MINNESOTA DEPARTMENT OF AGRICULTURE

NextGen Energy Board

Report to the Legislature

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NextGen Energy Board Background and Role

Minnesota has long been the national leader for enacting policies to promote the use of biofuels and other bioenergy products while ensuring local production benefits. The state was first in the nation to implement statewide 10 percent ethanol and 2 percent biodiesel blending requirements, as well as a producer payment program to incentivize homegrown ethanol production. Minnesota continues to lead with mandates for 20 percent ethanol and biodiesel blends in 2013 and 2015, respectively, and a goal of producing 25 percent of the state's ethanol from cellulosic materials by 2015.[1] Minnesota is also a national leader in "E85" infrastructure with over 350 fueling stations for flex-fuel vehicles throughout the state.[2]

In 2007, Governor Pawlenty and the Minnesota Legislature established the Next Generation Energy Board (NextGen) to ensure Minnesota's continued leadership in biofuels policy and development. The Board is specifically tasked with developing recommendations and building consensus for the development of the "Next Generation" of biofuels in the state, as defined in statute:

> NextGen Energy Board – Minn. Stat. §41A.105
> 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) develop equity grant programs to assist locally owned facilities;
> (3) study the proper role of the state in creating financing and investing and providing incentives;
> (4) evaluate how state and federal programs, including the Farm Bill, can best work together and leverage resources;
> (5) work with other entities and committees to develop a clean energy program; and,
> (6) report to the legislature before February 1 each year with recommendations as to appropriations and results of past actions and projects.

The Board's primary focus is to examine the use of the state's resources to decrease our reliance on fossil fuels; to increase our use of homegrown energy sources; to work towards agricultural and natural resources sustainability; and to ensure rural economic vitality.[3]

The Board is comprised of 20 members, seven of whom were appointed by the Governor[*]. The total membership includes:

- State Senator Ellen Anderson (District 66)
- Wayne Brandt*, Minnesota Forest Industries

[1] 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.

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

[3] 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, 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.

[*] Denotes NextGen Energy Board members appointed by Governor Pawlenty.

- Robert Elde*, University of Minnesota Initiative for Renewable Energy and the Environment (IREE)
- John Frey*, Minnesota State Colleges and Universities (MnSCU)
- William Grant*, Izaak Walton League
- State Representative Bill Hilty (District 8A)
- Commissioner Mark Holsten, Minnesota Department of Natural Resources
- Commissioner Gene Hugoson, Minnesota Department of Agriculture
- State Representative Al Juhnke (District 13B)
- State Representative Doug Magnus (District 22A)
- Kelly Marczak*, American Lung Association
- Commissioner Dan McElroy, Minnesota Department of Employment and Economic Development
- Commissioner Paul Eger, Minnesota Pollution Control Agency
- Thom Petersen*, Minnesota Farmers Union
- State Senator Julie Rosen (District 24)
- Teresa Spaeth, Agriculture Utilization Research Institute (AURI)
- Paul Stark*, Minnesota Farm Bureau Federation
- Douglas Tiffany*, Minnesota Institute for Sustainable Agriculture (MISA)
- State Senator Jim Vickerman (District 22)
- Commissioner Glenn Wilson, Minnesota Department of Commerce

NextGen Energy Board Strategic Vision

Strategic Vision

The NextGen Energy Board supports policies for the production and use of biomass-based energy and fuels to provide maximum benefit to the state's economy. These next generation policies are guided by the principles of rural economic vitality, environmental sustainability, and energy security through energy conservation, increased use of homegrown renewable resources, and reduced reliance on fossil energy.

Minnesota's biofuel policies have created prosperity for Minnesota farming communities, improved air quality, reduced carbon emissions, displaced petroleum use and led to public acceptance of biofuels for widespread use. The NextGen Energy Board's policies promote the continued improvement of biofuel technologies currently in use in Minnesota and spur aggressive innovation in the development and deployment of the next generation of bioenergy feedstocks and technologies in the state.

Objectives

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

- Build on and improve the technological capacity of those industries that will produce the next generation of biofuels. Such industries include those involved in the production of biomass-based fuels for transportation, heat and power; the pulp and paper sector; and other emerging technologies;
- Use an integrated strategy that supports research and development, education initiatives, technology transfer, production incentives, and market creation focused on next generation fuels;

- Harness and support the state's renewable energy entrepreneurial spirit through policies that provide all interested parties the opportunity to evaluate and determine which technologies and business models are most efficient and profitable, and which best achieve the public interest;
- Expand renewable fuel economic opportunities throughout Minnesota;
- Create and retain local community investments in current and new bioenergy enterprises;
- Promote creation of and investment in bioenergy technical and manufacturing support enterprises;
- Strengthen the current biofuels industry, which includes corn-based ethanol and soy-based biodiesel, to ensure improving economic and environmental performance as the industry contributes to state energy policies and goals;
- Ensure the efficient, innovative and sustainable use of energy and natural resources such as water and wood products; as well as the continued improvement in air quality;
- Expand reliance on perennial crops that improve habitat and water quality while reducing soil water runoff and providing an effective means of storing carbon; and,
- Provide greater energy self-reliance in the state by displacing the use of fossil fuels with energy conservation and the production and use of our homegrown renewable resources.

Strategies

To help meet its strategic vision and objectives, the Board adopted the following strategies:

- Develop sustainable production systems for bioenergy crops, crop residues and materials that minimize water, chemical, and fossil energy inputs while sequestering carbon and enhancing wildlife habitat, water and air quality;
- Encourage the evolution of current biofuel production technology toward processes that are more energy efficient, use less water, and consume less fossil energy;
- Help commercialize new biomass-based energy and fuel technologies that exhibit improved carbon and other greenhouse gas emissions performance relative to fossil energy;
- Help develop biomass feedstock collection, processing, transportation, and storage systems that can reduce overall field-to-facility costs; and,
- Create market-based policies that allow farmers, loggers, landowners, and producers to benefit economically from the next generation of bioenergy production.

NextGen Energy Grant Program

In addition to creating the NextGen Energy Board, the 2007 Minnesota Legislature also appropriated $3 million for grants to bioenergy projects.[4] The following spring, the Minnesota Department of Agriculture issued a request for proposals (see Appendix B for solicitation) and a technical review committee made recommendations to the NextGen Energy Board from a total of 28 submitted proposals.[5] In November of 2008, the Board approved and Governor Pawlenty announced eight projects to receive NextGen Energy grants.

Throughout 2008 and 2009, NextGen Energy projects progressed steadily but many experienced unanticipated delays and changes due to the general economic downturn. As such, the Board is recommending a one-year extension of the grant period (see Recommendation #1, Action Item E).

[4] Following additional actions taken by the Minnesota State Legislature in 2008, approximately $2.7 million was available for the 2008 NextGen Energy Grant program.

[5] The technical review committee consisted of staff from the Minnesota Departments of Agriculture, Natural Resources, Commerce, Employment and Economic Development and the Pollution Control Agency.

The following is a description of each project and its current status.

Central Minnesota Cellulosic Ethanol Partnership – Little Falls

The Central Minnesota Cellulosic Ethanol Partnership (CMCEP)—a joint venture between the Central Minnesota Ethanol Cooperative, SunOpta BioProcess, and Bell Independent Power Corporation—was awarded $910,000 to conduct the final stage of a study to determine the feasibility of building, owning and operating a 10-million-gallon-per-year cellulosic ethanol plant. The plant would be co-located with the existing Central Minnesota Ethanol Partners corn ethanol plant.

