MINNESOTA DEPARTMENT OF AGRICULTURE

NextGen Energy Board

2015 Report to the Legislature

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Executive Summary

The NextGen Energy Board was created by the Governor and the Minnesota Legislature in 2007. By law, the Board's purpose is to explore policies and opportunities for the state "to most efficiently achieve energy independence, agricultural and natural resources sustainability, and rural economic vitality."[1] The Board is comprised of 20 members including eight who are appointed by the governor. Membership is drawn from state government, the legislature and stakeholder groups.

In 2010 and 2011, changes to policies and the economic climate for biofuels at both the state and federal level led the Board to modify its scope to focus on three high-level goals: 1) increase the use of our state's bioenergy resources; 2) encourage energy self-reliance and security in the state; and, 3) promote environmental and economic sustainability in the production and use of homegrown renewable fuels. The Board's strategies and objectives are based on these goals.

In the 2013 legislative session the NextGen Energy Board Statute was amended. Definitions were added for "biobased content" and "biobased formulated product." A duty was added to "examine the opportunity for biobased content and biobased formulated product production at integrated biorefineries or stand-alone facilities using agricultural and forestry feedstocks." As a result of these changes, biochemical companies and organizations were eligible to apply for NextGen Energy Grant funding this past funding cycle.

In 2008, the Board provided approximately $3 million in grants to eight bioenergy projects across the state. These projects ended by June 2011. Five projects were completed in full while three projects were terminated early. In 2012, the Board awarded approximately $2.4 million to nine bioenergy projects, all of which were completed by June 2014. This past year the board recommended funding for five projects totaling $1.69 million, and deferred $505,000 for a second request for proposals focusing on biomass thermal energy. Last November the Board recommended awarding $400,000 to four of the project applicants.

[1] Minn. Stat. 41A.105, Subdivision 3.

Introduction

This report is submitted pursuant to Minn. Stat. 41A.105, subd.3:

NextGen Energy Board; Duties

The board shall research and report to the commissioner of agriculture and to the legislature recommendations as to how the state can invest its resources to most efficiently achieve energy independence, agricultural and natural resources sustainability, and rural economic vitality. The board shall:

(1) examine the future of fuels, such as synthetic gases, biobutanol, hydrogen, methanol, biodiesel, and ethanol within Minnesota;

(2) examine the opportunity for biobased content and biobased formulated product production at integrated biorefineries or stand-alone facilities using agricultural and forestry feedstocks;

(3) develop equity grant programs to assist locally owned facilities;

(4) study the proper role of the state in creating financing and investing and providing incentives;

(5) evaluate how state and federal programs, including the Farm Bill, can best work together and leverage resources;

(6) work with other entities and committees to develop a clean energy program; and

(7) report to the legislature before February 1 each year with recommendations as to appropriations and results of past actions and projects.

Background

Minnesota is a recognized national leader in policies and programs that promote bioenergy while ensuring local production benefits. The state was first in the nation to implement statewide 10 percent ethanol and 2, 5, and 10 percent biodiesel blending requirements, as well as a producer payment program to incentivize homegrown ethanol production. Minnesota continues to lead with an increasing goal for biofuel and mandate for biodiesel in future years. Minnesota is also a national leader in E85 infrastructure with 280 fueling stations, 78 of which have blender pumps for flex-fuel vehicles in use across the state.[2]

In past years, the biofuels industry as a whole has enjoyed enormous support coupled with significant challenges. The federal Energy Independence and Security Act of 2007 established the Renewable Fuel Standard (RFS2), which guarantees a market for current and future biofuels by mandating 36 billion gallons of renewable fuels by 2022.[3] Additional federal support for biofuels, such as grants, loans and tax breaks, have demonstrated further optimism at the national level. The national biofuels industry has experienced rapid growth among existing plants seeking to innovate into cellulosic[4] and other advanced biofuel developments.

At the same time, however, public perception of biofuels has waned with the emergence of debates about crops used for food versus fuel, land use, and other potential social and environmental impacts. Cellulosic technology, while continuing to advance with the opening of the first commercial scale plants in Iowa and Kansas, is still not widespread and will need to prove it can be economically feasible at scale. Market and technological feasibility has also been called into question in terms of the availability of blender pumps for mid-level biofuel blends, the reliability of higher blends of biofuels in conventional vehicles, and the logistics of transporting and storing large amounts of bulky biomass to cellulosic biofuel production sites. Declining perceptions coupled with what has been the U.S. economy's slow recovery has led to a reduction in both state and federal support for biofuels[5], straining the current industry and hampering the development of advanced biofuels, especially here in Minnesota.

