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INTERIM REPORT

TASK 2: HIGHER EDUCATION PROGRAMS TO SUPPLY A
PROFESSIONAL WORKFORCE FOR THE ENERGY SECTOR
THE ENERGY CAPACITY INITIATIVE PROJECT (ECI),
CONTRACT NO. DOT-I-00-04-00022-00, ORDER NO. DOT-I-03-
04-00022-00

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DECEMBER 31, 2008

DISCLAIMER:

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development or the United States Government.

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I Executive Summary

Task 2 covers three main elements. First is a Professional Skills Gap Analysis. The Second is the development of a local advanced degree program (graduate level courses) related to the analyzed needs of the energy sector. The Third main element is a US based Masters Degree scholarship program for a limited number of highly qualified and motivated individuals.

Significant progress has been made in the Professional Skills Gap Analysis after USAID approved the methodology on November 4, 2008. Thirteen universities in Tbilisi, Kutaisi, Batumi, and Telavi have been interviewed. Each university was given a questionnaire to be completed in detail and submitted to ECI within two weeks. As of the date of this report, ECI has received three responses that are being translated. We expect to receive all the responses in January.

Interviews of the energy-sector organizations are in progress and we expect to complete all the interviews in January.

A local company (BCG) was selected to conduct student survey. The survey questionnaire was finalized and approved by USAID on December 17. The test surveys were conducted on December 23rd. It is expected that student survey will be completed in January.

After collecting all the data and information from the energy-sector organizations, universities and potential students, comprehensive analyses of these data will be conducted to be included in the Gap Analysis Report.

A vision for the energy education program in Georgia is to create a Master's degree program in Energy Management and a number of energy-related concentrations in several areas such as Economics, Management, Engineering, Law, public administration, and Agriculture. This vision also includes a general energy course to be taken as an elective by any graduate student.

It is important to emphasize that this vision is based on our judgment and the preliminary information that we have collected so far. After completing the Professional Skills Gap Analysis, ECI will have sufficient information to help local universities in developing practical and effective energy education programs in Georgia.

A tentative schedule for starting these educational programs is as follows:

- 1. The general energy course should be developed prior to Fall semester of 2009. This course should be offered by as many universities as possible.*
- 2. Selected universities should develop energy management concentrations and start offering this option to their graduate students beginning fall 2009.*
- 3. One university should be chosen to develop a Master's degree program in Energy Management to be offered starting fall 2010.*

U.S. scholarship program is in its final stages. After a thorough process including two sets of screening interviews, 14 semi-finalists have been selected. All these candidates will take the TOEFL examination in December. After a discussion with Mr. Joakim Parker, USAID – Deputy Mission Director, Mariam Ubilava, USAID – ECI's CTO, and Nick Okreshdze on December 22, and a meeting of Scholarship Committee on December 24th, it was decided:

1. To eliminate the one-year scholarship option;
2. Limit U.S. Scholarship to three students.
3. To organize a two-week training (training the trainers program) in the U.S. for a selected number of professors from Georgian universities and professionals from the energy sector.
4. Require these trainees to train other professors and professionals in Georgia in workshops organized through ECI.

ECI's Educational Programs Expert, Dr. Hameed Nezhad contacted the U.S. universities with energy-education programs that are consistent with ECI's objectives and are suitable for the scholarship recipients. After selecting the finalists for the scholarship, ECI team will assist the scholarship recipients to apply for appropriate programs.

In order to properly define the best approach to recommend for the allocation of ECI resources between the three stated elements of Task 2, Dr. Nezhad, using multi-criteria decision support software (DSS) that he has developed (Decide 2000), has prioritized the approach as follows:

1. A set of decision criteria was developed and prioritized. The criteria include:

Cost: Cost per scholarship recipient;

Need: Meeting Georgia's energy sector needs;

Relevance: Meeting strategic objectives of ECI project;

Short-Term Impact: Short-term impact on energy capacity in Georgia's energy sector;

Medium-to-Long-Term Impacts: Medium-to-long-term impacts on energy capacity in Georgia's energy sector;

2. The scholarship options were prioritized against each criterion. The scholarship options include:

Master's Degrees in the USA: Scholarships for Master's degrees in the U.S. in Public Policy, Energy Management, or Technology Management programs;

Local Master's Degree Programs: Scholarships for local Master's degree program(s) in energy-related areas (to be developed through ECI);

Local Concentrations: Scholarship for local graduate-level concentration in energy-related areas (to be developed through ECI)

Faculty development: Scholarships to Georgian faculty members who will be developing courses for local energy programs.

Executive programs: Executive programs in energy management and technology management for professionals in the energy sector in U.S.

3. The DSS program calculated weighted average of the options using the data from the above two steps.

The results of his analysis show the following priorities for the scholarships:

Priority 1: Faculty development

Priority 2: Energy concentrations at local universities

Priority 3: Executive programs

Priority 4: Local MS programs(s)

Priority 5: Master's degrees in the USA

Another vision which is being supported by all the universities and energy-sector organization we visited is the creation of a **Center of Excellence in Energy Education, Training, Research, and Information** in Georgia that would serve not only the Georgian energy sector but the region as well. We expect this vision to be discussed in the focus group meetings that will take place in February 2009.

II U.S. Scholarship Program

A five-member committee (McNeill Watkins, Hameed Nezhad, Tsira Chikvaidze, Mariam Ubilava [USAID], and Sofi Barret) reviewed 72 completed scholarship applications that were received by the deadline. Using the following criteria - **academic excellence, quality of essay, and professional experience** - each committee member rated the applicants and then, using a spreadsheet developed by Dr. Nezhad, overall ratings were calculated. The committee members decided to invite the top 26 applicants for an interview. Using the following criteria - **academic preparedness, motivation, communication skills, knowledge of the energy issues in Georgia, and leadership potential** - each committee member rated the interviewees and using individual Excel spreadsheets and overall ratings were calculated. The committee members decided to pick top 14 applicants as semi-finalists.

After a discussions with Mr. Robert Wilson USAID Mission Director, Mr. Joakim Parker, USAID – Deputy Mission Director, Mr. John Hansen, USAID Director E&E, and Mariam Ubilava, USAID – ECI’s CTO, at a review meeting in November and a follow up meeting with Mr. Parker, Ms. Ubilava and Mr. Nick Okreshdze on December 22, a meeting of Scholarship Committee was held pm December 24th, where it was decided:

1. To eliminate the one-year scholarship option. All the candidates who initially applied for a one-year program were contacted and given the option to either changing their requests to a two-year program or to be considered for a short term training program in the U.S.
2. Limit U.S. Scholarship to three students.
3. All the 14 candidates are required to take TOEFL test.
4. All the candidates for two-year scholarship programs are required to take either GRE or GMAT tests. ECI project team has made the arrangements for these tests. After receiving their test scores, the Scholarship Committee will select up to 3 finalists to be sent to U.S. for graduate studies in energy-related areas.
5. To organize a two-weeks training (training the trainers program) in the U.S. for a selected number of professors from Georgian universities and professionals from the energy sector.
6. Require these U.S. trainees to train other professors and professionals in Georgia in workshops organized through ECI.

The following table lists these 14 semi-finalists, their affiliations, the type of test recommended besides the TOEFL test, and their choice of a two-year program or short term training.

Table 1: Semi-Finalists for US Scholarship

NO	NAME	Total Score	Total Score (%)	TEST REQUIREMENT	UG	G	2 yrs	AFFILIATION
1	Arabidze Marina	386	97	GRE		x	Yes	GOGC
2	Zibzibadze Mikheil	380	95	GMAT		x	No	GSE Employee
3	Dgebuadze David	374	94	GMAT		x	Yes	Energy Invest employee
4	Mtsariashvili Johnny	373	93	GRE		x	Yes	Master's student GU /employee
5	Maruashvili Lali	368	92	GRE		x	Yes	Energo-Pro employee
6	Demetrashvili Giga	367	92	GMAT	x		Yes	Geo holding Comp employee
7	Jervalidze Liana	342	85	GRE		x	No	TI (NGO)
8	Magradze Nino	339	85	GRE		x	Yes	GSE employee
9	Gurgenidze Nana	339	85	GRE		x	Yes	Ministry of Energy
10	Otaridze Natela	320	80	GRE	x		No	DLA Piper Employee
11	Kiknadze Givi	318	79	GMAT		x	No	Ministry of Energy
12	Uchaneishvili Ucha	312	78	GMAT	x		No	GSE
13	Chiokadze Natalia	304	76	GRE		x	No	ESCO Employee
14	Sulava Givi	304	76	GMAT	x		Yes	GSE

Dr. Nezhad has contacted the following universities in early December to assess the relevance of their programs to the needs of Georgian energy sector. Also, to share qualifications and interests of potential scholarship recipients with professors and admission officers at these universities:

1. University of Minnesota (personal visit):

A. Master of Science in Management of Technology;

B. Hubert Humphrey Institute of Public Affairs

- ***Master of Science, Technology, and Environmental Policy (MS-STEP)***
- ***Master of Public Policy (MPP)***

2. New York Institute of Technology (telephone conversation)

- ***Master of Science in Energy Management***

3. University of Wisconsin Madison (personal visit)

Nelson Institute for Environmental Studies

- ***Master of Science in Environment & Resources with a Concentration in Energy Analysis and Policy***
- ***Master of International Public Affairs Program***

The following table lists a summary of requirements and costs of these programs. Appendix 1 includes the details of these programs.

