

Minutes of the
RENEWABLE ENERGY COUNCIL

Thursday, April 27, 2017 – 11:00 a.m.
Icelandic Conference Room, ND Department of Commerce, Bismarck, ND

CALL TO ORDER

Members Present: Jay Schuler, Rod Holth, Randy Schneider, Al Christianson, Kyle Bahls, Terry Goerger (by phone), Mark Nisbet (by phone)

Others Present:

Andrea Pfennig, Department of Commerce
Karlene Fine, Industrial Commission
Rachael Flagstad, Department of Commerce
Bonnie Malo, Department of Commerce
Terri Zimmerman, Packet Digital
Rob Walters, Naval Research Lab (by phone)
Andrew Paulsen, Packet Digital (by phone)
Daniel Schwandt, Terra Labs
Brian Schwandt, Terra Labs
Corey Kratcha, c2renew (by phone)

Jay Schuler, Chairman, called the Renewable Energy Council meeting to order.

WELCOME AND OPENING COMMENTS

Schuler welcomed everyone.

APPROVAL OF MINUTES

December 21, 2016, meeting minutes were reviewed.

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

PRESENTATION OF FINANCIAL SUMMARY

Fine presented the financial summary, which was also posted on the website. Uncommitted dollars as of March 31, 2017, is \$3,091,082.08. An update from the Legislative session, the Renewable Program will continue to get \$3

million for the upcoming biennium. There is also one provision in the Industrial Commission's bill that allowed for Lignite Research applicants to apply to the Renewable Program for funding, but they would still need to go through the same process as any other applicant.

**CONSIDERATION OF AMENDMENT
REQUEST AND GRANT
ROUND 32 APPLICATION**

R032-A: "Portable Solar Array Modules";
Submitted by Packet Digital; Principal Investigator: Andrew Paulsen; Project Duration: 9 months; Total Project Costs: \$1,000,000; Request for: \$500,000.

Pfennig gave an overview of the project. They have an amendment request to the project they have previously received funding for, and also a new project. This is the new project. They are asking for \$500,000 and their total project cost is \$1,000,000. For their 50% match, \$75,000 comes from Nishati and \$425,000 comes from the Naval Research Lab. The project's objective is to develop and commercialize transportable solar power generation modules capable of delivering up to 1 kW for remote military installations, emergency shelters and camps, and a variety of commercial uses; and to eliminate the fuel requirement and noise and reduce the life cycle cost of standard electromechanical power generation. The overall reviewers' recommendations follow: Fund (196, 172) and Funding May Be Considered (138). The last reviewer's first recommendation was Do Not Fund. However, that reviewer revised the score based on additional information from the applicant. The Average Weighted Score was 169 out of 250.

The reviewers had some comments. Regarding achievability, one reviewer felt there was a lack of information about the system components to be able to establish a valid timeline. There was also concern that the timeframe for the manufacturing plan implementation was unrealistic. This reviewer felt the development of the manufacturing plan was realistic, but questioned implementing the plan. Lastly, the reviewers noted commercialization can be difficult as the cost is still high for the portable solar panel and Li-ion batteries.

The reviewers also stated concerns regarding the methodology. One reviewer noted that the proposal lacked measurable detail. Because the technologies listed in the proposal exist in the market place already, more information was needed on how its portable solar system will provide a value-added performance. Packet Digital provided a revised work plan that includes more detail. The reviewer changed his score.

Two reviewers felt the proposal was lacking information regarding the competitive landscape.

One reviewer commented there are multiple commercial portable 1 kW solar energy systems available, including through Amazon. Packet Digital clarified that their project would provide portable solar with 36% more power in 42% less space and 80% less setup time.

Another concern by the reviewers was that the proposal references cooperation with local universities, but this is not included in the work plan or the budget. Packet Digital has provided a letter of support from NDSU.

Two reviewers felt that the amount of match that is being supplied by Naval Research Lab seems disproportionate to the amount of project related work being done by Naval Research Lab. Another reviewer also shared concerns

that Packet Digital is not providing any cost share on the project.

Overall, the recommendation is that funding may be considered. This could be a good opportunity; this is the type of project that is showcased when the REC program is being marketed. Packet Digital does a nice job of partnering with other North Dakota entities, which emphasizes the impact that funds from this program can have on industry within the state.

