

# Agricultural Utilization Research Institute

2008 Legislative Report



# I. Overview

The Agricultural Utilization Research Institute (AURI) is a nonprofit corporation created and funded by the State Legislature to improve the economy of rural Minnesota through the development of new uses and new markets for the states agricultural commodities and related processing coproducts. AURI provides scientific technical assistance, targeted network resources and project management support for the creation of value additions to agricultural products.

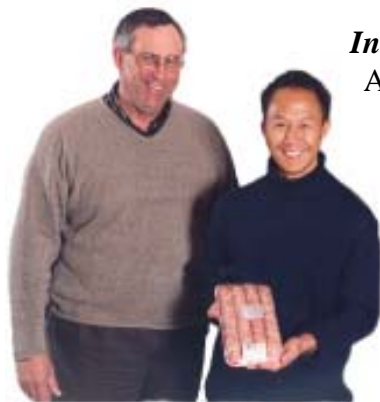


AURI offers unique laboratory and pilot plant facilities and accompanying expertise to provide hands-on assistance to Minnesota businesses and entrepreneurs. These facilities include animal product, microbiology and fats and oils labs in Marshall, a product development kitchen and fermentation facility in Crookston, and a coproduct utilization lab and pilot plant in Waseca. These facilities provide Minnesota businesses and start-ups with access to industry-standard equipment for the testing and development of new ag-based products. In addition to operating facilities, AURI staff has the appropriate expertise to facilitate the development of those value-added products.

AURI has been in operation for 18 years and has developed collaborative relationships with universities, state agencies, economic developers, commodity groups and farm organizations in an effort to provide the best possible network of resources to promote value additions and rural economic development. Many value-added projects and initiatives have been identified and developed as a result of those relationships.

## **A. Operating Environment**

As a nonprofit corporation, AURI provides hands-on assistance to entrepreneurs, existing businesses, cooperatives and start-up companies that seek to add value to Minnesota-grown commodities. This support is frequently offered early in a project's lifecycle and can include evaluation of both technical and market feasibility. These services are provided directly in Greater Minnesota, where they are often the most needed and hardest to find.



### ***Innovation***

AURI focuses on discovering and developing new ways to utilize Minnesota-grown agricultural commodities. As an innovative organization, AURI staff are continually striving to see around corners. Innovative thinking requires staff to consider connections that may not have been made previously. Those partnerships include the development of relationships with federal laboratories, research institutions and state and federal agencies. AURI also looks to entities such as 3M to carry innovation models to all of Minnesota.

Once these relationships are established, AURI works with those partnering organizations to stay abreast of changes and developments in their industries to determine which ones present opportunities to move agricultural products into new innovative markets.

AURI also recognizes innovation each year by presenting the Ag Innovator of the Year Award. This honor is presented to the AURI client that has achieved market success with an innovative product that moves agricultural products into new areas. The 2007 winner was USA Solutions, a St. Joseph company that developed and now markets a biodegradable, corn stalk-based mat used in swine production facilities.

### ***Leadership***

A key activity for AURI during fiscal year 2007 was the creation and facilitation of Minnesota's Renewable Energy Roundtable. This statewide effort brings together representatives of dozens of organizations involved in renewable energy development in Minnesota to create a climate of coordination. More than 60 different organizations have been represented at the quarterly meetings and numerous collaborative relationships have been developed. Participants include university researchers, utility representatives, economic developers, engineers, business owners and more. (See Appendix C for list of participants)



As interest in alternative energy has grown, so too has the number of groups working on developing renewable energy projects. Rather than having dozens of Minnesota organizations working on renewable energy efforts independently, the Roundtable brings together key stakeholders to develop and implement long-term strategic plans for strengthening the renewable energy industry in the state. The Renewable Energy Roundtable was written into statute during the 2007 legislative session as an umbrella group to help coordinate those efforts. This format allows all parties to work smarter, provides a catalyst for action and maximizes resources.

The Roundtable is coordinated by AURI, but includes team leadership from the University of Minnesota, Minnesota State Colleges and Universities system, the Minnesota Department of Agriculture and the Minnesota Department of Commerce. These organizations head up teams that are focused on recognizing impediments to renewable energy and identifying solutions. Participants have identified five primary issues facing renewable energy development in Minnesota. They include:

- Talent development
- Public policy and awareness
- Financing
- Research
- Infrastructure

Roundtable participants have developed teams to research those five issues and to develop action plans for addressing them. This information is shared with the Next Generation Energy Board which was established to provide direction for the state's energy policy. AURI has a seat on that 19-member board.

AURI's leadership and expertise has been recognized by its inclusion on the NextGen Board. In addition, AURI staff has been added to several statewide boards and advisory councils providing direction and insight on agricultural and economic development issues around Minnesota. Those boards and advisory groups include:

- Next Generation Energy Board
- Reinvest in Minnesota-Clean Energy Board
- Minnesota Food Safety Board
- Minnesota Department of Agriculture's Sustainable Ag Grant Review Committee
- Southeastern Minnesota Initiative Foundation's Bioenergy and Biobased Products Loan Review Committee

### ***Collaboration***

AURI places an emphasis on collaboration with other agencies in an effort to have the best resources available to assist projects, to avoid duplication of services and to maximize impact. This association provides for a set of complementary resources that are available to Minnesota businesses. AURI meets annually and systematically with a wide range of stakeholders to assess their priority issues and to look for areas of potential collaboration. These priorities are matched with AURI's mission to determine how resources could best be used to provide the most impact to Minnesota.



### ***Risk Mitigation***

One of AURI's key roles is in the mitigation of risk. Whether it is evaluating the feasibility of a new product or the review of market potential, AURI support is designed to increase the likelihood of success. By recognizing and addressing potential project shortcomings, this assistance helps to strengthen projects in order to make them most technically and commercially viable.

In addition to recognizing pitfalls on the way to commercial availability, evaluation may reveal that moving an idea forward would not be advisable. Whether it is due to technical or market considerations, not all projects or ideas are successful. In some cases, working with clients to recognize that not moving forward is the best option, saving the client from making unwise investments.

## ***Applied Research and Technical Service***

AURI provides a unique mix of services and facilities with laboratories and offices located in Crookston, Marshall and Waseca. These locations allow Minnesota start-ups, cooperatives and existing businesses to have enhanced access to technical service and consultation. During 2007, AURI staff provided nearly 20,000 hours of assistance to projects. This assistance included technical and market feasibility, product development assistance, process refinement, access to laboratory facilities and more.

Services provided by AURI give the state's innovators access to valuable resources designed to assist them in developing new successful products and markets. Additional hours were spent investigating potential business opportunities that did not result in project formation. (Please see Appendix A for a complete list of 2007 funded projects and Appendix B for projects receiving technical, laboratory or business assistance.)



## ***Center for Producer-Owned Energy***



AURI continued to operate the Center for Producer-Owned Energy (CPOE) in 2007 providing assistance to farmer-driven entities intent on utilizing agricultural products and coproducts to produce various forms of ag-based renewable energy. Formed in 2004, the Center has supported 38 projects and initiatives since inception, focusing on biofuels, biomass, biogas, coproduct utilization and biodigestion. Those projects directly impacted more than 8,000 producers across the state.

## ***AURI Initiatives***

Complementing AURI's work with existing or emerging businesses are external initiatives identified by stakeholders and AURI staff. These initiatives further evaluate emerging opportunities that offer the potential to utilize large quantities of agricultural commodities. In these instances, no commercial partner has been identified. This public information is designed to determine if emerging possibilities truly represent viable opportunities. Some of these initiatives were undertaken after having been identified by AURI stakeholders as priority issues. In most cases, the information obtained through these initiatives is public domain, resulting in final reports and informational brochures that are available on the AURI website at [www.auri.org](http://www.auri.org).

Partners such as the Minnesota Corn Growers Association, Minnesota Soybean Grower Association, Minnesota Pork Board, Minnesota Farm Bureau Federation, Minnesota Farmers Union and other groups collaborate with AURI to most efficiently and effectively address the priorities of Minnesota agriculture.

