2011 SENATE AGRICULTURE

SB 2345

2011 SENATE STANDING COMMITTEE MINUTES

Senate Agriculture Committee
Roosevelt Park Room, State Capitol

SB 2345
February 3, 2011
13906

☐ Conference Committee

Committee Clerk Signature Greta Nelson

Explanation or reason for introduction of bill/resolution:

To produce transportation biofuel from sugar-based feedstock; and to provide a contingent appropriation.

Minutes: Attachment: #1, #2, #3, #4

Senator Flakoll; Meeting called to order this 3rd day of February, 2011. Clerk take roll

Clerk: Roll call 7 – 0 – 0 Attendance

Senator Flakoll: SB 2345

Senator Miller: Proud to introduce SB 2345 a bill that would provide some grant funding for energy deeds and this is an exciting new industry that we may be able to foster in North Dakota....strong potential and help develop a whole new sector in ag and help a lot of farms and rural area the currently have many alternative crops they can grow. This provides a new crop that we can grow in areas not usually thought of before. Funding itself is rather "jaw dropping" ....want to bring it forward that the resources trust fund that was established many years ago from oil was designed to go to water projects and feed the renewable energy sector. It has been used in that renewable energy sector as of yet, so I think this could be a good opportunity to try it out.

Lloyd Anderson: Partner of Green Vision Group (Attachment #1)

Senator Miller: Deciding to go with the demonstration plant first, I am confused the distinct difference between that and the regular production plant. Would that be able to be converted to a regular production plant?

Lloyd Anderson: Yes, the demonstration plant will be a smaller facility, pilot scale would be another word that could use/typically used for that....the objective of the pilot plant is to prove out the technology that we believe will exist and prove of economic results that we believe will exist. With that information, it is much easier to get funders for the project. We have a number of technologies independently that have proven in different parts of the world, but never been put together in one facility. Typically in today's difficult funding

environment, you have to have a pilot plan established and running so there is evident your assumptions feeding into your financial models are correct in order to get the funding.

Dr. Cole Gustafson: Co-Director Bio-energy Production Innovation Center NDSU (Attachment #2)

Senator Heckaman: When you applied to the EPA was this the time line for something that you expect an answer back?

Dr Cole: This is a process and there is no clear time line. We have been in contact with people within USEPA that will be making the decision and are very supportive and indicate they will be assistive in that process. I understand of the sugar cane proposal took one to two years to go through the process from beginning to end. We have a copy of their materials they submitted that we intend to follow that protocol.

Senator Luick; The plant you are looking at presently, how many acres of agricultural production are needed to sustain .... Build that facility and also time line the go ahead and start production and then actual results from that plant?

Dr Cole: I don't have specific numbers for the demonstration plant, but for commercial plant which is 20 million gals per year. It would take roughly 30,000 acres of energy beets to supply that size of a plant. For the smaller size plant, we are looking at utilizing both molasses and energy beets in the process and we can shift back and forth to paying on market prices and availability which provides flexibility for the project and respect through the time line, we are looking at number of alternatives. Some of collating with existing biofuel plants in the state and other opportunities of starting a Green Field Project. It will take at least a year to construct a demonstrative project.

Senator Klein; In Lloyd's commentary, we would probably be the first in the U.S. to develop this process and process facility. We are talking teaming up; do you know if there are any other states working on this project?

Dr. Cole: yes we have been in contact with other states
and we are aware of the sugar cane project in Florida is under way ....not commercially in production at the present. A group in PA who announced they were working on the project, but since terminated. Moving that project to Canada. I have been in contact with a project in CA they are behind us in development, but are heading down the same path. We in conversation with other regions, I hope we can make a unified petition with EPA and collaborate our resources.

Senator Klein: We are certainly excited about the idea. The issue surrounds the cash. It is a lot of money....as we work through things...what are the priorities? Is 7 million the number we have to set in stone?

Dr. Cole: the group is looking for is the availability of funds. We would submit the grand proposal with our specific needs. Depending upon the project to proceed with and would go through a peer review process....if it be like a grant process. There would be both performance evaluation and commercial test. This is outside of traditional pathway of

funding agricultural project through the process.....this project is rapidly developed ...the process is lengthy process is over 2 years in time frame. We are just initiating and didn't know what specifically to ask for when this was going forward. This is a separate instinct from that.

Senator Larsen: Clarification: This system you are developing will work only for sugar beets? Or will components work for grains and other things?

Dr. Cole: Plant that we are looking at will utilizing sugar type of feed stock to produce biofuel. We are thinking of starting with ethanol, but there are other biofuel under consideration. Which would be an opportunity in the future. With feed stock coming in we are looking for sugar based products. Immediate one is energy beets. Looking at molasses available in the market place and research of trials....sweet sorgam....another rotational crop which will benefit in some areas. Sugar type feed stock that can come into the plant and be more competitive.

Senator Larsen; What is the process of turning the liquid into the powder?

Dr. Cole: We conducted a research trial of this....comes from the bottom of the fermentation tank....it is high in moisture....has to be dried to get to the stage. The process looking for a patent is a spray dry process where it is sprayed out of high pressure and end up as powder material. In the commercial burnt test, the results we don't have to take it being this dried....use a slurry at 55% and blow in a fluid ice bed with coal ...very traditional process and many other plants are utilizing ...use less heat to remove moisture....we have expectations that we make cellulous category.

Senator Terry Wanzek: District 29...Expressed his support for SB2345. Potential opportunity to somehow figure out a way of getting off the ground.

Blaine Schatz: Director of NDSU at Carrington Research Extension Center (Attachment #3)

Senator Klein: are we going to position where people will say "I'll invest" ...I assume you will need different equipment ....is there potential enough and return to convenience to raise these energy beets?

Blaine Schatz: Number of scenario I would present that the growers would be attracted to grow the energy beets. First the economic models certainly show that energy beets where other crops referred to are very attractive....they would be the price leaders. With other crop commodity prices in recent years has raised the bar. Where other crops need to compete for acres. Equipment issue, strategy to procure beet equipment from the valley to positions to grow the crop....the growers saw the opportunity and quite aggressive in putting forth plans even though we are not there yet.

Senator Miller: How is it going to compare to the sugar beets ...the crystal sugar? Will there be any competition?

Blaine Schatz: The Green Vision colleagues would have a point of view on this.. My comment is the opportunity the return on investment would be an opportunity across the state that currently do not have the opportunity The impact on the sugar industry, I will leave that response to Green Vision group.

Senator Klein; See the huge pile of beets, gone by spring or summer....how do they stand up during the summer when they are piled.....how are they are they going to be handled during the summer? Would there be an issue with the storage?

Blaine Schatz: I will defer to someone in the Green Vision Group

Senator Heckaman; of the appropriation you are asking for 7 million, what do you anticipate.....business plan, are private sectors funds included and what percent of the 7 million would be of the total demonstration project?

Blaine Schatz: I will defer to the Green Vision Group

Senator Flakoll: What are the differences in traits, productivity, per acre in terms of pounds or tonnage? Do they have and similarities are they dissimilar as traditional beets found for sugar in RRV, please walk us through .....what would we expect in terms of those beets vs. those that many of us are more familiar?

Blaine Schatz: The current array of cult of our varieties represents the energy beets are presently very similar to the sugar beets that we see growing in the valley .... The next speaker will address this. There is some advanced genetics that would be representative of true energy beet and one of the plant breeders within developing are the quality characteristics required with producing sugar. That issue is less than for than the energy beets and opportunity to design beet cult of our focus on yield per acre and is certainly you need the sugar content. The cult of our type is going to vary because of the constraints that tradition for true sugar beets. Colleague will address this one.

Senator Luick; You mentioned the beets are more able to grow in saline soils....you're looking at a four year rotation on the energy beets? Is there any testing going on how much salt is coming out with the beet, or is it tolerant to the salt in its growing cycle or removing some of the salt from the soil? Does it help the next year crop so they aren't up against the saline issue?

Blaine Schatz: Research is rotational benefit is just beginning....research at the Carrington center ... and actually the budget will allow us to expand the work greatly as is focused on soils. We know to be the energy beets are one of the crops most tolerate to saline soils. We have a crop that is establish itself/maintain growth development over a longer period of time on soil vs. so many other crops. Within itself is going to improve the dynamics of the saline soils....the water use associated with the energy beets given the deep root system and in fact it will grow as least a longer period of time throughout the season will draw down that soil water by drawing down the salt preventing the migration salts to the surface. It is an immediate benefit that we have a crop that will be productive and will be a multi-year benefit from the standpoint that the salt will be drawn down.

Complete dynamics of how these benefits will express themselves and what we can completely expect ....in the years ahead ....quite clear the benefit is there and real.

