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SEMI-ANNUAL 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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ON THE COVER: ISET Executive Director Mr. Eric Livny receiving a certificate at Strategic planning workshop organized by ECI in Gudauri in December 2009

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DECEMBER, 2009

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

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**. The major ECI tasks are as follows:

Task 1: Energy Issues Analysis and Dialogue;

Task 2: Higher Education Programs to Supply a Professional Workforce for the Energy Sector; and

Task 3: Support the Integration of Georgia into European and Regional Energy Institutions through Participation in Regional Workshops and Conferences.

The primary objective of Task 2 is to improve the quality of the professional workforce available for the energy sector through support for **higher education programs**. To accomplish this objective, the following activities have been completed:

1. Development of local graduate-level energy-related programs based on the energy sector needs

The following selected four universities in Georgia started to develop a long term master degree (full master or concentration) programs in energy. These programs are designed to produce graduates with skills that have been identified in the **Professional Skills Gap Analysis Report** (see Attachment 1.).

1. Georgian Technical University - a **Concentration in Energy Management** for their existing graduate programs in engineering disciplines.
2. International School of Economics (ISET) at Tbilisi State University (TSU) - a **Concentration in Energy Economics** for their existing graduate program in economics.
3. Akaki Tsereteli State University in Kutaisi - a new Master's degree program in **Power Industry Technology and Management**.
4. Grigol Robakidze University (a private university) - a **Concentration in Energy Management** for their existing MBA program.

To enhance collaborations among universities and energy companies, four universities (*Georgian Technical University, International School of Economics at Tbilisi State University, Akaki Tsereteli State University, Grigol Robakidze University*) and four companies (*JSC "Telasi", Georgian State Electrosystem Ltd., Electricity System Commercial Operator Ltd, Georgian National Electricity and Water Regulatory Commission*) signed a **Memorandum of Understanding** (MOU) to establish a **Center for Excellence in Energy Education, Training, Applied Research, and Information** (CEE) in Georgia.

To develop a strategic plan for CEE, Dr. Hameed Nezhad had conducted an interactive workshop on **"Strategic Planning"** for the Consortium members. The result of this workshop was a preliminary strategic plan for CEE which is included in this report.

Appendix 1 includes copies of a number of media coverage on CEE and the graduate programs.

2. U.S. scholarship program for three students from Georgia

In September 2009, three selected students from Georgia started their study in the USA:

1. Mikheil Zibzivadze (from GSE) to Study “**Management of Technology**” at the Technological Leadership Institute of the University of Minnesota;
2. Marina Arabidze (from GOGC) to major in **Environmental Studies** with a **Certificate in Energy Analysis and Policy** at the University of Wisconsin, Madison; and
3. Nana Gurgenidze (from MOE) to study “**Energy Management**” at New York Institute of Technology. Their transcripts for their first semester of study in the U.S. show their impressive performances.

II Development of Local Graduate-Level Energy Programs

Energy Education Program Design

In May 2009, the following four selected universities in Georgia signed contracts with ECI and began developing their proposed graduate programs in energy. Energy companies collaborated with these universities in the design and implementation of all of these programs.

Georgian Technical University - a **Concentration in Energy Management** for their existing graduate programs in engineering disciplines. This concentration includes the following courses.

Table 1: Concentration in Energy Management at Georgia Technical University

| No | Course/Module | ECTS* Credits |
|----|--|---------------|
| 1 | Energy Generation, Transformation and Consumption technologies | 20 |
| 2 | Principles of Energy Management | 10 |
| 3 | Energy Consumption Demand Side Management | 10 |
| 4 | Renewable Energy Technologies | 10 |
| | Total Number of Credits | 50 |

*ECTS = European Credit Transfer System

International School of Economics (ISET) at Tbilisi State University (TSU) - a ***Concentration in Energy Economics*** for their existing graduate program in economics. This concentration includes the following courses.

Table 2: Concentration in Energy Economics at ISET

| No | Course Title | ECTS Credits |
|----|--|--------------|
| 1 | Cost/Benefit Analysis – Program Evaluation | 3 |
| 2 | Energy Economics I | 3 |
| 3 | Energy Economics II | 3 |
| 4 | Environmental Policy | 3 |
| 5 | Master's thesis | 18 |
| | Total Number of Credits | 30 |

**ECTS = European Credit Transfer System*

Akaki Tsereteli State University in Kutaisi - a new Master's degree program in ***Power Industry Technology and Management***. This Master's degree program includes the following courses.

Table 3: Master's Degree in Power Industry Technology and Management at Akaki Tsereteli State University in Kutaisi

| Course Title | ECTS Credits |
|--|--------------|
| I. English (required) | 10 |
| II. General Courses (required) | 10 |
| !. Mathematical Problems and Modeling in Power Engineering and Economics | 10 |
| III. Technical Courses (required) | 20 |
| 1. Power Industry Technology | 10 |
| 2. Power Engineering of Alternative Energy Sources | 5 |
| 3. Energy Efficiency and Energy-Saving Technology | 5 |
| IV. Courses in Economics, Management and Marketing | 25 |
| 1. Energy Enterprises Management | 5 |

| | |
|---|------------|
| 2. Power Engineering Design Basis | 5 |
| 3. Energy Policy and its Legal Foundations | 5 |
| 4. Project Design and Management | 5 |
| 5. Power Markets and their Management | 5 |
| V. Environmental Protection and Public Relations | 10 |
| 1. Power Engineering Environmental Aspects | 5 |
| 2. Energy and Society | 5 |
| VI. Elective Courses Student will select two courses from the following courses | 10 |
| 1. Energy Security | 5 |
| 2. Energy Balance | 5 |
| 3. Natural Monopolies and their Management | 5 |
| 4. Power Systems Reliability | 5 |
| 5. Optimization of Power Systems Regimes | 5 |
| 6. Power Long Distance Transmission | 5 |
| 7. Power Systems Control | 5 |
| 8. Power Systems Design Basis | 5 |
| VII. Other Requirements | 35 |
| Internship | 10 |
| Scientific Work | 2 |
| Master's Degree Work Execution | 25 |
| Total Number of Credits | 120 |

Grigol Robakidze University (a private university) - a **Concentration in Energy Management** for their existing MBA program. This concentration includes the following courses.

Table 4: Concentration in Energy Management at Grigol Robakidze University

| Course Title | ECTS Credits |
|---|--------------|
| Energy Management | 5 |
| Energy Economics and Policy | 5 |
| Energy and Environmental Law | 5 |
| Competitive Energy Markets | 5 |
| Renewable Energy | 2 |
| Energy Technology | 3 |
| Project Management | 5 |
| Master's thesis (includes practicum) | 20 |
| Total Number of Credits | 50 |

Energy Education Programs Implementation

Georgian Technical University - Concentration in Energy Management

This program will begin in the fall of 2010 and the first series of students (about 16) will graduate in spring 2011. To support implementation of their program, the GTU energy team has:

- Promoted this new concentration at the university level;
- Purchased equipment and books;
- Established collaborative relationships with their partner companies; and
- Is in the process of renovating their facility to support this program

International School of Economics (ISET) - Concentration in Energy Economics

This program began in the fall of 2009 with 8 students who will graduate in spring of 2010. Another cohort of 10 students will begin their studies in the fall of 2010 and will graduate in spring of 2011. ISET has recruited two new international experts who will teach some of the required courses in the concentration. Under the new regulation by the **Ministry of Education and Science of Georgia**, all applicants for Master degree programs must pass the national entry exam. In addition to the national exam, ISET has developed their own

entrance requirements, including a summer internship for selecting students for this concentration.