Pfennig also listed additional areas of concern. These include the understanding that this would be the first of three phases, but that wasn't referenced in the proposal, an update on the achievements from the previously funded project as well as the current status would be helpful, and MPPT was developed in the previous project and it is unclear why and how it needs to be improved. In addition, Nishati is based out of Virginia. Nishati utilizes contract manufacturing, but it is unclear if this means they will contract with Packet Digital and Chiptronics after the project is developed or if only for the development phase. Lastly, what percentage of the finished product will be manufactured in North Dakota and what will be the final impact for job creation within the state.

It was moved by Schneider and seconded by Holth that under the authority of North Dakota Century Code 54-63-02 and 44-04-18.4 the Renewable Energy Council close the meeting to the public and enter executive session for the purpose of hearing and discussing the applicant's trade secret, proprietary, commercial and financial information.

Roll Call Vote:

Mr. Schneider – aye
Mr. Holth – aye
Mr. Christianson – aye
Mr. Bahls – aye
Mr. Goerger – aye
Mr. Nisbet – aye

The vote is unanimous.

Schuler stated, I remind the Council members and those present in the executive session that the discussion during the executive session must be limited to the announced purpose for entering into executive session which is anticipated to last approximately 10-15 minutes.

The Council is meeting in executive session to discuss the applicant’s trade secret, proprietary, commercial and financial information. Any action by the Council will occur after it reconvenes in open session.

Council members, Department of Commerce and Industrial Commission staff and the applicant Packet Digital will remain but the public is asked to leave the room.

The executive session will begin at 11:22 a.m. When the executive session ends the Council will reconvene in open session.

The Renewable Energy Council was back in open session at 12:15 p.m.

R032-A: “Portable Solar Array Modules”
Continued; Submitted by Packet Digital;
Principal Investigator: Andrew Paulsen;
Project Duration: 9 months; Total Project
Costs: \$1,000,000; Request for: \$500,000.

Terri Zimmerman presented the Portable Solar Array Modules project. Andrew Paulsen joined her by phone. (A copy of her presentation is available in the Department of Commerce and Industrial Commission files.)

Karlene Fine departed the meeting.

CONSIDERATION OF GRANT
ROUND 31 APPLICATION /
AMENDMENT REQUEST

R031-D: “A Novel Approach to Reduce the
Energy Consumption of Residential
Homes”; Submitted by Terra Labs;
Principal Investigator: Daniel Schwandt;
Project Duration: 11 months; Total Project
Costs: \$1,461,664; Request for: \$500,000.

Pfennig gave an overview of the project. The project’s objective is to develop a community heating and cooling system that utilizes geothermal energy and heat pumps to provide affordable and efficient energy for a residential community to be built in Horace. The overall reviewers’ recommendations follow: Fund (182), Funding May Be Considered (137, 151). One reviewer’s scoring indicated “Funding May Be Considered” recommendation, but in the comments, the reviewer recommended “Do Not Fund” without additional information. Average weighted score was 157 out of 250.

The reviewers did have some comments. In regards to achievability, one reviewer was concerned that there is a seasonal issue with the project. It was also difficult to determine if the budget was feasible. There are several specifics that could affect the schedule that were not included in the proposal, such as the number of bores needed, accessibility of the project in case of inclement weather, and the availability or lead time for acquiring equipment and materials.

Two reviewers indicated that more information needed to be included, such as the home size, heating and cooling capacity, responsiveness to the system to peak heating and cooling events, will the new homes be required to install the geothermal system, and what are the potential

savings compared to a traditional heating system.

One reviewer mentioned this type of work is being done in different parts of the U.S. and the world. Those projects have not led to a significant scale-up.

One reviewer also indicated the project is dependent on a greenfield setup and would have a more significant impact if it could address the issue of integration in an existing community. The applicant responded that they see an opportunity to implement an energy system that is not business-as-usual. Also, to initiate conversations about energy planning before neighborhoods are designed and built.

All of the reviewers thought they have a strong background on engineering. However, they had some concerns about the level of experience in other areas, such as contracting with utilities, homeowners, developing infrastructure and renewable energy systems. An advisor is in place, but there was limited explanation regarding the role.