[2] E85 is a blend of up to 85 percent denatured ethanol and 15 percent gasoline; flex-fuel vehicles are specially designed to run on gasoline or any blend of up to 85 percent denatured ethanol.

[3] P.L. 110-140.

[4] Cellulose is the main component of the cell walls of plants. Cellulosic materials that can be made into energy products include wood waste, corn stover (leaves, stalks, and cobs), native prairie grasses (switchgrass, miscanthus, etc.) and non-edible parts of plants, among others.

[5] In November 2013 the U.S. EPA recommended reducing advanced and total renewable biofuel volumes under the Renewable Fuel Standard. A final ruling on those proposed reductions has yet to be issued.

NextGen Energy Board Role and Composition

The Next Generation Energy Board was established in 2007 as part of the Next Generation Energy Act. The Board's role is to research and recommend how the state can invest its resources to most efficiently achieve energy independence, agricultural and natural resources sustainability and rural economic vitality.[6] The Board is specifically tasked with developing recommendations and building consensus for the development of "next generation" biofuels in the state, as defined in statute (see Appendix A).[7]

The NextGen Energy Board was formed during a period of relative optimism and with a focus on the Minnesota market. However, the increased attention on biofuels and other biomass-based energy and products at the national level—both in terms of optimistic support and negative perception—presents a unique opportunity for the Board to hone its strategy and continue working to steer Minnesota in a positive direction.

The 2014 Board was comprised of 20 members, eight of whom were appointed by Governor Dayton:[*]

- Senator Dave Tomassoni
- Senator Dan Sparks
- Senator Torrey Westrom
- Representative Jean Wagenius
- Representative Joe Atkins
- Representative Joe Hoppe
- Commissioner Tom Landwehr, Minnesota Department of Natural Resources
- Commissioner Dave Frederickson, Minnesota Department of Agriculture
- Commissioner Katie Clark Sieben, Minnesota Department of Employment & Economic Development
- Commissioner John Linc Stine, Minnesota Pollution Control Agency
- Commissioner Mike Rothman, Minnesota Department of Commerce
- Teresa Spaeth, Agriculture Utilization Research Institute (AURI)
- Lissa Pawlisch*, Minnesota Institute for Sustainable Agriculture
- Amanda Bilek*, Great Plains Institute
- Brent Imker*, Minnesota Farmers Union
- Wayne Brandt*, Minnesota Forest Industries
- Dick Hemmingsen*, University of Minnesota Initiative for Renewable Energy and the Environment (IREE)
- Neal Feeken*, The Nature Conservancy in Minnesota
- To be named*, Minnesota Farm Bureau

[6] Although not directly germane to the NextGen Energy Board's charge, the Board acknowledges the importance of energy conservation and the use of renewable energy sources other than biomass, such as solar, wind and geothermal, to supplement biomass energy initiatives. Placing biomass energy initiatives in this context will help ensure that these initiatives remain consistent with sustainable, available biomass and environmental needs.

[7] MS §41A.105.

[*] Denotes NextGen Energy Board members appointed by Governor Dayton; other members are specified in statute.

NextGen Energy Board Strategic Vision

Strategic Vision

The NextGen Energy Board supports policies and programs for the production and use of bioenergy and biochemicals to replace fossil fuels and provide maximum benefit to the state's economy. Minnesota's bioenergy policies have created prosperity for Minnesota farming communities, improved air quality, reduced carbon emissions, displaced petroleum use, and encouraged public acceptance of biofuels for widespread use. The NextGen Energy Board's vision promotes the continued improvement of existing biofuel/biochemical industries and supports innovation in the next generation of bioenergy/biochemical feedstocks and technologies while ensuring local benefits and sustainable solutions.

The NextGen Energy Board has identified three high-level goals that guide the objectives and strategies for meeting its strategic vision: 1) increase the use of our state's bioenergy resources; 2) encourage energy self-reliance and security in the state; and, 3) promote environmental and economic sustainability in the production and use of homegrown renewable fuels.

Objectives

Through a series of facilitated discussions, the NextGen Energy Board narrowed its focus on meeting the following objectives to promote the goals of the strategic vision.