> *Status:* CMCEP has completed pilot plant trials for the pre-treatment and enzymatic hydrolysis phases of its feasibility study and is progressing with basic engineering work for the cellulosic ethanol facility.

Chippewa Valley Ethanol Company – Benson

The Chippewa Valley Ethanol Company (CVEC) was awarded $700,000 to introduce new biomass gasification technology to its approximately 48-million-gallon-per-year corn ethanol plant. The technology would allow the facility to use farm or woodland biomass to power plant operations, replacing up to 90 percent of its current dependence on natural gas, and to eventually transition from corn-based to cellulosic ethanol production.

> *Status:* CVEC conducted trials on its pilot gasification system to validate process performance and reliability, but due to a variety of issues, commercialization of the process was significantly delayed. In January of 2010, the NextGen Board approved a request from CVEC to reallocate grant funding to a related project that will allow the company to explore densification of biomass char, a byproduct of gasification. This process has not yet been commercialized and represents a barrier to CVEC's ability to gasify corn cobs in addition to wood chips for replacing natural gas.

Minnesota Valley Alfalfa Producers – Raymond

The Minnesota Valley Alfalfa Producers (MnVAP) was awarded $400,000 to demonstrate biomass "pelletizing," in which a variety of biomass materials—such as crop waste, grasses and woodland biomass—are processed into uniform-sized pellets that can be more easily stored and transported.

> *Status:* MnVAP has completed the permitting process and engineering tasks necessary to begin installation and fabrication of its pelletizing equipment. MnVAP plans to begin equipment testing and modification in Spring 2010.

Rick Neuvirth Farm – Elkton

The Rick Neuvirth Farm was awarded $220,000 to construct and install an anaerobic digester and electric generator to produce and use biogas, heat and electricity. The anaerobic digester will use methane gas produced from the farm's swine manure and other organic residues to generate electricity, replacing nearly 100 percent of the farm's annual electricity and propane consumption and eliminating the need for manure hauling by truck.

> *Status:* Throughout 2009 the Neuvirth Farm conducted feedstock assessments to determine biogas production levels at their facility. The Farm also began preliminary engineering and integration work through site design and equipment specifications. However, due to adverse economic conditions and the loss of several sows from local diseases, Neuvirth Farm has suspended further work on the anaerobic digester project for an estimated two years.

Northern Excellence Seed – Williams

Northern Excellence Seed was awarded $200,000 to construct a 100-kilowatt-per-hour gasifier. This project will demonstrate the viability of burning waste biomass such as grasses to produce electricity, and is potentially replicable throughout the state.

> *Status:* The Northern Excellence gasifier began operations in November 2009 and is feeding electricity from biomass onto the local electricity grid.

University of Minnesota Department of Forestry – St. Paul

The University of Minnesota's Department of Forestry was awarded $100,000 to study the sustainability of the state's approximately 16 million acres of forests, as well as the long-term availability of biomass in the state. The study will identify sustainable forest management practices that may serve to increase the volume of forest biomass available for expanding bioproduct industries.

> *Status:* The Department of Forestry has completed development of a biomass availability model and administered a survey to 1,200 private landowners in Minnesota to establish land ownership patterns. The survey results will be fed into the Department's models to predict county-by-county biomass availability and cost sensitivity of biomass procurement.

Central Lakes College Ag Center – Staples

The Central Lakes College Ag Center (CLCAC) was awarded $100,000 to establish and evaluate five perennial energy crops, including four native prairie plants (Switchgrass, Intermediate Wheatgrass, Survivor False Indigo, Prairie Cordgrass, and a Siberian strain of Miscanthus). The project is a partnership between a MnSCU campus, local farmers, and University of Minnesota faculty, and will demonstrate best-management practices for growing and harvesting perennials for use as cellulosic energy crops.

> *Status:* The CLCAC established the five planned perennial crops in 2009, as well as a plot of Camelina, and continues to study the properties and demonstrate best practices for each variety. The Center has also begun work on potentially converting Camelina oil into biodiesel. The data from the Center's work will be compiled in a database for future research.

University of Minnesota-Morris

The University of Minnesota at Morris is in the process of installing a biomass gasifier to provide campus heating and help reduce campus energy costs. The campus partnered with the West Central Research and Outreach Center to form the University of Minnesota Renewable Energy Research and Demonstration Center at Morris. This Center was awarded $50,000 to assess the potential for a biomass servicing company to handle the logistics of collecting, transporting, and storing the large amounts of biomass needed for energy production. The project will also lead to the development of a contract with a biomass producer and establish a model for biomass production.

> *Status:* Due to technical difficulties, installation and operation of the biomass gasifier at Morris has been put on hold. In the meantime, the campus has been conducting feedstock processing and densification trials for agricultural biomass, which will ultimately be used in conjunction with the biomass aggregator research to develop a business model.

Update on 2008 Recommendations and Action Items

In 2008, the NextGen Energy Board adopted a number of recommendations to meet its strategic vision and objectives. The following provides a brief summary of the actions taken to address the Board's recommendations:

Recommendation #1: Modify the NextGen Board statute

A. Action Item: Propose legislation to expand the Board by one member, representing the forest products industry.

Status: Complete ✓

Forestry resources are expected to play a large role in the next generation of biofuel production. As such, the Board identified the need for a forest sector representative to be engaged in future discussions, and the 2008 Legislature confirmed this need.[6] In September of 2008, Governor Pawlenty appointed Wayne Brandt, executive vice president of the Minnesota Forest Industries, to the NextGen Energy Board. Brandt also serves as executive director of the Minnesota Timber Producers Association and as a member of the Minnesota Forest Resources Council.

B. Action Item: Propose legislation to repeal the expiration date of the NextGen Energy Board.

Status: Complete ✓

The NextGen Board was originally set to expire June 30, 2009. Members found the Board to be an effective forum to address the diverse and interlinked issues associated with the development of the next generation of biofuels in the state. Thus, to allow for continued biofuel policy development and discussion, the 2008 Minnesota Legislation extended the NextGen Energy Board through June 30, 2014.[7]

C. Action Item: Propose legislation to provide that NextGen Energy grant appropriation funds do not cancel to the state's general fund, and are available through FY 2009 or until spent.

Status: Complete ✓

NextGen Energy grant funds were initially appropriated for fiscal year 2008, and did not roll into fiscal year 2009. However, legislative hearing records confirmed that it was the Legislature's intent that this funding be available until spent. To allow for funds to be expended in a fair and prudent manner, the 2008 Minnesota Legislature extended the NextGen Energy grant appropriation fund through June 30, 2009.[8]

D. Action Item: Add the concept of petroleum depletion and planning for its impacts as one of the drivers for NextGen Energy Board policies and recommendations.

Status: In progress

In 2008, the Board identified resource depletion and peak oil in particular as major drivers behind the need for next generation energy development. Peak oil can be defined as the point when global petroleum production is reached, after which the rate of production declines toward depletion. The

[6] Minn. Stat. § 41A.105, subd. 2.
[7] Minn. Stat. § 41A.105, subd. 5.
[8] Laws of Minnesota 2008, ch. 297, art. 1, sec. 63.

concepts and potential impacts of petroleum depletion and continued dependence on foreign oil were incorporated into the NextGen Energy Board's strategic vision and objectives. For example, the Board identified as one of its objectives the intent to "provide greater energy self-reliance in the state by displacing the use of fossil fuels with energy conservation and the production and use of our homegrown renewable resources." Resource depletion also served as an impetus for the Board's decision to invest NextGen Energy grant program funding in advanced biofuels projects.

