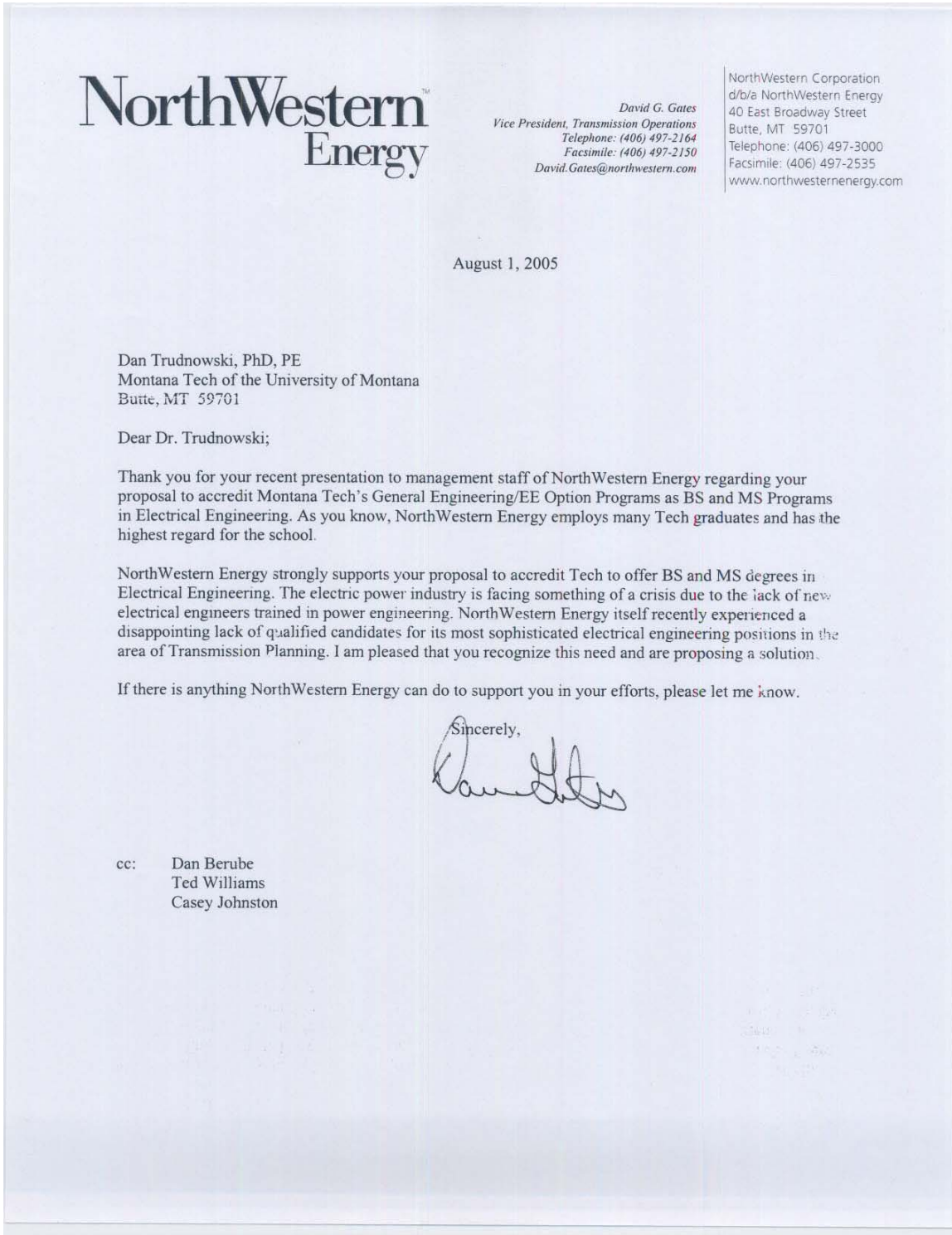


1 Appendix I: Letters of Support





## SCHWEITZER ENGINEERING LABORATORIES, INC.

2350 NE Hopkins Court • Pullman, WA 99163-5603 USA  
Phone: (509) 332-1890 • Fax: (509) 332-7990  
Internet: www.selinc.com

August 17, 2005

Dr. Butch Gerbrandt  
Montana Tech General Engineering  
West Park Street  
Butte, MT 59701

Dear Butch,

I am excited to learn that Montana Tech is creating an ABET certified, stand-alone BS/MS Electrical Engineering degree program. I earned two degrees at Montana Tech: a BS Geophysical Engineering in 1984 and an MS Engineering Science – Control Systems Option (now General Engineering, Electrical Engineering Option) in 1991. My Montana Tech education has allowed me to serve in a wide variety of responsibilities in the petroleum and electrical energy industries. I have also learned that Montana Tech is well known in the petroleum industry and is virtually unknown in the electric power industry.

