500. Therefore, there is some additional money available for USB proposals. In particular, John would like to see more wind projects, so call him

directly with those proposals (however, he does not want to fund the lion's share). There was some talk about "Little Griz," the 10 kW Bergey located at the mouth of Hellgate Canyon and operated by the Missoula College of Technology. Currently, the turbine is NOT net-metered or tied into the grid. Some USB money may go to assist with this or with data logging. Kathi Montgomery would like to see some urban, wind demonstration. John thought that noise would be a problem. John ran through the following list of current USB projects:

- 1) NCAT firestations
- 2) Solar Plexus residential solar demonstration rebates
- 3) Sunelco residential solar demonstration rebates
- 4) Independent Power Systems residential solar demonstration rebates
- 5) Sundance residential solar demonstration rebates
- 6) Alternative Energy Systems residential solar demonstration rebates
- 7) Sage Resources (Missoula) geothermal project
- 8) Parrot Mine (Butte) geothermal project
- 9) Bozeman library (LEED Silver)-- reduced
- 10) Rocky Mountain Elk Foundation (Missoula) -- cancelled
- 11) Strawhouse Market 12 kW solar demonstration project
- 12) Northern Plains Resource Council 10.2 kW solar demonstration project (LEED Silver)
- 13) Rural Sustainability Organization stock watering projects

According to John, the "MontPIRG Data Request" is 99.9% complete. The idea behind this project is to catalog all of the projects funded by MPC/NWE USB dollars, from 1999 to present.

- 14) (John neglected to mention a number of educational projects, including Sage Mountain Center's lectures, tours, and workshops, and contracts with other organizations for development of educational materials)

**Update on Sustainability Fair:** MREA is planning on hosting a table at the Sustainability Fair on July 9 (9:00 - 5:30), with the trailer, mister, and LED Christmas lights. Dave Ryan, the Stricklands, Georgia Brensdal and others all anticipated being present. Dave Ryan is much impressed with the trailers AGM batteries, which have been brought back to life. The current prices for the Christmas lights are:

white -- \$26

blue -- \$23

red, white, and blue -- \$23

100 lamp red -- \$15

DEQ's mobile glass pulverizer will be present. Kathi suggested bringing various colored glass containers to demonstrate the different kinds of cullet it produces. The cullet is used for glass sand (that won't cut you), DOT roadbed projects, landscaping, etc.

Headwaters is coordinating the travel schedule for the glass pulverizer.

DEQ's new flex-fuel Chevy Avalanche that runs on E85 ethanol (affectionately known as "Darth Ethanol") will also be present.

**Announcements:** Jade Smith announced that the Solwest conference would take place in Oregon (John Day) at the end of July. Georgia suggested inviting a speaker to our next meeting.

<Pat was on his cell phone for a few minutes, and missed the last few minutes of the meeting -- hopefully someone can fill in the gap!>

**Next Meeting Date:** Wednesday, October 12 in Missoula -- exact time and location TBA.

**Adjournment:** The meeting was adjourned at 3:15, to allow time for the tour of Advanced Silicon Materials, Inc. (ASiMI) and the BBQ at Dave Ryan's.

These Minutes were prepared by Patrick Judge, Secretary.

**Pat's Notes from the ASiMI Tour (conducted by Bill Kellogg):** The plant obtains 98% pure silicon from two different mines. It has two major operations -- a silane plant (which produces silane gas -- SiH<sub>4</sub>) and the silicon plant. Historically, the plant has made extremely high grade silicon for use in computer chips. Recently, however, it was purchased by a Norwegian company, Renewable Energy Corporation, to produce silicon for solar cells (which do not have to be as pure).

At Moses Lake, they grow thin rods of silicon that are then used in Butte to grow larger rods. 36 thin rod "filaments" are placed in one of 48 reactors along with silane gas. Each reactor has its own transformer, and large voltages are used to drive current through the filaments in order to heat them. The filaments grow into larger ultra-pure silicon rods (up to eleven 9s!) and are ready for harvest in a week or two (depending on the purity you require) -- 6 reactors are harvested each day. They are taken to clean rooms, "chunked, bagged, and sold." Later, they are melted into seed ingots and grown into crystal-thin layers that conduct electricity. The hydrogen from the silane gas is recycled in the process. silane gas is fairly dangerous, igniting when it is exposed to air. Other uses of the product include thin panel displays, such as flat screen tvs and cell phones.

The plant also has hydrogenation operations, and deals with trichlorosilane and dichlorosilane, which are even more dangerous because they are more unpredictable. (I believe the distillation sprocess goes from trichloro- to dicholoro- to monochloro- to pure silane.) The silane business is growing.

The plant is one of Montana's largest electricity consumers, with a demand exceeding 100 MW (with each reactor consuming 2.5 MW -- as the rods get bigger, they draw more power). The filamentd a bit with a boron or phosphorous surface treatment, in order to conduct better (to get the growth process started).

The company buys its wholesale power from PPL and PowerEx, and they are not happy with the rates they're getting (which are 2 - 3 times higher than the rates they negotiated pre-dereg). ASiMI is a member of the "Large Customer Group" which is looking at various issues including proposals for new transmission infrastructure in Montana (\*Pat's note -- they might be wary of these proposals, which could have the effect of placing Montana in competition with California, driving rates even higher).

ASiMI chose Butte for a number of reasons: land, water, good power rates from MPC, the Tax Increment Finance District, and \$40 million in incentives.

The plant has a cooling tower which lowers the temperature from 125 degrees to 109 degrees, and there is some cogen going on (the reactors help heat the building in the winter, for example). The Continental plant would have created some cogen opportunities.

They will be adding 8 more reactors, bringing the total up to 56. This is currently the purest plant in the world (there are about 10 plants, and only two really big ones -- this one and Hemlock).

The plant produces 1200 pounds per hour of the polysilicon (which is essentially, a sharp glassy material). There are 300 employees -- about 100 in the silane plant, 100 in the polysilicon plant, and 100 support staff (maintenance, engineers, accountants, etc.) The plant operates 24-7. The plant does have a water discharge permit from DEQ for an "outfall" to Silver Bow Creek.