Craig M. Talley: Business Development Technology Manger (Attachment #4)

Senator Klein: As a researcher and involved with breeding issues, often we have issues with cross pollination, in this case, will we have a case with the sugar people and energy people who are raising beets near each other? Is there not fear of that?

Craig Talley: Sugar beets are bi-annual crops and we harvest annual portion of that crop unless it survives our winters, has outside pollen source to fertilize it would not be possible. There are some bolters that occur in early spring planting to get a cold period creating some bolting, the seed company screen for bolting tolerances and varieties that we produce do not bolt.....we would be concerned with that.

Senator Klein: We talk about the expense of oil and gas....I think Americans understand how to make a dollar....do you see many people who would get excited about this ....out in the corporate world?

Craig Talley; Tough question... we look for expanding new business and not an oil company. A lot of gains either way....1.2 million acres of sugar beets in the northwest and that number is constant. We need to look at other opportunities ...certainly as a private business we are looking at those.

Senator Klein; Our sugar beets are constant and that is because we can control those...true? Then how would we control green beets?

Craig Talley; There is a market and our administration is given us 36 billion gal of biofuels of which there is a certain segment for advance bio-fuels so that market is really wide open. It difference is because of the allocations that the sugar industry has and can only produce so much and is dictated based on what they can sell and how much tonnage to produce those allocations. That number has been fixed. We are probably doing ourselves an injustice by producing higher producing varieties. We are producing more and more sugar per acre and can produce/same goal that by going with less acreage. The market is open for advanced biofuels.....sugar to ethanol is a good way to go.

Senator Flakoll: There have been concern about what the courts might do in terms in allowable types of sugar crops.....how might that impact these energy beets? The growers are concerned because of some court action.

Craig Talley: Are you referring to some round up issues? We are waiting for some judge decisions.....rather wait to comment.

Senator Flakoll; Essentially, any beets grown solely for sugar, would these types of energy beets...would they be subject to the same litigation?

Craig Talley: Absolutely. It is an Agricultural crop...grown in U.S.

Senator Klein; Question is do we change this to juice and hold it in the tank for a while? How do we handle the summer time for the beets?

Craig Talley: that is a good question....our parent company is working on proprietary storage and information and successfully stored beets in very hot, humid climates for over a year. We are looking at commercializing that patents pending....other juice storage ... are opportunities they are working with a group. In ND we can store beets for quite a while ...just how the factories matic is built, how the ethanol flow maybe some down time. We are working with sweet sorgam which is a sugar containing crop ....simple sugar like sugar from sugar beets. Those juices could be utilized in a fact similar to this in the off season. We are working with the group from Carrington on sweet sorgam varieties.

Senator Flakoll; Anyone else in support of SB 2345?

Senator Flakoll; Any oppositions of SB 2345?

Lloyd Anderson: Offer to answer question that didn't get answered.

Senator Heckaman; Looking at the appropriation you are asking for and business plan that you have developed, what percent of your proposal for your demonstration plant would the 7 million amount to?

Lloyd Anderson: Proposals we are working on today for a demonstration plant includes a co location with another ethanol facility. The budget includes the incremental equipment required to do a pilot plant/demonstration plant. We would utilize other facilities that were co located at the same site. Total cost will be minimized by the way we plan to carry out our pilot plant objective.

Senator Heckaman: Even though feels very favorable to this as it marches down to appropriations, a lot of things happen. What would happen to your project if you didn't get this?

Lloyd Anderson: If we don't get this or appropriation that is reduced, we will continue to work with the situation as presented. My expectation is we are going to provide some sort of justification to industrial commission for any appropriation that might be granted so there will be a process we will have to go through....we don't expect that the money would be allocated to us through a legislative process without us showing due diligence and justifying every request.

Senator Flakoll: Is there a business plan?

Lloyd Anderson: Not for the demonstration plant.

Senator Flakoll; Questions?

Senator Flakoll: Close hearing for SB 2345

2011 SENATE STANDING COMMITTEE MINUTES

Senate Agriculture Committee
Roosevelt Park Room, State Capitol

SB 2345
Meeting/Discussion on Bill
February 3, 2011
13917

☐ Conference Committee

Committee Clerk Signature Greta Nelson

Explanation or reason for introduction of bill/resolution:

To produce transportation biofuel from sugar-based feedstock: and to provide a contingent appropriation.

Minutes: You may make reference to "attached testimony."

Senator Flakoll: Meeting discussion on SB 2345 and SB 2222

Senator Miller; Seven million dollars is probably going to kill the whole idea and I am trying to think of a way to keep this bill alive and thought if there is a way we can loan them the money. Once the industry starts, have a payback provision through a tonnage tax until the loan repaid. I thought I could draft something as such and see what they all think about it. Anyone have a comment about that?

Senator Luick; Better proposition than granting out 7 million dollars at this time.

Senator Flakoll; We may have some problem bridging in it because it could be different for those who are looking to do this pilot vs. those that are investors that use the information from this. That is where we have to think about if there is a disconnect ...seems as if nothing else, they need to include a study on this topic. That would be somewhat more interesting than what we are doing. In the last two interns as far as the re-write.....give us a little something more interesting to show up for.

Senator Miller; I'll get some amendment drafts and we can look at it.

Senator Flakoll: Any others thinking about putting any more amendments on SB 2345?

Senator Flakoll: Anyone have any other amendments ....some on SB 2222 that were given out this morning. There maybe some pending ....not certain if we need to try to clarify anything on the other portion. If we do, we will try to get those done in a timely fashion. Any other thing/amendment on SB 2222 that thought could be tweaked?

Senator Murphy: Microphone off??

Senator Klein; Senator Miller would your amendment remove the appropriation?

Senator Miller: No

Senator Klein; I believe the issue is entirely about the appropriation....whether or not who would be the facilitator with a guarantee they would pay back on the tonnage fee. That's what would be the most troubling portion on this thing.

Senator Miller; Yes, I will think about it to see what I can figure out on this.

Senator Flakoll; SB 2345 the fiscal note will be unhealthy for the longevity and even if we sent it with $5,000 and ship it down the hall, give it the day before the appropriation committee and they can decide. Unless people don't like the concept, we will just whack it. We could keep it moving so that it starts getting on the radar screen ....this is a very new concept. They just held a press conference in December talking about some ideas. As you can see in the testimony, there was a lot of "looking back over their shoulder" to see if someone else knew the answer....if answer was right or wrong. If we were to have it before a larger audience and one that helps decide where is best for the money to go. (Another option)

Senator Klein; That was exactly what I was thinking....$5,000 or $4,900 just to keep it alive. Until we see where we are at, at the end ....how many tax breaks you give the folks over in finance and tax, until we see our actual revenue is going to be, pretty hard to plug in 7 million dollars. That's why we need to keep this alive, with some dollar figure in it so it is palatable and when it gets on the other side.....if they can find revenue ....that's the opportunity to keep this thing going.

Senator Flakoll; The next revenue for forecast will be out February 14, so sometimes that opens up other opportunities. That's a more realistic number as we move forward, whether we move forward, whether it is up or down over the many biennium's ....that can happen, but if it is down, we're it is in more trouble than today. If up, that sometimes breathe life into bills.

Senator Miller; I will proceed with my ideas for the amendments, but maybe we can knock it down dollars to keep it alive.

Senator Flakoll: I would be more inclined to send it to appropriations.

Senator Miller; OK

Senator Flakoll; They need to hear about this. We need to expand the scope of what this is to more than the seven committee members and if they can start thinking of it as part of their port folio whether they want to or not. They are the ones ultimately .....don't want to leave it up to the House.

Senator Miller; Are my rebates out of line?

Senator Flakoll; If we would knock it down to $5,000, you wouldn't have to rebate it. Appropriation of $5,000 keep it alive and send it down the hall.

Senator Miller; I thought the concept of repayment was strong and makes it more responsible.

Senator Flakoll; People are more receptive when they feel there is an opportunity to get that back in the general funds.

Senator Heckaman: I support the concept, too... I think it is not well developed right now and we are going to hear this in 2 years again and then it will have more of a business plan and more information that we could put more money into it then. I do think we need to keep it alive down in appropriations....somehow.

Senator Miller: I will take care of something.

Senator Flakoll; What are the committee thoughts? Should we include this as part of the study of the interim because there seems to be more things that are not know rather than known things.

Senator Heckaman; Good idea and will help out the groups that are doing this, too. A little on funding mechanisms and concepts and helps get them more directed. They will be coming to presenting to us.