I started my career with a B.S. in Geophysical Engineering. Upon graduation, I had offers from several large oil companies all tripping over themselves to hire a Montana Tech graduate with a high GPA. I had recruiters calling me every week in my last semester. In the petroleum industry circles, Montana Tech is recognized as an industry leader.

After a few years in the oil industry, I decided to pursue a career in the electrical utility industry. I enrolled in the M.S. General Engineering (then Engineering Science) to sharpen my skills in electrical circuits and control systems. In the last few months of my education, I had no recruiters calling me. I applied to a small electrical engineering company for employment. The company did not understand my general engineering degree and asked for my transcripts. The company also invited me out to present my thesis project (automation of a hydro-electric dam spill gate) and learned that I knew what I was talking about. This small company is Schweitzer Engineering Laboratories (SEL), which is now the largest producer of electric power system relays in the world.

*Making Electric Power Safer, More Reliable, and More Economical*

Shortly after joining SEL, I applied for membership in the IEEE (Institute of Electrical and Electronic Engineers). The IEEE did not recognize my Montana Tech degree. I had to submit transcripts and get letters of reference from my peers (who had ABET certified degrees) to support my application. Ultimately, I was admitted to the IEEE. Membership in the IEEE allows me to participate in industry meetings and also gets me a great rate on life insurance.

Since joining SEL in 1991, I have held a wide variety of positions including Development Engineer, Engineering Manager, Software Process Manager, Program Manager, Director of Product Development, Vice President of Research and Development, and most recently, Revenue Product Engineering Manager. My Montana Tech education prepared me for a wide variety of multidisciplinary roles. My responsibilities over the past several years include software design, hardware design, mechanical design, technical writing, project management, chemical analysis, executive management, and product marketing. Without my Montana Tech education, I would not have had these opportunities.

I have enjoyed a successful career in the electric power industry because I was able to convince the SEL hiring team that a General Engineering degree is just as good as an EE degree. I got lucky. I fear that many good Montana Tech graduates may not be as fortunate as I. When a job opens up at a company, the first screen is usually a non-technical Human Resources (HR) professional. If the resume doesn't say EE, the HR people discard it before it gets to the hiring manager. Let's remove this obstacle and give the bright, hard working students of Montana Tech a fighting chance. An ABET recognized EE degree will help elevate the General Engineering program to the same prominence as the Petroleum, Mining, Environment Engineering, and Geology/Geophysics degrees.

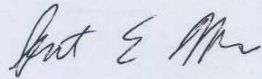
The electric power industry is a great place to invest in education. Since deregulation in 1995, electric utilities in North America have been seeking ways to reduce costs. The result is ten years of underinvestment in infrastructure. During that time, the utilities have lost a generation of experienced engineers and the electric power grid is stretched to the limits of stability. I know of one major utility that is so desperate for engineers that it is funding scholarships and promising jobs for high school graduates who enroll in electrical power systems programs. My company, SEL, has established SEL University that offers outreach education to electrical power industry employees. We offer dozens of technical training sessions throughout North America. The classes are routinely sold out with electric utility engineers and technicians in attendance.

Some people may consider the electric utility industry as "low tech". On the contrary, we are working on major improvements in electrical grid stability through advanced control systems utilizing microsecond precision data acquisition and phasor measurement, wide area network communications, and communications security. Other opportunities exist in military marine propulsion systems, industrial computing platforms and electric power metering systems.



I would like to see Montana Tech graduates earn these jobs. I strongly endorse Montana Tech's ABET accreditation for the EE degree, as it will remove the obstacles I faced in getting my career established.

Sincerely,

A handwritten signature in black ink, appearing to read "Robert E. Morris". The signature is written in a cursive style with a large initial "R" and "M".

Robert E. Morris  
Revenue Product Engineering Manager  
Schweitzer Engineering Laboratories, Inc.  
B.S. Geophysical Engineering - 1984  
M.S. Engineering Science - 1991

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## Pacific Northwest National Laboratory

Operated by Battelle for the  
U.S. Department of Energy

August 30, 2005

Dr. Butch Gerbrandt  
General Engineering Dept. Head  
Montana Tech  
1300 W. Park St.  
Butte, MT 59701

Dear Dr. Gerbrandt,

I am writing in support of Montana Tech's proposal to change the General Engineering/EE Option program to an ABET accredited EE program offering both BSEE and MSEE degrees. In our opinion this change would make it easier for your high quality graduates to find jobs in the energy arena as well as improving Tech's ability to market its teaching and research programs to a broader audience. The proposal appears to us to be a win-win – good for PNNL and good for Montana.