Initiatives undertaken during 2007:

- Nutraceutical and functional food ingredient opportunities for wheat and barley
- Phosphorus and potassium availability from ash
- Evaluation of biomass dryer technologies, costs, & efficiencies

*(continued)*

- Commercial kitchens in Minnesota
- Evaluation of pyrolysis char fertilizer characteristics
- Economic impact of producer or local ownership
- Utilization of waste water for agricultural value added processing
- Economic and technical assessment of syngas production and utilization
- Assessment of the feasibility of utilizing camelina as a feedstock for biodiesel
- Ethnic sausage development
- Next generation technology process identification
- Small volume ethanol plants
- Use of thick stillage in dairy digesters
- How to start a food business in Minnesota
- Ground beef study
- Study of organisms in biodiesel
- Genetic specific crop for value added agriculture
- Potato cull opportunities

Once completed, information on these initiatives is shared with stakeholders and the public through reports and brochures.

### ***Value-Added Projects***

AURI's greatest impact comes from working directly with businesses, entrepreneurs and cooperatives in an effort to move agricultural products into new areas. In 2007, AURI provided direct hands-on assistance to over 160 projects. This assistance ranges from determining market feasibility and assessing business needs, to product development assistance, utilization of laboratory and pilot plant facilities and more. While some projects received funding support, the vast majority received scientific technical assistance in laboratories and pilot plants. This support is provided to strengthen a project's likelihood of success in the marketplace.

### **Project examples include:**

#### *Grass seed screenings to energy*

AURI's Center for Producer-Owned Energy has provided assistance to Northern Excellence Growers, a group of 29 northwestern Minnesota growers who produce a variety of grass seed on 18,000 acres of farmland. Harvesting the seeds results in large supplies of waste seed screenings, chaff and other residue, which requires disposal. The growers evaluated the potential and are now installing a gasification system which will convert the residues to synthesis gas. This syngas will be used to power the seed cleaning operation, displacing natural gas and saving the growers tens of thousands of dollars a year in energy costs.



### *Innovative horse bedding*

Building upon their success with bio-based cat litter, Pet Care Systems of Detroit Lakes has introduced Swheat Stall, a wheat-based horse bedding. Originally developed at AURI's coproduct utilization lab in Waseca, the litter combines aspen with nonfood-grade wheat to produce bedding that is low in dust and significantly reduces ammonia.



### *Ag fiber carrier*

This project focuses on utilizing sunflower hulls as an inert material and carrier in potato seed piece treatment that has scientifically been proven to reduce noxious dust during the application process. Sunflower hulls were sourced and processed in Minnesota generating a definite value-added opportunity for the end product.

### *Dairy compost barn initiative*

This initiative was a collaborative project with Minnesota Milk Producers Associations and the University of Minnesota focusing on the potential to utilize varied agricultural coproducts or fibers as an alternative to wood for compost dairy barn bedding.

Research was conducted to evaluate and compare the performance characteristics of these different materials to wood. The results have had excellent response and acceptance due to the increasing cost of wood shavings for bedding. AURI presented our findings at the International Compost Barn Conference in St. Paul, MN in July.



### *Shelf stable meats*

Enhancing the shelf life of meat products is a benefit to processors by giving them a larger window of opportunity to market those finished items. AURI evaluated various techniques to understand processing difficulties and to provide information to the state's meat industry. Informational materials have been developed and distributed.

### *Colored corn*

This project involves the use of unique corn varieties to produce colorants, antioxidants and nutraceuticals from corn. This company should have colorants in the marketplace before the end of 2008.



### *Straw and bison*

AURI provided technical and lab assistance to Limpert Environmental, which is developing a line of 'Buff Stuff' products utilizing bison manure and crop residues. Their products include hydro seeding mulch, starter fertilizers, erosion control blankets, and soil amendments. Limpert Environmental recently purchased an office and production building in Litchfield, Minnesota and have begun operation. This project is creating jobs and revenue for Greater Minnesota.

### *Coproducts in livestock feed*

Grain prices rose substantially during the 2007 operating year, which is a good thing for producers, but a challenge for livestock farmers. AURI worked on numerous projects evaluating processing coproducts as feed ingredients to offset rising grain costs and to provide new markets for those lower-valued leftovers. This includes the utilization of glycerin and various formulations of distillers dried grains.



## **II. Organizational Priorities**

AURI staff and programs place an emphasis on innovative activities that have the potential to make substantial impact on the utilization of Minnesota commodities. Projects are evaluated to ensure that resources are directed to allow for the maximum benefit to Minnesota agriculture. Further, AURI staff works with other partners to ensure efforts are not duplicated and that the client gets the best service possible.

### **A. Value-added Priorities**

There are many opportunities for value additions to Minnesota agricultural products. However, not all are created equal. With limited human and financial resources, AURI prioritizes efforts to maximize those resources and provide the most valuable services to Minnesota agriculture. Those value-added priorities include:

#### *Energy and Coproduct Utilization*

- Coproducts, Fats & Oils Technical Assistance
- Analytical, Process and Pilot Plant Services
- Project Development Services to Minnesota
- Operation of the Minnesota Center for Producer-Owned Energy



### *Commodity Utilization, Food and Nonfood Uses*

- On-site Technical Assistance in labs located across the state
- Project Development Services

### *Animal Product Processing and Product Development*

- Technical Assistance On-site at USDA certified Meats Lab in Marshall
- Product Development Services in Crookston, Marshall and Waseca

## **B. Targeted Clients and Projects**

AURI exists to provide assistance to Minnesota-based ventures that offer innovative new uses for the farm products grown in the state and for the coproducts generated by agricultural processing. However, priority is placed on projects being developed by producer-owned cooperatives and established agricultural processors. These are not the exclusive focus of AURI activities, but strong consideration is given because they offer some of the greatest potential for producer impact. Given AURI's limited resources, working with projects promising large impact or that bolster existing efforts in the marketplace presents an opportunity for getting the most bang for the buck. AURI continues to assist with start-up and entrepreneurial projects that might be considered smaller scale.

## **III. Administrative Activities**

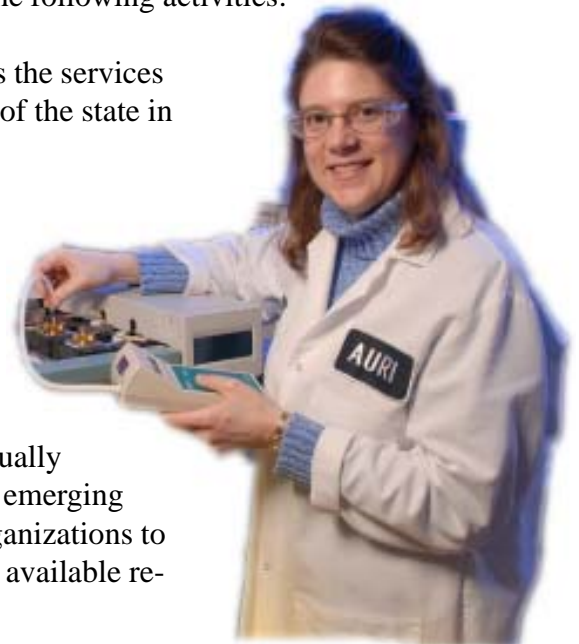
### **Ongoing Objectives of AURI Administration**

AURI operates in an ever-changing environment. To ensure that the right services are being offered and Minnesota's needs are met, AURI undertakes the following activities:

*Capacity Development:* AURI continually evaluates the services that are offered and balances that against the needs of the state in an effort to provide needed assistance without duplicating the efforts of other public institutions.

*Project Management:* AURI strives to maintain a balanced portfolio of projects reflecting both reactive client services and proactive industry-wide initiatives.

*Collaborative Relationships:* AURI staff meets annually with key stakeholders to discuss priority issues and emerging opportunities. AURI also works with partnering organizations to collaborate on projects in an effort to bring the best available resources together on behalf of a project.



*Duplication of Services:* Through the course of stakeholder and collaborator communication, AURI has refined services and expertise to avoid duplicating what is already offered to Minnesota businesses. AURI assistance dovetails with the other services provided in the state to help transition a project from concept to reality in the most efficient manner.

*Organizational Learning:* AURI has a track record of nearly 20 years working with value-added project development in Minnesota. Through that time, characteristics of successful and unsuccessful projects have emerged. AURI uses reviews of all projects to refine programs to avoid mistakes and offer the best service possible.

*Program Evaluation:* AURI programs are designed to foster best practices and optimal decision making for value-added ventures. All programs are evaluated using a program logic model to ensure they are as effective as possible.

*Continual Identification of New Opportunities:* AURI strives to identify new opportunities to be a leader in value-added agriculture. This includes project management and taking a leadership role in opportunity development.