Table 2: Potential Graduate Programs in the United States

University & Program	Deadline	Tuition & Fees	Total Costs (2 years)*	Test Requirements	Relative Ratings
University of Wisconsin Madison- Nelson Institute for Environmental Studies Master of Science in Environment & Resources with a Concentration in Energy Analysis and Policy	Flexible	\$50,500	\$85,122	Flexible GRE & TOEFL recommended	*****
University of Minnesota- Technology Management	Flexible	\$65,720**	\$78,000	Flexible	****
New York Institute of Technology- Master of Science in Energy Management	Flexible	\$43,072	\$74,644	TOEFL	****
University of Minnesota-MS in Science, Technology & Environment & Master of Public Policy	April 1	\$47,888	\$71,788	TOEFL & GRE	***
University of Wisconsin Madison- Robert M. La Follette School of Public Affairs Master of International Public Affairs Program	March 15	\$50,500	\$85,122	GRE TOEFL	***

*Total costs does not include international travel

**It includes a trip abroad, health insurance, etc.

Dr. Nezhad also contacted director of **Department of Engineering Professional Development (EPD)** at the University of Wisconsin-Madison regarding the possibility of organizing a customized short term training program for selected Georgian professors and energy professionals. He welcomed this idea and expressed an interest in providing such a service if needed. The details of the services provided by EPD are included in Appendix 1.

III Professional Skills Gap Analysis

Based on the methodology approved by USAID, The Professional skills Gap Analysis consists of the following steps:

Preparation Stage:

- 1) development of the research methodology report
- 2) development of the students' questionnaires
- 3) development of questionnaires to the companies/universities
- 4) development of the preliminary interview guides for companies/NGOs/organizations
- 5) development of the preliminary interview guides for universities
- 6) development of the list of universities, companies/NGOs/organizations, associations/institutions, and donors to be covered through this analysis
- 7) Approval of the methodology and instruments listed above

Implementation Stage:

- 8) Conduct literature review
- 9) Start administering questionnaires with students
- 10) Administer brief questionnaires to universities and companies/organizations/NGOs
- 11) Finalize interview guides for universities and companies/organizations/NGOs, share it with USAID.
- 12) Administer interviews with universities and companies/organizations/NGOs
- 13) Develop preliminary analyses of student questionnaires and interviews with universities/companies/organizations/NGOs
- 14) Develop focus group guiding questions, share it with USAID
- 15) Conduct focus groups in four major groups
- 16) Develop an incorporated analyses of data from all three instruments
- 17) Develop draft report
- 18) Hold a stakeholders meeting and get a feedback
- 19) Finalize the report

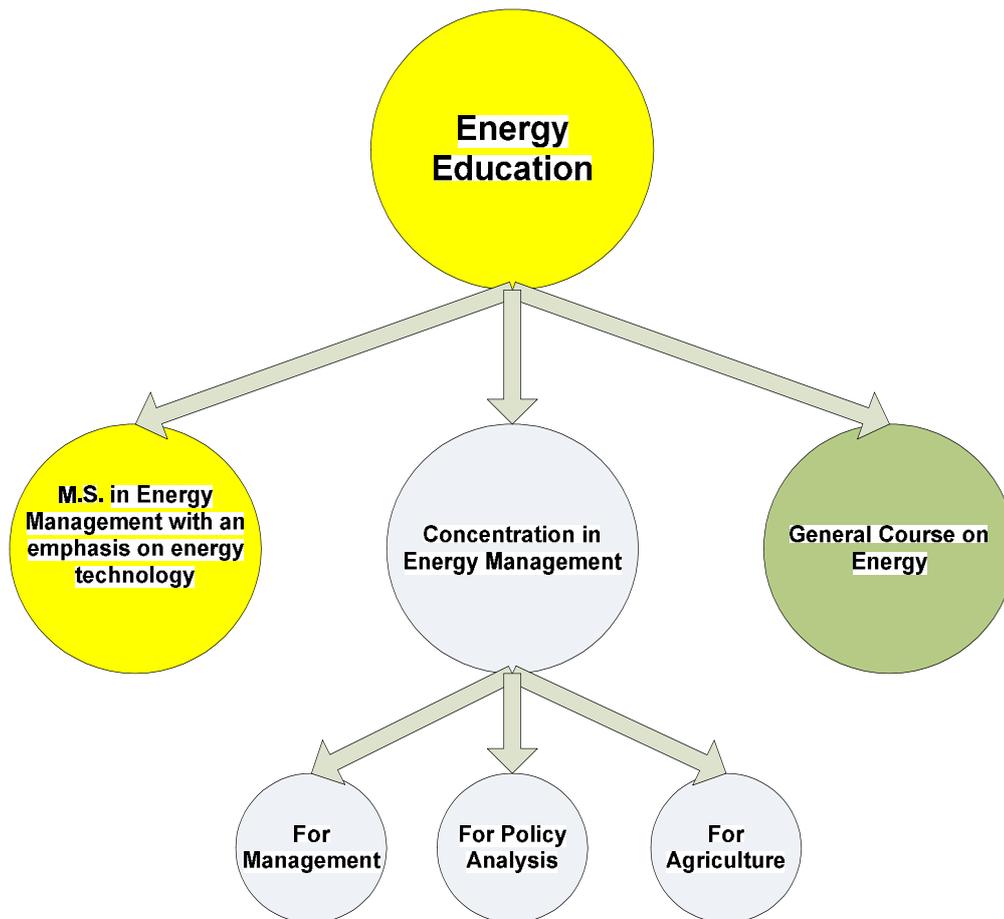
Steps 1 through 8 have been completed. Interviews with 13 universities and 3 energy-sector organizations have been completed so far and we intend to complete all the proposed interviews before the end of January. After meeting with USAID, students' questionnaire was finalized and a local consulting company (BCG) was hired to conduct the surveys and analyze the findings. Test surveys have already been conducted. Students' surveys will be completed by the end of January 2009.

After receiving all the completed questionnaires and students' survey, comprehensive analyses of the responses will be conducted. Then, a set of open-ended questions will be developed for the focus group meetings which will be held sometime in February 2009. We expect to complete the Gap Analysis Report by the end of February 2009 and hold a stakeholders meeting in early March.

IV Vision for Local Energy-Related Programs

Based on our interviews with local universities, literature review, and limited number of interviews with the energy-sector organizations, the following figure was developed to show possible programs that could be developed in Georgia. This picture may change as we complete the Professional Skills Gap Analyses.

Figure 1: A vision for Local Energy Education Programs



M.S. in Energy Management with an Emphasis on Energy Technology

Georgia needs energy managers who are competent in both energy technologies and management. The Master's degree in Energy Management is suitable for students with an undergraduate degree in engineering or science disciplines. The graduates of this program would be qualified to work in all areas of the energy sector from energy efficiency, the power sector, renewable resource development, as well as oil and gas sectors. Development of this program will take longer than the other options and it will be costlier than the other options due to the lab requirements. It is realistic to assume that this program could start at the beginning of 2010-2011 academic year. This delay in the start of the program is necessary to allow sufficient time for preparing the local faculty to develop the new courses.

Concentrations in Energy Management

There are several strong existing graduate programs in Georgia in engineering, business administration, economics, public administration, law, and agriculture. These programs can easily develop a concentration/minor in **Energy Management** by developing 14-18 credits of new courses in energy. This approach is becoming popular at U.S. institutions in all fields. For example, Metropolitan State University (where Dr, Nezhad teaches) offers a **Graduate Certificate in Project Management** for MBA students which consist of 12 credits in this area. New York Institute of Technology has several **Advanced Certificate Programs in Energy Technology, Environmental Management, and Facilities Management**. Each certificate consists of 18 required course credits. University of Wisconsin offers a certificate in **Energy Analysis and Policy** which consists of six courses (18 credits).

Besides the above concentrations, a concentration in **Project Management** would also be highly desirable.

These concentrations could begin fall of 2009.

These concentrations could also be useful for the “**energy-executive training**” if the course format is suitable for these working professionals. The courses could be offered in the evening or weekends and some of the courses could be “Web-enhanced” or completely online.

General Course on Energy

A general graduate-level course on energy such as “**Global Energy and Environmental Issues**”; “**Energy Technologies**”; or “**Energy Resources**” could be developed rather quickly and offered to all graduate students as an elective. Even journalists and K-12 teachers would benefit from such a course. This course will create a general awareness of energy issues and technologies among all graduate students. This same course could be part of the requirements for any of the other two options (M.S. degree and Concentrations).

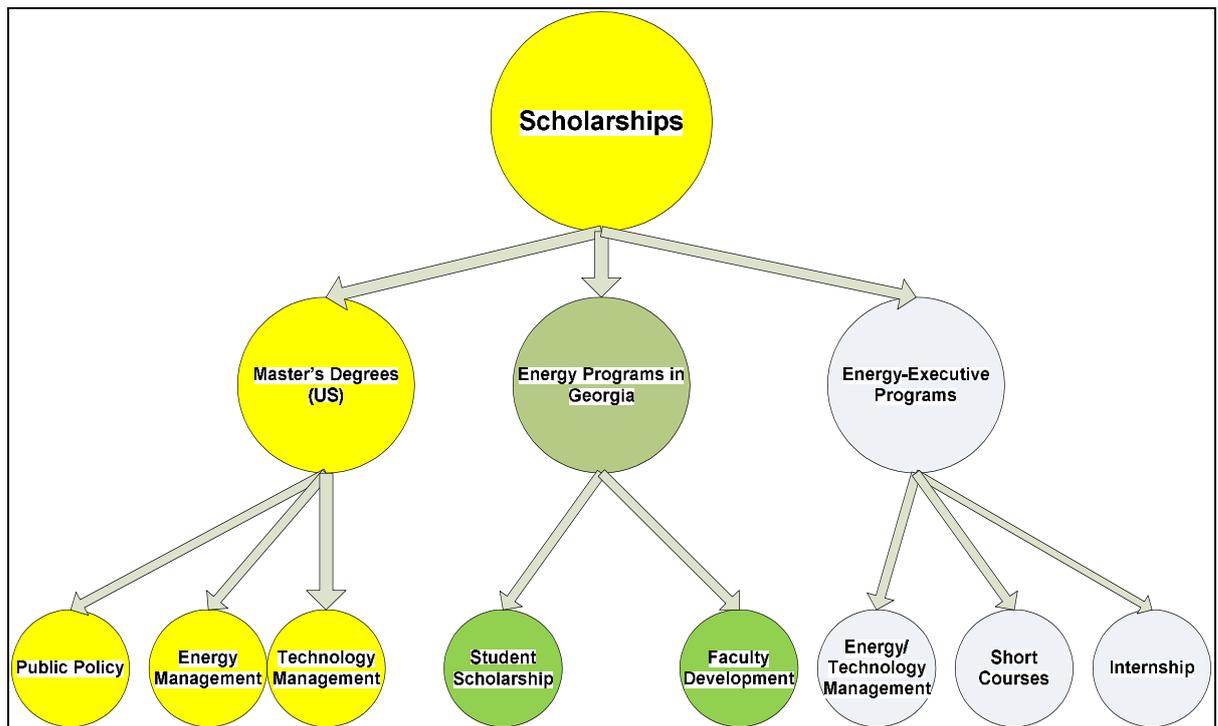
All universities should be encouraged to start offering this course in the fall of 2009.