Senator Flakoll: I worry if we are being asked to give 7 million dollars when there is no business plan behind it

Senator Luick; I agree and the study of something like this sounds very appealing...the process and what known in the past the potential is very huge. I am in favor

Senator Larsen; Is this going to cut into the sugar beet industry....are they going to be able to get the product enough or are they going to take away from the sugar beets?

Senator Flakoll: They are different beets and I think these energy beets are more designed for other parts of the traditional beet country and RRV. I don't think it will be a trade off and don't think that they would be able to generate as many dollars of profit off those in the traditional RRV scenario as they would off the sugar beets....whether that is a part of the cropping because they have limited number of acres and tons they can move on to American Crystal. Haven't heard anything from producers who are worried about back and forth.

Senator Luick: there is no correlation between sugar beet and energy beet. They are genetically different. They are designed differently.....the tonnage from the energy beet is higher and basically it is bred for the energy purpose .... The mass that comes out of the beet for ethanol purposes. The yield and dollar per acre return can actually pass the sugar industry beets. The sugar beet is designed to have a better quality within the beet to grow the sugar but also tampers with the tonnage it will produce. This beet they are looking at

the tonnage and not restricted as much to the final tonnage per acre. It does have a very large potential.

Senator Flakoll: We didn't get in with them as far as co products. Current sugar beet industry of beet, tailings, pulp ... there is a whole host of things that have to be dealt with more financially vial able than others. This is an appropriate analogy ....comparison.....they really the same family but in terms of what they do, they are notably different. Compare the corn .....true difference of products.

Senator Miller; Proposal to grow these in dry lands.....traditionally they are not sugar beet ground .....change our agricultural practices otherwise that land going to blow and not like the RRV where there is 8 ft of top soil and heavy clay.

Senator Flakoll: Adjourned

2011 SENATE STANDING COMMITTEE MINUTES

Senate Agriculture Committee
Roosevelt Park Room, State Capitol

SB 2345
February 4, 2011
14029

☐ Conference Committee

Committee Clerk Signature Greta Nelson

Explanation or reason for introduction of bill/resolution:

To produce transportation biofuel from sugar-based feedstock: and to provide a contingent appropriation.

You may make reference to "attached testimony."

Minutes:

Senator Flakoll: Meeting called to order.

Senator Miller: Amendments / whole point is to keep it alive and let the gentlemen keep telling their story. The Department of Commerce look at the feasibility and takes the lead and report to legislature. That gives them an opportunity to do something in the interim. I move my amendments.

Senator Klein; Second

Senator Luick; You have this for the purpose of a feasibility study? Is that what they were after?

Senator Miller; No, but they either get something or nothing. This gives them the opportunity to keep talking to the legislature. If at the end of the legislature we find we have 7 million dollars we are willing to do an energy beet plant, then we have a bill to do that.

Senator Luick: Would this limit them for these monies to be spent just on a feasibility study?

Senator Miller; $5,000 is really the only purpose to that appropriation ....just to send this to appropriations.

Senator Heckaman: I will support the amendments. However, I was a disappointed when they came in with such a good idea, but had no business plan. I noticed over the three session that I have been here, people that really are organized have a better chance of getting of getting some funding for their projects....I felt a business plan was in need; however, I will support them.

Senator Miller; Holph (?) didn't speak before us, but were very interested in hearing our question and trying to form better answers. They will learn from here and move forward and keep telling their stories.

Senator Klein; I will support it as we want to keep it alive; however, APUCK gave them ($60,000) to do feasibility a couple years ago....maybe this will provide them to look at some of the other issues. The plan doesn't look as if it is in place.....appropriation member disappointed we went to $5;000 rather than $4,995.

Senator Flakoll; If we were not to amend the bill, it would not survive at all. If I were to have 7 million dollars, I would prefer to have it for something that has more time and planning behind it. If we don't prioritize some things, than others will do it for us.....we want to keep this alive. Senator Miller is your intent to present in front of appropriations and give them necessary information, so they would be allowed to talk about their 7 million dollar proposal.

Senator Heckaman; Yesterday we talked about having this study through the interim Ag, but I see it is a report back to the 63 Legislative Assembly. Is that the direction we wanted to be going?

Senator Miller: Talking with Anita Thomas ....she felt that there is enough discretion if we wanted to take 20 minutes in the interim and let the gentlemen come to give a report? Probably doable and ....she said she didn't think the legislative council should be charged for conducting a study of this magnitude.

Senator Flakoll: Discussion? Clerk to take roll call vote for the adoption of the Miller amendments to SB 2345

Clerk: Roll call vote 7-0-0

Senator Flakoll; Motion Carries

Senator Miller; Move a Do Pass as amended on SB 2345 and re-refer to appropriations

Senator Klein; second

Senator Flakoll; Moved and second for Do Pass as amended and re-refer committee on appropriations

Senator Flakoll Discussion? Clerk take roll

Clerk: Roll call vote 7-0-0 absent

Senator Flakoll: Motion carries

Senator Flakoll; Senator Miller carries

Date: 2-4-11

Roll Call Vote #: 7-0-0

2011 SENATE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO. 2345

Senate Senate Agriculture Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number

Action Taken Miller Amendment

Motion Made By Senator Miller Seconded By Senator Klein

Representatives	Yes	No	Representatives	Yes	No
SenatorTim Flakoll	✓		Senator Joan Heckaman	✓	
Senator Oley Larsen	✓				
Senator Jerry Klein	✓				
Senator Larry Luick	✓				
Senator Joe Miller	✓				
Senator Bill Murphy	✓				

Total (Yes) 7 No 0

Absent 0

Floor Assignment

If the vote is on an amendment, briefly indicate intent:

Date: 2/4/11

Roll Call Vote #: 7-0-0

2011 SENATE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO. 2345

Senate Senate Agriculture Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number

Action Taken Do pass & re-referred to appropriations

Motion Made By Senator Miller Seconded By Senator Klein

Representatives	Yes	No	Representatives	Yes	No
SenatorTim Flakoll	✓		Senator Joan Heckaman	✓	
Senator Oley Larsen	✓				
Senator Jerry Klein	✓				
Senator Larry Luick	✓				
Senator Joe Miller	✓				
Senator Bill Murphy	✓				

Total (Yes) 7 No 0

Absent 0

Floor Assignment Senator Miller

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE

SB 2345: Agriculture Committee (Sen. Flakoll, Chairman) recommends **AMENDMENTS AS FOLLOWS** and when so amended, recommends **DO PASS** and **BE REREFERRED** to the **Appropriations Committee** (7 YEAS, 0 NAYS, 0 ABSENT AND NOT VOTING). SB 2345 was placed on the Sixth order on the calendar.

Page 1, line 1, after "A BILL" replace the remainder of the bill with "for an Act to provide for the department of commerce to conduct a sugar-based feedstock biofuel demonstration plant feasibility study; and to provide an appropriation.

BE IT ENACTED BY THE LEGISLATIVE ASSEMBLY OF NORTH DAKOTA:

SECTION 1. SUGAR-BASED FEEDSTOCK BIOFUEL DEMONSTRATION PLANT FEASIBILITY STUDY.

1. During the 2011-13 interim, the department of commerce shall conduct a sugar-based feedstock biofuel demonstration plant feasibility study.

2. The feasibility study must:

   a. Address the cost of a sugar-based feedstock biofuel demonstration plant;

   b. Determine the nature and scope of existing and potential markets, both domestic and international, for sugar-based feedstock biofuel;

   c. Review federal laws, regulations, policies, and guidelines regarding biofuels; and

   d. Examine the potential for obtaining loans, grants, and other incentives in order to further the development of a sugar-based feedstock biofuel demonstration plant.

3. The department of commerce shall report its findings and recommendations, together with any legislation required to implement the recommendations, to the sixty-third legislative assembly.

SECTION 2. APPROPRIATION. There is appropriated out of any moneys in the general fund in the state treasury, not otherwise appropriated, the sum of $5,000, or so much of the sum as may be necessary, to the department of commerce for the purpose of conducting a sugar-based feedstock biofuel demonstration plant feasibility study as provided under section 1 of this Act, for the biennium beginning July 1, 2011, and ending June 30, 2013."

Renumber accordingly

2011 SENATE APPROPRIATIONS

SB 2345

2011 SENATE STANDING COMMITTEE MINUTES

Senate Appropriations Committee
Harvest Room, State Capitol

SB 2345
February 11, 2011
Job # 14411

☐ Conference Committee

Committee Clerk Signature Rose Laning

Explanation or reason for introduction of bill/resolution:

A bill to provide for a sugar-based feedstock biofuel demonstration plant feasibility study.

Minutes: See attached testimony # 1-3.

Chairman Holmberg called the committee hearing to order on SB 2345.