## **IV. Center for Producer-Owned Energy**

AURI was awarded a grant from the USDA for the establishment of an Agricultural Innovation Center in 2004. AURI used the funds to create the Center for Producer-Owned Energy. This \$1 million grant brought a 1:1 match from AURI and other partners to establish farmer-driven projects for creating ag-based renewable energy.

**Focus:** The mission of the Center is to support the creation and development of producer-owned value-added businesses related to the production of renewable energy and the utilization of related coproducts. The emphasis is on programs that generate rural wealth and sustainability.

**Collaboration:** Over 50 different partners have offered support and assistance in the development and implementation of the Center for Producer-Owned Energy. Collaboration is a key component of the development and operation of the Center. Partners include state, federal, public and private organizations.



## V. Summary of Programs

AURI scientists and technologists provide a wide range of expertise, including feasibility evaluation, product development, coproduct utilization, process and product evaluation and product scale-up. In addition, AURI laboratory and pilot plant facilities are equipped to help with a variety of technical issues facing value-added projects. AURI also offers a network of appropriate resources that may be of benefit to value-added projects.

**A. Applied Technology Services (ATS):** The Applied Technology Services program is intended to bring agriculturally-based products or processes to commercialization by using AURI technical personnel, labs and pilot plant services.

*Technical Feasibility:* A project may focus on a new or improved process, technology, or on the development of new value-added food or nonfood agricultural products. The project may include an evaluation of the product's technical soundness or quality.

*Technical Staff:* AURI technologists and scientists provide consulting and technical services related to product and process development, product evaluation and testing, and sourcing of materials and equipment. These services are provided directly, either on-site or in AURI facilities.

*AURI Pilot Plants and Labs:* These unique facilities are available to Minnesota businesses to assist in product and process development, scale-up, nutritional assessment and production for market assessment. Facilities include a fermentation and microbiology lab, food product development kitchen, fats and oils lab, animal product development lab and a coproduct utilization lab.

**B. Product Development Services (PDS):** This program is intended to produce value-added products. The PDS program is focused on developing, in concert with AURI staff, a saleable product, process or production technology to enhance a feasible product.

- AURI personnel, labs and pilot
- Providing entrepreneurial resources to value-added startups
- Providing informational and technical assistance
- Providing high-quality process and product development
- Fostering project development through collaboration

In addition to obtaining cost-sharing for services that AURI cannot provide, clients utilizing this program must be actively involved in a team project with AURI technical and scientific staff. All AURI grants require a 1:1 match contribution by the client or from another funding entity.



**C. Distribution Enhancement Program (DEP):** This program is intended to bring agriculturally-based, value-added products or processes to market at an introductory level. The DEP grant program focuses on enhancing an active AURI project that demonstrates a need for enhancement in the distribution environment.



**D. Green Field Energy Program:** This technical assistance services program is available to agricultural producer groups to evaluate the market and technical feasibility of developing and producing agriculturally-based renewable forms of energy or coproducts. Green Field promotes the establishment of producer-owned energy entities that don't currently exist or were only recently organized. A network of specialized technical assistance providers, working in concert with and coordinated by the Center, provide the core services for this program on a cost-share basis with applicants. All proposed projects must have needs related to market feasibility and business development to be eligible for the program.

Determining feasibility is the ultimate goal in evaluating potential new renewable energy ventures. Renewable energy and coproduct technologies that will be considered for feasibility evaluation and further development under this program may include:

- New technology development;
- Adapting or perfecting existing technology; or
- New value-added energy product development



**E. Renewable Technology Assessment Program (RTAP):** The RTAP program is a technical services program available to existing producer-owned organizations to evaluate the market and technical feasibility of developing or perfecting technologies related to the production of agriculturally-based renewable forms of energy or coproducts. A network of specialized technical assistance providers, working in concert with and coordinated by the Center, provide the core services for this program on a cost-share basis with applicants.

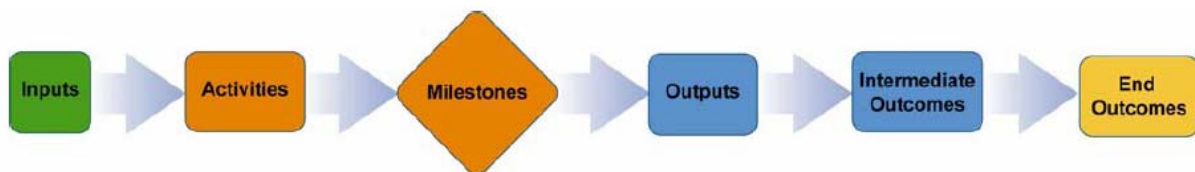
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- New value-added energy product development

## VI. AURI Impacts

AURI projects are undertaken with the intent of developing new value-added opportunities for Minnesota-grown agricultural commodities. The end result of AURI's work is the creation and retention of rural wealth. AURI catalyzes rural and value-added agriculture business development by providing access to expertise, research and development that drives innovation in their business models and technology platforms.

To accomplish its goals, AURI works in partnership with commodity groups, public and private organizations, universities and other entities interested in the economic benefit derived from matching local sources of commodities to local uses. These partnerships maximize impact by enhancing access to resources and expertise to complement those available through AURI. They also produce broad-based support for development of value-added and renewable energy projects in Minnesota and encourage leveraging of additional funds. With its extensive partnering, along with its valuable targeted network coordinated by skilled and knowledgeable staff, AURI is equipped to bring the best resources to the table to ensure success.



**Figure 1: Program Decision-Making Logic Model**

The program decision-making logic model shown in Figure 1 demonstrates that the full impact of AURI's inputs take time to become fully realized. AURI's activities and milestones include coordinating technical and economic feasibility assessments to evaluate the viability of a variety of concepts and opportunities for value-added products and ag-based renewable energy. The success of these programs has generated valuable momentum for AURI to continue its leadership in the facilitation of innovative solutions. New investment in these efforts is critical to maintain and consolidate momentum for the long-term benefit of agriculture and to contribute to the sustainability of rural economies.

As a nonprofit organization working in the early stages of product development, testing and research, not all projects result in saleable products reaching the marketplace. It can sometimes take years from the time a project is originated before it is developed enough to reach marketability. Some never reach that point. Providing critical review of a product, process or market may reveal that a project should not go farther at the current time. Preventing the investment of dollars and time into a project that is not feasible helps retain resources that otherwise may have been lost on an unsuccessful venture.

Whether or not a project moves forward to development or marketability, something is learned in each instance. In an innovative organization that evaluates new and unproven ideas, not everything will be successful. However, valuable information can be gained and applied to future projects. AURI staff provided nearly 20,000 hours of direct assistance to specific projects during the 2007 operational year. Those hours alone don't reflect the impacts that AURI support has created.

## Impact categories

AURI's role in facilitating the long-term economic benefit to Minnesota isn't that of a traditional economic development entity. With focus on facilitating the development of innovative uses of agricultural commodities, AURI helps determine the market and technical feasibility of these innovations. As such, impact is best measured in terms of AURI's ability to catalyze innovation and drive value improvements. AURI does this through two primary measures:

**AURI programs support innovation to an organization's business model.** Companies can innovate by changing what is sold and delivered to the market; how it is created and delivered to the market and to whom it is delivered. These "business levers" reflect project activity related to a product's entry and movement in the marketplace.

In 2007, AURI staff was involved in **34 projects** representing 25% of project assistance time on ventures that provided innovation in the business value proposition by helping business change what is sold and delivered to the market.

In 2007, **16 projects** utilizing 9% of staff project time helped companies improve their supply chain by innovating how their products are created and delivered to the market.

In 2007, 8% of project assistance was delivered to **14 projects** helping those businesses attract new customers.

**AURI programs also promote technology innovation.** Companies can also innovate by changing their product and service offerings, the processing technologies used and focusing on enabling technologies. These "technology levers" reflect innovation in how a product or process is developed.

In 2007, AURI assisted **57 projects**, representing 34% of project time, in innovation to products or services. This assistance involves new product development or product refinement.

In 2007, 12% of project assistance was delivered to **23 projects** showing innovation in process technology by providing improvements to how a product is produced.

In 2007, AURI staff assisted **23 projects**, representing 12% of project assistance time to ventures that focused on innovation in enabling technology.