Having received my PhD from MSU more than a decade ago, I feel uniquely qualified to comment on the need for multiple EE programs within the state and on the potential benefit to Montana of the proposed change in accreditation. Throughout the 1980's the MSU EE Department was supported in part through research funded by Montana Power. MSU maintained a strong emphasis on power and energy throughout this period. With changes in the research funding profile coupled with faculty retirements, emphasis at MSU began to shift to optics, chip design and microtechnology. While this was a natural and logical response by MSU, it shifted the base of companies who are willing to recruit in Montana. With a broader spectrum of EE programs in the state more companies, such as PNNL, would be willing to make the trip to search for qualified candidates.

A second point I would like you to consider is the changing approach to recruiting within HR departments at large firms such as PNNL. I have appended a currently outstanding job requisition from PNNL's Energy and Engineering Division. Using web-based tools for submitting resumes and applications, most of the initial screening is now being handled by HR professionals with little expertise in my technical area. It would take a highly skilled HR staff member within my firm to recognize that Montana Tech has a high quality EE option within the General Engineering degree. It is more likely that prospective candidates would be screened as not meeting the Minimum Requirements (no EE degree) before the resume ever came to my desk.

Finally, I would like to bring to your attention the burgeoning need for engineers in the energy arena. The energy industry is currently bracing for massive retirements as over half of the workforce is expected to retire within the next 7-10 years. This has been reported in numerous journals and

902 Battelle Boulevard • P.O. Box 999 • Richland, WA 99352

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Telephone (509) 372-6472 ■ Email [matthew.donnelly@pnl.gov](mailto:matthew.donnelly@pnl.gov) ■ Fax (509) 375-3614

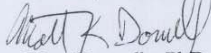
Dr. Butch Gerbrandt  
August 30, 2005  
Page 2

periodicals. Many engineering programs are beginning to move to address the perceived need. The "EE Brochure" on MSU's website reinforces this unfulfilled need saying,  
*Although our graduates can be found working throughout the world, most tend to be found in the West and Northwest due to their rural background. The job opportunities in these regions now exceed the number of graduates.*

Clearly there is a need for more EE graduates in the region and in the nation.

I wish you the best in your efforts to improve the job prospects for Montana graduates. If there is anything I can do to clarify our position or to assist you please don't hesitate to call.

Sincerely Yours,



Matt Donnelly, PhD, PE  
Staff Engineer  
Program Manager, Bulk Transmission Reliability  
Pacific Northwest National Laboratory

APPENDIX - CURRENTLY OPEN PNNL JOB DESCRIPTION  
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Job Description  
Electrical Power System Engineer III/IV Energy Technology Development Group  
Energy & Engineering Division Energy Science & Technology Directorate

Description:  
This position will provide technical thought leadership and technical oversight to the Laboratory's research in high voltage electrical power system transmission and distribution. This position will focus on the electric power industry in one or more of the following areas: electric power transmission and distribution design and analysis, power system operations and control, and load flow and stability analysis using computer models. Primary emphasis of this position will be the use of industry standard software for load flow and control (e.g. GE PSLF, AREVA DTS). Other duties that would be expected of this position would be the development of automated computer programs and other advanced analysis methods for comprehensive evaluation of the operational performance of the transmission system and conducting operating studies and contingency analyses, including power flow, short circuit, stability, and post-transient analyses, to maintain reliable operation of the grid. Must also provide direction to supporting staff.

Minimum Requirements:  
Level III:  
-A minimum of a BS in Electrical Engineering with an emphasis in Power Systems Engineering, and 5 years of related experience, or a MS degree and 3 or more years of experience, or PhD degree and 1-2 years experience.  
Level IV:  
-A minimum of a BS in Electrical Engineering with an emphasis in Power Systems Engineering, and 7 or more years of related experience, or a MS degree and 5 or more years experience or PhD degree and 3 or more years experience.





MSE Technology Applications, Inc.  
200 Technology Way  
P.O. Box 4078  
Butte, MT 59702  
(406) 494-7100  
FAX (406) 494-7230

*Mike Mansfield Advanced Technology Center*

January 3, 2006  
2006MSE-81

Dr. Butch Gerbrandt  
Montana Tech of the University of Montana  
General Engineering Department  
West Park Street  
Butte, MT 59701

Dear Butch:

During a meeting last week with Dan Trudnowski, I was informed about your plans to establish an ABET Certified Electrical Engineering Program. I applaud your efforts to accomplish this action and encourage you to then do the same for a Mechanical Engineering Program and a Civil Engineering Programs. This is long overdue.