V Analysis of Options for Scholarships

The scholarship program could be divided into three major categories:

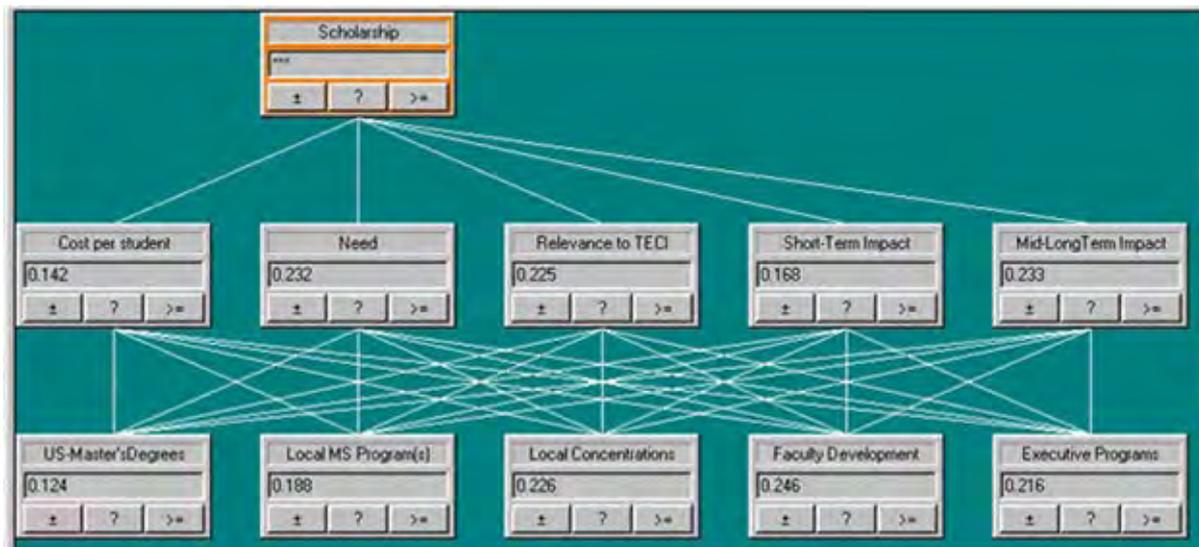
1. Scholarships for graduate studies in the United States;
2. Scholarships for local graduate degree programs in energy management (for both graduate students and selected faculty members who will develop these programs); and
3. Executive programs as shown in the following figure:

Figure 2: Scholarship Options



Using multi-criteria decision support software (DSS) developed by Dr. Hameed Nezhad, these scholarship options were prioritized. Figure 3 illustrates the DSS model:

Figure 3: Decision Hierarchy for Scholarship Options



Descriptions of the Elements in the Hierarchy

Criteria:

Cost: Cost per scholarship recipient

Need: Meeting Georgia's energy sector needs

Relevance: Meeting strategic objectives of ECI project

Short-Term Impact: Short-term impact on energy capacity in Georgia's energy sector

Medium-to-Long-Term Impacts: Medium-to-long-term impacts on energy capacity in Georgia's energy sector

Options:

Master's Degrees in the USA: Scholarships for Master's degrees in the U.S. in Public Policy, Energy Management, or Technology Management programs. Program selection will be finalized after the selection of the scholarship recipients.

Local Master's Degree Programs: Scholarships for local Master's degree program(s) in energy-related areas (to be developed through ECI).

Local Concentrations: Scholarship for local graduate-level concentration in energy-related areas (to be developed through ECI)

Faculty Development: Scholarships to Georgian faculty members who will be developing courses for local energy programs.

Energy-Executive Programs: Executive programs in either energy or technology management in the U.S.

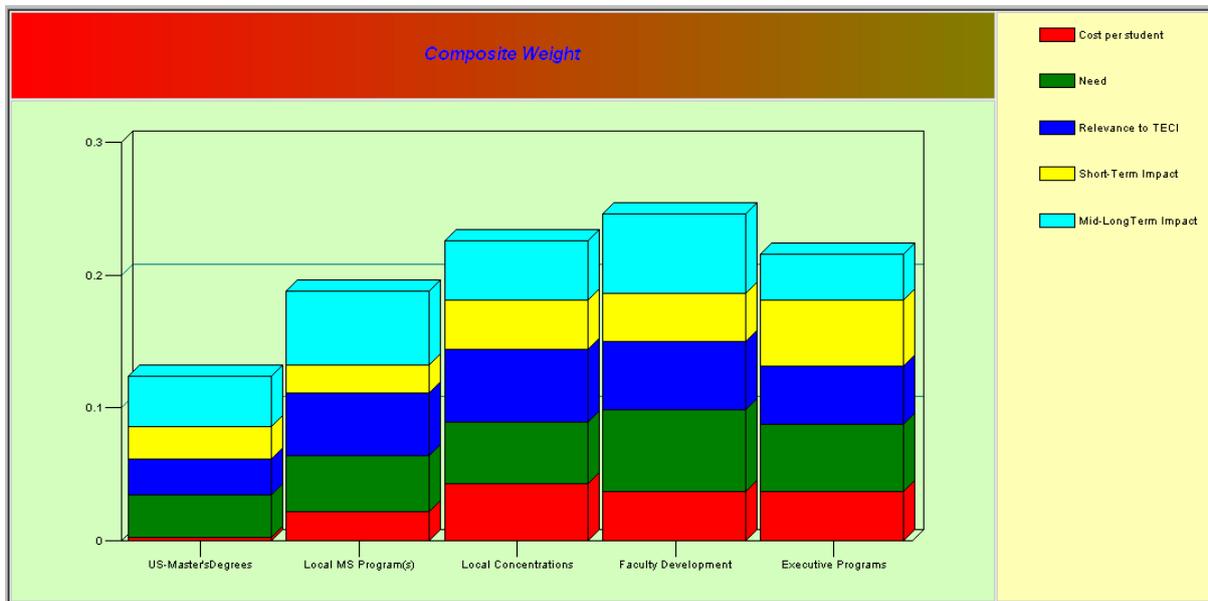
Table 3: Assumptions for Scholarship Options

<i>Scholarship Options</i>	<i>Duration of the program</i>	<i>Approximate Cost of the Program Per Student</i>
U.S. Masters degree programs	2 years	\$100,000
Local Master’s Degree Programs	2 years	\$12,000
Local Concentrations	1 year	\$6,000
Faculty development	14 days	\$10,000
Executive programs	14 days	\$10,000

Priorities of Criteria

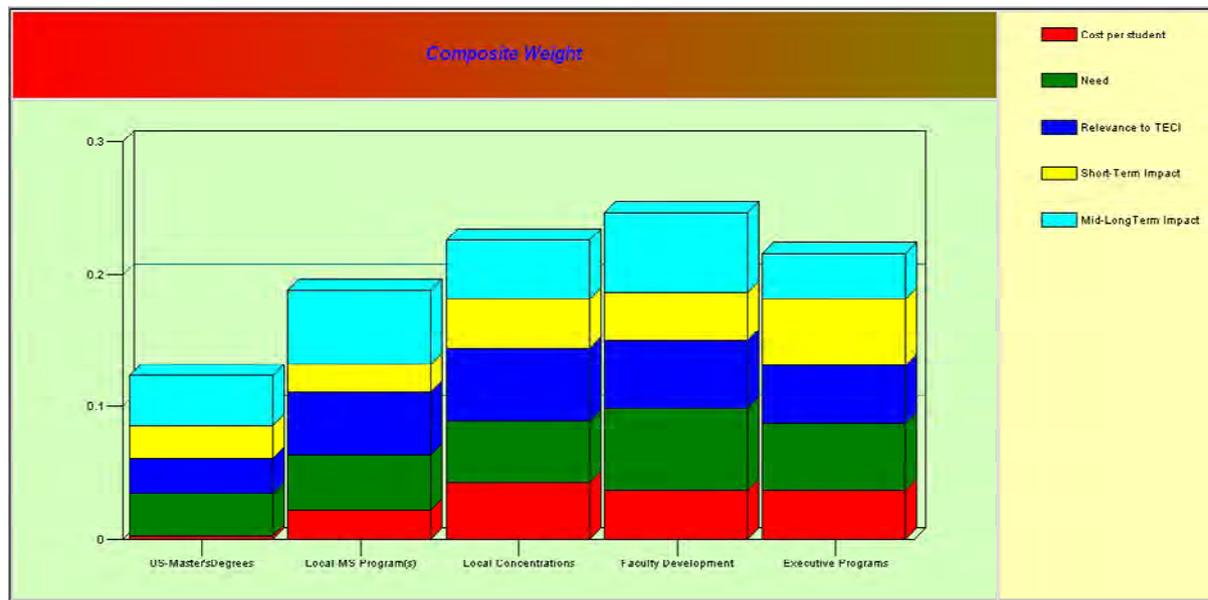
The following graph shows priorities of criteria based on Dr. Nezhad’s judgment.