Senator David Nething, State Senator, District 12
Bill Sponsor

The purpose of SB 2345 was to establish a demonstration plant to produce transportation biofuel from sugar based feedstock. He explained what the Ag Committee did when they went from the original bill to the study. He asked the appropriation committee to consider going back to the original bill. He said the source of funding in the original bill was the resources trust fund. The Industrial Commission was involved with the administration of those dollars. He asked that they consider not looking to the resources trust fund but look to other sources within the Industrial commission and perhaps there is a better way to work out the funding so the plant could be utilized quicker. North Dakota State University has already done considerable studies on this. The bank of ND was established in 1919 for the purpose of encouraging and promoting agriculture, commerce and industry. The state of North Dakota shall engage in the business of banking and for that purpose shall and does hereby establish system banking owned, controlled and operated by it under the name of Bank of North Dakota. He believes the purpose of SB 2345 fall directly under that initial purpose of the Bank of North Dakota determined in 1919. He said there would be people testifying on the benefits of this proposed sugar-based feedstock biofuels demonstration plant. It has exciting opportunities in view of the energy needs of this country. Also in view of the agricultural benefits to North Dakota

Senator Grindberg asked who would be a qualified entity to receive the $7M dollars.

Senator Nething replied that they would hear from those people this morning.

Joe Miller, State Senator, District 16
Bill Sponsor
Gave a brief summary of what the agriculture committee did when they converted SB 2345 into a study. They wanted to keep the bill alive. He asked the committee to look at the bill as if it was in its original context. He stated that 7 million was a lot of money but energy beets have a lot of promise for state of ND.

Senator Terry Wanzek, State Senator, District 29
Bill Sponsor
Testified in support of SB 2345. He said that he had seen some presentations on the topic and felt that it warranted enough merit to give it some consideration. He stated that the $7M may not happen, but let these folks share their initiatives with you. It has potential and economic development to agriculture. Give the wise people on this committee as chance to maybe find some solutions.

Maynard Helgaas, Partner, Green Vision Group, (GVG)
Testified in favor of SB 2345.
No written testimony.
Information attached - # 1 - Energy Beets – Refuel Our Rural Economy
He gave a brief history of the project. It started in 2007 studying sugar beets as a use for ethanol. Most of the information came out of Europe. Breeding for ethanol beets is different from sugar beets. He said that ethanol beets, they want tonnage and sugar. They are looking at dry land and irrigation. He explained the studies they have done. He said that they have done a lot of research and he feels this project would do wonders for rural ND. He calls it refueling our rural communities. He said that they are looking at 12 plants. He referenced the information in the brochure. Information attachment #1. He stated that it is a clean energy and has low carbon footprint.

Chairman Holmberg the beets that are used for crystal sugar is labor intense and an expensive crop, is there any difference for beets for this purpose? Is there a difference in the way the beets are handled?

Mr. Helgaas said energy beets will probably not be as intense. He describes a few options in the harvest and reminded them that they are looking for tonnage and sugar context.

Senator Christmann asked how he could justify to constituents around the state to spend money to subsidize getting into something new. He said that he realizes that it is exciting to farmers to have a new market but then we have to run to Washington to try to get mandates to force people to buy what is already being produced and subsidized.

Mr. Helgaas stated that we are not using tax credits, he said they may go away and we want to stand on our own. He said they would not be under allotments. Right now you can't produce sugar beets for sugar unless allocation from processor.

Senator Christmann said we are being asked for $7M for something that we need mandates to force people to buy the ethanol that is already being produced.

Dr. Cole Gustafson, Co-Director, Bio-Energy Product Innovation Center, NDSU
Testified in favor of SB 2345.
Testimony attached - # 2.

Senator Bowman said that a few years ago the buzzword was switch grass. I'm for agriculture, but without subsidies, can you compete against and make this profitable? If we continue to do these things, can you compete against the energy companies that we have already? Are you going to be able to market it and compete?

Dr. Cole said that there was a lot of interest in switch grass but they have stalled out because technology is not there. He said that the technology that we are talking about is already proven in other parts of the world. He spoke to the subsidies and said that in their economic analysis, they didn't include any economic subsides. He said that their break even of $1.52 does not include any tax credits.

Senator Warner said he had some concerns on sustainability. How many acres does it take to maintain a plant? What is the crop rotation? How many years between sugar beets? Can you do beets in spring and then switch to corn? Is there a way of sending nutrients back to the soil or do you just send tailings to landfills?

Dr Cole said that they have those details in report. For each plant we're looking at 30,000 acres of beets at a four year crop rotation to relieve disease pressures. With respect to other crops, he said that they would be in a rotation with corn, wheat and soybeans but with 12 plants across the state, they could get into more small grains.

Senator Warner asked about potatoes.

Dr Cole replied that they have diseases and are looking for other crops. In regard to the nutrients, the byproduct of the process is this powder yeast and after we burn this powder there are technically no waste products just pot ash which there is a market for.

Senator Warner 30,000 acres times 4, what is the diameter of that?.

Dr Cole said they were looking at a 20 mile radius of each plant. He explained the juice study. They want to make the juice, store it and use year round. This would lower overall cost. Also investigating the possibility of sweet sorghum that could be used in summer months.

Senator Christmann asked how many gallons of ethanol each plant will produce. Is there a demand for that much ethanol in the state or are we going to truck most of it out.

Dr. Cole answered that they were looking at 20M gallon plants. He said the total market for this is a National market.

Senator Bowman asked if the cost of damage to roads was figured in.

Dr. Cole said they are including truck costs in the model. The final design of the demonstration plant will depend on the juice study.

Senator Grindberg asked who was going to own it and where does the money go.

Dr. Cole replied that the next presenter will address that topic.

Lloyd Anderson, partner of Green Vision Group
Testified in favor of SB 2345. Testimony attached - # 3

Senator Grindberg asked why the state of ND would put $7M in private enterprise. How will this be put together? He said that he couldn't put that money to a private entity. There has to be and upside to somebody.

Mr. Anderson replied that there are three components. He said one would be the Capital assets, the second, partner that they co-locate with, and the third is a significant operating capital budget that is required to run the demonstration plant. He also commented on who would own the plant. It is not going to become a commercial facility so it has a life that will be about 3-4 years. He said that they were open to working with state legislature, and the industrial commission in coming up with a structure that would eliminate some of the concerns.

Senator Grindberg question on the Legacy fund.

Mr. Anderson said that it was his understanding that it would be funded out of resources trust fund. No dollar has been appropriation out of trust fund for renewable energy.

Chairman Holmberg said that they had discussion about a week ago about that issue and he shared that there was some debate on whether we should use the resources trust fund.

Chairman Holmberg asked if we were only going to put the $5,000 in the bill, he asked then what would his recommendation be.

Mr. Anderson replied that it would be to kill it. They have a sense of urgency.

Chairman Holmberg commented that if the bill stays alive, you get another turn at the House.

Chairman Holmberg closed the hearing on SB 2345.

2011 SENATE STANDING COMMITTEE MINUTES

Senate Appropriations Committee
Harvest Room, State Capitol

SB 2345
02-17-11
Job # 14716 (Meter 9.40)

☐ Conference Committee

Committee Clerk Signature Alice Delzer

Explanation or reason for introduction of bill/resolution:

A Roll call vote on the BILL to provide for a sugar-based feedstock biofuel plant feasibility study

Minutes: You may make reference to "attached testimony."

Chairman Holmberg called the committee to order on Thursday, February 17, 2011. Lori Laschkewitsch, OMB and Roxanne Woeste, Legislative Council were present.

There was discussion on several bills and when the committee will be taking action on the bills are left to pass out of committee.

JOB #14716 INCLUDES THE ROLL CALL VOTES ON THE FOLLOWING BILLS: SB 2345, 2159,2029,2299,2298,2212,2334,2357.

SB 2345. (Meter 9.40)

Senator Christmann moved Do Pass. Seconded by Senator Wanzek

Chairman Holmberg We have a do pass. Would you call the roll on a DO PASS on SB 2345.

A Roll Call vote was taken. Yea: 12; Nay: 1; Absent 0.

Chairman Holmberg: It goes back to the Agriculture Committee. **Senator Miller will carry the bill.**

The hearing was closed on SB 2345.

