

Minutes of the  
**RENEWABLE ENERGY COUNCIL**  
Thursday, July 21, 2016 – 11:00 a.m. (CDT)  
Icelandic Room, North Dakota Department of Commerce, Bismarck, ND

**CALL TO ORDER**

**Members Present:** Al Anderson, Rod Holth,  
Randy Schneider, Mark Nisbet, Al  
Christianson, Terry Goerger

**Members Absent:** Kyle Bahls

**Others Present:**

Andrea Pfennig, ND Department of Commerce  
Karlene Fine, ND Industrial Commission  
Denise Faber, ND Department of Commerce  
Bonnie Malo, ND Department of Commerce  
Christian Morgen, New Energy Spirit Biomass  
Refinery  
Robert Johnson, New Energy Spirit Biomass  
Refinery  
Thomas Corle, New Energy Spirit Biomass  
Refinery  
Connie Ova, Jamestown/Stutsman  
Development Corporation  
Gerald Bachmeier, Red Trail Energy LLC  
Dustin Willett, Red Trail Energy LLC  
Charles Gorecki, EERC  
Beth Demke, Gateway to Science  
Lesley Icenogle, Gateway to Science  
Deana Wiese, ND Ethanol Council  
John Geifti, TerraCOH, Inc.  
Jimmy Randolph, TerraCOH, Inc.  
Terry Ludlum, City of Fargo  
Randy Hanson, Wenck Associates  
Kerryanne Leroux, EERC  
Terri Zimmerman, Packet Digital  
Tristan Simetkosky, Packet Digital  
Phil Jenkins, Naval Research Lab (phone)

Al Anderson, Chairman, called the Renewable  
Energy Council meeting to order.

**WELCOME AND OPENING COMMENTS**

Anderson welcomed everyone.

**APPROVAL OF MINUTES**

July 20, 2015 meeting minutes were reviewed.

Schneider moved to approve the minutes as  
presented. Nisbet seconded the motion. All in  
favor. Motion carried.

Nisbet thanked Anderson for attending the  
energy wind farm ribbon cutting in Rolla.

**PRESENTATION OF FINANCIAL  
SUMMARY**

Fine presented the financial summary, which  
was also posted on the website. Final report for  
2013-2015 was also presented. \$2.4 million is  
uncommitted as of June 30, 2015. For the  
2015-2017 biennium, we have received all  
funds for this biennium. Cash balance as of  
May 31, 2016 is \$6,039,948.37. Uncommitted  
dollars available for projects as of May 31,  
2016, is \$4,503,191.85.

**CONSIDERATION OF GRANT ROUND  
27 APPLICATIONS**

**R027-A: "Gateway to Science Ethanol  
Exhibit"; Submitted by North Dakota  
Ethanol Council; Principal Investigator:  
Deana Wiese; Project Duration: 34 months;  
Total Project Costs: \$110,000; Request for:  
\$50,000.**

Pfennig gave an overview of the project. The  
project's objectives are to increase the long-  
term use of ethanol in North Dakota by  
educating students, parents and educators in the  
region on the benefits of ethanol to the  
economy, environment and energy  
independence. Objectives are also to ensure the  
future of the ethanol industry workforce by  
engaging students, parents, and educators in the

lifecycle of ethanol production. There were two reviewers for this project. The overall reviewer's recommendations are as follows: Fund (179 and 190). The Average Weighted Score was 185 out of 250.

Both of the reviewers felt that the objectives were likely achievable, and felt the background of the team was knowledgeable.

Our recommendation is to fund. For a small amount of funds, the Renewable Energy Program has the opportunity to help provide the education regarding the ethanol industry to generations of North Dakotans. One concern we have is that it is unclear if Gateway to Science has secured all of the needed funds for the expansion project. If they would fail to secure funds, it is unclear if there is a contingency plan in place. A suggested contingency, if funded, would be the NDIC and the Renewable Energy Program are acknowledged through signage on both exhibits.