1) To increase the use of our state's bioenergy resources:
   - Prioritize investments and incentives for fossil fuel replacements that capitalize on Minnesota's resources, talents and technologies while ensuring sustained benefits to the state.
2) To encourage energy self-reliance and security:
   - Strengthen Minnesota's current biofuel industries—including corn-based ethanol and soy-based diesel—to sustain first generation and increase next generation biofuels production;
   - Expand renewable fuel economic opportunities for Minnesota communities and individuals.
3) To promote sustainability:
   - Ensure the efficient, innovative and sustainable use of energy and natural resources as well as continued improvement in air quality;
   - Support the development of bioenergy feedstocks and systems;
   - Increase public awareness about the benefits of developing and maintaining biofuels in Minnesota.

Strategies

To achieve the stated objectives, the Board adopted the following strategies.

1) To increase the use of our state's bioenergy resources:
   - Promote policies and programs for displacing fossil fuel use with energy conservation and the production and use of homegrown renewable resources.
2) To encourage energy self-reliance and security:
   - Build on existing biofuels industries to increase technological capacity for producing next generation biofuels;
   - Integrate research and development, education initiatives, technology transfer, production incentives and market creation focused on current and next generation fuels;
   - Create and retain local community and other investments in current and new biofuels enterprises;

- Create market-based policies that allow farmers, loggers, landowners, and producers to benefit economically from the next generation of bioenergy production.

3) To promote sustainability:
   - Encourage the evolution of current biofuels production technology toward processes that are more energy efficient, use less water and consume less fossil energy;
   - Develop sustainable production systems for bioenergy crops, crop residues, and materials that minimize fossil and other resource inputs while maximizing environmental benefits.

Results of the Biofuels Advisory Task Force Report of 2013

Review of Legislative Charge

In the regular session of 2012, the Minnesota State Legislature directed the creation of an advisory group by the Department of Agriculture with the following charge:

> The NextGen Energy Board, established in Minn. Stat. 41A.105, shall include in its February 2013 report to the legislature an analysis of next generation biofuels that can be blended with gasoline or other energy sources. The report shall analyze research on next generation biofuel blends and information on federal approvals needed and the status of the federal approval for next generation biofuel blends, and make policy recommendations for updating Minnesota's biofuels mandates to reflect current industry practices. The commissioner of agriculture shall convene an advisory group to advise and assist the NextGen Energy Board in the analysis and report. Members of the group may include representatives of the next generation biofuels industry, the ethanol industry, persons with biofuels engineering or other biofuels expertise, suppliers of biofuels feedstocks or inputs, and other persons with applicable knowledge or expertise as designated by the commissioner.[8]

This report was included in the 2013 NextGen Energy Board Report to the Legislature.[9]

2013 Legislative Actions Based on Task Force Report

The major issues addressed by statute revision were the change from an ethanol-blend mandate with gasoline to a "biofuel" mandate, and a revision of the Petroleum Replacement Promotion goals.

Minn. Stat. 239.791 replaced the word ethanol with biofuel throughout. When specifically referencing ethanol the words "conventional biofuel" are now used. An introduction of other biofuels that can now be used to satisfy the blend with gasoline was specified in this table:

(1)	July 1, 2013	90 percent
(2)	January 1, 2015	80 percent
(3)	January 1, 2017	70 percent
(4)	January 1, 2020	60 percent
(5)	January 1, 2025	no minimum

Minn. Stat. 239.7911: Petroleum Replacement Promotion was also changed based on recommendations of last year's advisory group report. New goals were set specified in the following table:

(1)	2015	14 percent
(2)	2017	18 percent
(3)	2020	25 percent
(4)	2025	30 percent

In addition to the revision of blending goals, a Biofuels Task Force was created to assist the commissioners of agriculture, commerce, and the Pollution Control Agency in overcoming barriers to

[8] Laws of Minnesota 2012, Chapter 244, Article 2, Section 81.

[9] The report can still be found in the NextGen Energy Board 2013 Report to the Legislature.

using greater biofuel blends with gasoline. This task force has five of the current ten positions on the task force's representation sectors specified in statute. The task force met for the only time thus far on December 11, 2013.

Other Legislative Changes in 2013

NextGen Energy Board Statutory Change

The NextGen Energy statute was changed to add language to "examine the opportunity for biobased content and biobased formulated product production at integrated biorefineries or stand-alone facilities using agricultural and forestry feedstocks."[10]

Definitions of "biobased content" and "biobased formulated product were also added to the statute in subdivision 1a.[11]

Change in Scope of NextGen Energy Grant Program

Language was also included in the Laws of Minnesota, Chapter 114, Article 1, Section 3, subdivision 3, to include Minnesota facilities producing biobased content and/or biobased formulated product to the scope of consideration for applications to the Minnesota Department of Agriculture Bioenergy and Biochemical Grant Program (aka NextGen Energy Program) for the funding round for FY2014.