I received my B.S. and M.S. Engineering Science degrees from Montana Tech. I remember going on job interviews in 1982 and being asked "is that a real engineering degree." Here I had received a "top notch" engineering education (better than most get) and because of the name of the program was being hindered in trying to get my first job. My training was the same. I had passed the EIT and because of the name of the program was not getting the same opportunities as others.

I remember hearing during my tenure at Montana Tech that they couldn't call it a Mechanical, Electrical, or Civil Engineering Program because these programs were offered at Montana State University and they couldn't have the same programs at two institutions. Well it is time to correct that issue, call the programs what they are, and help graduates when they need it the most, when they are newly minted engineers entering the workforce.

If I can help in any way please do not hesitate to call.

Best regards,

A handwritten signature in black ink, appearing to read 'Jeff Ruffner', is written over the typed name.

Jeffrey W. Ruffner, P.E.  
Senior Vice President and General Manager  
Mike Mansfield Advanced Technology Center  
MSE Technology Applications, Inc.

JWR/jz

January 19, 2006

Dr. Neil Wahl  
General Engineering Acting Dept. Head  
Montana Tech  
1300 W. Park St.  
Butte, MT 59701

Dear Dr. Wahl,

This is a letter of support for the General Engineering Department's proposal to change the General Engineering/EE Option program to an ABET accredited EE program offering both BSEE and MSEE degrees. The Industrial Advisory Board (IAB) is in clear agreement that the change will provide improved opportunities for both BS and MS graduates as well as help fill growing industrial needs. Montana Tech students work hard to complete an excellent academic program and they deserve every opportunity to be successful. These changes will certainly improve our graduate's employment opportunities, and facilitate Montana Tech's continuing contribution in building Montana's and the region's energy economy.

All members of the IAB are very familiar with the high quality of graduates from Montana Tech's General Engineering department. Unfortunately, most companies are unfamiliar with the General Engineering/EE option and do not realize that Montana Tech graduates are qualified to fill many electrical engineering positions. In most companies, hiring managers and human resources recruiters look for graduates with common degrees such as BS in Electrical Engineering and MS in Electrical Engineering. After completing a rigorous degree program, Montana Tech students deserve the opportunity to compete for professional jobs on a level playing field.

The proposed emphasis of the program in the energy and instrumentation & controls areas matches very well with growing Global, US, Northwest regional, and Montana industrial needs. Because of electric power de-regulation and the growing costs of producing energy, the projected needs of these industries for electrical engineering talent out pace the pool of available graduates. Certainly in the industries we represent as a group, we see this void growing larger each year. For example, worldwide demand for electric power is increasing at 4% per year. At the same time, most electric utilities and schools are curtailing their investment in electric power systems. Now is a great time to invest in the future by training more electrical engineers to fuel global, national, regional, and Montana's economies.



Dr. Butch Gerbrandt  
August 30, 2005  
Page 2

In conclusion, we are in strong support of this proposal and look forward to next phase of its implementation. Please let us know if there is more we can do to help move this important proposal forward.

Sincerely,

- Montana Tech's General Engineering Industrial Advisory Board
- Stacy Aguirre, District Engineer, Montana DOT
- Brad Archibald, President, Pioneer Technical, Butte
- Dan Berube, Retired, Montana Power Company, CEO
- Robert Carrington, Program Manager, Idaho National Laboratory
- Mark Danninger, Maintenance Superintendent, Advanced Silicon Materials, Butte
- Leroy Friel, Professor, Montana Tech
- Daniel Kunz, President, US Geothermal, Warm Springs
- John (Jack) Kovacich, Kalispell Area Manager, NorthWestern Energy Company
- Gary Morris, Engineer, CTA Architects Engineers, Missoula
- Robert Morris, Revenue Product Engineer Manager, Schweitzer Engineering Labs, Washington
- Nathan Ratz, Engineer, CTA Architects Engineers, Missoula
- Ray Rice, Senior Engineer, Schweitzer Engineering Labs, Washington
- Chris Stoll, Systems Engineer, Honeywell, Utah

*Bob McWhorter*

*John (Jack) Kovacich*

*Dan Berube*

*Ray E. Rice*

*Raymond W. Rice*

*Gary Morris*

*Mark Danninger*

*John (Jack) Kovacich*

*Chris Stoll*

Dr. Butch Gerbrandt  
August 30, 2005  
Page 3

A handwritten signature in cursive script, appearing to read "Alan Kiel".