Date: 2-17-11
Roll Call Vote # 1

2011 SENATE STANDING COMMITTEE ROLL CALL VOTES
BILL/RESOLUTION NO. 2345

Senate Appropriations Committee

☐ Check here for Conference Committee

Legislative Council Amendment Number _____

Action Taken: ☒ Do Pass ☐ Do Not Pass ☐ Amended ☐ Adopt Amendment

☐ Rerefer to Appropriations ☐ Reconsider

Motion Made By Christmann Seconded By Wanzek

Senators	Yes	No	Senators	Yes	No
Chairman Holmberg	✓		Senator Warner	✓	
Senator Bowman	✓		Senator O'Connell	✓	
Senator Grindberg	✓		Senator Robinson	✓	
Senator Christmann	✓				
Senator Wardner	✓				
Senator Kilzer	✓				
Senator Fischer	✓	✓			
Senator Krebsbach	✓				
Senator Erbele	✓				
Senator Wanzek	✓				

Total (Yes) 12 No 1

Absent 0

Floor Assignment goes back to Com. eg Miller

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE

SB 2345, as engrossed: Appropriations Committee (Sen. Holmberg, Chairman) recommends **DO PASS** (12 YEAS, 1 NAYS, 0 ABSENT AND NOT VOTING). Engrossed SB 2345 was placed on the Eleventh order on the calendar.

2011 HOUSE AGRICULTURE

SB 2345

2011 HOUSE STANDING COMMITTEE MINUTES

House Agriculture Committee
Peace Garden Room, State Capitol

SB 2345
March 17, 2011
Job #15594

☐ Conference Committee

Committee Clerk Signature LaMae Kuch

Explanation or reason for introduction of bill/resolution:

To provide for the department of commerce to conduct a sugar-based feedstock biofuel demonstration plant feasibility study; and to provide an appropriation.

Minutes:

Karlene Fine, ND Industrial Commission: The Industrial Commission does not have a position on this bill. The reason we had an interest in this bill is because the Industrial Commission has funded a grant for Green Vision for energy beet research. This is a new area that we are looking at in the state. When this bill first started in the Senate, it was a request for a grant for $7 million and it was to take the research to the next step of putting together a demonstration plant to determine the technological and economic attributes of producing transportation biofuel for multiple sugar-based feed stock.

In the Senate it was converted to a study. It went to the Senate Appropriations Committee. There some discussion of whether the study would be beneficial or not. It was felt that there would be some benefit to having a study. The proponents of the bill were quite disappointed that it had gone from a $7 million bill to a $5,000 study. That may be why they didn't come to the hearing today. This is an area of interest. We are seeing some results coming into our renewable energy program about opportunities for energy beets.
I think it is worthy of some work. We have no position on this bill.
This is a study that would be conducted by the Department of Commerce.

Representative Headland: Is this happening anywhere else?

Karlene Fine: Not in the United States. There is some outside the country.

Representative Headland: In Brazil they are using cane to make into ethanol. If the Industrial Commission is looking at it, what is the need for a study?

Karlene Fine: There may still be some work. The renewable energy council has limited funds. They have done the initial funding for this. They may be coming back to the Renewable Council for some more funding. The council didn't have sufficient

funds for the $7 million level so that is why they came directly to the legislature for the demonstration plant.

Representative Rust: Could you explain sugar-based feedstock biofuel? Is that sugar beets, sugar cane, or other crops?

Karlene Fine: Refers to Scott Rising.

Scott Rising, Soybean Growers and Alliance for Renewable Energy Board: They would not be the sugar beets from the Red River Valley for the purposes of producing sugar. It is a sugar beet that is raised for the purposes of being used in a biofuels process. This has been semideveloped elsewhere. It has not been done here. They are much smaller entities that serve a smaller area. The idea is to have 15 or 20 by the time this is done.

Representative Belter: I thought the promoters have already done an extensive feasibility study. Now they were looking for money for a pilot plant. You don't do much of a study for $5,000. I am wondering why it is another study.

Karlene Fine: I think the reason was to keep the bill alive. The funding through the Renewable Energy Council was $165,000 into that initial study which is not yet complete. That was all matched so it was close to a $400,000 study total.

Representative Holman: Growing sugar beets requires specialized equipment. It is likely that the people already in the business are supporting this and putting input into this project.

Karlene Fine: Green Vision is the entity that has been pushing this project. Also NDSU and some growers are participating.

Representative Mueller: In the renewable energy alliance arena, do you know if anything has occurred with a background in cellulosic biofuel research?

Karlene Fine: The largest is in the Jamestown and Spiritwood area. Yes, quite a bit in that area.

Representative Mueller: Can you talk about that?

Karlene Fine: The Industrial Commission has funded two studies and is participating in some studies that are focusing on the availability of the crop. That is done with NDSU. We are funding Dakota Spirit Ag Energy Project $500,000 on their prefeed study. With the preliminary work before, we have put in close to about $700,000 into that project.

Representative Mueller: $700,000 to do what?

Karlene Fine: The first part was $109,000 feasibility study of a biomass supply. That was the one to find out if there was enough product in that area for the plant.

The study we are doing now is the prefeed. That will be putting together information about the Danish technology to convert wheat straw and/or corn stover to higher value energy. It will look specifically at the C5 molasses and the purified lignin pellets. This will get the numbers together before the feed study.

Vice Chair Kingsbury: Closed the hearing.

Representative Headland: I'm not sure $5,000 is going to provide for a study.

Chairman Johnson: It is down to where it is now, it is just a study.

Representative Wrangham: I also understand that there are some ongoing studies and the conclusions from those aren't in yet.

Representative Wrangham: Moved **Do Not Pass**

Representative Trottier: Seconded the motion.

A Roll Call vote was taken. **Yes: 10, No: 2, Absent: 2,**
(Representatives Schatz and Schmidt)

DO NOT PASS carries.

Representative Mueller will carry the bill.

Date: 3/17/11

Roll Call Vote # 1

2011 HOUSE STANDING COMMITTEE ROLL CALL VOTES

BILL/RESOLUTION NO. 2345

House **Agriculture** Committee

Legislative Council Amendment Number

Action Taken: ☐ Do Pass ☒ Do Not Pass ☐ Amended

☐ Rerefer to Appropriations

Motion Made By Representative Wrangham Seconded By Representative Trottier

Representatives	Yes	No	Representatives	Yes	No
Dennis Johnson, Chair	X		Tracy Boe		X
Joyce Kingsbury, Vice Chair	X		Tom Conklin	X	
Wesley Belter	X		Richard Holman		X
Craig Headland	X		Phillip Mueller	X	
David Rust	X				
Mike Schatz	AB				
Jim Schmidt	AB				
Wayne Trottier	X				
John Wall	X				
Dwight Wrangham	X				

Total **Yes** 10 **No** 2

Absent 2

Bill Carrier Representative Mueller

If the vote is on an amendment, briefly indicate intent:

REPORT OF STANDING COMMITTEE

SB 2345, as engrossed: Agriculture Committee (Rep. D. Johnson, Chairman) recommends **DO NOT PASS** (10 YEAS, 2 NAYS, 2 ABSENT AND NOT VOTING). Engrossed SB 2345 was placed on the Fourteenth order on the calendar.

2011 TESTIMONY

SB 2345

#1

Testimony
Senate Agriculture Committee

Lloyd A. Anderson, Partner
Green Vision Group (GVG)
Fargo, North Dakota

Senate Bill 2345: Incentive Grant Program for Biofuel Demonstration Plant Utilizing Sugar-Based Feedstocks – Industrial Commission

Good morning Mr. Chairman and members of the committee. I am Lloyd Anderson, a partner in Green Vision Group which also includes Maynard Helgaas, Rod Holth and Rudy Radke, all North Dakota residents. Our group worked together in the 90's to develop irrigated potato farming and a french-fry processing plant in the Jamestown area. We teamed up again in 2007 to develop a new biofuel business. The driving force was economic development via production agriculture for small rural communities throughout much of North Dakota. GVG has partnered for technology with Heartland Renewable Energy from Muscatine, Iowa. Since 2008 we have also had strong project support from NDSU, from the State, and from Syngenta and KWS / Betaseed which are global plant breeding and seed technology companies. You will hear testimony from representatives of two of these organizations later.

As represented on the exhibit (map / location of twelve prospective sites), our plans call for twelve separate 20 million gallon per year ethanol plants utilizing energy beets and molasses as the primary feedstock. Sweet sorghum is also under consideration. Molasses and sorghum feedstock will allow us to extend the ethanol processing season. With ethanol at $2.00 per gallon, the twelve plants combined will have annual revenues of about $600 million per year. Adding a high value crop like energy beets (both dry-

land and irrigated) into the producers' crop rotation will diversify and improve returns to farms. Payments to growers for energy beets are expected to approach $300 million per year. Direct plant employees will total about three hundred.