Akaki Tsereteli State University in Kutaisi – Power Industry Technology and Management.

This two-year Master's degree program will begin in the fall of 2010 and the first series of students (about 15) will graduate in spring 2012.

To support implementation of this program, Kutaisi State University energy team has:

- Refurbished part of their university to be used for classroom, library, laboratory, and office space;
- Purchased equipment and books;
- Promoted their new program on TV channel "Rioni TV." During an hour program, Omar Zivzivadze and Nugzar Beridze (Georgian National Energy and Water Regulatory Commission) presented the new Master program and their training experience in the US during the study tour. They have also promoted this program by writing an article in Journal "PS as well as internally at the university;
- Established partnership with Georgian National Energy and Water Regulatory Commission. Two employees of GNEWRC (Demur Chomakhidze and Nugzar Beridze) have developed courses for this program and are scheduled to teach them.

Grigol Robakidze University - Concentration in Energy Management

This program has already started with 15 students who will graduate in spring 2010. A new cohort will begin in the fall of 2010 with 15 students and another one in spring of 2011 with 20 students. By the end of spring 2011, a total of 50 students will graduate from this program.

To support implementation of this program, the energy team has:

- Dedicated 3 rooms to the program;
- Purchased equipment, books, and a software program-*Electricity Market Complex Adaptive System (EMCAS)*;
- Created a web page: www.grunienergy.ge;
- Promoted this concentration internally and at other universities. On November 28, 2009 Grigol Robakidze University organized a one-day seminar to present their energy program to the University faculty, representatives of partner companies, Ministry of Education and ECI;
- Established partnerships with energy companies. For example: Nugzar Beridze (Head of Energy Department, Georgian National Energy and Water Regulatory Commission) prepared syllabus for the courses: "Energy Conservation Analysis" and "Comparative Energy Markets".

Estimated Number of Graduates

The following table shows the estimated number of graduates from these four programs from 2010 to 2012.

Table 5: Estimated Number of Graduates from four Universities (2010-2012)

| NAME | Start date | Estimated Number of graduates in Spring 2010 | Estimated Number of graduates in Fall 2010 | Estimated Number of graduates in Spring 2011 | Estimated Number of graduates in Spring 2012 | Estimated Total number of Graduates by Spring 2012 |
|--|--------------------|---|---|---|---|---|
| iv. Javakhishvili Tbilisi State University -ISET (Masters degree in Economics with Concentration in Energy Economics) | Fall 2009 | 10 | 0 | 8 | | 18 |
| Grigol Robakidze University (MBA with Energy Management Concentration) | Spring 2010 | 15 | 15 | 10 | | 40 |
| Georgian Technical University (Masters degree with Concentration in Energy Management) | Fall 2010 | 0 | 0 | 16 | | 16 |
| Akaki Tsereteli State University (Power Industry Technology and Management) | Fall 2010 | 0 | 0 | 0 | 15 | 15 |
| Totals | | 25 | 15 | 34 | 15 | 89 |

Local Scholarship Awards

To support universities and students, part of ECI project budget is dedicated to scholarships to students who will enroll in the newly established energy programs. Appendix 2 shows the number of students in each program and the amount of scholarship to be awarded to students in these programs to cover their tuitions and fees.

To continue supporting exceptional students in their programs beyond 2011, these four universities are exploring other means for scholarship support, including Georgian government as well as fundraising activities through the newly established energy consortium (CEE).

Internship Plans

All four universities have established partnerships with energy companies. These companies are expected to provide the necessary internships to students from these programs.

III Training and Faculty Development

Fourteen representatives from the universities, the energy sector, the Ministry of Education, and the Ministry of Energy of Georgia attended a workshop on “**Energy Economics, Technology and Policy**” at the University of Wisconsin, Madison from July 26 through August 5, 2009. These participants shared their U.S. experiences with students and colleagues through presentations at their organizations and at a workshop organized by ECI on October 2, 2009. The agenda for this workshop on “**Energy Economics, Technology, and Policy: The American Experience**” and the list of participants are included in Appendix 3.

IV Center for Excellence in Energy Education, Training, Applied Research, and Information (CEE)

On December 17, 2009 four universities (*Georgian Technical University, International School of Economics at Tbilisi State University, Akaki Tsereteli State University, Grigol Robakidze University*) and four companies (*JSC “Telasi”, Georgian State Electrosystem Ltd., Electricity System Commercial Operator Ltd, Georgian National Electricity and Water Regulatory Commission*) signed a **Memorandum of Understanding** (MOU) (see Appendix 4) to establish a **Center for Excellence in Energy Education, Training, Applied Research, and Information** (CEE) in Georgia.

The main goal of CEE is to enhance collaborations among universities and energy companies and to provide energy education, training, applied research and information services in Georgia.

To develop a strategic plan for CEE, Dr. Hameed Nezhad had conducted an interactive workshop on “*Strategic Planning*” for the Consortium members in December 2009. The result of this workshop was a preliminary strategic plan for CEE which is included in this report (see Appendix 5). The following is a list of recommended short term activities for this consortium.

Recommended Short Term Activities for CEE

1. Create a formal organizational structure.
2. Develop a Web-page and e-newsletter.
3. Publish teaching materials in both Georgian and English.
4. Subscribe to online data bases and energy journals.

5. Become a member of international associations such as the International Association for Energy Economics and the Association of Energy Engineers.
6. Present papers at regional conferences.
7. Establish the Energy Educators Association.
8. Organize a regional conference (Energy Forum) in Georgia in 2011.
9. Conduct two training workshops on **business plan** and **principles of energy management**.
10. Organize a scholarship fund drive.
11. Conduct a seminar on “**Lessons Learned**” by the four universities.
12. Organize a Job fair.
13. Sign a Memorandum of Understanding between the four universities to synchronize their programs and to develop a mechanism for credit transfer.

V U.S. Scholarship Program

The three scholarship recipients started graduate studies in the U.S. in September, 2009. The following table includes information on the scholarship recipients. As their transcripts indicate (see Appendix 6), all three students had excellent performances during their first semester of study in the United States. They have already started exploring their options for their Master’s degree research projects. They will finalize their selection of a project when they visit Georgia during summer of 2010.

Table 6: U.S. Scholarship Recipients

| Name | University | Program | GPA On a 4-Scale |
|--------------------|--|---|-------------------------|
| Mikheil Zibzivadze | University of Minnesota Technological Leadership Institute | Master of Science in Management of Technology | 3.764 |
| Marina Arabidze | University of Wisconsin The Nelson Institute | Master of Science in Environmental Studies with Energy Analysis & Policy | 3.833 |
| Nana Gurgendidze | New York institute of Technology | Master of Science in Energy Management | 3.30 |

VI Appendixes

Appendix 1: Media Coverage

Appendix 1a.

1. Information on Kutaisi SU web on: Project presentation and USAID representatives visit at Kutaisi SU (December 23, 2009);

www.atsu.edu.ge

<http://www.atsu.edu.ge/article.php?id=325>

2. Newspaper "PS"(July 20-26, 2009). Interview with Hameed Nezhad and Omar Zivivadze (Project director at Kutaisi SU). This newspaper is available in Kutaisi/Imereti Region and Tbilisi;

Appendix 1b. Newspaper "Messenger"(December 18, 2009). Article on: ECI project, Memorandum of Understanding, and Center of Excellence.