Weise presented the project and gave a brief history of the ND Ethanol Council. Demke and Icenogle from Gateway to Science Center also commented on the project and went over the prototype. Demke gave a brief history of the Gateway to Science expansion project.

Weise stated that the ND Ethanol Council will be the lead applicant and be responsible to the ND Industrial Commission. The Gateway to Science will be the fiscal agent, and they have a contract with the Science Museum of Minnesota as well. The industry stakeholders have committed their financial resources, and also are providing insight into the concept and design. The Science Museum of Minnesota is very involved in the project and proof of concept phase, and there is a very significant amount of interaction with them.

Demke gave a brief history of the Gateway to Science and their current expansion project.

Weise stated that the contingency to recognize the ND Industrial Commission and Renewable Energy Program will definitely be done. We have visited on how to uniquely recognize all of the partners in this program.

Goerger commented that he is glad that they are including parents. Parents are as much engaged as the students. He suggested that they may want to involve counselors from the high schools. Engagement in technical fields is very important.

Nisbet questioned the Science Museum of Minnesota's involvement, and if they have plans to replicate this somewhere else, and if there is some sort of IP. Weise replied that they have the opportunity to replicate it elsewhere, and there are other groups that are asking about this type of exhibit. We will be more hands on than they are.

Pfennig asked who owns the IP. If other museums use it, are you able to make money from it. Demke replied that they would not own that based on how exhibitor contracts are done, and they all use information from each other.

**R027-C: "ROWS – Replacing Oil with Straw"; Submitted by New Energy Spirit Biomass Refinery; Principal Investigator: Stephan Rogers; Project Duration: 18 months; Total Project Costs: \$1,035,000; Request for: \$500,000. (\$335,000 comes from Applicant; \$200,000 from Midwest Ag Energy)**

Pfennig gave an overview of the project. The project objectives are to accelerate Phase II and overall development of a biomass refinery at Spiritwood Energy Park. The Pre-FEED phase will include: 1) confirm and update the data gathered by New Energy Investors in the Phase I feasibility study; 2) develop the site plan necessary for detailed construction drawings; and 3) transfer the Inbicon proprietary technology to the project owner, New Energy

Spirit Biomass Refinery LLC. Five major areas will be addressed: 1) biomass resource; 2) process technology; 3) balance of plant (includes energy supply); 4) carbon intensity score; and 5) permitting.

The overall reviewer's recommendations are as follows: Fund (243, 183 and 182). The Average Weighted Score was 203 out of 250. The summary of reviewer's comments was that the objectives seem achievable, but the timeline may not be realistic. The applicant agreed the timeline is tight, but the individuals involved have been working towards completion since 2009. A reviewer comment was that more details could have been provided. The applicant provided the additional details. One reviewer had concerns that the biomass procurement plan will come up short on content and budget, and the parent company should help cover costs of engineering. The applicant responded that they have already performed a feasibility study and developed a generic FEL2 design package, and more than \$1 million has been spent by various parties to reach the current level of engineering. One reviewer would have liked more information about coordinating project activities between the multiple parties involved. The applicant responded that a lead company will be appointed for each of the 11 work items defined, and the overall coordination between the work items will be handled by the project manager. A reviewer had a concern regarding uncertainty of government subsidies in the near and distant future, and national and international interest may migrate to other biofuels, such as biobutanol. The applicant acknowledged the risk to subsidies and stated that the design of the biomass refinery is such that the sugars produced are of sufficient purity that they can be sold to produce other higher-value bio products instead of being converted into ethanol.

Our recommendation is to fund. This project has unique aspects such as co-locating with a

grain ethanol biorefinery and a power plant. If successful, it provides significant economic development to a relatively rural area. Additionally, it will provide a new revenue source for area farmers. In regards to the reviewer concern about the biomass procurement plan who has extensive experience in this area, it would be helpful if the applicant would provide additional information about this aspect to the Council.

Corle presented the project. Morgen also provided comments on the project. Corle stated there is a correction of the timeline (i.e. project duration) from 18 months to 18 weeks.