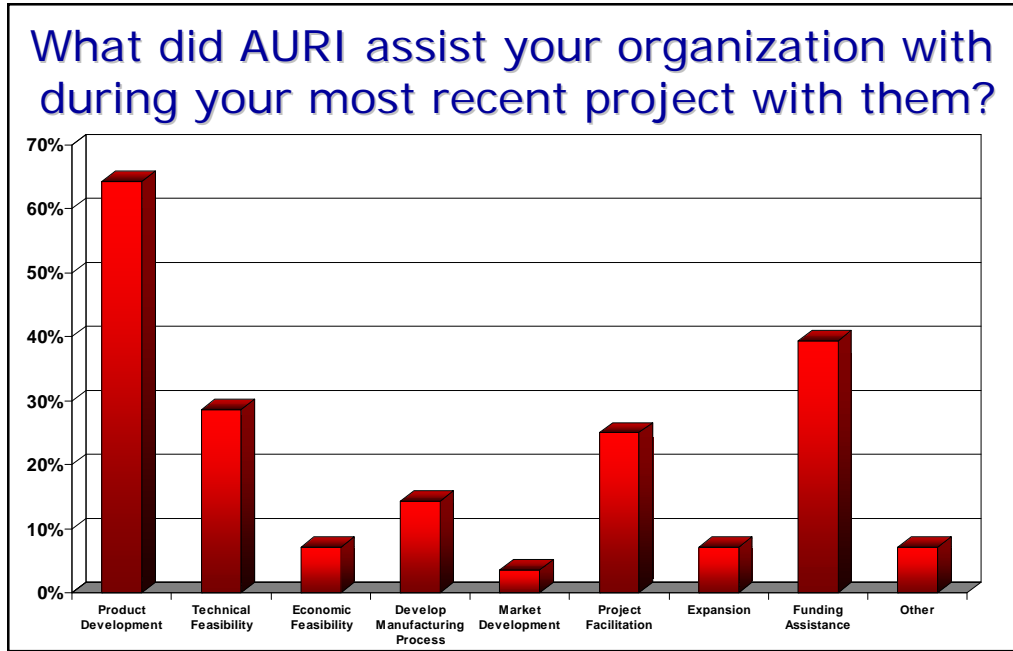
## Discovery

AURI staff log thousands of hours each year in early stage project evaluation, knowledge transfer, referrals, consultation and evaluation that never result in the formation of an actual project. However, this activity still provides value to the business or entrepreneur that receives the support. This activity is captured under a category called "Discovery" and reflects support that is given generally requiring less than 5 hours of staff time.

Through the Discovery process, potential ventures are evaluated for mission fit, impact and initial feasibility. In some cases, determination is made that projects are not feasible, do not fit AURI's mission or would best be handled by other organizations. Some inquiries can be handled by providing information that has already been discovered through previous projects and initiatives. In all cases, value has been delivered, but did not warrant the formation of an actual project.

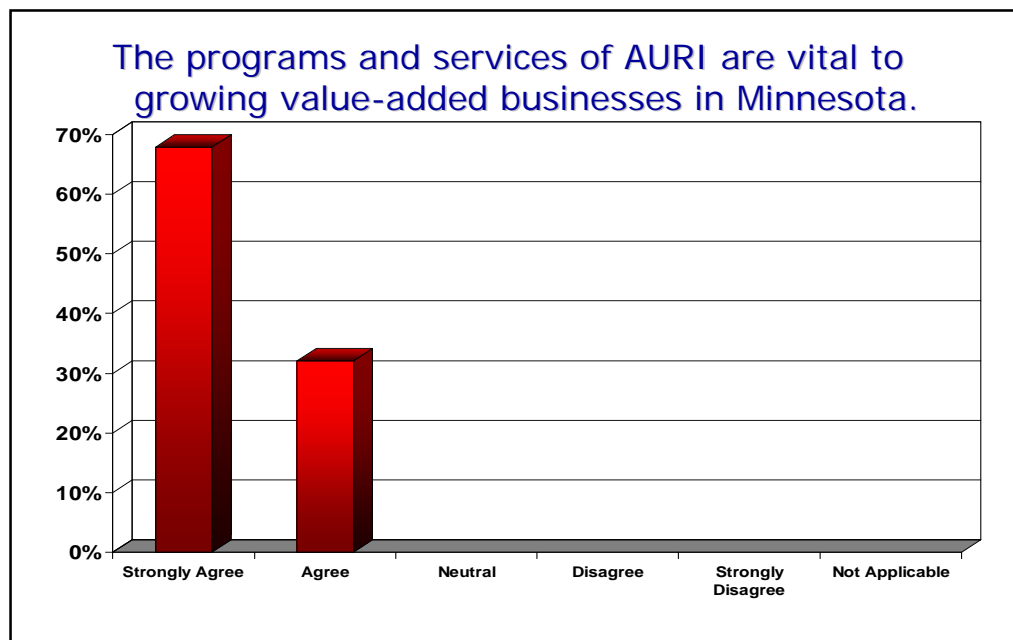
## Client satisfaction

AURI annually enlists the help of a neutral party to survey the businesses and entrepreneurs that have received assistance during the past year. This survey is reviewed to determine areas of improvement or the possible identification of new services that could be offered. Following are some results of that survey from customers receiving help during 2007.



### Types of Assistance

The majority of the assistance provided by AURI came in the form of product development help, followed by technical and economic feasibility. Process development, project facilitation and funding assistance were also seen as valuable kinds of assistance provided to Minnesota value-added ventures.

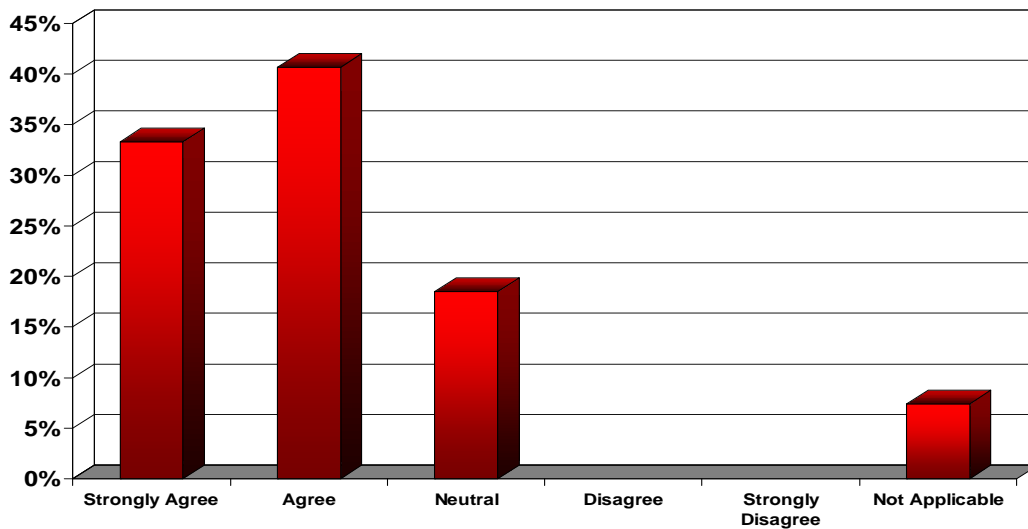


### Program value

Clients rated the programs and services offered by AURI very highly. AURI provides a unique blend of business assistance, scientific technical assistance and feasibility assessment combined with unique laboratory and pilot plant facilities operated by professionals with experience in the

industry. AURI clients recognize the value that these services provide to value-added ventures in Minnesota.

## Because of your work with AURI, your business is more successful.

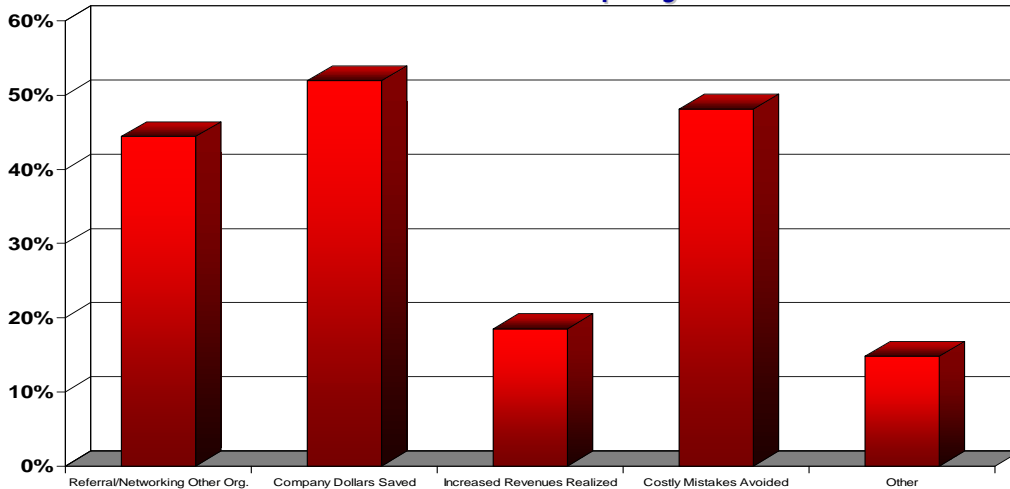


### Increased success

The intent of AURI's programs and services revolves around the increased likelihood of developing a successful project that reaches the market and makes an impact. Based upon feedback from AURI customers, these goals are being met. Clients reported that

AURI support was important to the increased success of their business. Whether the assistance was scientific technical support or a business needs assessment, most businesses that worked with AURI found their business strengthened as a result.