E. Action Item: Extend the NextGen Energy Grant contract period.

As discussed, many 2008 NextGen grantees have experienced project delays due to financial hardship. During the 2010 legislative session, the Board will propose a 1-year extension of the existing grant program to allow current grantees additional time to work on their projects (currently, grant contracts end on May 1, 2010 and funds must be encumbered by June 30, 2010). Such an extension would provide additional time for projects to be completed and 2008 NextGen Energy Grant funding to be spent as planned.

Recommendation #2: Dedicate NextGen funding to projects that support the Board's strategic vision

Action Item: Develop and implement guidelines for allocating available NextGen Energy funding to NextGen Energy purposes identified by the Board.

Status: Complete ✓

As discussed in this report, in November of 2008, the NextGen Energy Board awarded eight grants totaling approximately $3 million to bioenergy projects that met the Board's objectives and strategic vision. For example, the NextGen Energy grant awarded to the Central Lakes College Ag Center meets the Board's objective to "expand reliance on perennial crops that improve habitat and water quality while reducing soil water runoff and providing an effective means of storing carbon." Similarly, the University of Minnesota's Department of Forest Resources will use NextGen Energy grant funding to help meet the Board's objective to "ensure the efficient, innovative, and sustainable use of energy and natural resources."

The Board also discussed additional areas for focusing any future NextGen funding, as follows:

(1) Increasing the use of biomass as an industrial fuel through feasibility studies;
(2) Establishing a biomass infrastructure needed to support the next generation of biofuels;
(3) Improving energy and water efficiency in biofuel production; and,
(4) Funding of policy research and technical analysis.

A number of projects selected to receive NextGen Energy grants in 2008 address these areas of focus. For example, the Central Minnesota Cellulosic Ethanol Partners' feasibility study for a commercial-scale cellulosic ethanol plant meets the first, while the pelletization project through the Minnesota Valley Alfalfa Producers, the new biomass gasification technology at the Chippewa Valley Ethanol Company, and the study at the University of Minnesota-Morris address the second, third and fourth areas, respectively.

Recommendation #3: Support legislation in the 2008 legislative session to increase the biodiesel blending requirement from 2 percent to 20 percent

Action Item: Support legislation in the 2008 session to increase the blending requirement incrementally from B2 to B20, and ask the Biodiesel Task Force to develop criteria and recommendations for increasing the sustainability of biodiesel fuel at each enhanced blend level.

Status: Complete ✓

To maintain Minnesota's leadership role in biodiesel development, the 2008 Legislature adopted a bill setting incremental goals for Minnesota to progress from its current B2 blending mandate to B20 by 2015. Specifically, the bill requires that all diesel sold or offered for sale contain 5 percent biodiesel by May of 2009, 10 percent by May of 2012, and 20 percent by May of 2015.[9] The bill was signed into law by Governor Pawlenty in May of 2008.[10]

On May 1, 2009, Minnesota began blending 5 percent biodiesel into nearly all of its fuel supply. Experience has shown that biodiesel blends can perform well in cold weather—in the winter of 2008-2009, while using 2 percent biodiesel, only one of 30 problem samples sent in for analysis displayed biodiesel-related trouble. In general, tests by the Minnesota Department of Commerce indicated that the cold weather properties of B5 blends are similar to those of B2 and with a new national testing requirement in effect, biodiesel quality is expected to continue improving.

Despite these assurances, the Minnesota Department of Commerce issued a waiver beginning on Friday, January 15, 2010 through March 31, 2010, in response to concerns from the Minnesota Biodiesel Council and the Minnesota Petroleum Marketers Association that the mix of 5 percent biodiesel with #1 diesel fuel could lead to clogged filters in extreme cold weather. While a small segment of the diesel consumer population has reported problems, the majority of refiners, terminals and users have not experienced trouble. Samples of diesel fuel and filters have been collected from locations statewide and are being tested by the Department of Commerce to help determine the cause of reported problems. The effective date allows petroleum wholesalers to make any necessary operational adjustments to ensure consistent supply. The B5 mandate still applies to #2 diesel fuel.

In addition, a subcommittee of the Biodiesel Task Force's Technical Cold Weather Issues Team, with input from the Minnesota Departments of Agriculture and Commerce, issued a guide in 2009 designed to help diesel fuel users avoid cold weather problems. The guide can be found on the Minnesota Department of Agriculture website at (http://www.mda.state.mn.us/news/publications/renewable/biodiesel/biodieselblendguide.pdf). A copy of the Cold Weather Issues Team's 2009 report to the legislature can also be found on the MDA website at http://www.mda.state.mn.us/news/publications/renewable/biodiesel/biodieselcoldissues.pdf.

Recommendation #4: Support study of policies and activities to promote lower carbon fuels

A. Action Item: Support the study and design of a low carbon fuel standard that takes advantage of the progress Minnesota has made in biofuels development.

[9] The 10 percent and 20 percent minimum content levels are effective during the months of April, May, June, July, August, September, and October only. The minimum content for the remainder of the year is 5 percent. However, if the commissioners of agriculture, commerce, and pollution control determine, after consultation with the biodiesel task force and other technical experts, that an American Society for Testing and Materials specification or equivalent federal standard exists for the specified biodiesel blend level in those clauses that adequately addresses technical issues associated with Minnesota's cold weather and publish a notice in the State Register to that effect, the commissioners may allow the specified biodiesel blend level in those clauses to be effective year-round.

[10] Minn. Stat. §239.77, subd. 2.

Status: In progress

Minnesota has long supported low carbon fuels through its promotion of current generation ethanol and biodiesel. To continue its support of next generation low carbon fuels, members of the Board requested that the state undertake a study regarding the impact of implementing a Low Carbon Fuel Standard in Minnesota. To that end, the Minnesota Department of Commerce's Office of Energy Security (OES) issued an RFP for a $200,000 grant, requesting a February 2009 project completion date. However, no applicants were able to conform to this time frame, and OES reissued the RFP with an August 2009 completion date. The evaluation team (composed of members from the Minnesota Departments of Agriculture, Natural Resources, Commerce, and the Pollution Control Agency) recommended funding a proposal from the University of Minnesota. As required for the project, the Technical Assumptions Review Committee (TARC) has not yet reviewed key underlying assumptions used as modeling inputs for the project. Consequently, the end date is uncertain at the time of this report to the NextGen Energy Board.

B. Action Item: Support development of a Green Fuels Certification program.

Status: Suspended

The original impetus for developing a Green Fuels Certification program was the emerging California Low Carbon Fuels Standard. It was thought that biofuels producers with a low net GHG profile would be able to secure better market access and price premiums for their product. This would also encourage individual plants to enhance their overall GHG emissions profile. However, the California Air Resources Board has adopted rules that assign GHG content based on industry averages, thereby eliminating any value of such a certification to an individual plant. Discussions of such a program have been suspended.

A related effort is Minnesota's continuing leadership in forest certification. As a cellulosic biofuels industry emerges, the status of Minnesota's certified forests will help to provide assurance that biofuels produced from Minnesota wood will be sustainably sourced.