Figure 4: Priorities of Criteria



As shown in this graph, the “Need,” “Relevance to ECI’s strategic objectives” and “Mid-to-long-term impacts” are given higher priorities than cost and short-term impacts. It should be clear that to make a long-lasting impact on the energy sector capacity, one must pay attention to the needs of the energy sector and mid-to-long-term impacts of the educational programs. ECI’s objectives reflect these priorities.

Using the above criteria and the assumptions, the options were prioritized as shown in the following figure.

Figure 5: Priorities of Scholarship Options

According to the above figure, “**Faculty Development**” for local programs should be the highest priority. In a short time period (about two weeks), a selected number of local faculty members could be trained in the U.S. to develop local programs. After these selected professors return to Georgia, they will conduct a workshop (in Georgian) for other interested faculty members. This option, certainly, will help sustainability of local programs.

Student scholarship for local concentrations has the second highest priority. The reason being that these concentrations could provide needed skills in several areas such as energy management, energy economics, energy policy analysis, etc. in a relatively short time and at lower costs to ECI project.

Energy-Executive Program has the third highest priority. A number of scholarship candidates we interviewed indicated that they cannot be away from their work for two years. These professionals would benefit from a short-term, customized training in the U.S. at a much lower cost than a Master’s degree program.

Local M.S. programs have the fourth highest ranking due to higher costs per-student and longer time needed to develop these programs and to produce graduates.

The lowest priority is given to the **US-Master’s programs** due to high costs, fewer numbers of students to be trained, and the possibility of “brain drain.” In addition, there are a number of other programs such as **Muskie Graduate Fellowship Program** that provide opportunities for graduate studies in U.S. However, ECI believes that this element of the Task 2 scope should still be included because other graduate degree programs are not specific to the energy sector and the proper selection of candidates will provide an opportunity to expand the “train-the-trainers” aspect of our overall program. Since we intend to have these students return to Georgia during their summer breaks (at an overall lower cost to the project) at that time they can assist in the knowledge transfer process associated with the “Faculty Development” workshop/training element defined above and the “Center of Excellence described in Section IV of this report.

Based on our discussions with USAID and ECI team, the following priorities seem logical.

Priority 1: Faculty development

Priority 2: Energy concentrations at local universities

Priority 3: Energy-executive programs

Priority 4: Local MS programs(s)

Priority 5: Master's degrees in the U.S.

Table 4 lists the details of priorities for criteria and scholarship options.

Table 4: Payoff Table for Scholarship Options

Level 2	Cost per student	Need	Relevance to TECI	Short-Term Impact	Mid-Long Term Impact	
Weight	0.14	0.23	0.23	0.17	0.23	
Level 3						Composite Weight
US-Master's Degrees	0.02	0.14	0.12	0.14	0.16	0.124
Local MS Program(s)	0.15	0.18	0.21	0.12	0.24	0.188
Local Concentrations	0.31	0.20	0.25	0.22	0.19	0.226
Faculty Development	0.26	0.27	0.23	0.22	0.26	0.246
Executive Programs	0.26	0.22	0.19	0.29	0.15	0.216

This prioritization process led to reducing the number of U.S. scholarship awards to three. The remaining \$200,000 (out of \$500,000 initially allocated to U.S. scholarships) would be used for other scholarship/fellowship options.

VI Vision for the Creation of the Center of Excellence for Energy Education, Training, Research, and Information

In all our interviews with the university leaders, directors and faculty members as well as the energy-sector organizations, the idea of creation of a **Center of Excellence for Energy Education, Training, Research, and Information** was welcomed with great excitement. Due to the interdisciplinary nature of energy, effective energy education and training programs require collaborations of many experts from different universities and the energy-sector organizations. Creation of a Center of Excellence will bring **stability** and **sustainability** to capacity building in the energy sector in Georgia. The Center would become self sufficient financially through its educational and research services to the energy sector in Georgia and the region. There are a number of energy centers in the United States with many years of successful operations. For example, **Center for Energy and Environmental Policy** at the University of Delaware (<http://ceep.udel.edu/ceep.html>); the **Department of Engineering Professional Development** at the University of Wisconsin; the **Energy and Resources Group** at the University of California, Berkeley (<http://socrates.berkeley.edu/erg/index.shtml>), and the **Nelson Institute** at the University of Wisconsin (<http://www.nelson.wisc.edu/grad/eap/curric.htm>).

The functions of the Center would include:

1. Energy Education

Graduate-level energy education, as was suggested in this report.

2. Energy Training

The Center could provide training to the energy sector organization on variety of topics from current trend in energy technologies to analytical skills and management skills.

2. Applied Energy Research

Applied energy research could be designed to support activities of the energy-sector organizations from technical assessment to economic, financial, and policy analyses for both private companies and public institutions.

3. Energy Information

The Center could become a reference center for teaching and research on energy issues and technologies through its collection of both online and traditional reference materials and experts to guide the potential clients.

VII Recommendations

Although Task 2, Higher Education Programs to Supply a Professional Workforce for the Energy Sector, has taken more time to initiate than originally projected we are now confident that the outcome of this task will be a great contribution to capacity building in the energy sector in Georgia. Here are some of ECI's initial recommendations:

1. Regarding the US Scholarships element of Task 2, after receiving test scores of the two-years scholarship candidates, the scholarship committee will prioritize the candidates using the following criteria and priorities that were agreed on at the December 24th meeting:

A. Academic excellence (14%);

B. Energy-related professional experience (28%);

C. Leadership potential in the energy sector in the near term (45%);

D. TOEFL Scores (7%)

E. GRE/GMAT Scores (6%)

2. The budget for Task 2, and perhaps for the entire project, should be revisited to make certain that it reflects the current strategic objectives of ECI project and USAID given the current post conflict situation in Georgia. In our opinion, more resources should be allocated to capacity building at the universities where the benefit will be more immediate and can be focused on actual needs as defined in the Professional Skills Gap Analysis. This action will ensure sustainability of educational programs to be developed through ECI.

3. At least five professors from Engineering, Economics, Business Administration, Agriculture, and Law/Public Administration and up to nine energy professionals should be selected for short-term training in U.S. during summer 2009. This would become the base for a local train-the-trainers program as local training would initially be provided by these fellowship recipients after they return to Georgia. Local training (train the trainers) may be augmented by one or more short term advisory visits by energy professionals and/or professors

4. For the short term, more attention should be paid to the development of a general graduate-level course on energy and concentrations in energy in a variety of fields rather than exclusively focusing on the development of a Master degree program. The development of a Masters in Energy Management degree program is also important but it requires more time and resources to develop and implement.

5. To insure a more energy sector focus ECI believes that the creation of a "Center of Excellence for Energy Education, Training, Research, and Information" should be given a priority in this Task area. The first step recommended is to assess feasibility, local and regional impacts, and the investment requirements for the creation of such a center. Many Universities in the US have such associated research institutes and these institutes often supply more direct interaction/consulting and analysis with business and government than is possible in a strictly academic setting. This vision for a center of excellence could be one of the main topics of discussion at the focus group meetings.

APPENDIX 1

ENERGY-RELATED PROGRAMS

DISCUSSIONS WITH SELECTED UNIVERSITIES

Summary Table

University & Program	Deadline	Tuition & Fees*	Total Cost (2 Years)*	Test Requirements	Hameed's Ratings
University of Wisconsin Madison- Nelson Institute for Environmental Studies Master of Science in Environment & Resources with a Concentration in Energy Analysis and Policy	Flexible	\$50,500	\$85,122	Flexible GRE & TOEFL recommended	*****
New York Institute of Technology- Master of Science in Energy Management	Flexible	\$43,072	\$74,644	TOEFL	****
University of Minnesota- Technology Management	Flexible	\$65,720 **	\$78,000	Flexible	****
University of Minnesota- MS in Science, Technology & Environment & Master of Public Policy	April 1	\$47,888	\$71,788	TOEFL & GRE	***
University of Wisconsin Madison- Robert M. La Follette School of Public Affairs Master of International Public Affairs Program	March 15	\$50,500	\$85,122	GRE TOEFL	***

*Cost information is preliminary and would be negotiated with each potential University to provide the best value to the Government. Total cost does not include international travel from Georgia or summer time lodging costs.

**also includes a study trip abroad, health insurance, etc.

ECI's Objective: *The Energy Capacity Initiative project (ECI) aims to improve skill levels among policy makers inside and outside government, as well as management skills in state-owned and private energy companies, and in NGOs.*

1. UNIVERSITY OF MINNESOTA-MINNEAPOLIS

Monday, December 1, 2008 (Personal visit)

Name of the University: University of Minnesota (UMN)

Location: Minneapolis

Program: Master of Science in Management of Technology

Web Link: <http://www.cdtl.umn.edu/>

Program Duration: 2 years

Program Format: Class is scheduled one Friday or one Saturday per week, from 8:00 a.m. - 4:30 p.m.

Tuition and Fees: \$65,720 (includes tuition and fees; books; class-day food; parking; international class round-trip airfare and lodging).

Approximate Total Costs (Tuition & fee, insurance, housing & food): \$78,000

(Add at least 10% for cost increases)

Deadline: Flexible

Test Requirements: Flexible

Contact Persons:

Dr. Massoud Amin, D.Sc.

Director of Center for the Development of Technological Leadership

E-mail: amin@umn.edu

Ann Bechtell, MOT Admissions

E-mail: abechtell-cdtl@umn.edu

Curriculum Requirements

Technology Management	Core Business/Management Courses		Leadership
Capstone Project	Business, Government & Macroeconomics	Financial Management for Technology-Based Organizations	Communications in a Technical Environment
Emerging Technologies	Management Accounting	Managing Information Resources in a Technology-Based Organization	Conflict Management
Pivotal Technologies	Managing in a Technological Environment	Marketing Management in Technology-Based Organizations	Corporate Responsibility
Strategic Management of Technology	Managing New Product Development		International Residency
Strategic Technology Analysis	Operations for Competitive Advantage		Project Management & Leadership
Technology Foresight and Forecasting			Science & Technology Policy

Cost of Living-Minneapolis: <http://www.iss.umn.edu/ProspectiveSt/FinancialD.html>

The cost of living for University of Minnesota students depends on each individual's lifestyle. The minimum amount you will need is **\$14,800** for a 12-month period. This amount is based on basic needs only, which includes shared lodging, modest meals and few amenities. This minimum amount does not include cost of clothing, automobile expenses, long distance travel or other such items. To live beyond the basic necessities you may need to budget up to \$25,000 for the 12-month period.