The system, from the farm through the end products, is being designed to minimize the carbon footprint of the ethanol produced. We expect the ethanol will qualify as an advanced biofuel under current Federal RFS2 Standards. Our financial modeling has not included direct Federal incentives; our goal is a project that will be viable without transitory incentives. But we do expect that qualifying the ethanol as 'advanced' will result in a premium price. The primary co-products will include brewers yeast, beet pulp, and potash fertilizer. While energy and sugar beets are similar at present, we expect improved genetic differentiation in the future.

Our objective is to develop a legal structure for the plants that includes farmers and local cash investors as owners. As I mentioned before, our underlying objective is rural economic development, which can only be maximized through local rather than out-of-state ownership.

Last summer three of us were hosted by KWS on a tour of sugar beet - ethanol processing facilities in France and Germany. The ethanol from those facilities did meet European standards for advanced biofuels. Local farmers, through their production cooperatives, were partial owners of both plants.

Today there is no commercial production of ethanol from energy beets in North America. GVG will use selected technologies which have been adapted and proven elsewhere in the world, but the technologies have not all been integrated into a single U.S. facility before. In addition the HRE patented process for thermal energy, which has passed commercial scale burn tests, has not been adapted into a commercial plant. We had studied building the first commercial energy beet – ethanol facility as opposed to starting with a demonstration plant to prove the technological and economic attributes. After giving careful consideration of today's financial environment, we have concluded that it will be necessary to first build a demonstration plant to prove the integrated technological processes and economic results for investors and lenders, and for EPC contractors who will likely be required to provide performance guarantees. USDA and DOE Federal biofuel programs are presently focused on algae and cellulosic feedstocks so our project does not fit those grant requirements. GVG is currently in discussions with two North Dakota facilities for co-locating the first sugar-based biofuel demonstration plant using molasses and energy beet feedstock. It is for this effort that we ask your support for Senate Bill 2345.

We have arranged for three other presenters this morning. They include Dr. Cole Gustafson, co-chairman of NDSU's Bio-Energy and Product Innovation Center, who will provide an overview of NDSU's research and extension support including strategic planning, economic evaluation, and juice storage research. ; Blaine Schatz, Director, NDSU Carrington Research Extension Center, who share some of the agronomic results and expectations from the energy beet agronomic research trials; and Craig Talley,

Business Development Technology Manager for KWS / Betaseed, who will talk about the future of sugar-based biofuels globally. After their presentations are completed we will answer questions from the committee.

Feb. 3, 2011

#2

Testimony

Dr. Cole Gustafson Co-Director
Bio-Energy Product Innovation Center, NDSU

SENATE BILL NO. 2345: SUGAR-BASED FEEDSTOCK BIOFUEL DEMONSTRATION PLANT 5 INCENTIVE GRANT PROGRAM -INDUSTRIAL COMMISSION.

Mr. Chairman and members of the committee, I am Dr. Cole Gustafson, co-director of NDSU's Bio-Energy and Product Innovation Center. In 2008, I was contacted by Green Vision Group (GVG) regarding the potential to commercialize energy beet biofuel in North Dakota. I wrote a $60,000 Agricultural Products Utilization Commission (APUC) grant to evaluate the economic feasibility of producing energy beet biofuel in 10 and 20mgy production plants located in small rural communities and initiated yield trials to establish federal crop insurance. Our model results showed that ethanol from energy beets had a breakeven price of $1.52 per gallon without inclusion of any federal blender's credits. Market demand appeared increasing following passage of the 2007 Energy Independence and Security Act which mandates production of up 5-16 billion gallons of advanced biofuel annually. The primary feedstocks qualifying for this niche are sugar-based feedstocks (e.g. cane and beets).

In 2009 I wrote a $330,000 ND Renewable Energy Council grant for GVG to continue yield trials, initiate a beet juice storage study, conduct a commercial burn test, and develop a grower education program. At present NSDU continues to provide pro-bono research support as new questions emerge. We are also developing an application to U.S. EPA to certify energy beet ethanol as an advanced biofuel which entails complete lifecycle analysis of beet production, biofuel processing, and commercial distribution. I would be happy to answer any questions that you have.

2011 Session

#3

Testimony to North Dakota Legislature **Senate Agriculture Committee**: **S.B. 2345**

Blaine G. Schatz
North Dakota State University
Carrington Research Extension Center

Good morning, my name is Blaine Schatz, I am the director of the NDSU Carrington Research Extension Center. Senator Flakoll and committee members, I thank you for the opportunity to address your committee. Today, I would ask for your support of Senate Bill 2345. I believe that the potential to produce sugar-based feedstock in North Dakota is significant and especially so as we include energy beets in the discussion. In the past two years I have conducted field research that has evaluated the potential of energy beet production in some of the non-traditional sugar beet production areas of North Dakota. My team of researchers in collaboration with select seed companies, has conducted variety trials at the Carrington REC, at the Oakes Irrigation Research Site, on a farm near Dazey, near Turtle Lake, and with our colleagues at the Williston Research Extension Center. Our research results over the past two seasons will indicate that there is great potential for energy beet production across these regions of the state where beet production has not been seriously evaluated. This research has shown that energy beets are well adapted to many areas of North Dakota and we can expect good performance under both dryland and irrigated conditions. However, though energy beets have exhibited good adaptation across these non-traditional production areas, the issue that really excites me is the potential rotational benefits that energy beets would provide to growers in these areas. Most of these rotational benefits are related to the deep tap root that beets have, and the ultimate benefit that results would be conveyed is to our soil resource. The deep root system associated with energy beets is a crop characteristic that is very limited within our current crop mix, even though it is diverse. Energy beets are more tolerant to saline soils as compared to most other crops and the deep tap root would ultimately draw water from deep in the soil, creating pore space, and improving internal drainage. These factors would all contribute to improving our soil resource and would ultimately improve overall crop productivity in the regions where energy beets would be produced.

I would conclude my comments by again asking for your support of this bill that would help establish an opportunity to produce biofuel from sugar-based feedstock such as energy beets. Our research has shown that energy beets are well adapted to areas outside of the traditional production regions. Energy beets would provide excellent economic returns to growers and would ultimately help improve our soil resource and thereby enhance the efficiencies and productivity of other crops grown across these regions.

Testimony
Senate Agriculture Committee

#4

Craig M. Talley
Business Development Technology Manager
Betaseed, Inc.
Moorhead, Minnesota

Senate Bill 2345: Incentive Grant Program for Biofuel Demonstration Plant Utilizing Sugar-Based Feedstocks – Industrial Commission

Good Morning Mr. Chairman and members of the Committee. I am Craig Talley, Business Development Technology Manager for Betaseed, Inc. Betaseed is the leading sugar beet and energy beet breeding and seed marketing company, headquartered in Shakopee, MN. We also have research and breeding stations throughout United States representing every sugar beet growing region in North America. We are a wholly owned subsidiary of KWS SAAT AG, a world leading agricultural plant breeding - seed technology company based in Einbeck, Germany.

KWS has been breeding & developing agricultural crops, producing seed and supplying farmers with seed crops throughout the world for over 150 years. Crops such as: sugar beet, corn, sorghum, cereal grains and potatoes. Over the last decade KWS has realigned breeding efforts to include breeding and development of biofuel specific energy crops. This increase in demand for energy specific crops has led to a new "Energy Crops" division within the company that devotes its resources to specific purposes such as: bio-gas, butenol, ethanol, and others. Nearly 40,000 hectares of energy beets were grown this past season in Germany for methane production to produce heating fuel, generate electricity and supply steam heat. In addition to Germany, other countries such as Italy, France, United Kingdom, and Hungary are seeing similar trends in

energy crop use and are actively producing ethanol from energy beets. The increase of agricultural crops grown for biofuels in Europe is mostly driven by renewable energy initiatives that exist within European countries. Energy beets in the United States meet requirements of 2nd Generation Renewable Fuel Standards, reducing GHG emissions by greater than 50% and be considered an "Advanced Biofuel".

Ethanol production from sugar is not new technology and is proven to be very cost efficient as compared to other crops or cellulosic grasses being utilized. The goal of KWS and Betaseed are to develop traits that are specific to high energy production using energy beets, energy sorghum, corn and other crops. Our breeders have been developing varieties and making genotype selections for over a decade and have been very successful in developing crops that have specific traits for high energy production, while also maintaining disease and pest requirements that are specific to each growing region.

Betaseed is pleased to be collaborating with NDSU, GVG and HRE with the energy beet project being proposed in North Dakota. The project presented here of producing ethanol from energy beets and energy sorghum directly align with our strategic goals and objectives within our company and we offer our full support.

Thank you for this opportunity to speak on behalf of senate bill 2345 and I would be happy to answer any questions that you have.