## What benefits did you receive from your latest AURI-assisted project?



### Benefits

In some instances, AURI support led to the development of new products, formulations or the identification of possible new markets. This assistance helped Minnesota businesses to generate new revenue. In other cases, the greatest value AURI provided came in the form of dollars

saved by avoiding pitfalls that could have resulted in lost investments. Sometimes AURI-supported projects revealed that projects weren't feasible, meaning costly mistakes were avoided. As AURI has learned, not every innovative idea is a winner and sometimes putting the brakes on a project is best.



## Impacts of the Minnesota Renewable Energy Roundtable - Action Now! Initiative

Perhaps one of the greatest initiatives for AURI this year was the advancement of the Minnesota Renewable Energy Roundtable, an extensive collaboration between the Minnesota Department of Agriculture, Minnesota Department of Commerce, Minnesota State Colleges and Universities, University of Minnesota and AURI. The Roundtable provides access to the latest expertise and knowledge regarding renewable energy possibilities across the state. The mission of the Renewable Energy Roundtable is to catalyze Minnesota's leadership in renewable energy knowledge, application and utilization.

During the early quarterly sessions of the Roundtable, focus was on generating ideas and opportunities that could best benefit Minnesota and insure the building of a vast network of experience and expertise. With the number of participants growing, the current focus is bringing these ideas to fruition by taking Action Now!

Participants identified benefits to the State of Minnesota that include:

- Rural wealth creation and retention
- Energy independence and advancement of policy goals and objectives
- Recognition as a national leader in renewable energy advancement
- Adding value to Minnesota grown commodities
- Talent attraction and retention
- Enhanced understanding of the complexity of the system that must be created to meet goals and objectives
- Coordination of a social network of expertise in renewable energy across the State (see Appendix C)
- Generation of over 1200 ideas that can be advanced through the State
- Commitment by the State's five foremost organizations in renewable energy to collectively develop a strategic vision that assures Minnesota's continued leadership role in renewable energy



## Implementation Process

The Renewable Energy Roundtable is fortunate to have 3M, one of the global leaders in innovation, assisting in the design of the strategic vision and implementation process. The five Roundtable teams coordinate activities around a central innovation theme that includes:

- Creating a vision
- Fostering foresight
- Developing stretch goals
- Empowering for action
- Communicating across the network
- Rewarding and recognizing participants and their contributions

## Stretch Goals for 2015 identified by the Leadership Team

By using the innovation model, stretch goals for the Roundtable have been identified that include:

- Minnesota will be an exporter of power, technology and education
- Minnesota will have an integrated system of networking, science, technology and policy
- Minnesota will be a recognized global leader in renewable energy advancement
- The Minnesota Renewable Energy Roundtable will be recognized as a credible resource for expertise needed on a state, national and global level.



## Appendix A

### Agricultural Utilization Research Institute Projects Funded During State Fiscal Year 2007

<b>Project Title</b>	<b>Funding</b>
Kim Vig Marketing	\$ 4,029.78
Amino Acid Profile	\$ 337.31
Biodiesel Training Session	\$ 1,075.00
Biobased Stakeholder Workshop	\$ 2,797.75
Shelf Stable Meat	\$ 498.68
Meat Processing Short Course	\$ 4,026.03
Value Added Forums	\$ 917.47
Fuels Initiative II	\$ 556.77
Renewable Energy Forums	\$ 1,355.70
Soybean Part Fulfillment	\$ 2,687.59
Co-Generation Demonstration Project	\$ 9,979.75
Southwest Marketing Advisory Center	\$ 17,500.00
NW Minnesota Outreach Meetings	\$ 652.48
Ag Fiber Carriers	\$ 4,684.80
Chippewa Valley Ethanol	\$ 55,193.43
Ottertail Ag. Digester	\$ 12,277.49
Corn Utilization Research Project	\$ 8,849.13
AURI Meat Lab Services	\$ 1,707.00
Offal Capabilities	\$ 5,808.15
Soybean Processing and Biodiesel Assessment	\$ 12,500.00
Corn Burner	\$ 9,362.10
Distillers Dried Grains Utilization	\$ 30,950.00
Isolation of Microbial Contaminants	\$ 3,148.81
Compost Barn	\$ 39,964.25
Syrup Derived/Ethanol	\$ 3,200.00
Economics of Pellet Production	\$ 2,500.00
Soybean By-Pass Protein	\$ 6,666.66
Biomass Pellet Feasibility Assessment	\$ 19,000.00
Local Foods Marketing	\$ 1,550.09
Agassiz Energy	\$ 10,000.00
Ethanol Production Using Corn Stover	\$ 5,605.42
Assm. - Utilizing Beet Sugar In Ethanol	\$ 51,395.00
Ottertail Ag. Enterprises, LLC	\$ 11,400.00
Small Dairy Methane Digester	\$ 21,016.52
Biodiesel ATV	\$ 60,000.00
Biodiesel in Mississippi Towboats	\$ 9,053.75
Central Minnesota Ethanol Coop	\$ 40,000.00
Community Wind Handbook	\$ 70,000.00
Pulp Gasification	\$ 80,000.00
Co-Product Development of Biodiesel Production	\$ 13,726.40
Combustion of Glycerin	\$ 36,793.03
Assessment of Util Low Oil DDGS	\$ 2,394.92
Ottertail Ag. Phase II	\$ 26,000.00
Biofuels Industry Needs Assessment	\$ 6,250.00
Renewable Energy Roundtable Facilitation	\$ 5,000.00
Sustainable Switchgrass	\$ 1,500.00
Genetics/Blotch Resistance	\$ 3,694.91
Reduce Pesticide Use/Greenhouse	\$ 333.13
Using Wild Oat Growth for a Model	\$ 12,700.00
Scab and Wild Oat Control	\$ 40,000.00
Breeding for Septoria Speckled Leaf Blotch	\$ 27,508.52
Environmentally Friendly Co-Generation Utilizing Renewable Energy	\$ 198,995.27
Evaluate Oils as Fuels for Turbines	\$ 4,906.09
<b>Total Funded Projects - FY 2007</b>	<b>\$ 1,002,049.18</b>

## Appendix B

### Agricultural Utilization Research Institute Project Technical Assistance State Fiscal Year 2007

Project Number	Project Title	Hours Expended
2001056T	Treating High Strength Wastes & DAF Sludge	7.00
2001065T	Kim Vig Inc. Market Development	11.00
2001094T	Pastures Pork	5.50
2002108T	Value Added IP Application	10.00
2003036T	Lamb shop Gyros, Luncheon Meats & Sausages	38.25
2003042T	Evaluation of Oils as Fuels for Turbines	9.50
2003053T	Production of Tamales	12.20
2003076T	Gluten Free Products	30.50
2003095T	Ag. Fiber Carriers	47.00
2004023T	J & B Group Value-Added Beef Cuts	5.00
2004048T	Corn Utilization Research & Development	15.00
2004053T	Feasibility of an Optimally Sized Biodiesel Production Facility in NW MN	12.00
2004064T	Berkshire Marketing	126.50
2005002T	Brochures/Informational Report	9.25
2005003T	Biobased Products in Minnesota and Means to Obtain Procurement by State and Federal Governments	235.50
2005013T	Bio Fuel Development	84.00
2005026T	Gluten-Free Food	9.00
2005034T	Quality Assurance Establishment for Biodiesel Lab	20.50
2005040T	Circle Pines Sausage	163.25
2005047T	Horse Bedding	64.00
2005064T	Straw Opportunities	5.50
2005067T	Lakeview Greenhouses	5.30
2005068T	Ethnic dishes	126.80
2005073T	GreenRange Energy	42.00
2005074T	Development of Products with Enhanced Functionality	13.75
2005077T	Extruded Meal to Biodiesel Production	5.50
2005078T	Compost Barn	39.75
2005080T	Peak Power Cost Containment Utilizing Biodiesel Study	74.00
2006002T	Offal Capabilities and Utilization: Small Meat Processor Survey	14.00
2006003T	AURI Meat Lab Activities & Services for FY 2006	83.50
2006004T	Local Foods Initiative	141.00
2006005T	Amino Acid Profile and Potential for Agricultural Co-Products	60.50
2006006T	Value Added AG Impact Study	29.00
2006007T	Ag Application of Syrup Derived from the Ethanol Industry	17.00
2006018T	Soybean Straw Evaluation	6.50
2006020T	Liquefaction of Agricultural Fibers	34.00
2006021T	COUNTRY MIX	19.00
2006025T	Agronomic Opportunities	34.50
2006026T	Steak evaluation	18.00
2006028T	Biomass Test Burn (DDGS)	6.50
2006029T	Corn Burner	72.50
2006030T	Characteristic Evaluation of Cuphea Oil and Cuphea Biodiesel	15.50
2006031T	Sausage Recipes	120.25
2006033T	Bird Feed	29.00
2006034T	Swine Bio-Filter Evaluation	9.50