Christianson asked about outlay cash. It appears to him that there is more in-kind than there is cash from the applicant. Corle, Morgen and Johnson reviewed the budget they submitted with the application.

Anderson stated that they have eight phases, and they are at phase two. Do they expect to come back for additional money as they progress through phases? Corle stated that they may be looking to come back as they move through the phases, if it fits within the program and if the program can assist.

Break at 12:45 p.m.

Opened at 12:55 p.m.

**R027-D: "Commercial Demonstration of Geothermal and Hybrid Electricity using Produced Fluids at Existing Wellsite"; Submitted by TerraCOH; Principal Investigator: Jimmy Randolph; Project Duration: 18 months; Total Project Costs: \$840,000 (matching funds provided by applicant); Request for: \$420,000.**

Pfennig gave an overview of the project. The project objectives are to examine and demonstrate the commercial viability of ND's moderate-temperature geothermal resources by

employing proprietary geothermal power technology that uses CO<sub>2</sub> as the heat transfer fluid. TerraCOH will extract currently-wasted heat energy from produced fluids demonstrating that low-value field/natural gas can be integrated with produced geothermal heat, resulting in a hybrid power system that uses all energy resources at a given site. The overall reviewers' recommendations follow: Funding May Be Considered (164 and 165) and Fund (226). The Average Weighted Score was 185 out of 250. For the summary of reviewers' comments regarding achievability, one reviewer recommended the following modifications: 1) commencing full project upon selection/confirmation of the well site provider. This task is currently allotted 4 months from well identification to selection of site. To meet this timeline would presume current involvement and participation of candidate well operators. The applicant responded that they are currently working to confirm an operator in ND and have built flexibility into the schedule. 2) Extending the demonstration to a minimum of 9 months, versus the proposed 6, to capture both a full winter and a full summer of operations. The applicant is willing to extend the timeline and the system is designed to handle all temperature extremes. Another reviewer commented that the specifics of the proprietary technology were unclear, so they weren't able to judge how much difficulty there will be in applying that technology to this application. Regarding the methodology, there were several comments about that. More detail need for plan to transition from 10kW to 50kW. The budget is for a 10 kW, and the project description states 10-50. The applicant stated that if the site has a sufficient geothermal resource, they may put additional private capital towards a 50kW system. Only one site will be used. The 50kW system would be 5 10kW turbine generators operated in parallel, and would allow capture of five times as many operational hours on turbines. Another question was what is the cooling system plan. Air versus water or another approach? The

applicant responded air cooling, as that is preferred. If it is cost effective, they may use water cooling during the hottest period of the year. Another question was what is the source of CO<sub>2</sub>, and is there a cost. The applicant stated that CO<sub>2</sub> currently costs approximately \$40 per ton, and the power system will not need a ton. A reviewer asked what is the connection to the grid. The applicant responded they prefer not to use a grid, but if there is no on-site user a grid connection could be pursued. Another question was if there was a blueprint of the equipment to be installed. The applicant responded that the material is confidential, and could be provided under confidentiality agreement. This program does allow for confidential information. The reviewers are comfortable with the knowledge of the project team. However, one reviewer was uncertain of the team's marketing abilities, and another felt the electrical engineering side could be stronger. The applicant did provide details on the employees they have that meet these needs. Two reviewers felt the project management plan was good. One reviewer felt there should a go/no decision point after selection of site. This was acceptable to the applicant. The reviewers felt there is justification provided for the piping consultant, but there is no line item in the budget for the piping itself. One reviewer felt electricity markets and policies weren't adequately addressed and stated the proposal indicates how this power could be used to meet state renewable electricity standards, without any discussion of how the natural gas used in the process would impact the project's eligibility for meeting this requirement. The project also does not discuss how this electricity will be sold to the utility company. This aspect isn't well developed, and an electrical engineer and an electrical utility partner joining the project could help. To be clear, North Dakota doesn't have mandated renewable electricity standards. Net metering applies to systems up to 100 kW in capacity. Net metering is available to IOU customers, and isn't available to customers of

Muni's or co-ops. TerraCOH responded that they do have some team members with electrical engineering and utility experience. For the proposed project, TerraCOH is partnering with Wenck.