[10] Laws of Minnesota 2013, Chapter 114, Article 2, Section 47.

[11] Minn. Stat. 41A.105 was changed in the Laws of Minnesota for 2013, Chapter 114, Article 1, Section 46 and 47.

NextGen Bioenergy and Biochemical Grant Program

The 2008 Grant Program

The 2007 Minnesota Legislature appropriated $3 million for NextGen Energy grants to bioenergy projects. Projects awarded during the first cycle were completed or terminated by June 2011, when the appropriation expired. The detailed results of that cycle of funding were included in last year's NextGen Energy Board Report to the Legislature, and will not be reprinted here.

The 2011 Grant Program

Grant Proposal Development

For this funding cycle, the Minnesota Department of Agriculture funded nine projects for a total of $2.4 million. In the end, eight projects received funding of almost $1.9 million.

These projects were chosen based on the degree to which they met the eligibility requirements and criteria established in the Request for Proposals (RFP); by law, the Board and Commissioner are also required to make a "good faith effort" to choose projects that represent a variety of projects and that are widely distributed across the state.

Grant Review and Recommendations

The process conducted for the RFP release and proposal reviews and approval are contained in the 2014 NextGen Energy Board Report and will not be repeated here.

FY 2012 Grant Projects-Final Dispositions

Koda Energy LLC, Shakopee, MN - $480,000

The funds paid for construction of a biofuels staging and processing facility in Scott County. The facility aggregates and processes (drying, size reduction) various biomass fuel stocks for use in Koda's combined heat and power (CHP) biomass facility located seven miles from this new facility. Fuel stocks include urban wood waste (contracts are place with the cities of Minneapolis and Plymouth), agri-byproducts, and potentially dedicated energy crops. Koda completed spending on their project, with all equipment purchased for the staging facility operational before the grant period end of June 30, 2013.

West Central Renewable Ammonia Development, Bloomington MN - $450,000

The grant was to fund a second stage feasibility study for a proposed biomass-to-ammonia plant near Willmar. This project would convert 95,000 tons of biomass to 45,000 tons of anhydrous ammonia annually. The feasibility study was to encompass the tasks of biomass supply and crop development, site preparation, vendor pricing and selection, process integration, marketing development, and financial analyses. The project was extended to June 30, 2014 before the original close date of June 30, 2013. The project never took used any funds, and all were returned to the general fund due to changes in market dynamics over the grant period.

SarTec Corporation, Anoka, MN - $438,000

SarTec invented the Mcgyan technology that is used by Ever Cat Fuels, a three million gallon capacity biodiesel production plant in Isanti, Minnesota. SarTec designed and constructed a smaller scale, on-farm processing plant using the existing Mcgyan technology. The unit was tested and operated by SarTec on the pilot site in Isanti, Minnesota. The unit was displayed at the Minnesota State Fair for 2013. The final report was submitted just short of the end of calendar year 2013, with all funds being expended.

Al-Corn Clean Fuel, Claremont, MN - $248,000

Al-Corn researched the integration of second-generation biofuels production within their existing and/or an expanded ethanol plant. In partnership with JetE of St. Paul, the facility would produce on spec renewable jet and/or diesel fuel (made from a mix of crop oil and animal fats) in addition the corn ethanol it produces today. The results can be used provide a production roadmap that other ethanol producers can also use. Work was completed for the project on time with 97 percent of the project funds expended, with the rest returning to the general fund. The recommendation at the time of the report was that the process was not feasible due to the cost of feedstock.

Renville Renewable Energy LLC, St. Paul, MN - $258,000

Funds support the development of Phase 2 costs for an anaerobic digester and associated systems located adjacent to a poultry facility in Renville. The project proposes to use multiple waste streams - both agricultural processing and production wastes - collected from the Renville area as co-digestion material. Biogas is to be cleaned to the standard of pipeline grade natural gas. Also researched in the project was the production of nutrient-rich liquid and solid byproduct (crop nutrients) from the digester effluent. Work was completed on the project before the end of calendar year, 2013. The project showed feasibility for the Renville site, and work continues on permitting and other prelimary work needed before construction of a facility can begin. All project funds were expended.