BismarckTribune.com

Use the Resources Trust Fund for energy

By KIM CHRISTIANSON Vice Chair — ND Alliance for Renewable Energy Bismarck | Posted: Monday, January 17, 2011 11:49 pm

In his December budget address, Governor Dalrymple laid out a thoughtful and aggressive agenda to guide North Dakota through the next biennium, from July 1, 2011 through June 30, 2013. North Dakota legislators will now consider his recommendations and make decisions based on their best judgments and public input.

In his proposed budget, Governor Dalrymple specifically mentioned using the Resources Trust Fund for various large-scale water projects, including the Devils Lake outlet and the Red River diversion channel. Water project advocates know that the Resources Trust Fund is a substantial source of funding for state water initiatives, but many North Dakotans are unfamiliar with the fund and why it was established.

The Resources Trust Fund was originally created through passage of an initiated measure in 1980. At that time, the RTF received 10 percent of the 6.5 percent oil extraction tax. In the June, 1990 primary election, North Dakota voters approved the RTF as a constitutional trust fund with the provision that the principal and income of the fund could be legislatively appropriated for two purposes: constructing water related projects, including rural water systems and funding energy conservation programs.

The ND Century Code Section 57-51.1-07 further clarifies the purposes of the RTF by stating it is available for legislative appropriation to the State Water Commission for planning and constructing water-related projects, and to the Industrial Commission for energy conservation and development of renewable energy sources, for cogeneration system development studies and for waste product utilization programs and studies. The legislature also amended section 57-51.1-07 to provide that 20 percent of the oil extraction tax collections be deposited in the RTF.

According to the ND Office of Management & Budget, the Resources Trust Fund has generated over $230 million from FY 1994 through FY 2010, and state officials project the fund will generate an additional $282 million in fiscal years 2011, 2012 and 2013 alone.

No dollars from the Resources Trust Fund have ever been used for energy conservation, renewable energy, or waste product utilization projects.

The North Dakota Alliance for Renewable Energy is an advocacy organization with members representing growers groups, investor-owned utility companies, rural electric cooperatives, state agencies, economic development groups, colleges and universities, banks, manufacturers and more. Its purpose is to find common ground and opportunities, and to develop strategies to make North Dakota the preeminent state for development and use of renewable energy.

NDARE has developed and adopted renewable energy and energy efficiency policies for 2011, including a proposal to utilize a small percentage (3 percent or approximately $10 million) of the projected 2011 - 2013 RTF monies for energy efficiency programs that will benefit all North Dakotans.

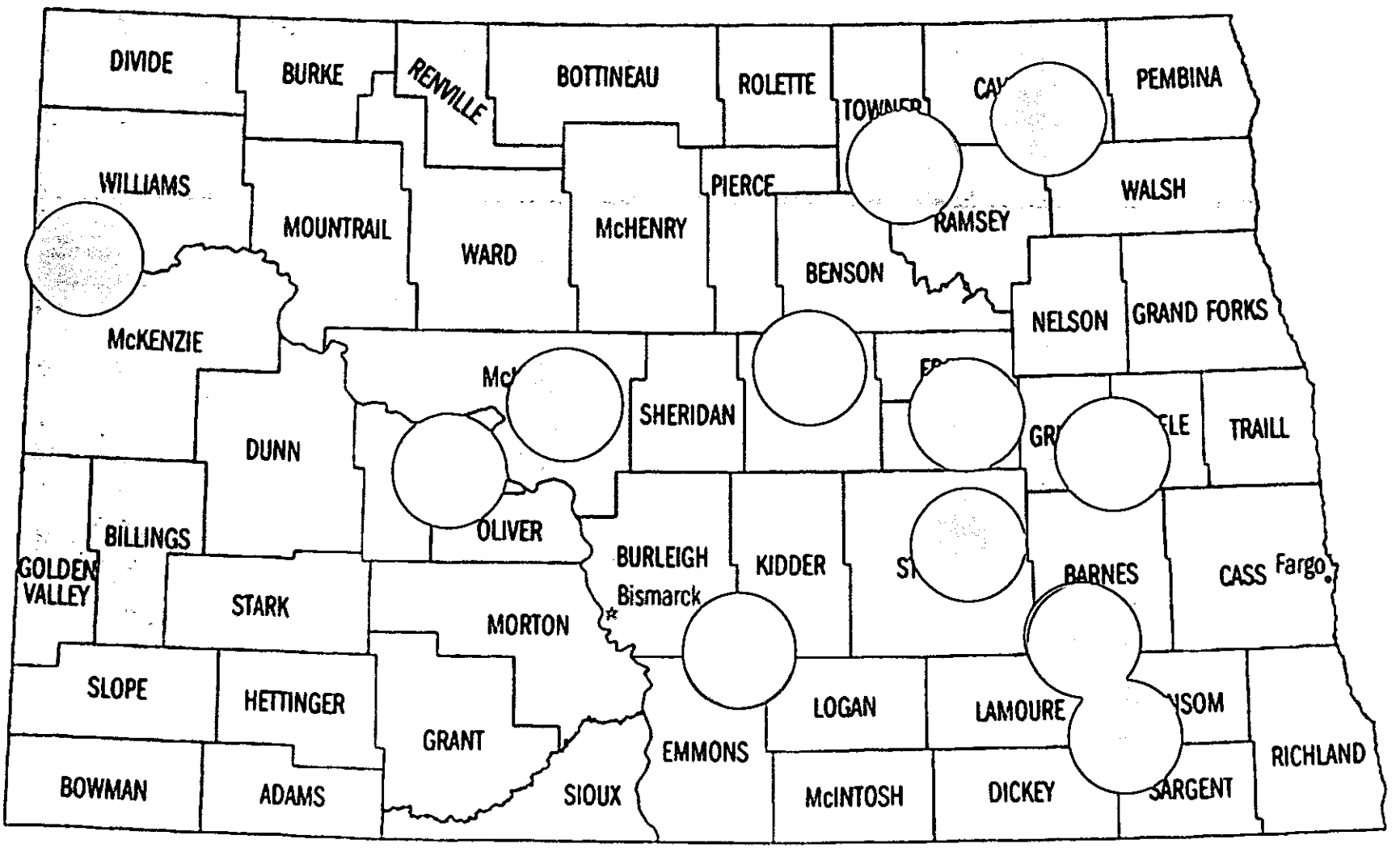
For example, NDARE proposes the creation of a revolving loan program that would provide low-or-no-interest loans to schools and public buildings throughout the state to undertake efficiency studies and implement energy efficiency improvements paid back within a certain timeframe through utility savings. Other potential uses of the funds include energy efficiency education and outreach efforts through the NDSU Extension Service, establishment of an energy efficiency center or "one-stop shop" for information, training and assistance with energy efficiency efforts and a statewide competitive program to encourage city and county energy efficiency programs and initiatives.

A November 2010 statewide survey paid for by NDARE and completed by UND's Office of Governmental Affairs indicated very strong support for energy efficiency programs and, more specifically, for use of a portion of the Resources Trust Fund for energy related activities.

Nobody disputes the importance of water projects in North Dakota. NDARE as a group is on record supporting the use of most RTF dollars for priority water projects.

But there is sufficient funding in the Resources Trust Fund to undertake energy efficiency and other energy programs that will benefit all North Dakota citizens. It is long overdue that the full wishes of North Dakota voters be recognized.

Targeted Areas for Energy Beet Production and Processing



Energy Beets
A New Industrial Crop for North Dakota

- Designed for Rural North Dakota
- Little Waste Stream
- Little Community Infrastructure Required
- Increased Farm Income

Clean Energy
Closed Carbon Loop

- Sugar Based Advanced Biofuel Feedstock
  60% less carbon emission than petroleum
- The Plant Produces Its Own Energy
  Residual Biomass from Feedstock is Converted into Thermal Energy
- Near Zero Carbon Emission via Sugar Based Feedstock

Why Energy Beets

- 1-1/2 gallons of Water Makes 1 Gallon of Ethanol
- Stillage Waste Provides 70% of a Plant's Energy
- Reduces Carbon Emissions in Excess of 50%
- Plant Size: 20 Million Gallons per Year
- Deep Tap Roots Utilize Water and Nutrients
- Deep Tap Roots Improve Soil Drainage
- Deep Tap Roots Promote Friable Soils

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Energy Beets

Refuel Our Rural Economy

NDSU

Green Vision Group
"Architects For Rural Development"

Heartland Renewable Energy
"Sugar Is The New Oil"

Scope of Energy Beet Project for North Dakota

With a minimum of twelve 20MGY processing plants, Energy Beet production areas will span a twenty mile radius of each plant.

A total of 360,000 acres of energy beet production will result in 240,000,000 gallons of ethanol produced per year.

