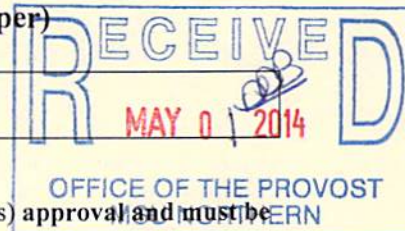


ACADEMIC SENATE PROPOSAL TRACKING SHEET
(Document To Be Originated By the Academic Senate Secretary On Canary Color Paper)

Proposal # 13-18	Title: Request for Board of Regents approval for Center designation (Proposal explanation, submitter and college dean signatures on attached program/degree or course revision form.)
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All proposals MUST have their originating college faculty body (Ex. Arts & Sciences, Education and Nursing; Technical Sciences) approval and must be signed by the submitter and the college dean before being submitted to the Academic Senate Secretary.

1. Submit all proposals (using the appropriate Academic Senate program/degree and/or course revision forms or General Education Inclusion form) to the Academic Senate Secretary. **NOTE: Level 1 or Level 2 forms must be submitted concurrent with this proposal where applicable. For Education proposals, PEU approval must be received prior to forwarding the proposal to the Senate.**
2. The Academic Senate Secretary logs and numbers items and forwards them to the appropriate Academic Senate subcommittee(s): General Education (if applicable), or Curriculum. A transmittal e-mail will be sent to the Recording Secretary of the receiving committee, cc Provost's Administrative Assistant, by the Academic Senate Secretary. A digital copy of the proposal will be linked on the Academic Senate Proposal page by the Academic Senate Secretary.
3. The Academic Senate subcommittee(s) consider(s) the proposal. If approved, the proposal is returned to the Academic Senate Secretary for forwarding to the next committee. If a committee disapproves the proposal, the originator may request that the item be forwarded to the next body for consideration. The committee will provide written rationale to the originator, via the Academic Senate, when a proposal is disapproved and the proposal is returned to the originator. Upon completion of committee action, the proposal will be returned to the Academic Senate Secretary, and a transmittal e-mail sent by the Committee Recorder to the Senate Secretary, cc Provost's Administrative Assistant.
4. The Academic Senate considers the proposal and recommends approval or disapproval. If approved, the proposal is forwarded to the Provost for consideration. If the Academic Senate disapproves the proposal, the originator may request that the item be forwarded to the Full Faculty for consideration, utilizing the procedures set forth in the Senate Bylaws. The Academic Senate will provide written rationale to the originator when proposals are disapproved and the proposal is returned to the originator.
5. Approved proposals will be forwarded to the Provost. The Provost approves or disapproves the proposal. If approved, the proposal is then forwarded to the Chancellor. From this point forward, the Provost's Administrative Assistant will update the Proposal page on the website by contacting the webmaster.
7. The Chancellor approves or disapproves the proposal.
8. The proposal will then either be implemented or referred to MSU for further action. The tracking page on the Provost site will be updated as required.

Subcommittee and Academic Senate college representatives will notify their respective colleges' of the progress of submitted proposals or the proposal may be tracked via the web page -- <http://www.msun.edu/admin/provost/senate/proposals.htm>

**Documentation and forms for the curriculum process is also available on the web page:
<http://www.msun.edu/admin/provost/forms.htm>**

******* (If a proposal is disapproved at any level, it is returned through the Academic Senate secretary and the Senate President, to the Dean of the submitting college who then notifies the originator.**

See back for tracking form

	Date	Action Taken	Signature	Date	Comments/Reason for Disapproval	Sent to	Date	Transmittal E-mail sent
*Abstract received by Senate Secretary		Copy to Senate President. Forward to Provost.						
*Provost		<input type="checkbox"/> Abstract Approved <input type="checkbox"/> Disapproved						
Received by Senate Secretary	4-28-14	Tracking form initiated	<i>Soules-Cover</i>	4-28-14		Senate	4-28-14	
General Education Committee (if applicable)		<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved						
Curriculum Committee (if applicable)		<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved						
Academic Senate	4-28-14	<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved	<i>Steve Don</i>	4/29/14		Provost	4-30-14	4-30-14
Full Faculty (if necessary)		<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved						
Provost		<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved	<i>Wm. J. Rugg</i>	5-2-14		Chancellor	5/2/14	
Chancellor		<input checked="" type="checkbox"/> Approved <input type="checkbox"/> Disapproved	<i>J. M. Kulp</i>	5-8-14				
MSU		<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved						
BOR		<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved						
NWCCU		<input type="checkbox"/> Approved <input type="checkbox"/> Disapproved						
Provost		Advise originating college and Academic Senate of status. Update Web page.						
Registrar		Catalog/Policy Manual Update						