Our recommendation is that funding may be considered. This project provides a nice opportunity to highlight synergies between renewable and traditional forms of energy. The applicant is willing to establish a business presence in North Dakota, and that could provide new opportunities for economic development. However, priority should go to projects with clear ties to North Dakota already in place. There were several questions raised about electricity markets and policies. While North Dakota has well sites, more specific information about how the electricity generated will be sold would strengthen this proposal and a better outline how this project will benefit North Dakota. The applicant is requesting a significant amount of money, and considering the State's budget concerns, it may be difficult to justify giving a currently out-of-state entity that amount of funds when there are significant questions about the conceptualization of the commercialization of the project.

Griffin and Randolph presented the project.

Nisbet asked if they have identified a partner who is interested or have a location in mind. Randolph responded that they have a few candidate locations they are working on. Griffin commented that they are working hard to build relationships, and they anticipate it will take them four months to do this.

Christianson commented that he does have concerns regarding giving funds to an outside ND entity. He would feel very comfortable funding this project if a location is identified and they become a North Dakota entity. The next REP deadline is in four months. Griffin stated they are open to a contingency to them becoming a North Dakota entity.

Schneider would like to see letters of support.

Schneider voiced his concern with the fact that North Dakota already has one power plant that is closing. He does not want to build something that is going to destroy something else. He also would like to see that there is a need for this in North Dakota.

**R027-E: "Landfill Gas to Compressed Natural Gas Fast-Fill Fueling Station"; Submitted by Biomass Solutions; Principal Investigator: Terry Ludlum; Project Duration: 19 months; Total Project Costs: \$1,000,000; Request for: \$500,000.**

Pfennig gave an overview of the project. The project's objectives are to utilize LFG by converting it to CNG to be utilized by the city fleet and commercial partners.

We had two reviewers for this project. The overall reviewers' recommendations follow: Fund (183 and 206). The Average Weighted Score was 195 out of 250. One reviewer felt the timeline was achievable, but the budget was inadequate. The reviewer commented that the compressor proposed for fast fill is small. If this was a time fill application, it would be adequate. A second redundant compressor is critical since they require maintenance and can fail and this wasn't included in the budget. One reviewer was unable to provide meaningful comments on the technical detail of the LFG clean-up system as it was not provided. The reviewer stated that it was unclear if the estimates for the clean-up system were reasonable as there were several similar projects across the country with long development times and budgets well over \$3 million. Both reviewers felt the methodology was sound. They felt the background of the team was knowledgeable, and the management plan was adequate.

Our recommendation is that funding may be considered. Utilizing CNG has several benefits

including its domestic availability, established distribution network, relatively low cost, and emissions benefits. Utilizing renewable natural gas reduces emissions by preventing methane release into the atmosphere. Methane is 25 times stronger than carbon dioxide. States across the nation are utilizing CNG and LNG for a variety of applications. However, North Dakota is not one of them. There is currently one CNG fueling station owned by MDU in Dickinson, and it is unclear if it is still operating. This proposal offers a great opportunity to lead by example, and provide information for private fleets in the state that may want to use CNG. However, there are three issues that need to be addressed by the applicant: 1) the clean-up system; 2) fast fill versus time fill; and 3) redundancy. The applicant stated that Xcel has committed to build a substation that affords the system back-up gas supply when the LFG supply is insufficient for the load. However, natural gas still needs to be compressed in order to be used by vehicles. A suggested contingency, if the project is funded, is that a second redundancy compressor is added.

Ludlum presented the project. Hanson presented the system, and addressed the clean-up system, fast fill versus time fill, and redundancy issues.

Anderson asked how long their clean energy renewable bonds are good? Ludlum replied 20 years. They are currently in year 10.

Break at 2:15 p.m.

Opened at 2:26 p.m.