Recommendation #5: Encourage the purchase of bio-based products in public purchasing programs

Action Item: Support, through legislation or other means such as executive order, the procurement of bio-based products in public purchasing programs.

Status: In progress

A biomass-based fuel industry requires the development of a biomass market, which could be achieved by encouraging the procurement and use of bio-based products in state and local government purchasing programs. In November of 2007, the Midwestern Governors Association (MGA) released the *Energy Security and Climate Stewardship Platform*, which included a resolution entitled "Establishing a Midwestern Bioproduct Procurement Program." The resolution was signed by 12 Midwestern states and one Canadian province, and stated the following goals:

(1) Signatory states/province jointly establish a Midwestern Bioproduct Procurement System to support growth of the region's bioeconomy;

(2) The system should create a common approach for listing products consistent with the federal BioPreferred program,[11] with system members adopting products based on their own procurement rules;
(3) System members agree to seek authorizing legislation, where necessary, to enable participation in the System;
(4) System members agree to form a regional task force of state procurement officials and others to design the rules of a regional bio-based product system and make other recommendations as necessary to establish the system; and,
(5) The Governors and Premier, through the MGA, will appoint a task force of state procurement officials that shall work with the private and public sectors to oversee and implement the System and to develop and recommend to the governors and premier, no later than June 1, 2008, model rules for the system.

A regional task force meeting of state procurement officials—including a representative from the Minnesota Department of Administration—was held in Iowa in March of 2008. The meeting resulted in a list of model guidelines for implementing bio-based product preferences at the state level and integrating a regional system, as proposed in the MGA resolution. These guidelines were formally announced by MGA in the fall of 2008.

Minnesota has not passed legislation specific to bio-based product procurement; however, the state may not need legislative authority to implement a bio-based product procurement preference as a matter of agency policy.

Recommendation #6: Promote the installation of methane digesters

Action Item: The Agricultural Utilization Research Institute (AURI), the Minnesota State Colleges and Universities System (MnSCU), the University of Minnesota, and private colleges should work with the Departments of Agriculture and Commerce to attract more investment in on-farm and community-based methane digesters by increasing the public's awareness of state and federal programs and incentives available for such projects.

Status: In progress

As discussed, a $220,000 NextGen Energy grant was awarded to a Minnesota swine farm to construct and install an anaerobic digester to produce methane for generating electricity. MDA's Rural Finance Authority also administers an anaerobic digester loan program that has distributed approximately $400,000 in loans over the past decade to farms across Minnesota for constructing and installing methane digesters. In addition, the Minnesota Office of Energy Security (OES) awarded five grants to Minnesota dairies through its 2008 on-farm anaerobic digester grant program. Three of the projects are successfully completed and two remain in progress.

In 2009, the International Renewable Energy Technology Institute at Minnesota State University-Mankato received $1.5 million from the legislature. A portion of this funding will be used to equip the laboratory for solid combustible biomass as well as purchase a bio-processer unit from Sweden to determine the best feedstock recipe for maximum biogas production. The unit has the ability to scrub the biogas and produce pure methane.

[11] The BioPreferred program was created by the Farm Security and Rural Investment Act of 2002 to increase the procurement and use of biobased products by establishing: 1) a procurement preference program for Federal agencies and their contractors, and 2) a labeling program to enable the marketing of biobased products.

Recommendation #7: Create a supply of biomass through farm incentives.

Action Item: Support funding to implement a Reinvest in Minnesota–Clean Energy (RIM-CE) program in the 2008 Capital Investment bill

Status: In progress

Several ongoing state and federal initiatives focus on incentivizing the sustainable production of native energy biomass crops are currently ongoing, as discussed below.

State Initiatives: The RIM program, administered by the Board of Water and Soil Resources (BWSR), includes easements on approximately 190,000 acres. The Legislature declined to fund the RIM-CE program in 2008, but did authorize limited biomass harvest on all RIM easement lands where such harvest does not negatively impact wildlife, water quality or carbon sequestration.

The Minnesota Department of Natural Resources (DNR) continues to integrate biomass harvest on public conservation lands as a grassland management tool. During 2009, the University of Minnesota completed a number of management harvests on a variety of public lands, which will allow them to follow up with research on the efficacy of the management. This experience should provide a basis for developing recommendations and BMPs for wider grassland harvest on RIM and other private conservation lands. DNR and other partners also accomplished several demonstration harvests of small diameter woody biomass on brush lands, forestlands and degraded grass lands.

In addition, the Working Lands Initiative—a joint Program of the DNR and BWSR—has targeted resources into the "Koda Energy Fuelshed Project." An outreach technician position was created to promote and deliver conservation program enrollment. The goal is to secure traditional conservation benefits as well as to enhance the supply of available grass biomass in Scott and surrounding counties. Funds were also made available to implement new grassland plantings and improve existing habitat conditions through managed harvest of existing biomass.

Federal Initiatives: The 2008 Food, Conservation and Energy Act ("Farm Bill") included numerous relevant provisions, including the Biomass Crop Assistance Program (BCAP). The U.S. Department of Agriculture (USDA) rolled the program out in 2009 starting with the "Collection, Harvest, Storage and Transport" component, which will provide a cash match to biomass owners delivering material to a qualifying conversion facility. Ten Minnesota facilities have now been approved as qualifying facilities by USDA as of December 1, 2009. The BCAP program will assist landowners for up to two years with the harvest of biomass from existing resources. USDA has indicated that it will roll out the energy crop planting incentive—which will support the establishment and production of eligible crops for the conversion to bioenergy—in early 2010. Minnesota agencies including MDA and DNR are continuing to monitor the program and comment when and where appropriate to ensure that the program is functional for Minnesota biomass producers. As the program develops there are opportunities to leverage the federal BCAP program through partnerships similar to CREP and the Wetland Reserve Program (WRP)-RIM.

About 1.6 million acres of Minnesota farm land are enrolled in the federal Conservation Reserve Program. The bulk of these acres is in grassland cover and could contribute to biomass resource through managed haying. Periodic harvest (once every 3 to 5 years) may help to improve overall habitat quality. USDA rules on managed harvest vary by contract. These lands, along with public conservation lands and RIM easement lands can provide a significant augmentation to potential biomass resources.

Recommendation #8: Education and training

Action Item: The NextGen Energy Board recommends that AURI, MnSCU, the University of Minnesota, and private colleges work closely with the Minnesota Department of Employment and Economic Development and the education and workforce training committees in the legislature to integrate the components of the Talent Development Initiative into the work of that agency and those committees.

Status: In progress

The Talent and Workforce Development team of the Minnesota Renewable Energy Roundtable (MNRER) continues to bring together representatives from DEED, MnSCU, and others to discuss the training and educational needs of the renewable energy industry. Information sharing is ongoing with respect to specific projects at DEED as well as other projects throughout the state to limit duplication of efforts and/or determine if efforts can be combined and partnerships formed to reach the overall objective of all parties and best serve the needs of the state. Because the industries and their technologies are constantly changing, providing faculty with the latest relevant experiences will require education and industry to work closely together to further the needs within the area of customized training of workforce.

In 2009, the MNRER Talent Development team established a post-secondary consortium and five renewable energy certificates available within MnSCU.

Continued priorities for the Talent and Workforce Development team include:

Focus on Youth:

- Expand presence at youth programs such as energy divisions at science fairs and further development of youth corps.
- Continue K-12 curriculum development.