NOTE: The secretary of the Academic Senate will update the Academic Senate Proposal web page from initial receipt until the proposal reaches the Provost. The Provost's Administrative Assistant will ensure that the current status of each proposal is maintained on the Academic Senate Proposal web page from that point forward. ***Abstract and pre-approval required for new programs ONLY.**

To: Chairman Tuss and Regents

From: Greg Kegel, Dean, MSU-Northern

Date: February 25th, 2014

ADK
4.28.2014

Subject:

The Bio-Energy Center at MSU-Northern is seeking Board of Regents (BOR) approval for “Center” designation. The Bio-Energy Center has grown from a single grant-funded program to a research entity with labs, facilities, full-time personnel, and most recently, its own Advanced Fuels building. During a recent Strategic Planning session, it was recommended that we pursue BOR “Center” status to add to our credibility and sustainability. We would like to introduce this topic to the BOR during the March meeting in Great Falls as a Submission Agenda Item.

Background:

The Bio-Energy Center was established with the opening of the Applied Technology Center (ATC) in 2006. MSUN was successful in receiving funds through the Workforce Innovation Regional Economic Development (WIRED) grant that assisted us in securing personnel and instrumentation needed to do scientific research and testing of bio-derived fuels. Emphasis was placed on economic revitalization of the northern plains of Montana through value added agriculture that would lead to local production facilities capable of producing high quality bio-derived “drop in” fuels. Four (4) key positions makeup the Center: a director, a lead scientist, a research associate, and an operations engineer. Since 2006, the Center has grown into a proof-of-concept Center with the capability to develop, test, and research today’s technology and to collaborate with industry on tomorrow’s “advanced fuels.” The Center has been successful in receiving numerous grants to help support unique and innovative research in a broad range of topics related to bio-fuel technology. With the continual goal of developing technology that will assist in state-wide economic development, the Center recognizes the need for value-added agricultural and livable wage jobs. Our work has concentrated on cutting edge biofuels and feed stocks that will work in our region.

The Center’s capabilities are unique to the Montana University System and this region. We have carefully built our capabilities with the ability to control feedstock quality, produce fuel (both bio-diesel and bio-jet fuel), test the fuel chemical properties at ASTM standards, and evaluate the fuel’s performance properties through world class engine testing and emissions measurement instrumentation. At every step of development, the Center has remembered that core to our mission are educational opportunities for students attending MSUN. To this end, the Center’s research staff teaches and assists with higher level sciences and has actually taken over special topic research classes. The Center also employees student workers and trains them in the role of student research assistants. This results in undergraduate students working in a research environment comparable to what graduate students would see.

The BOR recognition of the “Center” is a stepping stone to continual improvement and expansion. The Center has an ambitious growth plan for the next five (5) years and in order for our growth to continue, the Center needs to be recognized and supported as a necessary fixture of MSU-Northern and the state of Montana.

Montana Board of Regents application for Center Status

1. Purpose:

- The Bio-Energy Center (BEC) at Montana State University-Northern, located in Havre, Montana, is an innovative, unique research proof-of-concept facility that supports agricultural and renewable energy development in Montana. Since its inception, the Bio-Energy Center has focused on pulling together the facilities necessary to support fundamental research and testing on the development of biofuels from Montana-produced feedstock and to promote product development and commercialization. Our purpose is fundamentally tied to developing a sustainable economic future for agriculture as well as other Montana businesses through the integration of culinary oil, biodiesel, oil seed meal and glycerin industries. Our Center is also in the forefront in the development of future aviation fuels, using locally available feedstocks. Our goal is that our efforts will help provide future energy security for the United States.