Appendix 1c. Newspaper "Imeretis Moambe"(January 14, 2010). Article on: Master program at Kutaisi SU and USAID representatives visit at the university.

“USAID-ის მიერ დაფინანსებული სამეცნიერო პროექტის პრეზენტაცია აკაკი წერეთლის სახელმწიფო უნივერსიტეტში”

23 დეკემბერს აკაკი წერეთლის სახელმწიფო უნივერსიტეტში გაიმართა ამერიკის შეერთებული შტატების საერთაშორისო განვითარების სააგენტოს (USAID) მხარდაჭერით დაფინანსებული ახალი სამეცნიერო პროექტის პრეზენტაცია.

USAID-თან ერთად პროექტის თანადამფინანსებელია აკაკი წერეთლის სახელმწიფო უნივერსიტეტი. პროექტის ფარგლებში საინჟინრო-ტექნიკურ ფაკულტეტზე ენერგეტიკის მიმართულებით მოხდება ელექტროენერგეტიკის ტექნოლოგიასა და მენეჯმენტში ახალი სამაგისტრო პროგრამის შემუშავება, რისთვისაც უკვე განახლდა ბიბლიოთეკა და კომპიუტერული ლაბორატორია.

პროექტის პრეზენტაციაზე აკაკი წერეთლის სახელმწიფო უნივერსიტეტის რექტორმა, პროფ. გიორგი ონიანმა ხაზი გაუსვა ამერიკის შეერთებული შტატების მთავრობისა და ხალხის მხარდაჭერას საქართველოსადმი.

პრეზენტაციას ესწრებოდა USAID-ის კავკასიის მისიის დირექტორი ბატონი ჯოქ ქონლი, რომელმაც აღნიშნა, რომ საქართველო ბუნებრივი ჰიდრორესურსებით მდიდარი ქვეყანაა და, შესაბამისად, მას სერიოზული პერსპექტივები გააჩნია ენერჯეტიკის სექტორის განვითარებისათვის.

პროექტის მიზნებისა და ამოცანების, მის ფარგლებში დაგეგმილი ღონისძიებების და ახალი სამაგისტრო პროგრამის სწავლების მეთოდოლოგიის ჩამოყალიბების შესახებ ვრცლად ისაუბრა პროექტის უშუალო ხელმძღვანელმა, უნივერსიტეტის ასოც. პროფესორმა ომარ ზივზივამემ.





2. Article in newspaper "PS"(July 20-26,2009). Interview with Hameed Nezhad and Omar Zivivadze (Project director at Kutaisi SU). This newspaper is available in Kutaisi/Imereti Region and Tbilisi.

სტაჟიანი გაგებლის „უხეაურო“ ქონება



სამხრის კავშირის წარმატებით დასრულებული პროექტი, რომელიც სტაჟიანი გაგებლის მიერ იმპლემენტაციის სახელით ხორციელდება, ახლა დასრულებულია. ამ პროექტის მიზანშეწონილია სტაჟიანების უწყვეტი განხორციელება. პროექტის მიზანშეწონილია სტაჟიანების უწყვეტი განხორციელება. პროექტის მიზანშეწონილია სტაჟიანების უწყვეტი განხორციელება.

სტაჟიანი გაგებლის მიერ იმპლემენტაციის სახელით ხორციელდება პროექტი, რომელიც სტაჟიანების უწყვეტი განხორციელების მიზნით ხორციელდება. პროექტის მიზანშეწონილია სტაჟიანების უწყვეტი განხორციელება. პროექტის მიზანშეწონილია სტაჟიანების უწყვეტი განხორციელება.

ნაუქმოს პროექტზე ჩვენთანაც მსჯელობენ

„ეს გადაწყვეტილება პოლიტიკური და არა - პრაქტიკული“ - იცხადებს იმერეთის პროექტის კოორდინატორი

სამხრის კავშირის მიერ იმპლემენტაციის სახელით ხორციელდება პროექტი, რომელიც სტაჟიანების უწყვეტი განხორციელების მიზნით ხორციელდება. პროექტის მიზანშეწონილია სტაჟიანების უწყვეტი განხორციელება. პროექტის მიზანშეწონილია სტაჟიანების უწყვეტი განხორციელება.

სტაჟიანი გაგებლის მიერ იმპლემენტაციის სახელით ხორციელდება პროექტი, რომელიც სტაჟიანების უწყვეტი განხორციელების მიზნით ხორციელდება. პროექტის მიზანშეწონილია სტაჟიანების უწყვეტი განხორციელება. პროექტის მიზანშეწონილია სტაჟიანების უწყვეტი განხორციელება.

ბაიბლ-პროექტი

სამხრის კავშირის მიერ იმპლემენტაციის სახელით ხორციელდება პროექტი, რომელიც სტაჟიანების უწყვეტი განხორციელების მიზნით ხორციელდება. პროექტის მიზანშეწონილია სტაჟიანების უწყვეტი განხორციელება. პროექტის მიზანშეწონილია სტაჟიანების უწყვეტი განხორციელება.

სტაჟიანი გაგებლის მიერ იმპლემენტაციის სახელით ხორციელდება პროექტი

სტაჟიანი გაგებლის მიერ იმპლემენტაციის სახელით ხორციელდება პროექტი, რომელიც სტაჟიანების უწყვეტი განხორციელების მიზნით ხორციელდება. პროექტის მიზანშეწონილია სტაჟიანების უწყვეტი განხორციელება. პროექტის მიზანშეწონილია სტაჟიანების უწყვეტი განხორციელება.

სტაჟიანი გაგებლის მიერ იმპლემენტაციის სახელით ხორციელდება პროექტი, რომელიც სტაჟიანების უწყვეტი განხორციელების მიზნით ხორციელდება. პროექტის მიზანშეწონილია სტაჟიანების უწყვეტი განხორციელება. პროექტის მიზანშეწონილია სტაჟიანების უწყვეტი განხორციელება.

Appendix 1b. Newspaper "Messenger"(December 18, 2009). Article on: ECI project, Memorandum of Understanding, and Center of Excellence.

great people. I congratulate the whole Christian world on the day of St Barbara. We are very glad that friendship between countries living beyond the Enguri River and those in different regions of Georgia and communion. The wonderworking relics of St. Barbara are kept at St. Vladimir's Cathedral in Kiev.

Messenger 18.12.09

Georgia's energy sector will be transformed through training

By Gvantsa Gabekhadze

The new Centre of Excellence in Energy was officially established on December 17 by four Georgian Universities, the Georgian Technical University, the International School of Economics at Tbilisi State University (ISET), Akaki Tsereteli State University and Gingol Robakidze University, signing a special memorandum at the Courtyard Marriott hotel. The establishment of this centre is being supported by the US Agency for International Development (USAID). The Centre of Excellence is a project of USAID's Energy Capacity Initiative. Through its higher Education Grant Programme USAID helps higher education institutions develop sustainable graduate-level energy education programmes which meet the current and future needs of the Georgian energy sector by collaborating with these four Georgian Universities. The Centre created yesterday will provide education, applied research and training in the energy system. The memorandum is not based on law, but is more of an ethical, moral agreement, said John Hansen, the USAID Energy and Environment Office Director. Hansen

15:00 — NPR
18:00 — Music
23:00 — BBC
0:00 — BBC Ru
1:00 — Music

Scarlet Sails TAVERN
Opening hours 12.00 — 1.00
SEAFOOD AND BRITISH CUISINE

CONTINUED ON Page 6

Georgia's energy sector will be transformed through training

CONTINUED FROM Page 5

said that foreign developed countries, like the United States and some European countries, have wide experience of the formation of such centres. "USAID actively works in Georgia, and we think that the developed countries should assist less developed countries and share with them their experience of how to reach a higher level of development in various areas. By the creation of this centre we will help Georgian students know more about the energy sector and use this knowledge for their country's development," Hansen stated.

