

Minutes of the
RENEWABLE ENERGY COUNCIL

Wednesday, October 15, 2013 – 5:00 p.m. (CT)
Room #407, National Center of Excellence
Bismarck State College, Bismarck, ND

CALL TO ORDER

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

Members Absent: Eric Mack.

Others Present:

Andrea Pfennig, Department of Commerce
Karlene Fine, Industrial Commission
Sreekala Bajwa, NDSU
Dilpreet Bajwa, NDSU

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

WELCOME AND OPENING COMMENTS

Anderson welcomed everyone.

APPROVAL OF MINUTES

August 19, 2013 meeting minutes were reviewed.

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

CONSIDERATION OF ROUND 20 GRANT APPLICATIONS

R020-A: “Commercial Application of Soybean Stalk as a New Alternative Fiber in Particle Boards”; Submitted by NDSU; Principal Investigator: Dilpreet Bajwa; Project Duration: 3 Years; Total Project Costs: \$400,800; Request for: \$200,400.

Pfennig gave an overview of the project. The overall reviewers' recommendations follow: Fund (175 and 207) and Funding May Be Considered (145). Average Weighted Score was 176 out of 250.

Commerce's recommendation is to fund the project, however, the Council may want to:

1. Have additional discussion and justification of the equipment purchases.
2. Have a discussion regarding the indirect rate, which is currently proposed at 45% (\$48,228).

Commerce recommended the following contingency:

- Remove funds for travel to conferences (\$2,100). This would be consistent with activities that have been funded in the past.

Dilpreet Bajwa presented for NDSU.

Schneider asked Bajwa the following questions:

- Did you use polyurethane foam when doing these experiments? Bajwa stated they did not, it was NBI.
- What kind of wet out properties did you have? Bajwa stated it was a mist they sprayed then hot pressed it. It was a medium density wood (2-3%).
- What was the length of the fibers you were pressing? Bajwa stated it was about ¼”.
- Did you get any warping with the sheets you were pressing? Bajwa stated they did not; they dried the fibers before they pressed it.
- What was the distance of the width of the boards you were producing? 2 feet by 2 feet.

- Is there any concern about if you grow the width of that where you would get the warping? You need to optimize what your press temperature is, what your moisture content is, pressing time, curing, etc.

Bajwa stated that the resin we are using is like epoxy. Once it is set, it will not move.

- What about adhesion if you are going to laminate something on top? Typically this material is not exposed. There will be some kind of surface lying on this material. There was no problem since there is a lubricant spray there.
- Is that press a continuous process or is it individual sheets of 4x8? Bajwa stated they used a manual process; we were experimenting.
- Is there a way to make this a continuous process? Bajwa stated it is a continuous process.
- What density is your material? Bajwa stated the density is around 20-24 pounds per cubic feet.
- Are you able to maintain the thickness? Bajwa stated it's all possible.
- What range of thicknesses are you looking at? Bajwa stated they range typically from .75 to 1.5 inches. If you look at interior doors and exterior doors, they are different thicknesses.
- What is the range of densities? Bajwa stated the densities to 15 cubic feet to 36 cubic feet (pounds per cubic feet); all the way from low density to medium density.
- On a continuous process machine, will you be able to maintain those thicknesses throughout the board with those densities? Bajwa stated, yes, right now they make 4x8 sheets.
- Is it your vision to make individual sheets or have a continuous process that as the material is exiting the machine it is cut into

whatever dimension? Bajwa stated, the process we have is opening presses. Once the mat comes into the presses it's pressed and moved up, the next one comes in pressed and moved up, etc.

- What is the cure time on this? Bajwa stated the cure time is approximately 12 minutes. It is not fully cured. Once they have enough strength that they can handle it, they move it and let it sit there for several hours. Typically it is four to five days before the materials is shipped out of the plant. Overall, after 10-12 minutes they open the press.
- Are there any issues with the machining of this material (i.e., the abrasiveness of the material, routing, or cutting)? Bajwa stated he hasn't heard of any concern.

Goerger asked, being they are baling already in Iowa, what's the difference in them baling there and baling here? Why do you have to re-research baling and transporting when it's already been done? Bajwa stated the farmers are not baling for them. They wanted to see the economics of it; the numbers for the market, what it's really going to cost to have it baled and delivered to the plant.