Focus on Industry – Higher Education Collaboration:

- Continue and increase interaction with industry to identify workforce needs, including a biennial survey and tracking higher education response.
- Maintain and expand faculty development to ensure customized training of workforce is available.

Focus on Recognizing and Expanding Action-Oriented Participation:

- Facilitate further dissemination of other organizations, their work, curriculum, and new ideas and identify ways to utilize the MNRER Portal in this effort.
- Identify funding avenues for rewards and recognition of student, faculty and business innovations in renewable energy.

Talent Development Team Members' Recommendations for Further Exploration in 2010:

- Diversity – e.g., how to deliver training to diverse populations (displaced workers, low-skilled workers, cultural differences, learning styles, adult learning theory).
- Need for a set of qualifications for "green" instructors at technical and community colleges.
- Change perception of different types of education, e.g. 2-year vs. 4-year.
- Package careers with certifications built into associate and bachelor degrees.

In addition to these efforts, Minnesota West Community and Technical College (a part of MnSCU) offers courses in ethanol production and technology, leading to either a 2-year degree as an energy technical specialist or a 1-year certificate in biofuels technology. Courses address a variety of topics

including ethanol process fundamentals, biodiesel feedstocks technology and regulations, and other technical issues related to energy production.

Recommendation #9: Improve biomass energy permitting to encourage biomass energy development

Action Item: The NextGen Energy Board recommends a legislative discussion of permitting processes to determine if there are appropriate actions the state could take to improve permitting, thus encouraging widespread and timely sustainable biomass energy development, environmentally sustainable siting of bioenergy facilities, and improved public health. Chief among these actions could be: (1) improving the understanding and characterization of different biomass air emission profiles; (2) improving the understanding and characterization of the capacity and extent of water resources, including ground water aquifers and surface water throughout Minnesota; and (3) encouraging technologies and processes that promote more efficient use of water and greater sensitivity to water availability when determining the location of proposed facilities.

Status: In progress

Various state agencies are addressing these issues, as discussed below.

(1) State agencies must review permit applications and assess how biomass energy development will affect air quality. Project developers and regulators lack information on the emission profiles of various types of biofuels, potentially hindering the permitting process. To address this deficiency, the Minnesota Pollution Control Agency (MPCA) undertook a project to collect information and develop emissions factors for the combustion of biofuels from various feedstocks—including corn stover, wheat hulls, wood, and straw. In June of 2007, the MPCA published the results of this project in a report entitled Emission Factors for Priority Biofuels in Minnesota.

In 2009, the MPCA managed a contract with a testing firm to study emissions from the gasification of biomass at Chippewa Valley Ethanol Company. This work was completed in July 2009. The MPCA is also managing a similar contract with the University of Minnesota-Morris for additional testing. In 2009 the United States Environmental Protection Agency (EPA) made grant money available to its regional EPA offices for energy related studies. The MPCA worked in conjunction with other Region V states and EPA to secure grant money for the Lake Michigan Air Directors Consortium to perform additional research on biomass emission factors (i.e., a value that relates the amount of air pollution to a particular activity). Emission measurements will be made in summer 2010 at three power plants in Wisconsin, which are burning a variety of biomass fuels. The measurements will be used to develop emission factors for biomass fuels. A final project report, including emission factors, will be available in spring 2011.

(2) Water supply has been an issue in the environmental review and permitting process for some bioenergy facilities. Minnesota's ground water resources are complex and variable. Improved permitting will depend upon improved understanding of those resources. Work continues on the project to investigate the physical and recharge characteristics of the Mt. Simon aquifer in South Central Minnesota. The Minnesota DNR released Groundwater: Plan to Develop a Groundwater Level Monitoring Network for the 11-County Metropolitan Area in October 2009 per Minnesota Session Laws 2009 Chapter 37 Section 4 Subd. 3. County Geological Atlases are under development in 13 counties. These detailed documents provide significant insight into ground water hydrogeology. The Minnesota DNR will complete a similar plan for statewide ground water management by January 15, 2010.

In accordance with Minn. Stat. 116.195 and Minnesota Session Laws 2009 Chapter 172 Article 2 Sec.4(c)., the MPCA is currently in the process of developing a grant solicitation process to identify projects to fund that would design and construct systems to beneficially use effluent from wastewater treatment plants. This wastewater would serve as an alternative to using groundwater for industrial processes. Under the legislation $1,500,000 is available for grants in the first year and $3,169,000 in the second year. In the first year $1,000,000 is dedicated to grants for ethanol plants that are within 1.5 miles of a city that could reuse greater than 300,000 gallons of wastewater per day.

(3) State agencies are working to better define issues and data needs for sustainable ground water management. For instance, in 2008 MPCA improved its water permitting process by requiring project proposers to evaluate available water supply issues prior to submitting a formal proposal to the MPCA.

(4) In 2009, the Legislature established the Green Enterprise Assistance (GEA) (see "Other Related Efforts," below), in part to coordinate permitting efforts and issues across state agencies.[12]

Recommendation #10: Improve Minnesota's web-based renewable energy resources.

Action Item: Develop an online "one-stop-shop" for information about renewable energy grant and loan programs within the state.

Status: In progress

The Minnesota Office of Energy Security has developed a website (www.energy.mn.gov) to serve as the state's primary portal for relevant energy-related funding opportunities. The website features current information on state and federal grants, loans and tax incentives, as well as links to RFPs and other important notices of funding opportunities.

The AURI Renewable Energy Roundtable's Economics and Finance Team has also developed a tool—the Access to Capital Network— to assist economic developers in identifying funding sources for energy and renewable energy-related projects. This tool is still under development but should be fully operational in the near future. See www.MNRER.org for more information.

The Green Enterprise Assistance (GEA) (see "Other Related Efforts," below) will coordinate resources and stakeholders among state agencies to better facilitate knowledge-sharing and access to information for new renewable energy businesses in Minnesota.

Other Related Efforts

Governor's Forestry Sub-Cabinet

The Governor's Forestry Sub-Cabinet—co-chaired by the Departments of Natural Resources and Employment and Economic Development, and including the Departments of Agriculture and Commerce, the Pollution Control Agency and Iron Range Resources—provided direction to staff of the DNR and the Minnesota Forest Resources Council to develop a Forest BioEconomy Strategy Map. The intent was to build increasing consensus on the most strategic market segments for woody bioenergy developments. Wood is a flexible and valuable renewable energy resource, but the total wood resource available is limited. The BioEconomy Strategy Map effort is in the process of outlining Guiding

[12] See see MS § 116J.438.

Principles for allocating state support for the development of wood energy projects. Components of the strategy include efforts to support expanding the available supply of woody biomass and identifying strategic opportunities for the utilization of woody biomass. The effort will also identify practical and effective implementation tools.

The underlying foundation of the strategy is premised on healthy forests. Biomass harvest must be done in a sustainable manner supporting the multiple-benefit goals on which forest management rests. Minnesota is leading the nation with the 2008 adoption of site level Forest Biomass Harvesting Guidelines by the *Minnesota Forest Resources Council.*

The emerging strategic framework will focus state support on industries and projects where wood energy is uniquely suited to meet renewable energy and environmental goals, economic development goals and where the wood resource is efficiently used. This vision is similar to the NextGen Energy Board goals of building on existing industries, such as the iron industry, forest products industries and existing biofuels industries to maximize the overall benefits of wood utilization.