This initiative has been estimated by Deputy Minister of Energy of Georgia Mariam Valishvili as a very necessary and important step.

"The establishment of a well planned and successful education system has vital importance for the country's present and future development. I am thankful to USAID, as the agency's representatives actively support projects much needed for Georgia. The country needs foreign experience, especially in the energy area, where we have serious gaps. When Georgian students are trained on the basis of foreign research and achievements they will be able to fill this gap," Valishvili said.

The Universities with whom the memorandum was signed talked about the centre's importance and expressed their satisfaction at achieving this agreement. Eric Livny, ISET's Executive Director, told *The Messenger* that this agreement and the centre's future activities will be very profitable for the Georgian energy system. "Foreign experience in the energy sector should be utilised in Georgian universities. The centre's future activity, with the assistance of USAID, will not be providing technical support, practical activities, but educational support, such as how to make adequate decisions, how to enter into collaborations in the energy sector and so on. This will be very acceptable and profitable for Georgian universities and the country in general," Livny suggested.

USAID's Energy Capacity Initiative, of which the Centre of Excellence in Energy is a part, is a three year, \$5.4 million project designed to enhance energy policy analysis capacity within Georgia, facilitate stakeholder dialogue on policy issues and support higher education programmes in energy. As part of the programme, USAID has funded the development of energy-related graduate degree programmes at the four universities which have signed the memorandum.

Appendix 1c. Newspaper "Imeretis Moambe"(January 14, 2010). Article on: Master program at Kutaisi SU and USAID representatives visit at the university.



მომაგალი ენერჯეტიკოსები ქართული ენერჯეტიკის მომაგლისათვის

უწვეულოა განათული სახალწლო საქართველო, ასევე ათასობით ნათურა და ვირლიანი აღმასრულებელი და სადღესასწაულო განწყობის ქონის... თუმცა ჩვენს მოქალაქეებს ჯერჯერობით ახსოვთ უაღრესი წარსული – ვირლიანები მი ანა, კვირაში ერთი საათით მანც რომ იყო სახატრული არსებული ნათურა...

საქართველო მდღიან ენერჯეტიკული რესურსებით და მთი უფრო პარადოქსული იყო ის ენერჯეტიკის, რომელსაც როგორც უნა დაგადწით თავი და არსდროს რომ აღარ აღმოვნიღვი მსგავს მამე სიტუაციში, სხვა მითიად კომპონენტებთან ერთად, მდღიან ენერჯეტიკული კადრების მომზადებაზე ზრუნავდ დროულად უნდა იყოს დაწვეულა.



ამ მიმართულებით, ძალზედ სერიოზული პროექტის განხორციელება დაიწყო აკაკი წერეთლის სახელმწიფო უნივერსიტეტში აქტიური და მუდმივად უწყვეტი მუშაობის საერთაშორისო განვითარების სააგენტოს (USAID) მხარდაჭერით.

ელექტროენერჯეტიკული დეპარტამენტის ხელმძღვანელი, პროფესორი USAID-ის ენერჯეტიკის შესაძლებლობების გაუმჯობესების პროექტის მიერ გამოცხადებული იყო საგრანტო კონკურსი საუკეთესო სას-

საგრანტო კონკურსში გაიიმარჯვეთ, ერთიანი ეროვნული გამოცდები, სადაც მაგისტრატურის გამოცდებიც მარდებდა, უკვე ჩატარებული იყო და იმ 7 მაგისტრანტს, რომლებიც ელექტროენერჯეტიკულ სპეციალობაზე მოხდნენ, წესით ეს ახალი პროექტი არ ემზებოდათ, მაგრამ ჩვენ გადავწყვიტეთ, რომ არ "დაგვეგარა" ეს სტუდენტები და ისინი ახალი პროგრამით შეუდგნენ მაგისტრატურის კურსის გაყვას.

პროგრამა სულ 4 უმაღლეს სასწავლებელში ხორციელდება – საქართველოს ტექნიკურ უნივერსიტეტში, თბილისის სახელმწიფო უნივერსიტეტში, გრიგოლ რობაქიძის უნივერსიტეტში და ქუთაისის სახელმწიფო უნივერსიტეტში. მათ ბაზაზე შეიქმნება კონსორციუმები, რაც საშუალებას მისცემს მაგისტრანტებს ჰქონდეთ ურთიერთკავშირი, ჩაერთონ დარგის სამეცნიერო კვლევაში, ისინი შეიძენენ პრაქტიკულ უნარ-ჩვეულებს.

ენერჯეტიკის განვითარება ქვეყნის მომაგლისთვის უნივერსიტეტების საკუთრების აქტის იმის პერსპექტივაც, რომ



წავალი -სამაგისტრო პროგრამაზე და წილად გვეხდა დიდი ბედნიერება, რომ 3 სხვა უნივერსიტეტთან ერთად ჩვენც მიგველო ეს სოლიდური გრანტი. პროექტის მიზანია ქვეყნის ენერჯეტიკისთვის მაღალკვალიფიციური სპეციალისტების მომზადება შესაბამისი მენეჯერული და პროფესიული ცოდნითა და უნარ-ჩვევებით, ელექტროენერჯეტიკული მრეწველობის ტექნოლოგიებისა და მენეჯმენტის სრული სამაგისტრო პროგრამის შექმნით.

პროექტის საერთო ღირებულება იყო 123 572 აშშ დოლარი, აქედან გრანტი იყო 113 572 დოლარი, უნივერსიტეტის თანადაფინანსება კი – 10 000 დოლარი, თუმცა უნივერსიტეტმა გაიცლივით მეტი თანხა გამოყო – 30 ათასი დოლარი.



პროექტის ხანგრძლივობა 20 თვეა. პროექტის საერთო ღირებულება იყო 123 572 აშშ დოლარი, აქედან გრანტი იყო 113 572 დოლარი, უნივერსიტეტის თანადაფინანსება კი – 10 000 დოლარი, თუმცა უნივერსიტეტმა გაიცლივით მეტი თანხა გამოყო – 30 ათასი დოლარი.

მოხდეს ელექტროენერჯეტიკის ექსპორტი და ამ პროგრამით მომზადებული სპეციალისტები დღიად გამოადგებიან თავიანთი ქვეყანას. ავთანდელ თვალჭრელიძე, საინჟინრო-ტექნიკური ფაკულტეტის დეკანი საქართველოს უმაღლესი განათლების სისტემაში როგორც პროცესების მონაწილეა, ჩვენ გადავვლით სწავლების ახალ სისტემაზე გულახდლილი ექსპერტიზა და კონკრეტული პროგრამები და შევნიშნავთ კვლევით პროგრამებს, რომლებიც უნივერსიტეტში უნდა იქნას განხორციელებული. მარჯა აბულაძე გვა გვრუდავით, გვირგვინი უნივერსიტეტის დეკანი, რომელიც უნივერსიტეტში უნდა იქნას განხორციელებული პროგრამები და შევნიშნავთ კვლევით პროგრამებს, რომლებიც უნივერსიტეტში უნდა იქნას განხორციელებული.