Wednesday, December 10, 2008 (Personal visit)

Name of the University: University of Minnesota (UMN)

Location: Minneapolis

Programs: Master of Science, Technology, and Environmental Policy (MS-STEP) &
Master of Public Policy (MPP)

Web Link: <http://www.hhh.umn.edu/academics/gradprograms/ms/>

Program Duration: 2 years

Program Format: Regular daily classes

Tuition and Fees: \$47,888

Approximate Total Costs: \$71,788

Deadline: April 1

Test Requirements: GRE & TOEFL

Contact Persons:

Katherine Murphy, Student Affairs Officer-MPA & MS-STEP

E-mail: k-murphy@umn.edu

Monica Saralampi, Administrative Assistant, Center for Science, Technology and Public Policy.

E-mail: sara0028@umn.edu

Hubert Humphrey Institute of Public Affairs

MASTER OF SCIENCE, TECHNOLOGY, AND ENVIRONMENTAL POLICY (MS-STEP)

The Master of Science in Science, Technology, and Environmental Policy degree trains students in the role of science and technology in the economy, in food production and health, in energy and the environment, in security policy, and in education. Training also covers the impact of science and technology on the political and economic relationships among nations. MS students are educated in the analysis and design of policies for appropriate promotion and regulation of science and technology regionally, nationally, and internationally. MS students typically have undergraduate degrees or advanced coursework in one of the natural or engineering sciences.

APPLICATION DEADLINES AND ADMISSION REQUIREMENTS

Application deadlines

MPP, MURP, MS degrees:

- Postmark deadline for fall admission and scholarships/fellowships consideration: **January 5.**
- Postmark deadline for fall admission: **April 1.**

MPA degree:

- Postmark deadline for fall admission and scholarships/fellowships consideration: **April 1.**
- Postmark deadline for spring admission: **October 15.**

Admission requirements

- Four-year **bachelor's degree** from an accredited U.S. university or foreign equivalent at time of enrollment.
- **MS** applicants are expected to have completed a degree or taken coursework beyond the introductory level in the **natural or engineering sciences.**
- The University of Minnesota Graduate School prefers a **3.0** or better undergraduate GPA.
- Students in all programs must demonstrate basic **competence in computers.**
- Competence in **college-level algebra** (including facility with functional notations; algebraic manipulation of polynomials, logs, and exponentials; and graphic representation of equations) is required for MPP and MURP students and strongly recommended for MPA students.
- **MS** students must have completed at least one semester of **calculus.**
- **B or better in an Introductory course in microeconomics** for MPP and MS students and strongly recommended for MURP students.
- At least one course in political science (that analyzes political institutions) is strongly recommended for all incoming students.
- **MPA** students are required to have **10 or more years of professional experience.**

Admission is based on a variety of factors, and the weight given to individual factors varies according to the strengths of each applicant. Criteria include:

- Prior academic achievement (transcripts required)
- Professional experience
- Leadership and community/public service experience
- At least 3 letters of recommendation

- Personal statement (outlining your background, commitment to a career in public affairs or planning, and how the program at the Humphrey Institute will help you meet your goals)
- **GRE scores (not MPA applicants)**
- Commitment to a career in public affairs or planning
- TOEFL (if required)
- Potential contribution to the diversity of views and experiences represented at the Humphrey Institute

The Humphrey Institute's admissions and awards committee reviews all applications and makes recommendations to the University of Minnesota Graduate School. The Graduate School makes final admissions decisions and notifies applicants. **Applicants must submit separate applications to the Humphrey Institute and the Graduate School.**

MPP Requirements: http://www.hhh.umn.edu/students/handbook/dualdegree/juris_doctor.html

The MPP degree requires 45 semester credits, of which no more than 17 may be in law courses (which are to be used for the concentration and/or electives). A student must take all required core courses and write a professional paper through one of the options described in the Final Paper Requirements. Students may choose law as their concentration. Assuming that their Humphrey Institute adviser and the DGS agree that the chosen courses have a law focus, no separate petition is necessary apart from the Graduate School Degree Program form. Students may, however, want to design a concentration in international human rights, or international trade law for which they will have to seek written approval of both their adviser and the DGS.

The MPP degree requires an internship of at least 400 hours. In some instances, a law clerkship may count toward the Humphrey Institute internship depending on its focus and responsibilities. Contact Career Services in the Graduate Programs Office regarding waiving the internship requirement

Requirements (Master of Science, Technology, and Environmental Policy (MS-STEP))

The MS degree requires a total of 40 semester credits. Selected Law School courses will satisfy a portion of the MS requirements.** All students in the University's Joint Degree Program in Law, Health & the Life Sciences take a one-credit professional seminar. The seminar does not count toward credit totals otherwise required by the Law School or the Humphrey Institute unless the student petitions to include it in the 12 law credits which are also counted for the MS.

In addition, students must complete a thesis and register for 10 thesis credits if pursuing the Plan A (thesis) MS degree, or write a Plan B paper if pursuing the Plan B (non-thesis) MS.

Examples of HHH courses relevant to the JD/MS joint degree program that may count in the Law School as courses that are substantially law related include:

Table A. Public Affairs Courses Which May Count in the JD Program

Course Number	Public Affairs Course Name	Credits
PA 5013	Law and Urban Land Use	1.5
PA 5122	Law and Public Affairs	3
PA 5131	Conflict Management: Readings in Theory and Practice	3
PA5211	Introduction to Land Use Planning	3
PA 5490	Topics in Social Policy (topic dependent)	1-4
PA 5701	Science and State	3
PA5711	Science and Technology Policy	3
PA 5721	Energy and Environmental Policy	3
PA 5722	Environmental and Resource Economics Policy	3
PA 5790	Topics in Science, Technology, and Environmental Policy (topic dependent)	1-3
PA 8790	Advanced Topics in Science, Technology, and Environmental Policy (topic dependent)	1-3
PA 8991	Independent Study (topic dependent)	1-3

Examples of Law School courses that are expected to qualify for HHH credit in the joint JD/MS degree program include:

Table B. Law Courses to Qualify for MS Degree

Law Course Number	Law Course Title	Credits
Law 7035	Environmental Law Moot Court	2
Law 6201	Land Use Planning	3
Law 6215	Environmental Law	3
Law 6605	Health Law	3
Law 6606	Administrative Law	3
Law 7608	Independent Research (topic dependent)	1-18
Law 6615	Jurisprudence	3
Law 6634	Regulated Industries	3
Law 6637	Agricultural Law	3
Law 6809	Seminar: Agricultural Law and Economics	2
Law 6822	Seminar: Legislative Process	2
Law 6829	Seminar: Comparative Health Law	2
Law 6829	Seminar: Business/Environmental Law	2
Law 6879	Seminar: Mental Health Law	2
Law 5885	Seminar: Advanced Environmental Law	2

Note that course offerings in both the Law School and Humphrey Institute are subject to change. Students should check with the administrator responsible for joint degree programs in each institution to clarify which courses are eligible for cross-credit.

Test Requirements: <http://www.hhh.umn.edu/admissions/faq.html>

What GRE scores do I need to be considered for admission?

- We do not require a minimum score
- the averages for our incoming students are:
 - 550 verbal
 - 630 quantitative
 - 5.2 analytical writing
- GRE test scores must be less than 5 years old
- Other test scores (LSAT, GMAT) cannot be substituted for the GRE
- Applicants to the MPA degree program are not required to take the GRE unless their undergraduate institutions did not report letter grades.

TOEFL: Required Scores (must be less than 2 years old)

Paper Based exam: 600

Internet based: 100

IELTS: 7.0

Is there an economics prerequisite?

- Yes, MPP and MS students are required to complete an introductory **Microeconomics** class with a grade of **B or better**
- Microeconomics is **strongly recommended** for **MURP** students
- The course may be taken at any accredited college or university, including correspondence courses, before beginning courses at the Humphrey

Annual cost¹ of the **MPP**, **MURP**, or **MS-STEP** degree at 2008-2009 rates

	MN residents	Non-residents (includes international students)
Tuition	\$12,048	\$19,130
Health Insurance ²	\$1,564	\$1,564
Student Fees ³	\$2,250	\$2,250
Books (estimated)	\$1,000	\$1,000
TOTAL ACADEMIC EXPENSES	\$16,862	\$23,944
Room and board (estimated)	\$9,200	\$9,200
Personal/Miscellaneous expenses (estimated)	\$2,000	\$2,000
Transportation (estimated)	\$750	\$750
TOTAL LIVING EXPENSES	\$11,950	\$11,950
TOTAL (estimated)	\$28,812	\$35,894

- ¹ Costs above assume full-time enrollment and cover the nine month academic year. Actual costs may vary depending on housing, health and loan fee assessments, transportation costs, and spending habits. These estimates do not include settling in costs such as rental deposits, furniture, computers, etc.

NOTE: Add at least 10% for increases in costs



2. NEW YORK INSTITUTE OF TECHNOLOGY (NYIT)

Tuesday, December 2, 2008 (Telephone conversation)

Name of the University: New York Institute of Technology (NYIT)

Location: Old Westbury and Manhattan, New York

Program: Master of Science in Energy Management

Web Link: http://iris.nyit.edu/set/set1/pages/programs/08ENERGY/_mainframe.html

Program Duration: 2 years

Program Format: Courses are offered in a convenient and flexible **weekend and evening** format in Old Westbury. A weekend course meets four hours and twenty minutes every other Saturday for eight sessions; an evening course meets two hours and ten minutes once a week for 15 sessions. In addition, courses are available online and in Manhattan. Fall, spring and summer semesters are scheduled.