2. Objectives:

- To be the premier regional/state leader in bio-energy and bio-products research, development, testing, education, and outreach;
- To help Montana be at the forefront in the quest to meet the bio-based fuel needs of the transportation industry;
- To enhance Montana's economic and environmental sustainability while reducing dependence on imported fossil fuels through research, development, testing, education, and outreach on bioenergy and bio-based energy sources;
- To enhance workforce development through targeted educational programs that will train the future bio-energy workforce;
- To develop partnerships with the private sector in order to leverage resources and build relationships.
 - Research potential markets and uses for oilseed meal;
- To be responsive to the needs of the bio-based Industry in order to enhance the understanding of, the use of, and the confidence in the Center;
- To develop a strategy to become or partner with a National Laboratory;
- To provide the Center's staff with education opportunities and training that will address new bio-energy technologies and well as management effectiveness;
- To model logistics needed to build both small and large scale bio-operations using actual conditions of rural Montana;
- To work with Extension Service and Ag Research Stations to promote crop diversification by introducing oilseeds into crop rotations; and
- To develop one new technology every five (5) years.

3. Anticipated Activities:

- Develop bio-based aviation fuel with a priority on bio-jet fuel derived from oilseeds such as Camelina and Carinata as well as woody biomass;
- Investigate the viability of using raw plant oils as fuel for agricultural operations;
- Work with bio-based industries to provide technical assistance in the commercialization of green energy products such as bio-lubricants and new bio-based fuels (not bio-diesel).
 - Provide access to quality testing services for product development;
- Utilize our chemical analysis laboratory to perform biodiesel certification according to ASTM standards.
 - Promote fuel testing services as a profit center;
- ICP - Oil analysis using our ICP unit to determine the condition of engine components;
- Emissions testing using our SESAM and FTIR.
 - Study the effects of off-spec biodiesel on engine exhaust emissions;
- Provide services to the bio-energy industry including independent fuel, performance, efficiency, and emission testing for all bio-fuels, additives and bio-lubricants in both automotive and diesel engine applications using our dynamometer;
- Using our reactors in the biomass conversation labs, provide optimization studies and process engineering for Montana produced oilseed crops such as Camelina, Safflower, Sunflower and Canola; and
- Develop testing methodologies and protocols for advanced and future fuels as well as the development of prototypes for tomorrow's engines.

4. Agencies, organizations and institutions which will be involved:

- University of Georgia
 - Performance of chicken fat Bio-Oil
- Montana State University
 - Bio-Energy Alliance Network (BANR)
 - Biological biofuels research (Algae project and Fungus project)
- North Carolina State University
 - Camelina derived aviation fuel
- NREL
 - Biodiesel durability and emission study
 - ReFUEL Lab
 - Technical Advisory Support/Co-research on performance and emissions
- Department of Energy
 - Developing jet fuel from Camelina
 - EERE—Energy Efficiency and Renewable Energy
 - Camelina feedstock
- Economic Development Administration
 - Proof of Concept Center—Technology Commercialization
- GTA
 - Studying the effects of bio-diesel on engines, engine performance, and engine emissions
- National Science Foundation
 - Basic Research on novel jet fuel (JP-10)
- Alpha Naturals
 - Performance and emissions related to fuel enhancement

5. Organizational Chart

- Please See attachment

6. Describe the interrelationships between the Bio-Energy Center and the institutional mission, including information about which departments on campus will be involved and how the center or institute will contribute to the academic programs of the institution;

- Mission: MSU-Northern, a teaching institution, serves a diverse student population by providing liberal arts, professional and technical education programs ranging from certificates through master's degrees. The university promotes a student centered and culturally enriched environment endorsing lifelong learning, personal growth and responsible citizenship. The university partners with a variety of community and external entities to enhance collaborative learning, provide applied research opportunities, stimulate economic development and expand student learning experiences.
- The Bio-Energy Center brings synergy to MSUN on many fronts. Foremost, the Center brings a positive energy to the campus which emanates from the attention and publicity generated by its cutting edge research and new facilities. These public accolades help create a more positive perception towards MSUN which ultimately affects recruitment and retention in an affirmative manner. Secondly, the Center is generating new opportunities for the students at MSUN. Our staff members at the Bio-Energy Center are collaborating with the faculty of the Automotive and Diesel programs to expand student learning experiences. New student opportunities in fuels testing, engine performance testing, and emissions testing are developing out of the work of the Center. There are also discussions of developing new programs in Chemistry as well as graduate certificates of study at MSUN utilizing the Center's world class equipment and staff. Lastly, the Center has developed many regional and national partnership entities through its activities. The Center's plan to promote an area-wide bio-energy industry is having an economic impact on several fronts. We are working with local farmers to develop oil-seeds as a preferred rotational crop. We are collaborating with two (2) local businesses that are crushing oil-seed and refining bio-diesel.