USAID-ის მიერ დაფინანსებული ენერჯეტიკის შესაძლებლობების გაუმჯობესების პროექტის საერთო ღირებულება 14 000 აშშ დოლარია. პროექტის მიზანია საქართველოში ენერჯეტიკული პოლიტიკის ანალიზის შესაძლებლობების და დალაღობის ხელშეწყობა.

გასული წლის მიწურულს, 23 დეკემბერს აკაკი წერეთლის სახელმწიფო უნივერსიტეტში გამართა ელექტროენერჯეტიკის ტექნოლოგიის და მენეჯმენტის სამაგისტრო პროგრამის პრეზენტაცია. პრეზენტაციას ესწრებოდნენ USAID-ის კავკასიის მისიის დირექტორი ბატონი ჯოქ ჰინლი, უნივერსიტეტის რექტორი ბნი ვიგორე იონანი, იმერეთის უცხოკავშირებატორი ბნი ნიკო კაკაბუშვილი, ენერჯეტიკის, სტუდენტები, საზოგადოებრიობის წარმომადგენლები.

ამოცანა კი გახლდათ სამაგისტრო პროგრამის სასწავლო -მეთოდური კომპლექსის შექმნა, ლაბორატორიული ბაზის და კომპიუტერული კლასების განახლება, მაგისტრატურაში სტუდენტთა მიღების ორგანიზება, სასწავლო პროცესის განხორციელება ახალი სამაგისტრო პროგრამის მიხედვით, საზოგადოების ინფორმირება ახალი სამაგისტრო პროგრამისა და პროექტის მიმდინარეობის მიხედვით.

როდესაც შეიტყვეთ, რომ ამ



Appendix 2: Local Scholarship Budget

| NAME | Start date | Estimated Number of graduates in Spring 2010 | Estimated Number of graduates in Fall 2010 | Estimated Number of graduates in Spring 2011 | Estimated Number of graduates in Spring 2012 | Estimated Total number of Graduates | Energy Credits (ECTS)* | Total degree credits (ECTS) | Cost per credit (\$) | Cost per student for energy major(\$) | Total Scholarship Grants(\$) | Curriculum Development Grants (\$) | Total Grants (\$) | |
|---|------------|--|--|--|--|-------------------------------------|------------------------|-----------------------------|----------------------|---------------------------------------|------------------------------|------------------------------------|-------------------|--|
| IV. Javakhishvili Tbilisi State University -ISET (Masters degree in Economics with Concentration in Energy Economics) | Fall 2009 | 10 | 0 | 8 | | 18 | 30 | 120 | 266.67 | 8000 | 100,000 | 85,500 | 185,500 | One year concentration. Cost sharing by ISET for the scholarship is \$55,000 |
| Grigol Robakidze University (MBA with Energy Management Concentration) | Spring 20 | 15 | 15 | 10 | | 40 | 50 | 120 | 23 | 1150 | 46,000 | 73,348 | 119,348 | One semester concentration |
| Georgian Technical University (Masters degree with Concentration in Energy Management) | Fall 2010 | 0 | 0 | 16 | | 16 | 50 | 120 | 23 | 1150 | 18,400 | 68,213 | 86,613 | Oneyear concentration |
| Akaki Tsereteli State University (Power Industry Technology and Management) | Fall 2010 | 0 | 0 | 0 | 15 | 15 | 120 | 120 | 23 | 2760 | 41,400 | 113,573 | 154,973 | Two-year Master's degree program |
| CEE Consortium Budget | | | | | | | | | | | | | 17,032 | 5% of curriculum development grant |
| Sub-Totals | | 25 | 15 | 34 | 15 | 89 | | | | | 205,800 | 340,633 | 17,032 | |
| Total Costs | | | | | | | | | | | | | 563,465 | |

Appendix 3: Training Workshops

Appendix 3a: University of Wisconsin, Madison (July 26- August 5, 2009)

Title of Workshop: Energy Economics, Technology and Policy

Program

Sunday, July 26

13:00 Madison Campus Tour:

Begin at West Campus Cogeneration Facility, 515 Walnut St.

- MGE Cogeneration Plant and UW Heating Plant
- Academic and Athletic Facilities
- Student Facilities
- Libraries

15:30 Return to Concourse Hotel

18:00 Social Hour

19:00 Welcome Dinner

“The Wisconsin Idea”

Professor Philip R. O’Leary, Chair
Department of Engineering Professional Development

Charles Hoslet, Director
UW Office of Corporate Relations

Monday, July 27

08:00 Pyle Center
Continental Breakfast
Welcome and Program Overview

Thomas Smith
Program Director

09:00 Overview of the U.S. Electric Utility Industry: Structure, Institutions, Regulation, and Governance

- History
- Transitioning to the Current State of the Industry
- Contemporary U.S. Markets
- Current Issues and Ongoing Reform

Robert Camfield, Vice President
Christensen Associates Energy Consulting

12:00 Lunch

12:45 Walk to Engineering Campus

01:00 Engineering Centers Building, Room 1068

Energy Research and Teaching at the University

- UW Energy Institute
 - Mission
 - Activities
 - Links to resources and information
- Energy Research and Teaching on Campus
 - Campus structure
 - Colleges
 - Centers
 - Programs
- Nelson Institute
 - Description
 - EAP Program
 - Faculty
 - Courses
 - Students
 - Where they come from
 - What they study
 - Where they go to work
- UW inputs to public policy analysis and decision making
 - Case studies
 - Philosophy
 - Role in teaching
 - Role in research

Paul Wilson, Associate Professor
Department of Nuclear Engineering and Engineering Physics
Director, UW Energy Institute

With Guests

- *John Nelson, Adjunct Professor, Civil Engineering*
- *Wes Foell, Consultant, Nelson Institute*
- *Thais H. Passos Fonseca, Nelson Institute*

14:30 Break

15:00 Continue

16:30 Adjourn Formal Session

Informal discussion with Hameed Nezhad, Thomas Smith, Others

Dinner on your own

Tuesday, July 28

07:30 Concourse Hotel - Continental Breakfast
Welcome and Daily Overview

Thomas Smith
Program Director

08:00 Walk to State Capitol
Meeting in Room 225 Northwest

08:15 Legislative Role in Energy Policy

- Legislative View of the Energy Problem
- Recent Legislative Actions
- Relationship to the Governor and the Public Service Commission
- Relationship with the Utility Sector
- Pressing Issues in Wisconsin and the Midwest
- Wisconsin in the National and Global Framework

Spencer Black, Chair
Wisconsin Assembly Natural Resources Committee

10:00 Break
Travel to Pyle Center

10:30 *WI Focus on Energy*

- Policy Framework / Background
- Goals
- Programs
- Evaluation Process and Results
- "Free Riders and other Ongoing Issues"
- Evolution and Future of the Program

Preston Schutt
Focus on Energy Program Manager
Wisconsin Public Service Commission