Green Enterprise Assistance

In 2009, the Minnesota Legislature created the Green Enterprise Assistance (GEA), formalizing in statute a directive for DEED, in consultation with the Department of Commerce, to lead a multi-agency effort to advise, promote, market, and coordinate agency efforts on green economy business development projects.[13] The effort includes the use of state resources to expedite grants, licenses, permits and other state approval needed for a project to move forward.

DEED has hired a lead staff to coordinate the efforts of the GEA. Other agencies named are the Minnesota Departments of Natural Resources, Agriculture, Transportation, and the Pollution Control Agency. There is also an expectation that the chairs and ranking minority members of the key legislative committees in this area will be involved, along with private business representation and other stakeholders.

Remaining funds from the Green Jobs Task Force ($107,000) have been transferred to DEED and will be used for marketing expenses related to promotion of the state for green and clean technology investments and job creation. DEED and other partners sponsored the Green Jobs booth at the Minnesota State Fair to promote job opportunities, and programs for business development. DEED will be making presentations to stakeholder groups and organizations about the GEA, including a presentation at the Economic Development Association of Minnesota's winter conference. DEED is also coordinating the Wind Advisory Group, planning for the Windpower show in April that will be held in Dallas, and updating the DEED website to include a green section of information and links to many green and renewable resources.

Economic Stimulus Funding

On February 17, 2009, President Obama signed into law the American Recovery and Reinvestment Act (ARRA). In May 2009, the Minnesota Legislature passed, and Governor Pawlenty signed, Chapter 138-S.F. 657, legislation that designates Minnesota's share of the ARRA energy dollars into various programs. The Minnesota Office of Energy Security (OES) is managing these stimulus-funded energy programs. The main goals of these programs are to save energy and create jobs.

Federal stimulus allocations for Minnesota are as follows:

[13] See MS §116J.438.

- Weatherization Assistance Program: $131.9 million
- State Energy Program: $54.2 million
- Energy Efficiency and Conservation Block Grant Competitive Grants: $10.64 million
- Appliance Rebate Program: $5 million

Request for Proposals (RFPs) for the new energy programs have started to be released and more will be available in 2010. For the latest updates visit the OES website at www.energy.mn.gov.

Appendix A: NextGen Energy Board Legislation

Minnesota Session Laws 2007, Chapter 45

Creation of the Board:

Sec. 47. **[41A.105] 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. 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; and one representing the Minnesota State Colleges and Universities system.

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) develop equity grant programs to assist locally owned facilities;

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

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

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

(6) 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, 2009

Grant Program Appropriation:

Sec. 3. **DEPARTMENT OF AGRICULTURE …**

Subd. 4.**Bioenergy and Value-Added Agricultural Products…**

$3,000,000 the first year is for grants to bioenergy projects. The NextGen Energy Board shall make recommendations to the commissioner on grants for owners of Minnesota facilities producing bioenergy, 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 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

material via gasification or other processes. The board must give priority to a bioenergy facility that is at least 60 percent owned and controlled by farmers, as defined in Minnesota Statutes, section 500.24, subdivision 2, paragraph (n), or natural persons residing in the county or counties contiguous to where the facility is located. Grants are limited to 50 percent of the cost of research, technical assistance, or equipment related to bioenergy 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 certification on the technology and fuel source. Grantees shall provide reports at the request of the commissioner and must actively participate in the Agricultural Utilization Research Institute's Renewable Energy Roundtable. No later than February 1, 2009, the commissioner shall report on the projects funded under this appropriation to the house and senate committees with jurisdiction over agriculture finance. The commissioner's costs in administering the program may be paid from the appropriation.

Appendix B: NextGen Energy Grant Informal Solicitation

MINNESOTA DEPARTMENT OF AGRICULTURE
www.mda.state.mn.us

Minnesota Department of Agriculture
625 Robert St. N., St. Paul, MN 55155-2538

Commissioner's Office, Ph: 651-201-6599, Fx: 651-201-6118

I. Introduction

The purpose of this Minnesota Department of Agriculture (MDA) Informal Solicitation is to provide potential applicants with the necessary information regarding the 2008 NextGen Energy Grants and application procedures.

Minnesota Session Laws 2007, Chapter 45 established the NextGen Energy Board. The Board's primary focus is to examine the use of the state's resources to decrease our reliance on fossil fuels; to increase our use of home-grown energy sources; to work towards agricultural and natural resource sustainability; and to ensure rural economic vitality.

In addition, the Minnesota Legislature established the NextGen Energy grant program (Laws of Minnesota 2007, Chapter 45, Article 1, Subdivision 4, as amended in Laws of Minnesota chapter 363(House File 1812): https://www.revisor.leg.state.mn.us/laws/?id=363&doctype=Chapter&year=2008&type=0

> *$3,000,000 the first year is for grants to bioenergy projects. The NextGen Energy Board shall make recommendations to the commissioner on grants for owners of Minnesota facilities producing bioenergy, 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 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 material via gasification or other processes. The board must give priority to a bioenergy facility that is at least 60 percent owned and controlled by farmers, as defined in Minnesota Statutes, section 500.24, subdivision 2, paragraph (n), or natural persons residing in the county or counties contiguous to where the facility is located. Grants are limited to 50 percent of the cost of research, technical assistance, or equipment related to bioenergy production or $1,000,000, 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 certification on the technology and fuel source. Grantees shall provide reports at the request of the commissioner and must actively participate in the Agricultural Utilization Research Institute's Renewable Energy Roundtable.*

Following additional actions taken by the Minnesota State Legislature in 2008, approximately $2,700,000 is currently available for the 2008 NextGen Energy grants.

The NextGen Energy Board Project Objectives
As required for the development of this Informal Solicitation, the MDA utilized the 2008 NextGen Energy Report to the Legislature. The Board encouraged MDA to issue grants that achieve the following objectives:

A. Build on and improve the technological capacity of those industries that will produce the next generation of biofuels. Such industries include those involved in the production of biomass-based fuels for transportation, heat and power; the pulp and paper sector; and other emerging technologies;
B. Use an integrated strategy that supports research and development, education initiatives, technology transfer, production incentives and market creation focused on next generation fuels;
C. Harness and support the state's renewable energy entrepreneurial spirit through policies that provide all interested parties the opportunity to evaluate and determine which technologies and business models are most efficient and profitable, and which best achieve the public interest;
D. Expand renewable fuel economic opportunities throughout all of Minnesota;
E. Create and retain local community investments in current and new bioenergy enterprises;
F. Promote creation and investment of Bioenergy technical and manufacturing support enterprises;

G. Strengthen the current biofuels industry, which includes corn-based ethanol and soy-based biodiesel, to ensure improving economic and environmental performance as the industry contributes to state energy policies and goals;
H. Ensure the efficient, innovative and sustainable use of energy and natural resources such as water and wood products; and the continued improvement in air quality;
I. Expand reliance on perennial crops that improve habitat and water quality while reducing soil water runoff and providing an effective means of storing carbon; and,
J. Provide greater energy self-reliance in the state by displacing the use of fossil fuels with energy conservation and the production and use of our homegrown renewable resources.

Grants issued under this program will result in measurable outcomes which demonstrate progress toward meeting the NextGen Energy Board's objectives in regard to energy, the environment and the rural economy. So as not to duplicate bioenergy related activities funded through other publicly-funded initiatives in the state, this Informal Solicitation places emphasis on proposals that demonstrate strong technical merit and near-term commercial viability to specifically enhance performance of Minnesota's bioenergy industry.