Project Number	Project Title	Hours Expended
2006041T	Specialty Feed Development	21.00
2006042T	Chippewa Valley Ethanol Company - Integrated Bio-Energy System	36.00
2006044T	Healthy Donuts & baked products	122.75
2006045T	Shelf Stable Meats	55.25
2006047T	Biodiesel Produced from Pork Fat	8.50
2006049T	Distillers Dried Grains Utilization	379.50
2006050T	Isolation of Microbial Contaminants in Blended Fuel Systems	101.00
2006051T	Shelf Stable Testing	32.00
2006052T	Nutritional Labeling	34.50
2006054T	Sunrise Agra Fuel	274.50
2006055T	Biomass Fuel Evaluation	28.00
2006056T	Shelf Life Study	7.00
2006057T	NW MN Outreach Mtgs.	21.00
2006058T	Goat Cheese Packaging	10.00
2006059T	Strawboard Waste Utilization	30.50
2006060T	Hot Dog Recipe	76.60
2006061T	Biodiesel Training Session July 2006	45.00
2006062T	Soybean Processing & BioDiesel Feasibility Assessment	31.00
2006063T	Biobased Stakeholders Work	6.00
2006064T	Co-Prod-Biomass Log Formation	6.50
2006065T	Jerky Testing	36.75
2006066T	AURI-Cattlemen's Tour	39.00
2006067T	Jerky testing and Nutritional labeling	44.50
2006068T	Meat Processing Class	9.00
2006069T	Kabobs Development	250.60
2006071T	Fiber Sampling	19.50
2006073T	Inver Grove Heights Biodiesel Plant	27.00
2006074T	Biofuels Industry Needs Assessment	65.50
2006075T	Hallock Biodiesel Business Plan	16.00
2006076T	Corn Utilization Research & Development-Phase 2	121.00
2006077T	Soups and Sauces	7.75
2006079T	Glycerin Performance on Pelleting	111.75
2006080T	Application for Crude Glycerin as a Dust Suppressant	47.25
2006082T	Assessment of Utilizing Low Oil DDGS	36.00
2006083T	Gillie Bird Seed	5.00
2006084T	Sharon's Heavenly Truffles and Candies	6.25
2006085T	Hydro Seeding Compost	159.00
2006086T	Batch Processing Template	47.00
2006089T	Tangy Summer Sausage	60.00
2006090T	Adding Value to popcorn and beans	12.00
2006091T	Assessment of Soy Flour Market	10.00
2006GRANT	Preparing Grant writing Proposal	112.75
2006T	Discovery 2006	1821.10
2007001T	Economics of Pellet Production	9.50
2007002T	Shelf Stable MEAT	276.50
2007003T	Meat Process Short Course	332.50
2007004T	Malic Acids	21.00
2007006T	Fuels Initiative II	13.00
2007007T	Suspension of Anti-gelling Agents in Biodiesel	18.50
2007008T	Renewable Energy Forums	116.75
2007009T	Ag Biomass Harvesting Guide	31.75

<b>Project Number</b>	<b>Project Title</b>	<b>Hours Expended</b>
2007010T	MN Business ID and Needs Assessment	23.00
2007011T	Canola Seeds, Oil & Meal Characteristics	129.00
2007015T	Assesment of the Opportunities for Soybean By-Pass Protein	87.00
2007017T	Near Infrared Spectroscopy Initiative	42.00
2007022T	Assessment of Sterol Glucosides in Soybean Oil Processing	8.00
2007023T	Applications of Soybean Meal (SBM) & Its Components	14.00
2007025T	Auri Meat Lab Activities and Services - FY07	14.00
2007026T	Biodiesel Quality Assistance	340.50
2007027T	Gas Free Soybeans	34.50
2007028T	Nutritional Analysis	40.00
2007029T	Ag. Based Binders	11.50
2007030T	Densification/Briquette of Ag Biomass	149.00
2007031T	Energy Values & Opportunities for Alternative Crops	31.25
2007032T	Green Inst/Rock-Tenn	35.50
2007033T	Crude Glycerin in Turkey Diets Evaluation	36.00
2007034T	Participation of ASTM Biodiesel Testing	71.25
2007035T	High Oil Corn	13.50
2007036T	Cold Temperature Performance & Evaluation of Biodiesel and B2	22.50
2007037T	Snack Dip	10.00
2007038T	Blended Bio Fuel	80.75
2007039T	Biomass Pelleting Feasibility Assessment	61.00
2007040T	Benefits of Co-Extrusion of DDGS and Soybeans	7.00
2007041T	Fat & Glycerin Analysis of B100 Samples	27.00
2007042T	Renewable Energy Cooperative Model Development	15.00
2007043T	Nutritional Labels of fruit's Jams, Jellies, Syrups and other dessert items	10.50
2007044T	Ottertail Ag Digester	73.00
2007045T	NW MN Gasification	50.50
2007046T	Gibbs Wild Rice	38.00
2007048T	Process Development	23.00
2007049T	Organic Meats	90.50
2007050T	Local Foods Marketing Development	59.00
2007051T	DDG's/particle board	14.00
2007052T	Sustainable Switchgrass Project Initiative	42.50
2007053T	Suet Pellet Formation	20.00
2007054T	Bio-Based Polymer Anti-Graffiti Coating	35.00
2007055T	Sweet Corn Silage Evaluation	10.00
2007056T	Alternative Crop Processing for Swine Diets	41.00
2007057T	Gourmet BBQ Sauce	7.50
2007058T	Biomass/DDG's Fuel Evaluation	48.00
2007060T	Frying Pan Bread Mixes - Troubleshooting	19.00
2007061T	MAMP-Presentation	42.00
2007062T	Hydrosun Hydroponics	18.00
2007063T	Corn Syrup Shelf Life Study	8.00
2007064T	Biosurfactant Study of Pseudozyma prolificata on Biodiesel	55.00
2007065T	Salmon Cheese Spread	29.50
2007068T	Allergen Free Sausage	15.00
2007069T	Evaluate Pellet Binder Performance	170.00
2007070T	Molasses Based Fertilizer	23.00
2007071T	Principles of Meat Identification	79.50
2007072T	Partial Fulfillment of Sub-contract/U of M for RDF 29	242.00
2007073T	Prairie Grass Densification	35.50
2007074T	Biomass Fuel/Evaluation	35.25
2007075T	Clearbrook Oilseed	25.00