12:00 Lunch

13:00 Developing and Delivering a Graduate Course on Energy Policy

- Course Overview
- Tools Used in Policy Analysis
- Historical Trends in Energy Production and Use
- History of Energy Policy in the U.S
- Example Problems to Develop and Test Analytical Skills

- Examples of Real Student Involvement in Energy Policy

Gregory Nemet, Assistant Professor
LaFollette School of Public Affairs
University of Wisconsin

15:30 Break

16:00 We Conserve: UW Madison Energy Conservation Program

- Structure
- Goals
- Methods
- Results
- Cogeneration and Biomass Utilization

Faramarz Vakili, Program Director
WeConserve Program
University of Wisconsin

17:00 Adjourn Formal Session
Informal discussion with Hameed Nezhad, Thomas Smith, Others

Dinner on your own

Wednesday, July 29

07:30 Bus Pickup at Concourse

07:50 Arrive at Alliant Energy Headquarters

08:00 Welcome
Charles Fafard, Lead Energy Efficiency Engineer
Alliant Energy

08:30 Description of Alliant Energy

- History and current structure
- Territory Served
- Services Provided
- Customers
- Interconnections
 - MISO
 - ATC

James Walker, Manager of Strategic Accounts
Alliant Energy

09:30 Alliant Energy's Mission and Commitment
Senior Executive,
Alliant Energy

09:45 Break

- 10:00 WPL Planning and Operations
- Forecasting and Forecasting Challenges
 - Generation Planning
 - Dispatch and Operations (visit to operations center)
 - Operational Challenges

- 10:45 Alliant's Energy Management Programs
- Conservation
 - Renewables

Charles Fafard, Lead Energy Efficiency Engineer, Alliant Energy
Preston Schutt, Program Manager
Wisconsin Public Service Commission

11:30 Lunch

12:15 Travel to Cedar Ridge Wind Farm

13:30 Tour & Wind Farm Presentation
David Engels, Renewable Energy Engineer
Alliant Energy

16:00 Depart Cedar Ridge

17:30 Return to Concourse
Adjourn Formal Session

Dinner on your own

Thursday, July 30

08:00 Pyle Center - Continental Breakfast
Welcome and Daily Overview
Thomas Smith
Program Director

08:30 Utility Modeling Programs at Argonne National Laboratories

This morning session will describe and illustrate several utility system models that have been developed and deployed by Argonne National Labs. These models cover system design and economics at several levels. Significant attention has been paid to variable sources of generation and the presentation will include modeling of Hydropower in an electric utility system.

The presentation will be delivered via live videoconferencing and there will be opportunity for interaction. The session will last for the morning, with breaks at suitable times.

- Introduction to Argonne National Labs (ANL)
 - Mission
 - Resources

- Training Programs
- Review of the Southeast Europe Modeling Project
 - Origin of the Project
 - Understanding the GTMax Model
 - Modeling the Local Generation Option
 - Modeling the Power Pool Option
- Modeling Hydropower with GTMax and the Valoragua Model
- Other Models used by ANL
 - Electricity Markets Complex Adaptive Systems Model (EMCAS)
 - WASP
 - MAED
- Conclusion

*Vladimir Koritarov
and Thomas Veselka*
Senior Scientists
Argonne National Labs

12:00 Lunch

13:00 Modeling of Power Systems for Research, Teaching and Policy Development

- Research in Power Systems at the University
- Modeling Efforts and Models Used
 - Types of Models
 - Where Located and how accessed
 - How are they used in Education
- The Power Systems Engineering Consortium
 - Membership and Structure
 - Current Research, including Smart Grid Projects
- Power Systems Courses in the Department of Electrical and Computer Engineering
- Power Systems and the EAP Program
- ECE and EAP Contributions to Public Policy

Bernard LeSieutre, Associate Professor
Department of Electrical and Computer Engineering
University of Wisconsin

15:00 Break

15:30 Modeling Session Continues

16:30 Adjourn Formal Session
Informal discussion with Hameed Nezhad, Thomas Smith, Others

18:15 Van Pickup at Concourse

18:30 Optional evening activities: Madison Mallards Baseball Club OR
shopping excursion to Hilldale Mall

Friday, July 31

08:00 Pyle Center - Continental Breakfast
Welcome and Daily Overview
Thomas Smith, Program Director

08:30 Writing about Science

- Press Coverage of Energy and Environmental Issues
- Teaching Scientists to Write Clearly

Ron Seeley

Reporter for Wisconsin State Journal
Instructor, Department of Life Sciences Communication
University of Wisconsin

10:30 Modeling of Climate and Energy Use, with Inputs to Energy Policy

- Climate Modeling Tools and Techniques
- Global Models, Examples and Use in Policy Developments
- Localizing Global Models
- Using Localized Models to Develop Public Policy
- Using Climate and Energy Models in University Coursework

Claus Moberg

(Tracey Holloway)

Center for Sustainability and the Global Environment
Nelson Institute for Environmental Studies

12:00 Lunch at Pyle Center

12:45 Modeling... Continued

14:00 Break

14:30 Developing and Managing Professional Continuing Education Programs in Energy

- Structure of a Department
- Program Development
- Marketing
- Staffing and Training

Philip O'Leary, Chair

Carl Vieth, Director of Corporate Education

Department of Engineering Professional Development
University of Wisconsin

16:30 Wrap-up Discussion

Hameed Nezhad, Thomas Smith, Others

17:00 Adjourn

18:45 Van Pickup at Concourse

19:00 Bar-b-Que Dinner
Thomas Smith Residence

Monday, August 3

07:00 Concourse Hotel - Continental Breakfast
Welcome and Daily Overview
Thomas Smith, Program Director

08:00 Engineering Centers Building, Room 1068
Welcome and Daily Overview
Thomas Smith, Program Director

08:30 Wisconsin Public Utility Institute Programs and Affiliations

- Structure and Membership
- Professional Program Series
- The Energy Utility Basics Course
- The *Hub* Student Organization

Cara Lee Braithwaite, Executive Director, Wisconsin Utility Institute

10:30 Break

11:00 Library Services in Support of Energy Research and Teaching

- Description of UW Library System and Services
- Description of Wendt Engineering Library and Services Provided
- Sample Database Search on Current Energy Issues
- Hands-on Search Exercise

Amy Kindschi
Senior Academic Librarian
Wendt Engineering Library

12:00 Lunch

13:00 Library Exercise, continued

14:00 Break – Walk to Pyle Center

14:30 Continuing Education in Energy Engineering and Management

- History
- Sample Courses and Programs
- Audience

Douglas Reindl, Professor
Don Schramm, Program Director
Department of Engineering Professional Development
University of Wisconsin

16:00 Informal discussion with Hameed Nezhad, Thomas Smith, Others

17:00 Adjourn

Dinner on your own

Tuesday, August 4

07:00 Concourse Hotel - Continental Breakfast
Welcome and Daily Overview
Thomas Smith, Program Director

08:00 Pickup for Drive to Johnson Controls Incorporated Headquarters in Milwaukee

09:30 Johnson Controls Headquarters

Educational and Training Requirements for Energy Engineers

- Overview of Johnson Controls Energy Management and Alternative Energy Business
 - United States and International
 - Sectors and Services
 - Employees and Job Functions
- Hiring the Next Generation Workforce
 - What JCI looks for in the Hiring Process
 - Relationships with Universities
- Employee Training and Development
 - Programs
 - Facilities (including a tour of JCI training Labs)
 - Expectations
- University Contributions to the New Energy Workforce
(A discussion of how universities can contribute to the growing need for energy engineers)