Northern Excellence Seed LLC, Williams, MN - $200,000

This project was to build on the installed 150-kW biomass gasification unit that was already installed on Northern Excellence's Williams site. The award was to help make this system operational using the company's seed screenings. Syngas from the gasifier was to be used to provide the energy to produce electric power that will be sold to the grid. On June 29, 2012, Brent Benike, project lead sent notice that the grant money was being returned. A problem securing matching funds was cited as the reason for abandoning the project.

Central Lakes College and Ag Energy Center, Staples, MN - $240,000

This grant award at Central Lakes College is a continuation of previous funding (including NextGen funding from 2008). Various oilseed crops (camelina, spring canola, winter canola, high oil soybeans, sunflowers) or planting methods (camelina/soybean double cropping) were grown and converted to biodiesel at the site using small-scale processing technology. Feed trials were conducted using the meal products created from oil extraction. A commercial planting of miscanthus, the winner of CLC's biomass crop trials, was be established, harvested and processed for biofuel. The project was completed in early 2014 and final payment was made, expending all funds allotted for the project.

Jerry Jennissen, Jer-Lindy Farms, Brooten, MN - $137,000

The funds were to be used to improve operation of the anaerobic digestion system on the farm. The system had been operational since 2008. Some of the improvements included use of additional substrate to improve gas production, an innovative genset design to improve overall efficiency in output of electricity to the grid, and improved quality of the digester's cattle bedding co-product. Unforeseen technical difficulties presented obstacles to the achievement of project goals for the dairy, specifically in the task of electrical production. 86 percent of the project funds were expended in the end, with the project stalling amidst numerous technical challenges, which were requiring more than expected financial resources. .

Rural Advantage, Fairmont, MN - $72,000

The grant was to fund a Phase 1 feasibility study and business plan to assist Prairie Skies Biomass Co-op in developing operational procedures, membership policies and feedstock contracts for a 300 ton/day

torrefaction facility in Madelia. The facility would convert raw agricultural biomass to an advanced biofuel to be sold to offsite markets. The project was abandon shortly after the end date of June 30, 2013, with 35 percent of the project funds returned to the general fund.

University of Minnesota: Natural Resources Research Institute, Duluth, MN - $77,000

Funding was granted to this project at the Board meeting in August, 2012, after reallocation of funds from the withdrawal of the Northern Excellence project was accepted. The project investigated the use of hydrothermal pretreatment techniques to produce value-added biofuels from various types of Minnesota biomass. Hydrothermal pretreatment uses compressed hot water. The process goal was to improve the characteristics of the biomass in many important, financially advantageous ways. Various Minnesota biomass types, including wood species, agricultural crops, and ag residues were investigated. The final report for the project was submitted with the final payment made soon after the June 30, 2014 deadline, with all funds for the project expended.

Grant Management Process

The MDA is responsible for overseeing and monitoring the NextGen Energy Grant Program. The MDA follows the State of Minnesota's grant monitoring guidelines; it also employs the Department's own policies and procedures.[12]

Progress and Changes in the 2011 Grant Program

On June 29, 2012, Northern Excellence Seed advised the MDA that they would not be pursuing their grant project. Options were drawn up for consideration by the NextGen Board that looked at funding additional projects by going to the next projects from the original ranked scoring list, or distributing funds to projects that were not fully funded. At the August 16, 2012 meeting, the decision was approved to fund the next two projects on the list, the University of Minnesota – Natural Resources Research Institute and Environmental Technologies. The remaining funds from the Northern Excellence project were awarded to Central Lakes College Ag and Energy Center, the last project to be funded amongst the original nine.

On November 21, 2012, Environmental Technologies informed the program administrator that they were unable to secure match funding for their project since conditions had changed since the original proposal submission. Because of the late stage of the grant projects (with projects needing to be complete by June 30, 2013) it was suggested to the Board that the funds returned be offered equally to the four projects that were not fully funded. One of those four projects, West Central Renewable Ammonia Development, declined the extra funding leaving the funds remaining to be distributed among the other three projects. This decision was affirmed at the January 10, 2013 Board meeting.

As the June 30, 2013 contract deadline approached, six of the nine projects requested extension to the timeline of their contracts. In the end, two of the projects were extended through September 30, 2013, two extended to December 31, 2013, and two extended to June 30, 2014, which was the latest time which projects under the original appropriation could be extended.[13]

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[12] See the Office of Grants Management's page for Minnesota Grants Management Policies and Statutes.