Project Number	Project Title	Hours Expended
2007076T	Soybean Expeller Processing Quality Assurance	13.50
2007077T	Corn Drying Utilizing Biomass	5.00
2007080T	Value-added products of Maple Syrup	14.00
2007082T	Warroad Co-Generation	16.00
2007083T	Frozen Pancake Batter	6.00
2007085T	Improvements in Pelleting Efficiency	45.25
2007088T	Biodiesel Technical Assistance/Training	21.00
2007STAKE	Targeted Network Collaboration	32.00
2007T	Discovery 2007	5702.50
AIC007T	Biomass Derived Fuels for Turbo Generators	80.00
AIC008TD	Grass Screenings Gasification	37.00
AIC009T	Economic and Technical Assessment of Utilizing Excess Beet in Ethanol Production	111.50
AIC013T	Small Dairy Methane Digester	11.25
AIC014TD	Biodiesel ATV	26.00
AIC015T	Global Agricultural Biomass Study	5.50
AIC016T	Biodiesel in Mississippi River Towboats Technical and Feasibility Study	56.75
AIC018TD	Central MN Ethanol Coop	14.00
AIC020T	Community Wind Handbook	135.50
AIC022T	Natural Gas Replacement Utilizing Soybean Biomass Materials	6.50
AIC023T	Renewable Fuels Expertise Dissemination	97.75
AIC024T	Biodiesel Coproduct Development	250.25
AIC025T	Combustion of Glycerin Stack Emissions Evaluation	286.50
AIC026T	Utilizing Low Oil DDGs	55.50
AIC027T	Otter Tail Ag Phase II	24.50
AIC028T	NW MN Gasification	21.50
AIC029T	Biofuels Industry Needs Assessment	38.50
AIC031TD	Densification Assessment	41.00
AIC032T	PORK-Utilization of Renewable Energy Co-Products	24.50
AIC034T	Stevens County Gasification	16.00
AICFEDTIME	Center for Producer-Owned Energy - Direct	332.25
AICTIME	Center for Producer-Owned Energy - In-Kind	2247.25
PRO2006T	Pesticide Reduction Options	17.50
XCELTIME	Environmentally Friendly Co-Generation' Utilizing Renewable Energy - Direct Time	257.80

**Total Direct Project Hours:**

**19,861.15**

**APPENDIX C: Participants in the MN Renewable Energy Roundtable Meetings Sept. 2006 – Nov. 2007**

<b>Company</b>	<b>First Name</b>	<b>Last Name</b>	<b>Title</b>
3M	Alex	Cirillo, Ph.D.	Vice President, 3M Community Affairs and 3M Foundation
6Solutions, LLC	Cecil	Massie	Vice President of Technology
6Solutions, LLC	Derek	Miller	President
Agri News	Carol	Stender	Agri News
AgriBank	Roger	Chamberlain	AURI Board of Directors
Agribusiness	Ed	Ellison	AURI Board of Directors
American Ag Industries	Chuck	Westin	Consultant
American Crystal Sugar Company	David	Malmskog	Director, Business Development
Asclepian Arts Alliance	Gregory	Stavrou	Executive Director
AURI	Maureen	Aubol	Executive Assistant
AURI	Alan	Doering	Associate Scientist – Co-products
AURI	Lisa	Gjersvik	Resource Development Manager
AURI	Wayne	Hansen	Project Development Director
AURI	Dan	Lemke	Director of Communications
AURI	Max	Norris	Director of Projects & Technology
AURI	Rose	Patzer	Associate Scientist/Chemical Technologies and Processing
AURI	Becky	Philipp	Executive Coordinator/Human Resources - IT Manager
AURI	Douglas	Root, Ph.D.	Senior Scientist of Biomass & Renewable Products Technologies
AURI	Teresa	Spaeth	Executive Director
AURI	Michael	Sparby	Project Development Director
AURI	Dennis	Timmerman	Project Development Director
AURI	Mary	Voecks	Financial Officer
AURI	Edward	Wene, Ph.D.	Scientist, Microbiology and Industrial Ag Products
AURI	Valerie	Gravseth	Resource Coordinator
Authentic Leadership Action, Inc.	Mo	Fahnestock, Ph.D.	President
Bemidji State University	Joann	Fredrickson, Ph.D.	Provost & Vice President, Acad. & Student Affairs
Bemidji State University	Carol	Nielsen	Professor of Business Administration
Bemidji State University	Jon	Quistgaard, Ph.D	President, Bemidji State University
Bemidji State University	Fu-Hsian	Chang, Ph.D.	Director & Professor, Center for Environment, Earth & Space Studies
Bemidji State University	Elaine	Hoffman, Ph.D.	Assoc. Professor of Industrial Technology
Bemidji State University	Karen	White	Executive Director, Center for Excellence
BemidjiBio/BSU/Joint Economic Dev.	Jim	Bensen, E.D.	President Emeritus, BSU
Benton County Economic Development	Nancy	Hoffman	Benton County Economic Dev. Director
BioSciences & Emerging Tech Committee	Joanna	Dornfelld	Committee Administrator / Rep. Mahoney
Bison Renewable	Bill	Bond	Executive Director
Blandin Foundation	Wade	Fauth	Director of Grants
Bois Forte Development Corporation	Andrew	Datko	CEO
Bois Forte Development Corporation	Corey	Strong	Commissioner of Natural Resources
BP	Scott	Johnson	Business Dynamics



Capitol City Bioscience Corporation	Vincent	Ruane	Board Member
Cargill	Wayne	Pletcher	
Cargill	Carol	Pletcher	Chief Innovation Officer
Cargill Biotechnology Development Center	MaryJo	Zidwick, Ph.D.	Research Fellow
Center for Energy and Environment	Keith	Butcher	Manager of External Affairs
Central Lakes College	Lynn	Broderson	
Central MN Ethanol Coop	Steve	Anderson	President of the Board
Chisago County Board	Lynn	Schultz	Chisago County Commissioner
Clean Energy Resource Teams (CERTs)	Melissa	Pawlich	CERTs Coordinator
College of Food, Ag & Nat. Resource Sci	Martin	Moen	Ass't Director of Communications
Commission	Larry	Young	Executive Director, JEDC
Community Development of Morrison County	Carol	Anderson	
Congressman Collin Peterson's Office	Toni	Merdan	Sr. Economic Development Officer
Congressman Collin Peterson's Office	Wally	Sparby	Ag Specialist
CREED	Roger	Aiken	Lead Instructor
Department of Employment & Econ. Dev. (DEED)	Joan	Danielson	Regional Administrator
Department of Employment & Econ. Dev. (DEED)	Dentley	Haugesag	Business Representative
Department of Employment & Econ. Dev. (DEED)	Kari	Howe	DEED Business Service Specialist
Department of Employment & Econ. Dev. (DEED)	Steve	Larson	Regional Administrator
Department of Employment & Econ. Dev. (DEED)	Kevin	McKinnon	Biosciences/Medical Device Specialist
Department of Natural Resources	Keith	Jacobson, Ph.D.	Utilization and Management Forest Products
Dept of Employment and Economic Dev.	Carol	Dombek	
Duluth Seaway Port Authority	Ron	Johnson	Trade Development Director
Eagle Bio-fuels, LLC	Sue	Kruger	Office Manager
Farm Credit Services	Barry	Medd	Vice President, Agribusiness Finance
Fergus Falls Economic Improvement Commission	Harold	Stanislawski, M.S.	Executive Director
Free Source Energy	Bill	Zaske	
Great Plains Institute	Rolf	Nordstrom	Director
Great River Energy	Wayne	Hanson	
HST	Gordy	Meyers	
HST	Jacque	Bieber, Ph.D.	
Hubert H. Humphrey State & Local Policy Program	Burke	Murphy	Economic Development Education Specialist
Hunt Utilities Group, LLC	Robert	McLean	Chief Operating Officer
Hunt Utilities Group, LLC	Lynn	Hunt	
Initiative Foundation	Don	Hickman	Program Manager for Planning & Preservation
Initiative Foundation	Ashley	Vargo	Business Finance Officer
Iron Range Resources	Georgie	Hilker	Assistant to the Commissioner
Itasca Technology Exchange, Inc.	Kirk	Bustrom	Director
LifeScience Alley	Don	Gerhardt	CEO
McKnight Foundation	Louis	Hohlfeld	Senior Program Officer
Midwest Ag Energy Network	Jocie	Iszler	Ag Energy Policy Specialist & Director
Minnesota House of Representatives	John	Ward	