Don Albinger, Vice President
Johnson Controls Incorporated

Carl Vieth, Director of Corporate Education
Department of Engineering Professional Development
University of Wisconsin

12:00 Lunch

13:00 Program Continues

14:30 Return to Madison

16:00 Arrive Madison

Informal discussion with Hameed Nezhad, Thomas Smith, Others

Dinner on your own

Wednesday, August 5

07:00 Concourse Hotel - Continental Breakfast

Meet at Pyle Center

08:30 Resources for Instructors

- Open Knowledge Initiative
- Open Courseware Consortium
- Distance Teaching Universities(Athabasca University)
- Government Sources
- Private Industry Sources
 - Publishers
 - Software Houses
 - Equipment Vendors
 - Utilities

09:30 Break

10:00 Distance Education Resources for International Cooperation

- Tools and Techniques
- Protocols
- Program Selection
- Costs
- Next Steps

Thomas Smith
Program Director

11:30 Adjourn

Afternoon sessions are held in conjunction with the University of Wisconsin *Conference on Distance Teaching and Learning* at the Monona Terrace Convention Center.

List of Participants

I. Georgian State Electrosystem

Georgian State Electrosystem Ltd. is one of the key players on the Georgian energy market providing power transmission and dispatch services. The company is 100% state-owned founded in 2002 as a result of merger of transmission and dispatched companies.

Mission: To provide transmission and dispatch services in an effective and sustainable manner to satisfy the needs of our customers.

Vision: GSE will be a competent, profitable and learning Transmission and Dispatch company by world standards that excels at satisfying the needs of our customers and that will be a sought after employer where people desire to work.

1. Givi Sulava

Employer: Georgian State Electrosystem

Position: Deputy Procurement Manager

Employer Address: 2 Baratashvili str. Tbilisi, Georgia

Phone/Fax: Tel.: +(99532) 20 17 00

Fax: +(99532) 98 37 04

Cell Phone: +(995 77) 715 194

E-mail: givi.sulava@gse.com.ge

2. Maia Pitskhelauri

Employer: Georgian State Electrosystem

Position: Reporting & International Projects Coordination Department Manager

Employer Address: 2 Baratashvili str. Tbilisi, Georgia

Phone/Fax: Tel.: +(99532) 20 17 00

Fax: +(99532) 98 37 04

Cell Phone: +(995 77) 220 011

E-mail: maya_emsp@gse.com.ge

II. Telasi

Electrical networks of Tbilisi “Telasi” was founded in 1937. From 1998 the company is called Joint Stock Company “Telasi”. The company is carrying out purchase and distribution of electric power within the territory of Tbilisi. In December 1998 Corporation AES purchased 75% of shares of “Telasi”, and in August 2003 these shares were purchased by CJSC «INTER RAO UES». At present JSC “Telasi” is supplying power to 420 000 customers. The company owns 1569 LV transformer substations (10/6/0.4kV), 36 HV substations, cable and overhead lines. Number of employees of JSC “Telasi” amounts to 2,150 employees.

3. Mamuka Kobalia

Employer: JSC Telasi

Position: Technical Director

Employer Address: 3 Vani Str. Tbilisi, Georgia

Phone/Fax: +(995 32) 77 98 39/ 77 98 85

Cell phone: +(995 99) 45 90 92

E-mail: mamuka.kobalia@telasi.ge

III. Ministry of Energy of Georgia (www.minenergy.gov.ge)

In Georgia there are two main state institutions responsible for the development and operation of the electricity and gas markets: Ministry of Energy and National Energy Regulatory Commission. **Ministry of Energy** is in charge for drafting the ***national energy policy*** and submitting it to the Parliament for approval, and, upon approval, for developing and implementing short- medium- and long-term strategies and priorities for the power sector of the country, but not for ownership, regulatory or operational activities.

The Ministry of Energy has functions (as in EU member states):

- Elaborates programs for the sector development,
- promotes restructuring and privatization of the state-owned enterprises in the sector,
- develops emergency measures for the sector, promotes consumption of renewable energy resources,
- drafts legal documents for the sector, and
- Approves various rules and standards.

The Law clearly declares that the Ministry shall relinquish ownership, regulatory and operational rights in the electricity and gas sectors. The Ministry must approve by Orders the national electricity (capacity) balance the Electricity Market (capacity) Rules, Natural Gas Balance, Natural Gas Market Rules, and regulations for maintenance, organization and operation of power facilities and other sector technical assets.

The Ministry may make a decision on deregulation or partial deregulation. In these activities, the Ministry must comply with the public administration procedures, including participation of commission members or other interested parties.

4. Nana Pirtskhelani

Employer: Ministry of Energy of Georgia

Position: Deputy Head of International Relations and Investment Project Department

Employer Address: 2 Baratashvili str. Tbilisi, Georgia

Phone/Fax :+ (995 32) 35 78 25

Cell Phone: +(995 77) 991 945

E-mail: np@minenergy.gov.ge

5. Margalita Arabidze

Employer: Ministry of Energy of Georgia

Position: International Relations and Investment Projects Department, Chief Specialist

Employer Address: 2 Baratashvili str. Tbilisi, Georgia

Phone/Fax: (+995 32) 35-78-25

IV. Ministry of Education and Sciences of Georgia

The Ministry of Education and Science of Georgia aims at establishing modern and innovative educational and scientific environment in close cooperation with civil society. The Ministry advocates freedom of choice, fair competition, equal opportunities, civil integrity, and respect for cultural identity. The Ministry promotes acquisition and development of knowledge and skills necessary for social success and self-realization.

Ministry is a body implementing unified public policy in education and science fields. Within its terms of reference the Ministry provides coordination and control of all the subordinated departments; it assures general, professional and higher education improvement; development of science, child care; in addition, it supports implementation of state language policy.

There are several departments in MoES: Financial and Material resource management, Legal, Analytical, Regional Coordination, Public Relations, Child care, and licensing service.

6. Nugzar Chitaia

Employer: Ministry of Education and Sciences of Georgia

Position: Acting Head of Department of Academic Education and Sciences Development

Employer Address: 52 Uznadze str. Tbilisi, Georgia 0102

Phone/Fax: +(995 32) 43 88 12

Cell Phone: +(995 93) 43-88-82

E-mail: nchitaia@mes.gov.ge; nchitaia@yahoo.com;

V. Electricity System Commercial Operator(ESCO)

The Electricity System Commercial Operator has started functioning on the first of September. It was founded on 7 August 2006 on the bases of the amendments (dated 9 July 2006) introduced to *the Law on Electricity and Natural Gas*.

ESCO is an entrepreneur legal entity of Private Law. Its organizational-legal form is the Limited Liability Company. 100% of ESCO shares are owned by the state represented by the Ministry of Economic Development. In the future, the ESCO shares will be distributed among the energy sector licensees. Distribution Companies and Direct Customers will become the owners of 30%; 35% will be given to the Electricity Generator Organizations and the remaining 35% will become the property of Dispatch Licensee. The Electricity System Commercial Operator buys and sells the balance electricity and reserve capacity in order to ensure the electricity supply/demand balance.