7. Identify 1st year financing and continuing financing necessary to support the Center, and what will be the sources of this funding;

- **FUNDING REQUIREMENTS:**
 - Year 1
 - Salaries and benefits: \$387,951.39
 - Supplies, maintenance, etc: \$85,000
 - Total Year 1: \$472,951.39
 - Continuing financing
 - The Center has grown every year through grant funding. We expect this trend to continue.

- **SOURCES OF FUNDING:**
 - Federal grants
 - EDA--\$687,000
 - Department of Energy--\$2,250,000
 - National Science Foundation--\$300,000 (pending)
 - Private company sponsored research
 - Elevance Inc.--\$80,000, with potential to renew at \$60,000 annual
 - State appropriations
 - Office of Higher Education : \$400,000
 - Private donations
 - Various farmers for oilseed
 - Services for a fee
 - Fuel testing services as a profit center
 - lubricant testing
 - training
 - performance/emissions testing
 - Licensing fees and royalties from our intellectual properties

8. Describe other similar programs in the state and surrounding region;

The Bio-Energy Center is a very unique facility. Currently there are no other facilities that focus on research in renewable transportation fuels and emissions studies similar to the Bio-Energy Center in the State, let alone the region. The closest institution to the Bio-Energy Center that performs similar research is University of North Dakota Energy and Environmental Research Center (EERC). Although UD's EERC performs fuel research, they do not perform any engine studies, emissions or oil pressing. The only other University that has capabilities that are very similar to the Center is University of Houston, located in Houston, Texas, which is well outside of our region.

9. Identify faculty expertise available for participation in its activities;

- Dr. Joynal Abedin (full-time Research Associate)
- Dr. Randy Maglinao (full-time Research Associate)
- Dr. Gary Succaw (Associate Professor of Chemistry)
- Dr. Carol Reifschneider (Professor of Water Quality)
- Dr. Darrin Boss (NARS Director (MSU-Bozeman))

10. State the internal campus review and approval process which has occurred prior to submission to the commissioner's office.

The proposal submitted to the following entities in the following order:

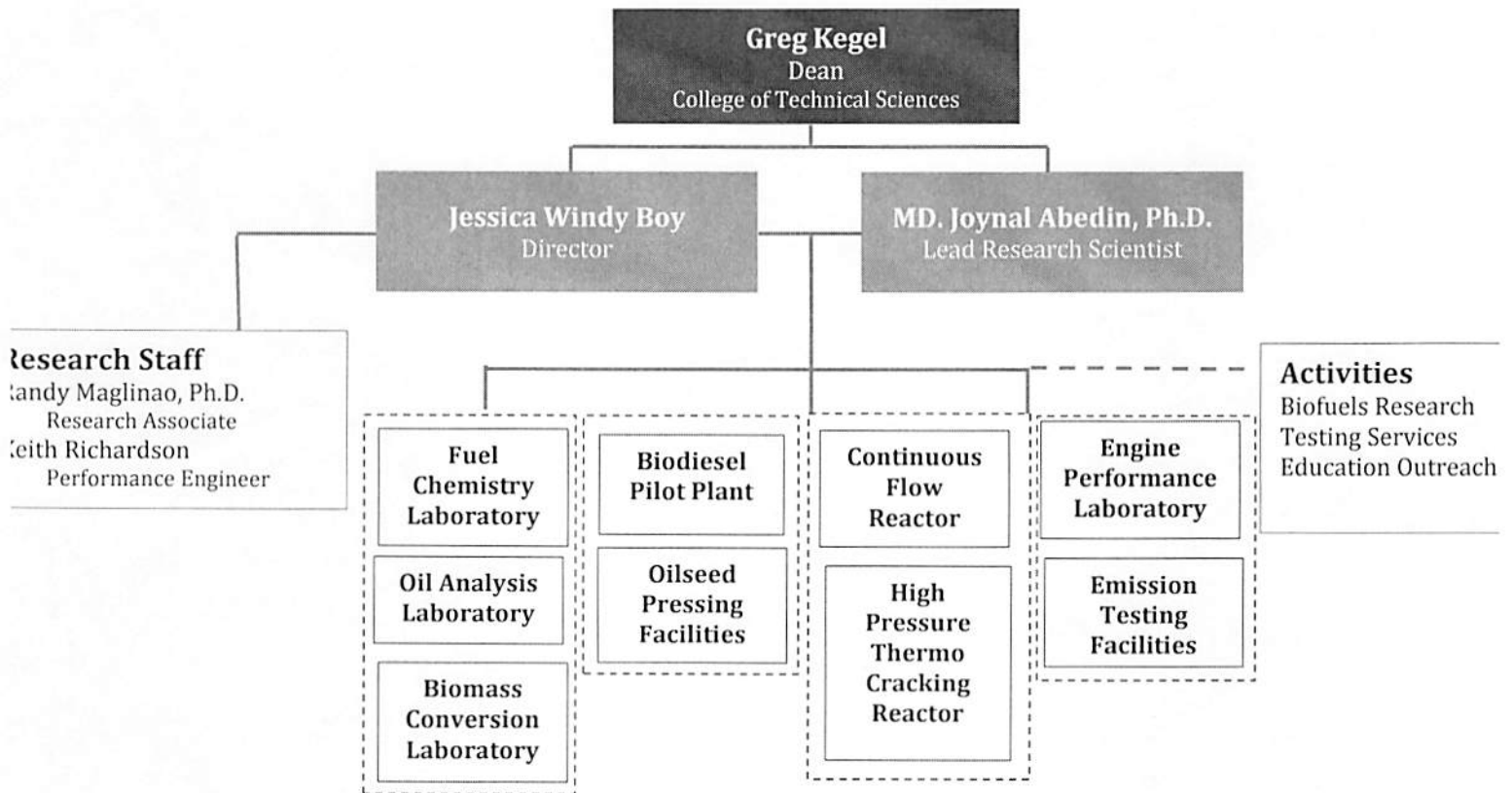
- Request made from Bio-Energy Center Director and Dean of College of Technical Sciences;
- Dean and College of Technical Sciences review and approval;
 - Forwarded to faculty Senate for review and approval;
 - Forwarded to Provost for review and approval; and
- Final approval granted by Chancellor.