[13] M.S. 16A.28, Subd. 6, states that "Encumbrances for grants issued by June 30 may be certified for a period of one year beyond the year in which the funds were originally appropriated. Services rendered under grant contracts may occur during the certification period." The NextGen appropriation made in 2011 for the 12-13 biennium said "This [$2.5 million]...appropriation…is available until June 30, 2013" so "the year in which the funds were originally appropriated" would be the year ending June 30, 2013 for those we extended to 6-30-14. They just had to encumbered by 6-30-13 in order to get that extra year.

Final progress of individual projects is listed in the previous section. In the end, 79.1% of the total funds encumbered (almost $1.9 million of the $2.4 million encumbered) were claimed.

The 2013 Grant Program

Grant Proposal Development

In the regular legislative session of 2013 the statute for the NextGen Energy program, M.S. 41A.105, was amended to include the biochemical industry. Definitions were added to the statute for "biobased content" and "biobased formulated product."[14] Subdivision 3(2) added the duty of "examin(ing) the opportunity for biobased content and biobased formulated product production at integrated biorefineries or stand-alone facilities using agricultural and forestry feedstocks"[15] to the others assigned to the NextGen Energy Board.

Funding for the NextGen Energy Grants was shifted to the Agricultural Growth, Research, and Innovation (AGRI) program for[16], to be administered by the MDA beginning in FY2014. In the previous two cycles the NextGen Energy grants were separate appropriations that were also administered by the MDA . Money allotted from AGRI was $2.2 million for the NextGen Energy program for FY 14 and 15. Projects have through June 30, 2017 to use the money awarded through the current round of grants. The maximum award that can be obtained is $500,000. Grantees need to supply a 50 percent match to their award, with 25 percent of their match portion required to be some form of cash. The only exception to the $500,000 maximum grant award is the a separate category for non-governmental entities preparing business planning for bioenergy/biochemical companies - these awards are capped at $150,000.

The RFP for this grant round was released November 14, 2013. Submissions were due by January 10, 2014. An interagency technical review team formed in the same manner as the 2011 team again scored and ranked submissions, after which the rankings were be supplied to the members of the NextGen Energy Board. The Board membership includes the Commissioner of the Minnesota Department of Agriculture, who is authorized to make award decisions. The Board met Thursday, February 20, and made their recommendations to the commissioner of agriculture.

Thirty-five applications were received in response to the RFP requesting a total of $11.9 million in funding. Five projects were funded for a total of $1.692 million.

FY 2014 Grant Projects

<u>Easy Energy Systems, Welcome, MN - $500,000</u>

The project builds a showplace biofuel production facility capable of testing multiple feedstocks, verifying economic data, and confirming conversion rates. The project will be sited in Welcome. Through the third quarter of 2014 the project has expended 1.8 percent of grant funds.

<u>Central Minnesota Renewable LLC, Little Falls, MN - $500,000</u>

This project receives funding for final engineering work needed to convert the existing 20 million gallon per year ethanol facility, Central Minnesota Ethanol Cooperative (CMEC), to n-butanol and acetone production for the chemical industry. To date, 43 percent of the funds have been expended.

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[14] Laws of Minnesota 2013, Chapter 114, Article 2, Section 46.

[15] Laws of Minnesota 2013, Chapter 114, Article 2, Section 3, Subdivision 4.

[16] Minn. Stat. 41A.12.

On December 23, 2014, Green Biologics, Inc., through their subsidiary Central Minnesota Renewables LLC, announced the successful closing of its acquisition of the assets of CMEC. The purchase was made in accordance with the asset purchase agreement with CMEC previously announced on December 2, 2013. The plant is scheduled, with the assistance of this grant project, to begin production of n-butanol and acetone in 2016, and will continue to produce ethanol until repurposing is complete.

Segetis, Inc., Golden Valley, MN - $325,000

The grant award is to be used for equipment, capital construction, and associated materials for operation of a pilot plant for product registration work required for commercializing their non-phthalate, biobased plasticizer. To date, Segetis has expended 2 percent of their grant award.

University of Minnesota, Natural Resources Research Institute, Duluth, MN - $217,500

In collaboration with Syngas Technologies in Elk River, this project will develop a biomass torrefaction pretreatment process for feedstock fed to a high-pressure gasifier producing drop-in biofuels. 0.6 percent of the grant award has been expended.

Duluth Steam, Duluth, MN - $150,000

Funds will help facilitate the detailed design, procurement, and installation of on-site biomass receiving, storage, and feed systems that will allow for utilizing up to 25% biomass feedstocks from local forestry operations that will displace the current use of western coal. 14% of funds have been expended.