Holth asked, you stated transportation cost is about \$750, what kind of distance is that based on? How far can you go from the plant to get that? Bajwa stated they are expecting less than 50 mile radius they will be collecting because the transportation costs is a big issue with biomass.

Schneider asked, what is it that we need to know or what is it that we have to learn to do to make this thing work? Bajwa stated, what we are really trying to define is the processing of beans. Schneider asked if Mankato has the same issue. Bajwa stated they digest it, they put it in the water and cook it. They make hardwood. Their density is 45-60 lbs. per cubic feet. Goerger stated, they are cooking so the fines don't matter, it's all fiber.

Goerger stated, the baling shouldn't be any different than the wheat straw. Storage could be an issue. You are trying to replace wheat straw with a soybean fiber. You are trying to figure out what is the best way to break down that fiber for your use

and you found out it works. So are you taking it from the bench to commercialization? Bajwa stated, yes. Baling came about because they wanted to look at the economics of it. Looking at how we are going to process it, what equipment changes are needed and what would be the optimal blends we can shift to.

Schneider asked, isn't the crux of what you don't know right now is the fines and when you talk about machines, it's eliminating those? Bajwa stated yes.

Schneider asked what the \$60,000 on equipment was for. Bajwa stated one machine is a mechanical tester. The one that already exists at NDSU is for teaching purposes. Schneider asked if they could rent that machine. Bajwa stated every semester they are teaching. Sreekala stated that it is very difficult to get time on that machine.

Goerger asked, who will own this equipment? Bajwa stated, the university. Goerger asked, where will be installed, in the biomass lab? Bajwa stated it will be in the mechanical engineering pilot lab.

Christianson asked Goerger about material handling/ baling. The only thing we haven't studied yet is the moisture issue on long-term storage on soybean bales, unless that has been done somewhere. Terry, do you think this has been done already? Goerger stated, no. It doesn't really tell you what the cost is of the baling study. Bajwa stated it would be a very small amount of it.

Holth directed this question to Pfennig or Fine, when I first started reading this project I questioned what this has to do with renewable energy. Pfennig stated it is utilizing biomass which makes it eligible.

Goerger asked, the first year is it all going to be made within the lab? Bajwa stated, no, the first year we will be running trials at Wahpeton in their plant. The second year will be in the commercial plant. Goerger asked about the glue and other materials why it was in the budget. Pfennig stated that is part of their match.

Schneider asked what the primary use of Masonite was. Bajwa stated it is for doors. Schneider asked if there were any concerns because of the two

significant temperature differences on that material. Bajwa stated, generally this material goes into more doors that are interior doors.

PRESENTATION OF FINANCIAL SUMMARY

Fine presented the financial summary. Fine stated she had sent out a corrected report that the Council should use. We have a balance of \$1.8 million of uncommitted dollars as of August 31, 2013.

After discussion, it was decided to vote on the project as is without the travel.

ADMINISTRATIVE BUSINESS Consideration of Proposed Policy Amendments

Fine reviewed the changes for new policy wording that was discussed at the last meeting. The following wording has been kept in the policy:

REC – 2.02 Eligible and ineligible projects (1st paragraph):

- “must have significant involvement from a North Dakota private entity”
- “An entity may apply for grants for different phases of a project, provided appropriate benchmarks are in place and earlier phases have been deemed successful by the Council and Commission.”
- Under bullet “e” –
 - “It should be noted that the lower the amount of indirect costs the higher the priority given to an application.

REC – 3.01 Maximum grant amount (1st paragraph):

- “The Council may award multi-grants for different phases of a project, provided appropriate benchmarks are in place and earlier phases have been deemed successful by the Council and Commission.”
- Ranking form changes as follows:
 - (1st sentence) - “Financial commitment from other sources”
 - (Last sentence) – “A higher priority is to be given if an application has a

lower indirect component in the budget.

Full memo with noted changes is attached.

Goerger asked Fine to explain the Indirect Costs. Fine explained indirect costs.

Al Christianson moved to approve the noted changes. Terry Goerger seconded the motion. All in favor. Motion passed.

CONFLICT OF INTEREST

R020-A: “Commercial Application of Soybean Stalk as a New Alternative Fiber in Particle Boards”;

- None

COMPLETION OF BALLOTS

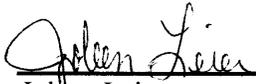
R020-A: “Commercial Application of Soybean Stalk as a New Alternative Fiber in Particle Boards”; Submitted by NDSU.