Tuition and Fees: \$43,072 <http://catalog.njit.edu/graduate/frontmatter/tuitionfees.php>

Approximate Total Costs: \$74,644

Deadline: Flexible

Test Requirements: TOEFL

Contact Persons:

Robert N. Amundsen, Ph.D. Director of the Energy Management Program
(516) 686-7578
ramundse@nyit.edu

Jesse Guralnick, Assistant
Director of Graduate Admissions, NYIT
jguralni@nyit.edu

Curriculum Requirements

Curriculum Requirements for the Master of Science in Energy Management

REQUIRED CORE COURSES	3
ENGY 610 Energy Management	3
ENGY 670 Energy Technology in Perspective	3
ENGY 690 Energy Policy, Economics and Technology	3
ENGY 890 Thesis, Practicum or Other Research	3
ENVT 601 Introduction to Environmental Technology	3
MGMT 605 Organizational Development and Behavioral Factors	-----
	18 credits

ELECTIVE COURSE REQUIREMENTS

Eighteen graduate credits of elective work are required. Any combination of graduate-level ENGY, ENVT and MBA courses may be used to satisfy the elective requirement. Course selections must be approved by the Director of the Energy Management program. Recommended electives are listed below.

FACILITIES MANAGEMENT ELECTIVES

ENGY 615 Energy Equipment Assessment	
ENGY 620 Facilities Operation and Maintenance	3
ENGY 625 Facilities Management Seminar	3
ENGY 710 Power Plant Systems	3
ENGY 730 Computer Applications for Energy Management	3
ENGY 820 Automated Building Energy Control Systems	3
ENVT 715 Pollution Prevention and Waste Minimization	3
ENVT 720 Environmental Audits and Monitoring	3

ENVIRONMENTAL TECHNOLOGY ELECTIVES

ENGY 775 Alternative Energy Systems	
ENVT 620 Introduction to Waste Management	
ENVT 655 Fundamentals of Air Pollution	3
ENVT 710 Environmental Instrumentation Lab	3
ENVT 725 Environmental Issues in the New York Area	3
ENVT 730 Geographical Information Systems	3
ENVT 735 Environmental Modeling Techniques	3
ENVT 750 Environmental Risk Assessment	3

MANAGEMENT ELECTIVES	3
ACCT 745 Legal Environment of Business	3
ENGY 655 Environmental Economics	
ENGY 750 Energy and Environmental Law	
ENGY 790 Competitive Energy Markets	3
INTL 725 Multinational Business Management	3
MGMT 610 Operations Management	3
MRKT 601 Marketing Management	3
MRKT 725 Management of New Products	3
Total Credits required 36 Credits	3
	3
	3
	18 credits

Tuition and Fees 2008-2009 (in US dollars)

Full-time Tuition rates do not apply during the summer.

Credits	In-State			Out-of-State		
	Tuition	Fees	Total	Tuition	Fees	Total
1	750.00	197.00	947.00	1,033.00	197.00	1,230.00
1.5	1,125.00	244.50	1,369.50	1,549.50	244.50	1,794.00
2	1,500.00	292.00	1,792.00	2,062.00	292.00	2,358.00
3	2,250.00	387.00	2,637.00	3,099.00	387.00	3,486.00
4	3,000.00	482.00	3,482.00	4,132.00	482.00	4,614.00
5	3,750.00	577.00	4,327.00	5,165.00	577.00	5,742.00
6	4,500.00	672.00	5,172.00	6,198.00	672.00	6,870.00
7	5,250.00	767.00	6,017.00	7,231.00	767.00	7,998.00
8	6,000.00	862.00	6,862.00	8,264.00	862.00	9,126.00

9	6,750.00	957.00	7,707.00	9,297.00	957.00	10,254.00
10	7,500.00	1,052.00	8,552.00	10,330.00	1,052.00	11,382.00
11	8,250.00	1,147.00	9,397.00	11,363.00	1,147.00	12,510.00
12-19 (full-time)	6,890.00	978.00	7,868.00	9,790.00	978.00	10,768.00

Full-time students will be assessed a \$278 Health Insurance fee. International students on F-1 or J-1 visas will be assessed a \$316 fee when registered for 3 or more credits.

Additional credits above 19 are assessed at the appropriate per credit rate.
NOTE: Full-Time status: 12 credits for billing purposes 9 credits for academic and Financial Aid purposes

Academic Fees Assessed (*per semester*)

Part-time Fee Structure	Full-time Fee Structure
<p>Flat charge (at all credit levels): \$80.00 Registration Fee \$22.00 Health Services Fee</p> <p>Per-credit (\$95 per): \$50.00 Academic Facilities Fee \$9.00 Student Services Fee \$4.00 Graduate Assoc. Fee \$10.00 Athletics Fee \$22.00 Technology Infrastructure Fee</p>	<p>\$80.00 Registration Fee \$475.00 Academic Facilities Fee \$65.00 Student Services Fee \$40.00 Activities Fee \$125.00 Athletics Fee \$171.00 Technology Infrastructure Fee \$22.00 Health Services Fee</p>

NOTE: These fees are approved by the Board of Trustees. All fees are mandatory for Full-Time and Part-Time students and are considered non-negotiable. There is a \$90.00 charge per semester for all international students.

Summer / Winter Session Fees

During the summer & winter sessions there is a flat fee of \$160.00 in lieu of the fees noted above.

Additional Fees

\$60.00 Application /Readmission Graduate	\$60.00 Graduate Non-Matriculation
\$100.00 Commencement Fee	

\$50.00	Deferred Fee	\$125.00	Parking Full-time
\$100.00	Dissertation Project Fee	\$65.00	Parking Part-time
\$75.00	Distance Learning Fee	** 7%	Commuter Parking Tax
\$100.00	Late fee	\$25.00	Schedule Change Fee
\$90.00	International Student Fee	\$50.00	Make Up Exam
\$50.00	Maintaining Registration Fee Graduate	\$75.00	Master Thesis
		\$200.00	Reinstatement Fee

** The state of New Jersey mandates a 7% sales tax for commuter students parking on campus

Room & Board

Housing and Meal Plan Fees per Semester

Cypress Hall, Laurel Hall, Oak Hall Double Rooms \$ 3,340.00

Redwood Hall Double Room \$ 3,145.00

- The single room rate is \$3,900.00 per semester. Single rooms are available only to upper-class students based on room selection criteria and processes.
- Twelve-month housing contracts are available. The charge is an additional \$1,000 per semester.

Meal Plans per Semester

A - Plan \$1,458.00 -- Unlimited, continuous dining, 5 guest entries per semester*

These are the rates for 2008-2009 academic year.



3. UNIVERSITY OF WISCONSIN-MADISON

Thursday and Friday, December 4 and 5, 2008

Name of the University: University of Wisconsin Madison (UW)

Location: Madison, Wisconsin

Program: Master of Science in Environment & Resources with a Concentration in Energy Analysis and Policy

Nelson Institute for Environmental Studies

Web Link: <http://www.cdtl.umn.edu/>

Program Duration: 2 years

Program Format: Regular daily classes

Tuition & Fees: \$50,500

Approximate Total Costs: \$85,122

Deadline: Flexible

Test Requirements: Flexible

Contact Persons:

Dr. Paul Wilson, Chair, Energy Analysis & Policy

E-mail: wilsonp@engr.wisc.edu

Sara Lorence, Graduate Admissions & Program Coordinator

E-mail: smlorence@wisc.edu

Curriculum Requirements

Students must complete at least 30 credits for a master's degree and approximately 37 credits for a doctorate. Courses are drawn from the following four categories to provide both depth and breadth in knowledge related to environment and resources problems:

	Master's Degree	Doctorate
Natural Science	6 credits (minimum)	9 credits (minimum)
Social Science and/or Humanities	6 credits (minimum)	9 credits (minimum)
Measurement and Analysis	6 credits (minimum)	9 credits (minimum)
Individual Program Focus	12 credits (minimum), Up to 6 credits of thesis research may be counted	15 course credits (minimum) (9 of the 15 credits can be shared from one breadth category) plus two research seminars and a variable number of research credits

Doctoral students must complete at least one course in each breadth category at UW-Madison.

Every master's and doctoral student must complete at least one environment and resources seminar. This requirement can be satisfied by completing Envr St 992 Special Topics in Land Resources, or Envr St 993 Seminar: Research Methods in Land Resources, or a suitable substitute.

Courses may be selected from many UW-Madison departments to satisfy the curriculum requirements of the Environment and Resources Program. The following lists demonstrate the wide array of subjects from which courses can be taken:

Natural Science	Humanities/Social Science	Measurement and Analysis
<ul style="list-style-type: none"> • agronomy • atmospheric and oceanic sciences • bacteriology • biological systems engineering • botany • chemistry • civil and environmental 	<ul style="list-style-type: none"> • agricultural economics • anthropology • business • continuing and vocational education (CAVE) • economics • education • environmental 	<ul style="list-style-type: none"> • statistics • quantitative analysis • remote sensing • cartography • computer sciences • mathematics • modeling • qualitative methods

- | | | |
|---|--|--|
| <ul style="list-style-type: none"> • engineering • computer science • entomology • environmental studies • environmental toxicology • forestry • geography • geology and geophysics • industrial engineering • landscape architecture • plant pathology • soil science • wildlife ecology • zoology | <ul style="list-style-type: none"> • studies • forestry • geography • history • journalism and mass communication • landscape architecture • law & environmental law • life sciences communication • political science • public affairs • rural sociology • sociology • urban and regional planning | <ul style="list-style-type: none"> • research methodology and other methodology courses |
|---|--|--|

Individual Program Focus

Since courses used in this category are completely dependent upon the focus of the individual program, specific suggestions are not included here.