FY 2015 Biomass Thermal Energy Grant Process

Part of the recommendation of the Inter-Agency Technical Review Committee (IATRC) and the NextGen Energy Board implemented by the Commissioner of Agriculture was the issuance of a targeted RFP for Biomass Thermal Energy. It was the opinion of the IATRC that many of the applications in the original 35 were of this nature, but were not focused on the critical task of allowing development of a supply-chain for woody biomass for biomass thermal energy within the state. The IATRC met soon after the January NextGen Energy Board meeting to begin development of the targeted RFP.

The Biomass Thermal Energy grant RFP was released on Monday, August 4 and closed on Friday, October 3. Five project applications were received for the RFP.

An Inter-Agency Technical Review Team reviewed all project applications. The team scored and ranked all projects, making funding recommendations. The team recommended funding four of the five applications. The review team's recommendation was affirmed by the Board and accepted by the Commissioner of Agriculture at the November 13, 2014 Board meeting. To date, the projects that were recommended for funding have not yet completed their contract negotiations and the final execution of their contracts, so the project identities must remain non-public.[17]

[17] Minn. Stat. 13.599, Subd. 3(a) states that all data other than name and address of grantee, and the amount requested, is non-public data until all grant contracts have been executed, at which time all data is public.

Recommendations and Action Items

In 2010, the NextGen Energy Board adopted new recommendations to meet its strategic vision and objectives.[18] The Board did not update its recommendations between the years 2011 to 2014 in an effort to focus on the new grant programs. The following provides a brief summary of the Board's recommendations and action items. There is no update to these from the 2013 report.[19]

The Strategic Vision/Recommendations and Action Items were under review by a subcommittee of the NextGen Energy Board during 2013. No further meetings were held during 2014.

Recommendation #1: Coordinate efforts and programs in support of biofuels development

A. Action Item: Work across agencies to create an inventory of state, federal and utility programs and other organizations focusing on bioenergy development; outline roles and responsibilities; identify synergies and/or duplication; recommend potential partnering and/or coordination efforts/programs.

B. Action Item: Research programs and policies for biofuels development in other states and identify potential benchmarks or models for Minnesota.

C. Action Item: Build on and leverage Minnesota's assets and strengths in entrepreneurship and state agency resources.

Recommendation #2: Leverage federal programs that support the Board's strategic vision

A. Action Item: Align federal resources—such as federal Farm Bill grants and loans, and the federal Renewable Fuel Standard—with state programs and policies to capitalize on opportunities for Minnesota.

Recommendation #3: Improve public awareness/perception of biofuels through better and more current information.

A. Action Item: Create a catalog of existing, current research and/or data on biofuels development and issues; identify knowledge gaps.

B. Action Item: Undertake research/data collection gaps identified by Action Item A.

C. Disseminate current, sound science on biofuels issues such as land use change, energy balance, food and fuel, etc.

Recommendation #4: Engage in efforts to overcome regulatory barriers in bioenergy development.

A. Action Item: Ensure state agency coordination throughout the permitting process.

B. Action Item: Establish outreach efforts to inform bioenergy developers of permitting requirements/processes at an early stage.

C. Action Item: Pursue legislative action to accelerate and facilitate the permitting process to avoid hindering bioenergy development in Minnesota.

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[18] The Board's 2008 recommendations are no longer outlined here. Please reference reports from 2008, 2009 and 2010 for details and updates on those recommendations.

[19] The 2013 NextGen Energy Board Report to the Legislature can be found on the MDA website. This report contains full updates to the Recommendations and Action Items.

Appendix A: NextGen Energy Board Legislation

2013 Minn. Stat. 41A.105

(Originally created by Minnesota Session Laws 2007, Chapter 45, Sec. 47, with revisions from 2013 reflected in this text)

NEXTGEN ENERGY.

Subdivision 1. **Purpose.** It is the goal of the state through the Department of Agriculture to research and develop energy sources to displace fossil fuels with renewable technology.