Timelines
Applications must be received by ***July 31, 2008 by 4:00 p.m.*** **Central Daylight Time.**

Submissions must follow "Application Process" described in section IV of this Informal Solicitation to provide both:
1) An electronic Microsoft Word version of the application and attachments in Microsoft Word, Excel or Adobe PDF format (ZIPPED files not accepted) must be **e-mailed** to: Andrew.Carter@state.mn.us. Insert "(applicant's name) - RE Grant Proposal" in the subject line.

Faxed submittals will not be accepted.

October 2008: Applicants will be notified whether they are selected for a grant.

Questions
All questions concerning this Informal Solicitation should be submitted in writing or email to:

Andrew H. Carter
Minnesota Department of Agriculture
625 Robert St. N
Saint Paul, MN. 55155-2538
Andrew.Carter@state.mn.us

II. Eligibility

Eligible Applicants
Entities eligible to receive grants are:
1. Owners of Minnesota facilities producing bioenergy;
2. 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 plant and other perennials for bioenergy systems; or
3. Certain non-governmental entities for the development of business plans and structure related to community ownership.

Eligible Matching Dollars The NextGen Grants can be no more than 50% of the total project cost. In addition, only 50% of the match can be in-kind services.

Eligible Projects
Successful applications will contribute toward meeting one of the NextGen Objectives outlined on page two.

III. Application Process

For consideration in this funding round, applications **must follow the specified deadlines and format** provided in this Informal Solicitation.

Applications

Applications are ten-page maximum (not including attachments) and include, both:

1) A hard copy of the complete application and attachments, addressed to:

   Gene Hugoson, Commissioner
   Department of Agriculture
   625 Robert Street North
   Saint Paul, MN 55155-2538

2) Electronic documents shall be in Microsoft Word, Excel or Adobe PDF format (ZIPPED files not accepted) and shall be **e-mailed** to: Andrew.Carter@state.mn.us. Insert "NEXTGEN Grant Proposal - (applicant's name)" in the subject line.

Attachments

The nature of attachments will vary depending upon project purpose and scope. Applicants are encouraged to provide supplemental information to accurately communicate such things as:

- Evidence of technical and economic feasibility of project;
- Evidence of financial and technical capability of applicant;
- Letters of commitment and match if proposed in budget; and
- Resume(s) supporting qualifications described in the application.

In addition to the hard copy of attachments accompanying the application, attachments must be e-mailed to the MDA. Electronically submitted attachments should be submitted in Microsoft Word, Excel or Adobe PDF format. The names of such documents should clearly be identified with your proposal, and be referenced in the application.

ZIPPED files will not be accepted. Faxed submittals will not be accepted.

If you anticipate or experience difficulties in submitting the application electronically, please contact Andrew Carter prior to the submittal deadline at (651) 201-6599 or Andrew.Carter@state.mn.us.

Deadlines

- July 31, 2008, by 4:00 p.m. Central Daylight Time: Application due date.
- October 2008: Final Applicants will be notified whether they are selected for a grant.

Awards are contingent on available funding and the Applicant's successful execution of a grant agreement within the specified timeframe.

Terms and Conditions

1. The MDA reserves the right to amend or cancel this Informal Solicitation at any time if the best interest of the State requires such action.
2. The MDA reserves the right to reject any or all proposals and to waive informalities and minor irregularities in proposals received and to accept any portion of a proposal if deemed in the best interest of the State.
3. The MDA assumes no liability in any fashion with respect to this Informal Solicitation or any matters related thereto. All prospective service providers and their assigns or successors, by their participation in the Informal Solicitation process, shall indemnify, save and hold the Department and its employees and agents free and harmless from all suits, causes of action, debts, rights, judgments, claims, demands, accounts, damages, costs, losses and expenses of whatsoever kind in law or equity, known and unknown, foreseen and unforeseen, arising from or out of this Informal Solicitation and/or any subsequent acts related thereto, including but not limited to the recommendation of a service provider and any action brought by an unsuccessful prospective service provider.

IV. Review and Evaluation of Applications

Applicants must submit Applications in the format and by the deadlines specified in the Informal Solicitation (see Section III. Application Process).

Applications are scored and ranked to determine which projects best meet the objectives and strategies developed by the NextGen Energy Board. Applications will include a detailed work plan and budget, and if applicable, authorizing resolutions and letters of support. Grant awards will be based on available funding and the review of Applications to determine which projects will be most beneficial in furthering the NextGen Energy Objectives as identified in this Informal Solicitation.

Applications will be reviewed and scored by the Technical Grant Review Team, as directed by the NextGen Energy Board. The review team will score, and rank applications, and provide information as requested to the NextGen Energy Board. The Board will evaluate this information and make recommendations to the Commissioner, who will then select the grant recipients.

Trade Secret Information: All information submitted as part of the application is public or will become public information, unless it qualifies as trade secret information under Minnesota Statutes 13.599.

Evaluation Criteria

Grant applications will be ranked on a 100 point scale according to:

1. How well the applications meet the objectives established by the NextGen Energy Board;(15)
2. The quality and experience of the applicant and/or project teams; (20)
3. Clarity and detail of the proposal; (20)
4. Anticipated project outcomes, measurable results, and likelihood of success; (25)
5. Effective leverage of MDA NextGen Energy grant funds with non-state funding sources; (10) and,
6. Whether a project is at least 60 percent owned and controlled by farmers, as defined in Minnesota Statutes, section 500.24, subdivision 2, paragraph (n) or natural persons residing in the county or counties contiguous to where the facility is located. (10)

V. Instructions to Complete Application

For consideration in this funding round, applications **must follow the specified deadlines and format** provided in this Informal Solicitation.

Completing the Pre-Formatted Application

The applicant must complete the following:

- Page 1 summarizes the project.
  - Provide a brief description of the proposed project. A more detailed description is called for on page 2 (Summary of the proposed project).
  - **Grant Requested**: The maximum grant award is dependent on project type, and is limited to 50% of the total project cost, or $1,000,000 whichever is less.
  - **Matching Funds/value of In-Kind**: The applicant must identify funding matches for the total Project Cost
  - **Total Project Cost**: The Grant Requested plus the Applicant's Match equals the Total Project Cost.

- Pages 2-10 are to be used to respond in narrative form to the 6 numbered topics.
  - Respond to the topic in the numbered order.
  - All questions must be addressed. If not applicable, write NA and why it is not applicable to your proposed project.
  - Submit resolutions, letters of support or any other documentation as attachments. Reference such as documentation in your response narratives.

Application - 2008 NextGen Energy Grants

Application data are private or nonpublic data until grant applications are opened. Names, addresses and requested amounts then become public information. An entire application becomes public when an agency has completed negotiating the grant agreement with a grantee. Individual grant applicants do not have to provide the information requested on the application form. If you do not, we will not be able to consider your grant request. The only persons who will have access to your data during the time that it is protected are those permitted access by law, by your written consent, by a court order or by those department employees whose job duties require access.