Each plant will call for 23 employees in addition to on-farm employment with a $43 million capital cost per plant including an $11 million operating capital.

Demonstration Plants

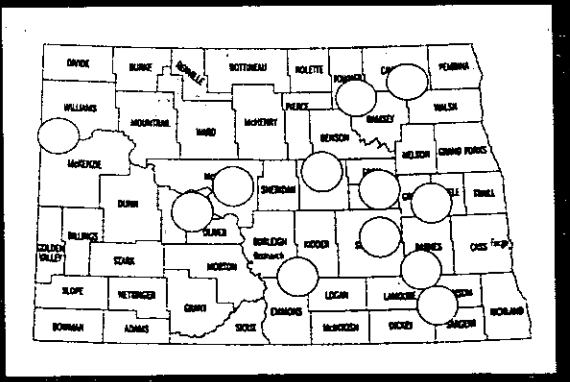
An Alternative Concept to Attract Capital

Federal activity on tax incentives for biofuels has diminished. Consequently, institutional financing has backed away from ethanol plants.

GVG / HRE are now planning to develop a demonstration plant. The plant will demonstrate the energy beets for ethanol and solidify the patented process efficiency and profitability projected by BBI International and NDSU Economic Feasibility Studies.

Targeted Areas for Energy Beets

Production and Processing



Economic Impact for North Dakota

- $250 million added farm production annually
- $600 million added processing dollars annually
- $248 million production & processing net income reinvested back in the state annually

Energy Beets

Biofuel Feedstock

- Contains 70% Water and 30% Dry Matter
- Will Produce 26.4 Gallons of Ethanol per Ton
- Is Classified as an Advanced Biofuel
- Twice as Much Ethanol per Acre Compared to Corn
- Adaptable Throughout North Dakota
- Not Produced for Use as Food

Benefits

- Acts as Mop in Utilizing Deep Soil Nutrients
- Tolerant to Alkaline Soils
- Low Nitrogen Requirement
- Roundup Ready Seed Reduces Chemical Costs
- Reduced Market Volatility through Supply Contacts
- BBI Economic Feasibility Study Model Projects $1.84 for Ethanol
- The NDSU Feasibility Analysis Predicts $42.00 / Ton Payment on Energy Beets

Co-Products

- Yeast - Brewers Yeast
- Fertilizer - 33% Potash
- Beet Pulp - Livestock Feed | Biomass

Feb. 11, 2011

Testimony

Dr. Cole Gustafson Co-Director
Bio-Energy Product Innovation Center, NDSU

SENATE BILL NO. 2345: SUGAR-BASED FEEDSTOCK BIOFUEL DEMONSTRATION PLANT 5 INCENTIVE GRANT PROGRAM -INDUSTRIAL COMMISSION.

Mr. Chairman and members of the committee, I am Dr. Cole Gustafson, co-director of NDSU's Bio-Energy and Product Innovation Center. In 2008, I was contacted by Green Vision Group (GVG) regarding the potential to commercialize energy beet biofuel in North Dakota. I wrote a $60,000 Agricultural Products Utilization Commission (APUC) grant to evaluate the economic feasibility of producing energy beet biofuel in 10 and 20mgy production plants located in small rural communities and initiated yield trials to establish federal crop insurance and show the crop's potential to interested farmers. Our economic feasibility results showed that ethanol from energy beets had a breakeven price of $1.52 per gallon without inclusion of any federal blender's credits. Market demand appeared increasing following passage of the 2007 Energy Independence and Security Act which mandates production of up 5-16 billion gallons of advanced biofuel annually. The primary feedstocks qualifying for this niche are sugar-based feedstocks (e.g. cane and beets). With ethanol now at $2.00 per gallon, the twelve proposed plants combined will have annual revenues of about $600 million per year. Adding a high value crop like energy beets (both dry-land and irrigated) into the producers' crop rotation will diversify and improve returns to farms. Payments to growers for energy beets are expected to approach $300 million per year. Additionally, each plant will employ over 20 high skilled people.

In 2009 I wrote a $330,000 ND Renewable Energy Council grant for GVG to expand yield trials to five locations across the state, initiate a beet

juice storage study, conduct a commercial burn test, and develop a grower education program. After reviewing our 2010 yield trial results, farmers and several rural communities have expressed considerable interest in commercial development.

However, even though each of the technologies Green Vision Group plans to utilize have been commercially proven in separate places worldwide, they have not been integrated into a sole plant. In present credit markets, it is impossible to obtain debt financing without a guarantee for plant technology, feedstock supply, and market sales. Hence, a necessary step all new advanced biofuel projects must take is construction of a demonstration plant. Demonstration plants provide a research opportunity to collect operating data and validate process activity, but generally are not profitable. In the demonstration plant being proposed here, we expect to evaluate:

a. Lifecycle analysis of entire biofuel process (needed for EPA advanced biofuel application)
b. Grower capability to supply feedstock (handle rocks, dryland production, assume new investment, etc)
c. Front end beet processing (grinding/juice extraction vs. diffusion)
d. Use of co-products to supply thermal heat (powder or digester)
e. Continuous flow process and yeast production
f. Market availability of molasses

The application to U.S. EPA to certify energy beet ethanol as an advanced biofuel entails complete lifecycle analysis of beet production, biofuel processing, and commercial distribution. This can only be accessed from actual performance data.

I would be happy to answer any questions that you have.

Testimony
Senate Appropriations Committee
February 11, 2011

Lloyd A. Anderson, Partner
Green Vision Group (GVG)
Fargo, North Dakota

Senate Bill 2345: Incentive Grant Program for Biofuel Demonstration Plant Utilizing Sugar-Based Feedstock – Industrial Commission

Mr. Chairman and members of the committee, I am Lloyd Anderson, a partner in Green Vision Group, along with Maynard Helgaas, Rod Holth and one other ND resident. During testimony to the Senate Ag Committee on February 3, 2011 I presented broad based information on the project's history and its expected benefits for ND farmers, investors, and rural communities. Today I will focus specifically to the demonstration plant and grant funding request through Senate Bill 2345.

GVG began working on alternative sites for a demonstration plant about mid 2010. The reasons for the demonstration plant approach have been identified by Dr. Gustafson.

Since mid-2010 multiple meetings have occurred with two different ND facility owners who have offered to consider an energy beet demonstration plant co-located with their existing facility. Both of these ND facilities are based on corn ethanol. Co-locating the demonstration plant with an ethanol facility is expected to significantly reduce the capital expenditures required, since some of the process equipment can be shared. For example, the equipment sharing can include fermenters, condensing equipment, alcohol drying

equipment, boilers for thermal energy and emissions control systems, distillation equipment, dryers for pulp, and storage and shipping facilities. Our plans for a co-located demonstration plant result in an estimated cost savings of from 50% to 65% when compared to a stand alone demonstration plant. Co-locating should also result in reduced personnel requirements, joint marketing of products, and efficiencies in out-bound transportation.

The two alternatives we have considered require similar amounts of capital equipment additions. One is for an existing 10 mgpy facility that we would convert and the other is for a 2.5 mgpy demonstration facility co-located with a much larger ethanol plant. The 2.5 mgpy facility capital equipment budget is currently estimated at $4.8 million, without energy beet receiving and storage which adds about $1.6 million, for a total of $6.4 million. Providing a 10% contingency brings the total to approximately $7 million. The total operating costs for a 2.5 mgpy facility processing at 330 days per year are estimated at $5.3 million. Of these costs, $3.9 million is for the energy beet feedstock. In all likelihood, the demonstration plant will process less than 330 days per year because of the nature of its existence. The demonstration plant will process both molasses and energy beets, and in the future we desire to test sorghum. The mix of these feedstocks will extend the ethanol processing season and reduce the risk associated with a single source of feedstock.

Dr. Gustafson has enumerated a number of technology objectives for the demonstration plant. We also will obtain validation of the key economic attributes which drive

profitability for a biofuel plant. Together these factors should enable a prime contractor to provide a performance guarantee on the technology and economic attributes of a commercial plant, which will also be a key to project funding in today's difficult financial environment.

GVG has benefitted from significant support from NDSU, the State, and two global seed technology companies, Syngenta and Betaseed. We are flexible with regard to defining the ownership and management structure of the demonstration plant, and are willing to consider input from the State if that is a consideration for the grant. One of our thoughts has been to also engage a reputable EPC contractor as part of the team. In addition, it is our full expectation that GVG and its technology partner, Heartland Renewable Resources from Muscatine, Iowa will be required to provide definitive plans and schedules as part of the Industrial Commission's due diligence review prior to distributing any funds which may be authorized by the Legislature.

I would be happy to address any questions you may have.