Cass County Electric has provided a letter of support for the project. The City of Horace has also provided a letter of support, and the project plans to work with the city's developer.

Regarding the project management plan, the reviewers would have liked more information in general, especially about the finance aspects of the project, in addition to milestones.

Overall, all three reviewers felt the project was a good idea. Two of the reviewers felt more financial details are needed. One reviewer wanted a communications plan designed to broadcast the findings and encourage additional housing developers.

Overall, funding may be considered. This type of project is not occurring in North Dakota. The

state's population is expected to increase and new housing will continue to be built.

Additional questions remain, such as, what approval is needed by the PSC and how much will homeowners be charged.

Suggested contingencies, if funded, are to obtain the results from the first phase of the project prior to disbursement of funds.

Daniel Schwandt presented the project. Brian Schwandt assisted with the presentation. (A copy of their presentation is available in the Department of Commerce and Industrial Commission files.)

R025-035: "Pilot Scale Facility for Biocomposites Development for Industrial and Consumer Products Phase II"; Submitted by c2renew; Original Total Project Costs: \$1,250,000; Original Amount Requested: \$500,000; Request to reallocation funding amounts between operations and equipment.

Pfennig provided an overview of the request. c2renew is asking to readjust the budget. They are not asking for more money, but asking to reallocate the funding levels in two different categories – operations and equipment. They are requesting to move \$50,000 from the equipment side to the operations side.

Corey Kratcha explained the request. c2renew is requesting to adjust the budget along with an extension to the project timeline.

COMPLETION OF BALLOTS

R028-038: "Solar Soaring Power Manager Phase III"

Discussion of the project began.

Christianson stated they are showing a lot of potential. He can see funding them with finding

a way to get the money paid back to the Renewable Energy Council fund. If they do not reach the goals in the cooperative grant, they do not pay back to the fund. He would like to get money back as they make money.

Schuler agreed with Christianson.

Schneider also agrees. ND REC helped them get where they are today. Now, it is time to give something back.

Holth mentioned he likes what they are doing. It fits well with UAV in North Dakota.

Christianson suggested Fine could put this in a cooperative grant.

Pfennig mentioned the Commission would need to have this as a contingency to vote on it. Fine does not have the license to create something without Commission approval. Christianson agreed with this.

Bahls asked if the other members are thinking this contingency will be for both of Packet Digital's proposals? Christianson said he is thinking of this for both proposals. Holth and Bahls agreed.

The Council decided on the following contingency for Packet Digital's proposals of Solar Soaring Power Manager Phase III and Portable Solar Array Modules: The Executive Director of the Industrial Commission will negotiate with Packet Digital to receive the funds back if Packet Digital reaches a level of success.

Schneider suggested staff research the option to receive grant money back, in order to set policy.

Christianson moved to approve the contingency for both Packet Digital proposals. Schneider seconded the motion. All in favor. Motion carried.

Fund: 7 No: 0

R032-A: "Portable Solar Array Modules"

The Council voted that the contingency is the same for both of Packet Digital's proposals: The Executive Director of the Industrial Commission will negotiate with Packet Digital to receive the funds back if Packet Digital reaches a level of success.

Fund: 7 No: 0

R031-D: "A Novel Approach to Reduce the Energy Consumption of Residential Homes";

The Council reviewed the contingencies. State and local regulatory approval obtained prior to disbursement of funds. Results from the first phase of the project are obtained prior to disbursement of funds.

Goerger moved to approve the contingency. Holth seconded the motion. All in favor Motion carried.

Fund: 6 No: 1

R025-035: "Pilot Scale Facility for Biocomposites Development for Industrial and Consumer Products Phase II"

Goerger stated he has no problem with allowing them to move money around. They are doing a good job and good reporting. Thinks the same thing should be done for the timeline extension.

Fund: 7 No: 0

ADJOURNMENT

Holth moved to adjourn the meeting. Schneider seconded the motion. Motion

carried. The meeting was adjourned at 2:40 p.m.

J. Schulz 7/10/17
Jay Schulz Date
Chairman

Rachael Flagstad 7/10/17
Rachael Flagstad Date
Acting Recorder