Each EAP student must complete **six courses (18 credits)** including:

- an introductory seminar
- one course each in energy policy, energy economics and business, energy technology, and environmental studies
- and a capstone seminar

Students may select courses to satisfy the requirements from the list below. Each semester the EAP Program will produce a list of course offerings for the upcoming year.

Program Seminars

- EnvSt/URPL/PubAff 809, Energy Analysis and Policy Seminar -- Introductory Seminar, Energy, Society & the Environment]. Instructor: Dr. Richard Shaten. Fall semester.
- EnvSt/URPL/PubAff 810, Energy Analysis Seminar -- Capstone Seminar. Spring semester.

Energy Technology

- Geol 411, Energy Resources. Instructor: Prof. Alan Carroll. Fall semester.
- NEEP 571, Economic and Environmental Aspects of Nuclear Energy. Instructor: Prof. Mike Corradini (EAP Chair). Spring semester.

- BSE/EnvSt 367, Renewable Energy Systems. Instructor: Prof. Doug Reinemann. Fall semester.
- ME/ChE 567, Solar Engineering of Thermal Processes. Instructor: Prof. Sandy Klein. Fall semester.
- ECE 356, Electric Power Processing for Renewable Energy Systems. Instructor: Prof. Thomas Jahns.
- ME 469, Internal Combustion Engines.
- ME 565, Power Plant Technology.
- ME 468, Building Energy Management and Space Conditioning.
- ME 569, Applied Combustion.

Energy Economics and Business

- AAE/Econ/EnvSt/TranPU/URPL 671, Energy Economics. Instructor: Dr. Richard Shaten. Spring semester
- TranPU 725, Public Utilities. Instructor: Prof. Rod Stevenson. Fall and Spring semesters.
- Econ/TranPU 630, Public Utility Problems. Instructor: Prof. Rod Stevenson.

Energy Policy

- EnvSt 539, Air Resources Science & Policy. Instructor: Prof. Tracey Holloway. Fall semester.
- EnvSt/AOS 535, Atmospheric Dispersion & Air Pollution. Instructor: Prof. Tracey Holloway. Spring semester.
- AAE/Econ/EnvSt/PubAff 881, Benefit Cost Analysis. Fall semester.
- TranPU 725, Public Utilities. Instructor: Prof. Rod Stevenson. Fall and Spring semesters.
- Law 837 Regulated Industries: Energy. Instructor: Prof. Peter Carstenson.

Environmental Studies

- EnvSt/AOS 535, Atmospheric Dispersion & Air Pollution. Instructor: Prof. Tracey Holloway. Spring semester.
- EnvSt 539, Air Resources Science & Policy. Instructor: Prof. Tracey Holloway. Fall semester.
- Agronomy/Entom/EnvTox/WLEcol 630, Ecotoxicology: Toxicant Effects on Ecosystems.
- Envir St/Prev Med 502, Air Pollution and Human Health. Instructor: Prof. Marty Kanarek. Fall semester.
- CEE423/ME466, Air Pollution Effects, Measurements and Controls.
- EnvSt/EnvTox/Prev Med 507, People, Chemicals, Environment.
- NEEP 571, Economic and Environmental Aspects of Nuclear Energy. Instructor: Prof. Mike Corradini (EAP Chair). Spring semester.

Electives

(Not intended to fulfill program requirements, but may serve to make up program prerequisites)

- AAE/Econ/Envir St 343 Environmental Economics
- AOS/EnvSt/Physics 472, Scientific Background for Global Environmental Problems.
- AAE 431, Natural Resource Economics.

- Envir St/Forest/WL Ecol 515 Renewable Resources Policy

Total Costs: <http://info.gradsch.wisc.edu/education/admissions/financialinfo.html>

Tuition for academic year (Fall and Spring)	\$25,250	\$25,250
Food and housing (12 months)	\$10,972	\$10,972
Incidentals (clothing, transportation, personal items)	\$3,633	\$3,633
Books and supplies	\$990	\$990
	*Age 25 and younger	*Age 26 and older
Health Insurance - SHIP (mandatory 12 months)	\$1,296	\$1,716
Total Student Expenses	\$42,141	\$42,561

ROBERT M.
LA FOLLETTE SCHOOL OF PUBLIC AFFAIRS
UNIVERSITY OF WISCONSIN-MADISON

Degree Programs: Master of International Public Affairs

Globalization presents challenges that demand a new perspective on governance. An increasingly global economy is shaping a new business-government relationship, blunting the regulatory capacity of governments and introducing greater complexity to the design of public policies to promote important social goals. At the same time, critical policy problems such as environmental degradation, spread of deadly viruses and financial market instability increasingly require strategies of global governance that coordinate across nations the actions of governments, businesses, and non-governmental agencies. In short, globalization has stretched the boundaries of public affairs, analytically and managerially. More than ever, the major and the mundane issues of governance link governments with players outside the public sector and beyond domestic borders.

Through rigorous professional training across several disciplines, the Master of International Public Affairs (MIPA) degree program prepares students from the United States and around the world to engage in governance in ways that meet the challenges of globalization. MIPA graduates work in government at home and abroad, in businesses involved in the global economy, in non-governmental agencies with an international focus, in consulting firms analyzing implications of international policies, and in many other areas.

- Core Courses
- MIPA Policy Electives
- Focus Fields
- International Internships

MIPA Curriculum

The MIPA degree program, usually completed in two years of study, is organized around a curriculum of 42 credits made up of five core courses and nine electives, at least three of which are MIPA policy electives. On the foundation of required courses and MIPA policy electives, taught by the La Follette School faculty, the program provides students with great flexibility to pursue their intellectual interests and career goals by selecting from a wide range of courses offered in the many strong departments, schools, and centers across the university to build expertise in specialized focus fields.

Focus fields are represented in clusters of courses, which may include an internship, connected by their relevance to a coherent theme. Policy focus fields develop knowledge in major substantive areas of international public affairs, typically building on MIPA policy electives. Regional focus fields develop broad expertise in a geographic region and may include language courses. The flexibility of the MIPA program permits students to complete either a single focus field of five or more courses or two focus fields of at least three courses each.

Core courses

Five required courses are the foundation of the MIPA degree program.

- International Governance provides the broad substantive framework for the study of public affairs in the context of globalization. It identifies and explores major international policy issues and policy context, with an analytical emphasis on domestic and international public, private, and non-governmental influences in governance.
- Quantitative Tools for Public Policy Analysis, Macroeconomic Policy and International Financial Regulation, and Microeconomic Policy Analysis develop competence in important analytic tools for the study of international public affairs. Students learn how to assess policy responses to macroeconomic events, evaluate implications of policies for efficiency and equity, and employ basic statistical methods to interpret and present quantitative data relevant to policy considerations.
- Workshop in Public Affairs, International Issues, the MIPA capstone course, gives students practical experience working in teams and applying the conceptual and analytical tools acquired during three semesters of coursework to real-world international issues clients face in the public, private, and non-governmental sectors. Workshop clients have included the Organization for Economic Co-operation and Development in Paris, the British Embassy in Washington, D.C., the International Land Coalition in Rome, and a non-governmental university in Bangladesh.

MIPA students are also strongly encouraged to build proficiency beyond the core analytical requirements by completing at least one of the following: Quantitative Methods for Policy Policy, Public Program Evaluation, and Cost-Benefit Analysis.

MIPA Policy Electives

MIPA policy electives, taught by the La Follette School faculty, exemplify and develop the theme of governance to meet the challenges of globalization through a specific policy focus.

MIPA policy electives also serve as core courses for policy focus fields. All MIPA students complete at least three MIPA policy electives from the list below.

- International Business and Government
- Trade, Competition, and Governance in a Global Economy
- Political Economy of Corruption and Good Governance
- Globalization, Technological Change, and Regulatory Harmonization
- Global Environmental Governance
- Labor in the Global Economy
- Governing Work and Welfare in the European Union
- Government Finance in Developing Countries
- Public Policy Implications of Aging Societies

Focus fields

Students build on MIPA policy electives and select from other courses offered across the university to develop one or two policy focus fields. Alternatively, they can select from courses offered in the university area studies programs to develop a regional focus field, or they can develop a policy focus field and a regional focus field.

Policy Focus Fields

MIPA students may choose from among policy focus fields that represent substantive areas of international public affairs. They also may develop an interest outside of these areas, such as international public management. Each policy focus field includes in its curriculum a MIPA policy elective as a required core course. The fields are:

- Business and Government
- Trade and Finance
- Social, Labor, and Employment Policy
- Development
- Energy and Environmental Policy

Regional Focus Fields

Regional focus fields develop broad expertise in a geographic region by clustering together courses, including language courses, across several disciplines, typically emphasizing courses in the social sciences. In building regional focus fields, MIPA students take advantage of the university's strong area studies centers, which include:

- African Studies
- East Asian Studies
- European Studies
- Latin American, Caribbean, and Iberian Studies
- Middle Eastern Studies
- Russian, East European, and Central Asian Studies
- South Asian Studies
- Southeast Asian Studies

Internships

Students are encouraged to strengthen their career preparedness and broaden their placement opportunities by taking up suitable internships in government agencies, international organizations or offices of non-governmental organizations in Madison,

elsewhere in Wisconsin, in Washington, D.C., Chicago, New York City and other major centers in the United States or in other countries. Upon approval by the career development coordinator and associate director, students may earn up to three academic credit toward their degree requirements.

Prerequisites for Admission to the Master of International Public Affairs Program

At least one course in microeconomics

At least one course in macroeconomics

At least one course in statistics or calculus

At least one course in international relations or comparative politics

Four semesters in one foreign language, the equivalent, or demonstrated foreign language competence

It is possible to receive a conditional acceptance if a student is missing one prerequisite course on the condition that the student complete the prerequisite before beginning the program.

Deadlines

Students who wish to be considered for La Follette fellowships must apply by January 1st. Advanced opportunity fellowships can be awarded to students who apply anytime between January 1st and March 1st. All other applications must be received by **March 15th**.