Fund: 5 Do Not Fund: 1

ADJOURNMENT

Randy Schneider moved to adjourn the meeting. Terry Goerger seconded the motion. Motion passed. The meeting was adjourned.

 7/31/14
 Alan R. Anderson Date
 Chairman

 7-31-14
 Joleen Leier Date
 Acting Recorder



INDUSTRIAL COMMISSION OF NORTH DAKOTA

RENEWABLE ENERGY PROGRAM

Governor
Jack Dalrymple
Attorney General
Wayne Stenehjem
Agriculture Commissioner
Doug Goehring

Memorandum

TO: Renewable Energy Council Members
FR: Andrea Pfennig and Karlene Fine
DT: October 8, 2013
RE: Amendments to Renewable Energy Program Policies

At the two previous meetings of the Renewable Energy Council policy revisions were discussed. Below is proposed language reflecting what we understand are the wishes of the Council (new language underscored). Please review and let us know if we have correctly reflected your wishes.

REC – 2.02 Eligible and ineligible projects. Any project proposing education, research, and/or development of new technologies, or marketing of renewable energy resources, materials or products is eligible for a contract under this Program. In all cases, projects must demonstrate a high probability of advancing to a commercially viable stage supported by a road map to commercialization, must have significant involvement from a North Dakota private entity and not be duplicative of other research or demonstration projects or technology in the Upper Great Plains Region. An entity may apply for grants for different phases of a project, provided appropriate benchmarks are in place and earlier phases have been deemed successful by the Council and Commission. The following are examples, in no particular order, of eligible projects.

- Generate information and knowledge that will have the highest probability of bringing or developing new renewable energy or materials companies and industry investment to North Dakota.
- Have the highest potential for preserving and creating renewable energy jobs, wealth, and tax revenues for North Dakota.
- Have high potential to create economic stability and growth and the creation of jobs related to the production and utilization of North Dakota's biomass resources.
- Most effectively educate the general public about the benefits and opportunities provided by the North Dakota renewable energy, materials and products industry including but not limited to advanced biofuels and sugar-based biofuels.
- Promote efficient, economic and environmentally sound development and use of North Dakota's renewable energy resources, materials and products.
- Identify and develop renewable energy technologies presently not used in North Dakota including but not limited to advanced biofuels and sugar-based biofuels.
- Promote research and utilization of renewable energy coproduct utilization for livestock feed, human food products and industrial use technologies.
- Establish an incentive program to assist the agricultural community to demonstrate the commercial feasibility of production, harvest, storage, and delivery of a biomass feedstock. The program may include providing funds to producers of perennial biomass crops, including but not limited to native grasses, so that such producers have an income during the time needed for these plants to mature and become ready to harvest.
- Maximize the market potential for renewable energy resources, materials and products and the associated byproducts.

- Develop baseline information that will lead to other projects, processes, ideas, and activities.

The following activities or uses are ineligible for funding under this Program:

- a. Business startup capital.
- b. Business working capital.
- c. Business advertising or promotional expenses pertaining to a specific company or entity.
- d. Unallowable expenses include i) food and beverages unless a) the express purpose of the project is to educate individuals outside of the grantee's agency and the costs are being used during those educational meetings for individuals outside of the grantee's agency and b) unless the meetings include an individual(s) outside the grantee's entity and are incurred for the furtherance of the project or for the express purpose of disseminating project information and ii) travel unless directly related to the achievement of the project. Costs incurred for travel to conferences not in furtherance of the project may not be considered as match funding.
- e. Indirect costs in excess of the federal rate may be granted on a case by case basis. It should be noted that the lower the amount of indirect costs the higher the priority given to an application.
- f. Sponsorship of conferences

REC – 3.01 Maximum grant amount. Grants may be of any amount up to a maximum of \$500,000. The Council may award multi-grants for different phases of a project, provided appropriate benchmarks are in place and earlier phases have been deemed successful by the Council and Commission.

If these policy changes are adopted the ranking form will be edited as follows:

2Financial commitment from other sources – A minimum of 50% of the total project must come from other sources to meet the program guidelines. Higher priority is to be given if the application has private industry investment equal to or at least 50% or more of total cost. A higher priority is to be given if an application has a lower indirect component in the budget.