### **FINAL REPORT**

#### **R025-C: "Solar Soaring Power Manager Phase II Final Report; Packet Digital**

Zimmerman presented the final project. Dr. Jenkins from the Naval Research Lab participated by conference call. Simetkosky

discussed the components of the system and what the overall objectives were in Phase I and Phase II.

### **CONSIDERATION OF GRANT ROUND 28 APPLICATIONS**

**R028-A: "Solar Soaring Power Manager Phase III"; Submitted by Packet Digital; Principal Investigator: Andrew Paulsen; Project Duration: 12 months; Total Project Costs: \$1,000,000; Request for: \$375,000.**

Pfennig gave an overview of the project. The project's objectives are to develop the most efficient solar cells, auto soaring, and power management algorithms to initially demonstrate doubled flight times and ultimately unlimited endurance in unmanned aircraft. The project's expected results include: 1) develop a 40% efficient solar cell in a flexible solar array, optimized for a UAS wing; 2) develop a high efficiency solar power management and distribution system; 3) demonstrate extended flight time on a UAS constituting the basis for an "eternal" aircraft; and 4) develop a manufacturing plan for a commercially viable extended endurance UAS.

The overall reviewers' recommendations follow: Fund (206 and 191) and Funding May Be Considered (132) (in the final comments, this reviewer did not recommend funding unless certain information was provided). The Average Weighted Score was 176 out of 250.

One reviewer questioned the definition of commercially viable since the design is still undergoing changes and there isn't details of what payload would be carried in the commercially viable design. The applicant responded that initially, payload will be an optical camera and whole system will be >\$100K. Other payloads are possible and will impact aircraft endurance due to the additional weight and required power. They will work with customers to offer engineering services

and optimization based on their specific payload needs. Two reviewers felt the solar cell/wing development is not likely to meet the objectives within the timeline. The applicant agrees that the development of high efficiency solar cells is extremely difficult and that transferring the technology from R&D to cost efficient commercial manufacturing is not a one-year project. Packet Digital and Naval Research Lab will continue to invest in high efficiency solar cells for UAS beyond the term of this project. One reviewer stated the systems engineering approach has not apportioned design attributes for a meaningful payload(s). A long endurance air vehicle that doesn't perform a function is not useful. This reviewer also commented that "...The FAA will govern flight options of the vehicle they describe and no size, weight, power or other design attributes are apportioned." The application responded that a long endurance UAS could have a variety of uses depending on customer needs, which would then determine the type of payload installed. They plan to work with customers to determine their payload needs and optimize the aircraft accordingly for size, weight and power. The applicant stated that they follow the FAA regulations for UAS, including the upcoming Part 107. Packet Digital's aircraft meets the FAA Part 107 requirements in terms of weight (<55 pounds), max ground speed (87 knots) and max altitude (400 feet). One reviewer stated that while progress has been made in the MJ cells, solar-wing efficiencies are only at 27%, which is short of the 40% target. The team indicated that the MJ cells will only be viable in markets that can tolerate the high price. Discovering that the approach is not cost viable at this state is disappointing because the resources should have been applied towards more cost effective alternatives. Additionally, the other option of solar cells (c-Si) are thick and rigid. While there are some that are partially flexible, they are not as efficient, cost effective or readily available. The applicant replied that the rigidity issue is resolved by a number of solar