MSU-Northern

Bio-Energy Center

Bio-Energy Center's Organization Chart



COTS -- Time Card Check Off Sheet 2013-2014

FACULTY

Wane	Boysun		
Kevin	Carlson		
Gregory	Clouse	R	
William	Danley III		
Steven	Don	A	
Autumn	Elliot	A	
Dustin	Falk		
Virgil	Hawkinson		
Jeremy	Hofman	R	
James	Howland III	A	
Andrew	Johnson	A	
Kevin	Johnson		
James	Kirkpatrick	A	
Spike	Magelssen	A	
Josh	Meyer		
Steven	Neiffer		
Byron	Ophus	A	
Rodney	Ridenour		
Lorren	Schlofeldt	A	
Jeremy	Siemens		
Lloyd	Stallkamp		
Lawrence	Strizich	A	
William	Taylor	R	
Heather	Thompson	A	
Mary	Verploegen	A	
Thomas	Welch	A	
Lanny	Wilke	A	
Barbara	Zuck	A	

BIG SKY PATHWAY

Holly	Haas		

BIO-ENERGY

Md Joynal	Abedin		
Randy	Maglinao		
Keith	Richardson		
Jessica	Windy Boy		

TAACCCT GRANT

Robert	Anderson		

TEMPORARY EMPLOYEES

Scott	Anderson		RT	Lorren

STUDENT EMPLOYEES

Seth	Alcorn		Bio-Energy	Jessica
Patrick	Beer		Diesel	Greg C.
Corey	Buckley		Tool Room	Bruce
Brody	Dahlman		Bio-Energy	Jessica
Sterling	Grimes		IT	Lloyd
Derrick	Hucke		Diesel	Greg C.
Paul	McClendon		Diesel	Greg C.
Ethan	Moberg		Diesel	Jessica
Maure	Murdock		Bio-Energy	Rod
Luke	Potter		Tool Room	Bruce
Lander	Ridgeway		Welding	Andrew J.
Jordan	Shearer		Diesel	Greg C.
Dominic	Spado		COTS	Greg K.
Jason	Strickland		Diesel	Will
Briar	Tuss		Diesel	Greg C.

ADJUNCT FACULTY

David	Chambers		
Russell	Epperson		
Dennis	Langel		
Randy	Maglinao		

CLASSIFIED/CONTRACT STAFF

Mary	Brown		
Lourdes	Caven		
Greg	Kegel		
Bruce	Mansfield		