PLEASE PRINT

Clear Fields

APPLICANT/ORGANIZATION NAME			
MAILING ADDRESS			
CITY		STATE	ZIP
CONTACT NAME	CONTACT TITLE		
EMAIL	PHONE		
FAX	APPLICANT'S WEBSITE	MATCH AS % OF TOTAL =	%
PROJECT TITLE (BRIEF PROJECT DESCRIPTION)			
GRANT REQUESTED: $	MATCHING FUNDS/VALUE OF IN-KIND: $	TOTAL PROJECT COST: $	

1. Is Applicant the sole source of Matching Funds for the proposed project? ❑ YES ❑ NO
2. Has the Applicant received funding obtained through the Minnesota legislative budgeting process, or financial assistance from any state administered program since January 1, 2006? ❑ YES ❑ NO *If yes,* are those funds to be used as match for this project? ❑ YES ❑ NO
3. When does Applicant expect to be able to complete the proposed project?
4. Are Applicant and any significant participant(s) in compliance with Minnesota's tax and environmental regulatory requirements? ❑ YES ❑ NO

AG-03148 *06/12/08*

To complete this section, refer to Section II. Eligibility - Eligible Projects.

The proposed project is most representative of the following NextGen Objectives (select one):

A. ( ) Build on and improve the technological capacity of those industries that will produce the next generation of biofuels. Such industries include those involved in the production of biomass-based fuels for transportation, heat and power; the pulp and paper sector; and other emerging technologies;

B. ( ) Use an integrated strategy that supports research and development, education initiatives, technology transfer, production incentives and market creation focused on next generation fuels;

C. ( ) Harness and support the state's renewable energy entrepreneurial spirit through policies that provide all interested parties the opportunity to evaluate and determine which technologies and business models are most efficient and profitable, and which best achieve the public interest;

D. ( ) Expand renewable fuel economic opportunities throughout all of Minnesota;

E. ( ) Create and retain local community investments in current and new bioenergy enterprises;

F. ( ) Promote creation and investment of Bioenergy technical and manufacturing support enterprises;

G. ( ) Strengthen the current biofuels industry, which includes corn-based ethanol and soy-based biodiesel, to ensure improving economic and environmental performance as the industry contributes to state energy policies and goals;

H. ( ) Ensure the efficient, innovative and sustainable use of energy and natural resources such as water and wood products; and the continued improvement in air quality;

I. ( ) Expand reliance on perennial crops that improve habitat and water quality while reducing soil water runoff and providing an effective means of storing carbon; and,

J. ( ) Provide greater energy self-reliance in the state by displacing the use of fossil fuels with energy conservation and the production and use of our homegrown renewable resources.

For MDA Administrative Use Only:

Grant ID number:

2008 NextGen Energy Grants Application

Provide a narrative for each information category. Refer back to "Section V. Instructions to Complete Application" as you complete the application. Use minimum of 11-point font.

Information Categories:

1. Pre-formatted table page, "Minnesota Department of Agriculture Application - NextGen Energy Grants 2008".

2. Summary of the proposed project (limited to one page) including:
   a. Project goal;
   b. Issue(s) being addressed;
   c. How the use of proposed innovative technologies, methods, or techniques will address NextGen Energy Objectives;
   d. Anticipated, quantifiable direct or indirect outcomes/benefits; and,
   e. Applicability/replicability of project elsewhere in Minnesota.

3. Applicant/Organization's History (limited to two pages) including:
   a. Experience and qualifications of applicant and significant partners providing technical expertise related specifically to the proposed project;
   b. Assets and resources available to support the project; need for State funding;
   c. Dates, amounts and purpose of previous grants or public funding received that are associated with the goal of this project;
   d. Ability to implement project in a timely fashion; and
   e. Contact information for significant partners (identify individuals or organizations other than the applicant that are proposed to receive grant funding, or to provide matching funds or other significant resources - cash or in-kind - such as labor, space, supplies, equipment, advertising, etc.).
4. Proposed scope of work (limited to five pages) including a breakdown of Tasks (steps), Timeline and Outcome needed to accomplish project goal and to quantify results of project. If applicant is responsible for providing measurable results of their own technology, it is strongly recommended that appropriate Tasks include independent verification of procedures and results.

5. Proposed Budget (limited to one page, in landscape or portrait format, 9 pt font minimum):
   a. Provide a breakdown of anticipated project costs, such as for labor cost, equipment described as called for in Tasks, supplies, travel, etc. by funding source.
   b. Use categories and sub-categories as needed to reflect activities specified in your Tasks.)

Category	Task 1		Task 2		Task 3		Task 4		Task 5		Project Totals	
	Grant	Match	Grant	Match	Grant	Match	Grant	Match	Grant	Match	Grant	
Sub-Totals												
Total by Task												

**Identify key personal assigned and their billing rate so that their responsibilities, cost and funding source are known. If match is provided through letters of commitment by partner organizations, their allocations must be identified in the budget.*

6. Attachments may accompany the application, common examples include:
   - Evidence of technical and economic feasibility of project;
   - Evidence of financial and technical capability of applicant;
   - Letters of commitment and match if proposed in budget; and
   - Resume(s) specific to qualifications needed for project.

REMINDERS

- Application must be submitted as a Word document or a PDF file.
- Attachments may be submitted as separate Word, Excel or PDF files. The names of such documents should clearly be identified with your proposal, and be referenced in the application.
- Application submittal, inclusive of the formatted application page, have minimum one-inch margins and 11-point font.
- All items on the formatted page and total of 6 information categories must be addressed. If not applicable to your proposed project, write NA and provide a brief statement as to why not applicable.
- If you are submitting Trade Secret Data please mark the data "Trade Secret" and submit a statement addressing the trade secret justification requirements in Minn. Statutes section 13.37 subd. 1(b).

Appendix C: 2009-2010 NextGen Energy Board Activities

June 8, 2009: Stimulus Funding in MN, Legislative Updates, NextGen Energy Grant Progress

Bill Glahn from the Minnesota Office of Energy Security presented on 2009 American Recovery and Reinvestment Act ("stimulus") funding for Minnesota. Quinn Cheney, Minnesota Department of Agriculture, provided an update on the 2009 legislative session and discussed plans for future 2009 Board meetings. The Board also heard from Christina Connelly, Minnesota Department of Agriculture, on the status of NextGen Energy Grant projects.

August 24, 2009: Morris and Benson Tours, NextGen Energy Grantee Updates

The Board toured the University of Minnesota-Morris gasifier and the Chippewa Valley Ethanol Company (CVEC) gasifier facilities. The Board also met on the Morris campus to hear updates from the following NextGen grantees: U of M-Morris (Joel Tallaksen, Mike Reese), CVEC (Andy Zurn), Minnesota Valley Alfalfa Producers (Keith Poier), Central Minnesota Cellulosic Ethanol Partners/SunOpta (Robert Pontius, Murray Burke by telecon).

December 16, 2009: NextGen Energy Grantee Updates, Draft 2010 NextGen Energy Board Legislative Report, IREE and Forest BioEconomy Strategy Map Presentations

Board members heard updates from two NextGen grantees—U of M-Forestry Department (Dennis Becker) and Central Lakes College Ag Center (Robert Schafer, by telecon)—as well as a general status update on other grantees. Board members also discussed the 2010 NextGen Energy Board Annual Legislative Report. Members then heard presentations from Dick Hemmingsen of IREE and Anna Dirkswager of DNR on the Forest BioEconomy Map.

January 8, 2009: NextGen Energy Grant Contract Changes, Draft 2010 NextGen Energy Board Legislative Report, AURI Presentation

Board members discussed potential changes to NextGen Energy grant contracts, and revisited the 2010 draft legislative report. The Board then heard a presentation from Kate Paris of AURI on Roundtable Activities.