cell manufacturers offering Si solar cells which are thinner and more flexible than traditional Si cells. While not as flexible as thin film solar cells, they are flexible enough to conform the UAS wing without sacrificing aerodynamic efficiency. The applicant agrees that current Si efficiencies may not enable an endless endurance UAS. However, current analysis estimates 22% efficiency will enable up to 18-hour flight times during a summer day in Fargo. While not endless, it enables UAS applications that are not feasible with current flight durations and an entire day shift UAS to fly pipelines and power lines. The applicant stated that they are not abandoning the MJ solar cells. They will still be used for any customers that require that performance, and R&D will continue to improve production methods and ultimately decrease the purchase cost. The Si solar cells selected for Phase III along with the enabling solar electronics developed during this project will bring new levels of endurance to a broader market. Two reviewers felt the PI's awareness of current research activity was limited, and third commented that there was a lack of discussion on the external efforts underway to produce high efficiency solar technologies. However, all three reviewers were comfortable with the team's ability to perform the work proposed. The applicant has responded with cited external references. Regarding the management plan, two reviewers felt the timeline could be clearer. One reviewer questioned why full system integration finishes before a subcomponent. One reviewer noted a lack of milestones making it difficult to assess when some tasks are to be considered complete. The applicant states that the Grant chart was small due to page limitations and has provided additional information. One reviewer felt that the State should get some IP rights for the amount of money contributed, noting that some of the interface connections were not funded by the company. One reviewer felt the FAA limit of 400 feet for UAVs has removed the possibility to implement the solar soaring algorithms which, combined with the concerns

that MJ cells aren't cost viable, limits the value of the project to offsetting of non-renewable fuel sources. The applicant responded that they expect FAA limitation will be relaxed in the future. When it is, they will be ready to offer a commercial solution. Currently, the military and other countries will benefit from the use of the soaring algorithms. The same reviewer did not recommend funding unless the applicant can articulate specifically what jobs will be created and sustained beyond Phase III and what lasting economic impacts are likely if the solar cell development is limited to 20% efficiency with rigid cells. The applicant has provided some additional information.

Our recommendation is that funding may be considered. This project features a North Dakota company partnering with other North Dakota companies to build a UAV. This burgeoning industry has incredible potential and North Dakota has worked hard to be at the forefront. Projects like this could be economic success for the State. However, the reviewer's concerns about the achievability and methodology of the project is concerning, especially when this is the third phase of the project and this program has already provided \$850,000. The clarification the applicant has provided regarding the payload issue as well as the Si cells has been very beneficial. Seeing the final report from Phase II will also help illustrate the potential economic impact and achievability of Phase III. There are no suggested contingencies.

Zimmerman presented the project. Dr. Jenkins from the Naval Research Lab participated by conference call. Simetkosky discussed the components of the system and what the overall objectives are in Phase III.

Schneider asked about their commitment to North Dakota. Zimmerman replied that she was born and raised in North Dakota, graduated from UND, she resides in North Dakota and

runs a North Dakota business. She is very passionate about creating jobs in North Dakota.

**R028-B: "Integrated Carbon Capture and Storage for North Dakota Ethanol Production"; Submitted by EERC; Principal Investigator: Kerryanne Leroux; Project Duration: 5 months; Total Project Costs: \$980,000 (Red Trail Energy-\$290,000 and DOE-\$200,000); Request for: \$490,000.**

Pfennig gave an overview of the project. The project's objectives are to assess the technical and economic feasibility of expanding the marketability of ND ethanol through the commercial application of CCS.

The overall reviewers' recommendations follow: Fund (243, 235, and 209). The Average Weighted Score was 229 out of 250. All three reviewers felt the objectives were achievable. One reviewer felt the timeline was a bit short. All three reviewers felt the methodology was appropriate. All three reviewers felt that the project team was knowledgeable. One reviewer commented that EERC is a national leader in carbon sequestration technology. Another reviewer commented they have brought in the most knowledgeable companies in North America on each of the specialties needed. Two reviewers were comfortable with the management plan. One reviewer stated that for such a short time frame, they will need tight communications and agreed milestones. Not a lot of these are documented, although they are noted as something needed. Overall, one reviewer stated that this is an excellent project which has the potential to expand markets and carbon storage potential in North Dakota. Overall, another reviewer stated the direct value of carbon sequestration to the government and peoples of North Dakota, and the timing thereof, are dependent on politics at the national level, particularly relating to carbon taxes and the like. This project would serve as an investment

by the state government in green technology that may pay dividends in the future.