English Proficiency

Every applicant whose native language is not English, or whose undergraduate instruction was not in English, must provide an English proficiency test score. Scores are accepted if they are within two years of the start of the admission term. Country of citizenship does not exempt applicants from this requirement. Language of instruction at the college or university level, and how recent it has been, are the determining factors in meeting this requirement.

Applicants are exempt if:

- English is the exclusive language of instruction at the undergraduate level; **or**
- they have earned a degree from a regionally accredited U.S. college or university not more than 5 years prior to the anticipated semester of enrollment; **or**
- they have completed at least two full-time semesters of graded course work, exclusive of ESL courses, in a U.S. college or university, or at an institution

outside the U.S. where English is the exclusive language of instruction, not more than 5 years prior to the anticipated semester of enrollment.

TOEFL: Minimum 600

GRE: Quantitative 630; Verbal 550; Analytic Writing 5.2

Department of Engineering Professional Development

University of Wisconsin-Madison

<http://www.engr.wisc.edu/epd/>

Customer-focused continuing education for engineering and technical professionals

The University of Wisconsin-Madison Department of Engineering Professional Development has been improving professional engineering and related fields since 1949 through its internationally-recognized continuing education program. Choose from more than 400 continuing education courses in engineering, design, operations, production, maintenance, management, and planning.

- Update and expand your technical skills and knowledge
- Understand and apply new technologies
- Solve on-the-job problems
- Network with your peers
- Earn nationally-recognized PDH, LU, CEU
- Advance your career

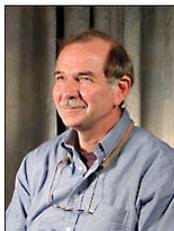
Benefit from state-of-the-art facilities, a variety of learning formats, (classroom, on-site, on-line, and independent study) and expert instructors drawn from industry, research, private practice, government, and education.

Contact Person

Thomas
Faculty Associate/Program Director

W.

Smith



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continuing education

advanced degrees

- Continuing Education Courses: courses, seminars, and
- Master of Engineering in Engine Systems

- workshops for practicing engineers and technical professionals
- Faculty Profiles
- Staff Profiles

- Master of Engineering in Professional Practice
- Master of Engineering in Technical Japanese

certificate programs

- Technical Communication Certificate Program: on-campus credit courses for undergraduate and graduate students
- Certificate in Japanese Studies for Engineering Students: a series of credit courses focusing on comprehending technical Japanese and understanding Japanese culture and methods for managing technology

college services

The college has a variety of services for industry, government and students to share technology undertake cooperative projects and enhance engineering education. These offices address issues of diversity, technology transfer and educational development.

About EPD

EPD Transfers Technical Knowledge to Individuals, Industry, and Government

Continuing education courses - Each year, the Department of Engineering Professional Development (EPD) conducts approximately 400 continuing education courses for engineers, scientists, architects, managers and other professionals. Approximately 15,000 students representing more than 5400 businesses attend at our Madison conference centers* or at major hotels/conference centers around the country. Our courses provide a mix of classroom lectures, hands-on sessions, problem-solving experiences, and group discussions, giving you opportunities to fully examine and apply the ideas and concepts presented.

On-site training - As a customer-focused organization, EPD can deliver many of our courses on-site, providing convenience and cost savings for groups of employees. We can also work with our clients to tailor a program that meets the organization's specific educational needs.

Advanced degrees and certificate programs - EPD offers the Master of Engineering in Professional Practice, the Master of Engineering in Engine Systems, and the Master of Engineering in Technical Japanese—innovative advanced degrees at a distance that make in-depth education available to practicing professionals. Five certificate programs are also available to focus your continuing education in a specific area.

Total Educational Experience

As a department within a world-class research and teaching university, we offer you a total educational experience that includes state-of-the-art facilities and laboratories, a variety of learning formats and locales, and expert instructors. Designed and directed by our staff of experienced engineers and technical professionals, our offerings provide fundamental knowledge, new information and ideas, an understanding of the latest technology and how to apply it, practical experiences and invaluable professional contacts.

Instructional Excellence

Our instructors are leading experts from industry, research, private practice, government, and education. They provide information on advances in their fields and share methods and applications that work successfully for them. You gain stimulating ideas, different perspectives, and new approaches to apply at work.

Recognizing Your Educational Achievement

When you successfully complete a continuing education course, we record the contact hours of instruction in an ongoing transcript in your name. The Professional Development Hours (PDH), Continuing Education Units (CEU), or Learning Units (LU) that you earn are recognized by employers, professional associations, and certification and licensing agencies as significant evidence of educational achievement.

Start Planning Your Professional Development Today

Gain the know-how to succeed in today's challenging work environment. We are fully prepared to support your professional development. Contact us today!

Mission Statement of Engineering Professional Development

To improve the practice of engineering and related professions for the benefit of society by

- providing objective continuing education and credit instruction to practicing professionals and students
- conducting and disseminating research
- enhancing the public's understanding of science and technology

Our mission is based on the Wisconsin Idea, a belief that permeates the University's work, fostering close working relationships not only across Wisconsin but also throughout the country and around the world.

For more information on how EPD's professional education offerings benefit the state and beyond see EPD by the Numbers.

Engineering Professional Development offers more than 400 continuing education courses for engineers, architects, contractors, consultants, managers, and other technical professionals. Use the links below to view courses.

Building Facilities, Structures and Electrical Power Systems and Utilities
Architecture

- **Architectural Planning and Design Courses**
- **Building Codes, Inspection, Planning and Zoning Courses**
- **Building Commissioning Courses**
- **Building Construction Courses**
- **Electrical Building Systems and**
- **Electrical Building Systems and Codes Courses**
- **Energy Efficiency and Auditing Courses**
- **Industrial and Commercial Power Systems Courses**
- **Utility Power Systems Courses**

Codes Courses

- **Facility Operation and Maintenance Courses**
- **High Performance and Green Buildings Courses**
- **HVAC Building Systems Courses**
- **Plumbing and Fire Protection Building Systems Courses**
- **Structural and Foundation Engineering Courses**

Engineering and Project Management

- **Disaster Management Courses**
- **Distance Teaching and Learning Courses**
- **Engineering Management Courses**
- **Environmental Management, Sustainability, and Climate Change Courses**
- **Project Management Courses**

Chemical, Pharmaceutical and Biomedical

- **Chemical and Process Engineering Courses**
- **Food Engineering Courses**
- **Medical Devices and Biomedical Engineering Courses**
- **Pharmaceutical Engineering Courses**

Manufacturing and Industrial Systems

- **Ammonia Refrigeration Courses**
- **Internal Combustion Engines Courses**
- **Laser Material Processing Courses**
- **Maintenance Management and Plant Engineering Courses**
- **Operations and Manufacturing Processes Courses**
- **Product Design Courses**
- **Product Safety and Liability Prevention Courses**

Civil and Environmental Engineering

- **Docks and Marinas Courses**
- **Drinking Water Courses**
- **Environmental Management, Sustainability, and Climate Change Courses**
- **Geotechnical, Soil, and Foundation Engineering Courses**
- **Public Works and Municipal Courses**
- **Railroad Engineering Courses**
- **Solid Waste Courses**
- **Storm water, Rivers and Groundwater Courses**
- **Streets, Highways and Bridges Courses**
- **Structural and Foundation Engineering Courses**
- **Wastewater Courses**

Telecommunications

- **Telecommunications and Data Communications Courses**

Certificates

University of Wisconsin's Engineering Professional Development offers several certificate series which allow you to focus your continuing education in a specific area. Each series features courses designed to help you keep pace with the latest practices and technologies in your field.

Employers acknowledge the certificate series as proof of your effort to keep up with the rapid changes in technology, the marketplace, and the global economy.

Maintenance Management Certificate

Keep up to date with the changes and innovations in the maintenance field. Attend five courses from the Maintenance Management Series list. For maintenance professionals, materials and purchasing managers, plant managers, and professionals with related product, process or facility responsibilities.

Operations Management Certificate

Learn the strategies, tactics and tools necessary to advance the performance of your organization. Offered jointly with UW-Madison School of Business, this certificate is for VPs, directors and managers of manufacturing and operations, general managers, plant managers, industrial managers, production control managers and staff, planners and master schedulers, design and process improvement engineers, materials/inventory managers, procurement managers, MIS managers, systems administrators, and controllers. Complete six courses from the Operations curriculum.

Commissioning Process Certifications*

Gain a marketable, independently-recognized certification as a professional knowledgeable in the commissioning process. Three unique certifications offer applicants recognition for their skills, through a combination of training, examination, and proof of professional experience.

Laser Welding Certificate

Gain marketable recognition in two series that focus on laser welding equipment and process validation. Two certificate series are available that incorporate the guidelines of ISO, FDA, and AWS to provide the best practice standards for the laser welding industry. The Accredited Laser Welding Professional certification is for the primary technical professional involved in the design, engineering and/or management of laser welding parts, assemblies or operations. The Accredited Laser Welding Process Technical Support Provider is for the technical support provider responsible for the hands-on set-up, calibration and operations of the laser welding process.

Technical Leadership Certificate*

Offered jointly with UW-Madison School of Business, this series features innovative management training for technical professionals transitioning into managerial and leadership roles. Develop the qualitative and quantitative skills of a successful leader.

Disaster Management Diploma*

In 1994, as part of its ongoing commitment to professional development in disaster/emergency management, the University of Wisconsin Disaster Management Center established the Disaster Management (DM) Diploma. This is a personal study program that can combine UW–DMC self-study courses with courses from other organizations anywhere in the world.

Click on the links above to learn more about each series and how you can increase your knowledge and value.

Distance Degrees

Master of Engineering in Professional Practice (MEPP)*

This two-year program is a proven alternative to an MBA for practicing engineers from any field who are assuming broad responsibility for project implementation and management. Practical and results-oriented, this program provides the engineering, management, communication and computer skills for succeeding and advancing in today's workplace. MEPP courses make the best use of Internet technologies to provide a rich learning environment that includes team projects and discussions with other students and faculty.