Subd. 1a. **Definitions**. For the purpose of this section:

(1) "biobased content" means a chemical, polymer, monomer, or plastic that is not sold primarily for use as food, feed, or fuel and that has a biobased percentage of at least 51 percent as determined by testing representative samples using Americal Society for Testing and Materials specification D6866;

(2) "biobased formulated product" means a product that is not sold primarily for use as food, feed, or fuel and that has a biobased content percentage of at least ten percent as determined by testing representative samples using American Society for Testing and Materials specification D6866, or that contains a biobased chemical constituent that displaces a known hazardous or toxic constituent previously used in the product formulation;

(3) "biobutanol facility" means a facility at which biobutanol is produced; and

(4) "biobutanol" means fermentation isobutyl alcohol that is derived from agricultural products, including potatoes, cereal grains, cheese whey, and sugar beets; forest products; or other renewable resources, including residue and waste generated from the production, processing, and marketing of agricultural products, forest products, and other renewable resources.

Subd. 2. **NextGen Energy Board.** There is created a NextGen Energy Board consisting of the commissioners of agriculture, commerce, natural resources, the Pollution Control Agency, and employment and economic development; the chairs of the house and senate committees with jurisdiction over energy finance; the chairs of the house and senate committees with jurisdiction over agriculture finance; one member of the second largest political party in the house, as appointed by the chairs of the house committees with jurisdiction over agriculture finance and energy finance; one member of the second largest political party in the senate, as appointed by the chairs of the senate committees with jurisdiction over agriculture finance and energy finance; and the executive director of the Agricultural Utilization Research Institute. In addition, the governor shall appoint seven members: two representing statewide agriculture organizations; two representing statewide environment and natural resource conservation organizations; one representing the University of Minnesota; one representing the Minnesota Institute for Sustainable Agriculture; one representing the Minnesota State Colleges and Universities system; and one representing the forest products industry.

Subd. 3. **Duties.** The board shall research and report to the commissioner of agriculture and to the legislature recommendations as to how the state can invest its resources to most efficiently achieve energy independence, agricultural and natural resources sustainability, and rural economic vitality. The board shall:

(1) examine the future of fuels, such as synthetic gases, biobutanol, hydrogen, methanol, biodiesel, and ethanol within Minnesota;

(2) examine the opportunity for biobased content and biobased formulated product production at integrated biorefineries or stand-along facilities using agricultural and forestry feedstocks;

(3) develop equity grant programs to assist locally owned facilities;

(4) study the proper role of the state in creating financing and investing and providing incentives;

(5) evaluate how state and federal programs, including the Farm Bill, can best work together and leverage resources;

(6) work with other entities and committees to develop a clean energy program; and

(7) report to the legislature before February 1 each year with recommendations as to appropriations and results of past actions and projects.

Subd. 4. **Commissioner's duties.** The commissioner of agriculture shall administer this section.

Subd. 5. **Expiration.** This section expires June 30, 2015.

Laws of Minnesota 2013, Chapter 114

Sec. 3. DEPARTMENT OF AGRICULTURE …

Funds in this appropriation may be used for grants under this paragraph. The NextGen Energy Board, established in Minn. Stat. 41A.105, shall make recommendations to the commissioner on grants for owners of Minnesota facilities producing bioenergy, biobased content, or a biobased formulated product; for organizations that provide for on-station, on-farm field scale research and outreach to develop and test the agronomic and economic requirements of diverse stands of prairie plants and other perennials for bioenergy systems; or for certain nongovernmental entities. For the purposes of this paragraph, "bioenergy" includes transportation fuels derived from cellulosic material, as well as the generation of energy for commercial heat, industrial process heat, or electrical power from cellulosic materials via gasification or other processes. Grants are limited to 50 percent of the cost of research, technical assistance, or equipment related to bioenergy, biobased content, or biobased formulated product production or $500,000, whichever is less. Grants to nongovernmental entities for the development of business plans and structures related to community ownership of eligible bioenergy facilities together may not exceed $150,000. The board shall make a good-faith effort to select projects that have merit and, when taken together, represent a variety of bioenergy technologies, biomass feedstocks, and geographic regions of the state. Projects must have a qualified engineer provide certification on the technology and fuel source. Grantees must provide reports at the request of the commissioner. No later than February 1, 2014, and February 1, 2015, the commissioner shall report on the projects funded under this appropriation to the legislative committees with jurisdiction over agriculture policy and finance.

Appendix B: 2013-2014 NextGen Energy Board Activities

January 10, 2014: Review of FY 2014 grant applications and ranking from the interagency technical review team. Recommendations of funding five projects was made, along with the recommendation to hold $505,000 for a second, targeted request for proposals with a focus on biomass thermal energy projects.

November 13, 2014: Review of FY 2015 biomass thermal energy grant applications and ranking from the interagency technical team. The board recommended funding four projects.