Our recommendation is to fund. The project provides an excellent opportunity to partner a North Dakota research facility with North Dakota industry. The project could benefit North Dakota's ethanol industry overall. While there is uncertainty in national policy regarding carbon, the issue of carbon is not likely to go away. It is therefore in the best interest of the industry to move forward in researching options of dealing with carbon. The fact that DOE is providing funding for the project enhances the significance and credibility of the project even further. The indirect is high (\$164,419 proposed for the NDIC and \$265,279 total). It would be nice if more of the indirect costs could be shifted to DOE's match. If funded, a suggested contingency would be, if the applicant is able, to shift indirect expenses to DOE and Red Trail.

Bachmeier from Red Trail Energy and Gorecki from EERC presented the project.

Schneider asked if they can garner other knowledge out of this process that will enable it to be used beyond injecting it, such as with a greenhouse? Gorecki stated it would give the economic analysis but it would not give them the ability to evaluate. Another study would need to be done, but it would give them a starting point and a benchmark.

Nisbet asked what the greatest challenge would be. Gorecki stated the numerating of the costs on compression. The well will be another major cost.

Anderson commented that the exciting part that he sees is that you are defining and getting good information on the operating expenses and investments. You will have a lot of opportunities down the road.

Gorecki stated that the indirect rate is a federally approved indirect rate. The EERC receives no state dollars. This indirect rate is what has been used and approved in past state projects from the NDIC. It is 50.5% and they cannot move more of that to the Department of Energy.

Break at 4:10 p.m.

Opened at 4:16 p.m.

Discussion of projects.

#### **R027-A: "Gateway to Science Ethanol Exhibit"**

Members agreed this was a good project.

#### **R027-C: "ROWS – Replacing Oil with Straw"**

Several members expressed concerns with this project regarding costs. Christianson stated they have been turned down already twice by APUC. Anderson felt there isn't a lot of confidence that they were going to be in North Dakota, and also that the dollars weren't going to be targeted for salaries.

#### **R027-D: "Commercial Demonstration of Geothermal and Hybrid Electricity using Produced Fluids at Existing Wellsite"**

Holth believes the dollars for this project are too much for hardly any impact. Christianson commented that they are out of state. Schneider has a concern with money leaving the state. Lack of partners is a concern among members.

#### **R027-E: "Landfill Gas to Compressed Natural Gas Fast-Fill Fueling Station"**

Christianson commented great project, but had a concern that the project was two years down the road and the commitment of money for two years. Goerger liked the project. The contingency to add a second redundancy compressor was removed.

**R028-A: “Solar Soaring Power Manager Phase III**

Members discussed the project.

**R028-B: “Integrated Carbon Capture and Storage for North Dakota Ethanol Production**

Members discussed the project. The suggested indirect cost contingency was removed.

**COMPLETION OF BALLOTS**

**R027-A: “Gateway to Science Ethanol Exhibit”**

Fund: 6 No: 0

**R027-C: “ROWS – Replacing Oil with Straw”**

Fund: 0 No: 6

**R027-D: “Commercial Demonstration of Geothermal and Hybrid Electricity using Produced Fluids at Existing Wellsite**

Fund: 1 No: 5

**R027-E: “Landfill Gas to Compressed Natural Gas Fast-Fill Fueling Station**

Fund: 6 No: 0

**R028-A: “Solar Soaring Power Manager Phase III**

Fund: 6 No: 0

**R028-B: “Integrated Carbon Capture and Storage for North Dakota Ethanol Production**

Fund: 6 No: 0

**ADMINISTRATIVE BUSINESS**

**Other Business**

Other Business – Amendment to Policies under 2.02. Amendment clarifies that clients can’t ask for reimbursement for something they have already done. Addition – g. Expenses incurred prior to submission of application. Note, applicants may incur expenses after submission

of their proposal for which they intend to seek reimbursement; however, they do so at their own risk as the Council/Commission may not award funding. Goerger approved. Schneider seconded. All in favor. Motion carried.

**ADJOURNMENT**

**Christianson moved to adjourn the meeting. Goerger seconded the motion. All in favor. Motion carried. The meeting was adjourned at 4:45 p.m.**

---

Alan R. Anderson Date  
Chairman

---

Denise Faber Date  
Acting Recorder