Minnesota Barley Growers Assoc.	Marv	Zutz	Executive Director
Minnesota Corn Growers Association	John	Mages	Director
Minnesota Crop Production Retailers	Bill	Bond	Executive Director
Minnesota Department of Agriculture	Jim	Boerboom	Assistant Commissioner
Minnesota Department of Agriculture	Ralph	Groschen	Senior Marketing Specialist
Minnesota Department of Commerce	Mike	Bull	Asst. Commissioner, Renewable Energy
Minnesota Department of Commerce	Edward	Garvey	Deputy Commissioner
Minnesota Farmers Union	Julie	Bleyhl	AURI Board of Directors
Minnesota House of Representatives	Katherine	Beyer	Committee Administrator
Minnesota House of Representatives	Joanna	Dornfeld	Committee Administrator, Rep. Tim Mahoney's Office BioSciences & Emerging Technology Committee
Minnesota House of Representatives	Al	Doty	Minnesota Representative
Minnesota House of Representatives	Representative Bill	Hilty	Minnesota Representative
Minnesota House of Representatives	Magnus	Representative Doug	Minnesota Representative
Minnesota House of Representatives	Dana	Wilson	Committee Legislative Assistant Agricultural, Rural Economics and Veterans Affairs Finance
Minnesota House of Representatives	Brita	Sailer	District 2B
Minnesota House of Representatives	Laura	Sayles	Research Consultant
Minnesota House of Representatives	Ron	Shimanski	District 18A
Minnesota House of Representatives	Greg	Davids	AURI Board of Directors
Minnesota House of Representatives	Al	Juhnke	AURI Board of Directors
Minnesota House of Representatives	Mary Ellen	Otremba	Minnesota Representative
Minnesota Pollution Control Agency	Heather	Magee-Hill	Air Policy Engineer
Minnesota Senate	Tim	Michaels	Committee Administrator, Senator Jim Vickerman's Office
Minnesota Senate	Dan	Skokan	Minnesota Senator
Minnesota Senate	Jim	Vickerman	AURI Board of Directors
Minnesota Small Business Development Center	Michael	Myhre	State Director
Minnesota State Colleges & Universities	Gail	O'Kane	Education Industry Partnership Manager
Minnesota State Colleges & Universities	Leo	Christenson	System Director for Planning
Minnesota State Senate	Dan	Skogen	MN State Senator
Minnesota State University Mankato	John	Frey	Dean, College of Science, Engineering, and Technology
Minnesota State University Mankato	Bruce	Jones, Ph.D.	Professor of Automotive Engineering Technology
Minnesota State University Mankato	Gregg	Marg, Ph.D.	Chairperson of Biology
Minnesota State University Mankato	Kuma	Takamura, Ph.D.	Executive Director, Center for Engineering & Manuf. Excellence
Minnesota State University Mankato	Vince	Winstead, Ph.D.	Professor of Electrical Engineering
Minnesota State University Moorhead	Karen	Branden, Ph.D.	Sociology Department
Minnesota State University Moorhead	Dennis	Jacobs	Professor
Minnesota State University, Mankato	Jim	Rife	Associate Professor
Minnesota Technology, Inc.	Sam	Gould	Product Development Consultant
MinWind	Mark	Willers	President
MN Corn Growers Association	Rodney	Moe	Board of Directors
MN Corn Growers Association	Richard	Peterson	AURI Board of Directors

MN Corn Growers Association	Bruce	Stockman	Executive Director
MN Corn Research and Promotion Council	Duane	Adams	Board Member
MN Corn Research and Promotion Council	Jerry	Larson	Vice Chair
MN Corn Research and Promotion Council	Jerry	Demmer	Chair
MN Corn Research and Promotion Council	Gene	Fynboh	Vice Chairman
MN Corn Research and Promotion Council	Riley	Maanum	Research Assistant
MN Department of Agriculture	Quinn	Cheney	Director of Policy Development
MN Farm Bureau Federation	Al	Christopherson	Chair, AURI Board of Directors
MN Forest Resources Council	Hibbard	Calder	Policy Analyst
MN Milk Producers Association	Dennis	Haubenschild	
MN Pork Producers	Richard	Schieck	AURI Board of Directors
MN Soybean Growers Association	Jerry	Schoenfeld	MSGA Lobbyist
MN Soybean Growers Association	Jim	Willers	AURI Board of Directors
MN Soybean Growers Association	Bob	Worth	President, Board of Directors
MN Soybean Growers Association	Mike	Youngerberg	Field Services Director
MN Soybean Growers Association	Sherry	Lowe	Director of Communications
MN Soybean Growers Association	Gene	Stoel	
MN Soybean Research & Promotion Council	Scott	Singlestad	Director
MN State Community & Technical College	Cris	Valdez, Ph.D.	Provost
MN State Community and Tech Colleges	Joel	Hegarty	Instructor
MN Technology Inc.	Samuel	Gould	Product Development Consultant
MN West Community & Technical College	Dennis	Hampel	Dean of Career & Technical Programs
MN Wheat Research & Promotion Council	Jerry	Kruger	AURI Board of Directors
NanoVeritas Group	Jack	Uldrich	President
Natural Resources Research Institute (NRRI)	Bill	Berguson	Director of Forestry Program
Natural Resources Research Institute (NRRI)	Don	Fosnacht, Ph.D.	Director, Center for Applied Research & Technology Development
Northwest Technical College	Charles	Giammona, Ph.D.	Provost
Red Dragon Solutions	Mark	Boardman	President/CEO
Region V Development Commission	Cheryl	Hills	Executive Director
Residential Wind Power, Inc.	Daniel	Mattfeld	General Manager
Russell & Herder Advertising & Public Relations	Yuliya	Horbach	Brand Coordinator
Russell & Herder Advertising & Public Relations	Carol	Russell	Agency Principal & Strategic Planner
Sandia National Laboratories	Grant	Heffelfinger, Ph.D.	Senior Manager, Biofuels Program Lead
Sandia National Laboratories	Len	Malczynski	Principal Member of Technical Staff
Sandia National Laboratories	Howard	Passell	Senior Member of Technical Staff
SC Workforce Council	Diane	Halvorson	Executive Director
Senator Amy Kobuchar's Office	Andy	Martin	NW Minnesota Director
Senator Jim Vickerman's Office	Tim	Michaels	Committee Administrator

Southwest Initiative Foundation	Cheryl	Glaeser	Program Specialist
Southwest Initiative Foundation	David	Paskach	Vice President
Southwest Minnesota State University	Gerald	Toland, Ph.D.	Interim Dean of Distance Learning
Southwest Minnesota State University	Tim	Alcorn	Executive Director of MARL Program
Southwest Minnesota State University	Vaughn	Gehle, Ph.D.	Professor of Biology
Southwest Minnesota State University	Tony	Greenfield, Ph.D.	Professor of Biology
Southwest Minnesota State University	Raymond	Lou, Ph.D.	Provost, Administration
Southwest Minnesota State University	Raphael	Onyeaghala, Ph.D.	Professor of Business
Southwest Minnesota State University	Beth	Weatherby, Ph.D.	Dean, College of Arts, Letters, and Sciences
St. Cloud State University	Bruce	Jacobson, Ph.D.	Director of BioBusiness Outreach
The BioBusiness Alliance of MN	Amy	Johnson	Senior Project Manager
The BioBusiness Alliance of MN	Jeremy	Lenz	Project Executive
The BioBusiness Alliance of MN	Dale	Wahlstrom	Chair
The Nova Group	Monica	Manning	Executive Officer
Todd County Development Corp	Alex	Weego	Executive Director
U. S. House of Representatives	Collin	Peterson	Congressional Representative
U. S. Senator Amy Klobuchar's Office	David	Frederickson	Outreach Director for Agriculture
U. S. Senator Amy Klobuchar's Office	Andy	Martin	Regional Outreach Director
University of Minnesota	Mahri	Monson	Student
University of Minnesota	Katherine	Phillips	Student
University of Minnesota	Jeff	Beuning	Student
University of Minnesota	Vernon	Eidman, Ph.D.	Professor Emeritus
University of Minnesota	Bob	Elde, Ph.D.	Dean, Biological Sciences
University of Minnesota	Dick	Hemmingsen	Director of IREE
University of Minnesota	Claudia	Neuhauser, Ph.D.	Professor & Head, Ecology, Evolution & Behavior Dept.
University of Minnesota	Todd	Reubold	Administration
University of Minnesota	Roger	Ruane	
University of Minnesota	Patrick	Starr, Ph.D.	Professor, Mechanical Engineering
University of Minnesota	Douglas	Tiffany	Research Fellow-Department of Applied Economics
University of Minnesota	Kathryn	VandenBosch, Ph.D.	Professor
University of Minnesota	Marc	von Keitz, Ph.D.	Associate Department Director
University of Minnesota - Center for Diesel Research	Kelly	Strebig	Executive Assistant
University of Minnesota - Center for Diesel Research	Jim	Wendler	Assistant
University of Minnesota - Crookston	Tom	Baldwin, Ph.D.	Vice Chancellor
University of Minnesota BBE	Richard	Huelskamp	