Functions of the System Commercial Operator are to:

- sell and buy the balance electricity and capacity (including through signing the medium and long-term import/export contracts);
- provide the electricity system with the reserve capacity in conformity with the law and regulations established by the “Market Rules”;
- supply the Dispatch Licensee with the relevant information in order to carry out the supply/consumption planning;
- create and manage the unified data (including the unified metering register) on the wholesale trade;
- identify the volume of electricity sold and purchased by the electricity sellers and buyers and submit the information for the settlement purposes;

7. Sandro Abashidze

Employer: Electricity System Commercial Operator

Position: Assistant to the Deputy General Director

Employer Address: 32 Saburtalo Str. Tbilisi, Georgia

Phone/Fax: +(995 32) 37 63 46/ 37 63 30

Cell Phone: +(995 32) 37 47 60

E-mail: sabashidze@esco.ge

VI. Georgian National Energy and Water Regulatory Commission

Georgian National Energy and Water Supply Regulatory Commission was found in 1997. The Commission establishes rules and conditions for granting generation, transmission, and dispatch, distribution, as well as natural gas transportation and distribution licenses, also modifies and revokes licenses. Commission, within its competence, issues legal acts - Resolutions; The

Commission by resolution approves the Charter, operational rules and procedures, procedures for consideration of disputes, regulatory fees and calculation methodology for setting regulation fees, licensing rules, supply and consumption rules, tariff methodology, (including marginal tariffs), rules for calculating admissible losses and the amount of such losses.

8. Nugzar Beridze

Employer: Georgian National Energy and Water Regulatory Commission

Position: Head of Energy Department

Employer Address: 26 Chechelashvili str. Kutaisi, Georgia

Phone/Fax: +(995 231) 4 42 05; (995 231) 4 48 81/92/94

Cell Phone:+(995 99) 504 726

E-mail: nugzar.beridze@gnerc.org

VII. Kutaisi State University

Kutaisi Akaki Tsereteli State University represents a juridical object of a public law, formed as result of uniting of two public universities – Kutaisi Akaki Tsereteli State University and Kutaisi Niko Muskhelishvili State Technical University in 2006. Kutaisi State University's staff is completed with high qualification faculty, technical personnel and management. There are 7 departments, with 415 Professors. University awards bachelor, master and doctor degrees in: Humanitarian, Natural Science, Economy, Engineering, Medicine, and Law.

Power Engineering Studies have been started already in 1991 at former Technical University, preparation of bachelors and masters for mentioned sphere is carried out by Electro-engineering department of Engineering Faculty, which was functioning before uniting of two universities as an educational-research institute and then it receives a faculty status.

9. Lali Zivzivadze

Employer: Kutaisi State University

Position: Associated Professor, Electro technical Department

Employer Address: 59 Tamar Mepe Str. Kutaisi, Georgia

Phone/Fax: +(995 331) 4 21 73/ 4 57 84

Cell Phone: +(995 99) 374 589

E-mail: laliko26@mail.ru

10. Ketevan Tskhakaia

Employer: Kutaisi State University

Position: Associated Professor, Machine Building Department

Employer Address: 59 Tamar Mepe Str. Kutaisi, Georgia

Phone/Fax: +(995 331) 4 21 73/ 4 57 84

Cell Phone: +(995 99) 570 516

E-mail: spectri@gmail.com

VIII. Georgian Technical University

In 2008, former Georgian Technical University was renamed into the **Technical University of Georgia**. There are 8 schools/department (Civil Engineering, Power Engineering and Telecommunication, Mining and Geology, Chemical Technology and Metallurgy, Architecture, Urban Planning and Design, Transportation and Machine-Building, Humanitarian-Social Studies, Informatics and Control Systems), 113 study directions, 884 professor-lecturers (249-women) and 12893 students at GTU.

GTU has:

a) Academic Programs: Bachelor's, Master's, Doctoral and Special professional studies, and
b) Research and Training Centers:

- REPUBLIC CENTER FOR STRUCTURE RESEARCHES (RCSR)
- Centre for Excellence in Teaching and Learning Centre for Excellence in Teaching and Learning (CPDSC)
- UNESCO Chair in environmental sciences and management
- The SPAMGO Training Centre (Strengthening Public Administration and Media in Georgia)
- Remote Education Centre
- Institute of Constructions, Special Systems and Engineering Maintenance
- Network Management Centre of GTU
- Cisco Networking Academy

GTU priorities are:

- Quality of teaching
- Practical orientation
- Study and career advice
- Co-operation with industry
- Quality of mentoring by teaching staff
- International orientation
- Administrative student services, including Admissions and Examinations Office

Partners are:

- Friedrich-Schiller-Universität Jena – Friedrich Schiller University of Jena. Jena, Germany
- Fachhochschule Heilbronn – University of Applied Sciences (FHHN). Heilbronn, German
- Graz University of Technology. Graz, Austria
- Menoufia University. Menoufia, Egypt

- Armenian State Technical University. Erevan, Armenia
- Vilnius College of Higher Education. Vilnius, Lithuania
- Karadeniz Technical University. Trabzon, Turkey

11. Gia Arabidze

Employer: Georgian Technical University

Position: Dean, Department of Energy and Telecommunication

Employer Address: 77 Kostava Str. Tbilisi, Georgia 0175

Phone/Fax: +(995 32) 36 51 62

Cell Phone: +(995 99 75 24 58

E-mail: Giagiorgi@hotmail.com

power@gtu.ge

12. Temur Mikiashvili

Employer: Georgian Technical University

Position: Full Professor, Heat Engineering and Heat Power Plant Department, Technical
University of Georgia;

Employer Address: 77 Kostava Str. Tbilisi, Georgia 0175

Phone/Fax: +(995 32) 36 53 62

Cell Phone: +(995 99) 72 03 82

E-mail: temurmikiashvili@yahoo.com

IX. Gr. Robakidze University

Grigol Robakidze University was established in 1992. It is a practical type higher educational institution, with 800 students and 150 teaching staff (professors, associate professors, and assistant professors). The university is orientated to the interests of employers. Graduates of the University have opportunity to meet with the demands of the labor market, as most of the academic programs are of multidisciplinary character. Besides, wide scientific-research work is carried out at the University. This fact can be proved by students and teachers' scientific conferences, numerous scientific collective articles.

The University has several scientific laboratories and centers, such as Counter-terrorist Research Centre, Thrombosis Research Centre, Professional Psychological Forecasting Laboratory, etc. The University has passed the accreditation very successfully. Grigol Robakidze University is involved in several international projects and has close partnership

relations with higher educational institutions of the USA and Europe. Grigol Robakidze University has several master programs in Business Administration; Law and Public Administration; English Language and Literature.

13. Murtaz Kvirkvaia

Employer: Gr. Robakidze University

Position: Dean, Department of Business and Management

Employer Address: 6 Bagrationi Str. Tbilisi, Georgia

Phone/Fax: +(995 32) 38 30 97

Cell Phone: +(995 93) 36 28 21

E-mail: murtazi17@yahoo.com

X. (ISET) International School of Economics at Tbilisi State University (TSU)

International School of Economics (ISET) was established in 2006 at TSU. It is an elite institution training leaders for academia, the public and private sectors in the entire South Caucasus region. ISET brings to the region an international university culture that combines education with research and social engagement.

The School offers:

1. A two-year Master's Program in Economics adhering to international academic standards with English language instruction by visiting and permanent international faculty;
2. A research program providing students with hands-on experience in theoretical and empirical research;
3. An outreach program to re-train faculty.

There are 70 students at ISET.

14. Sophio Gujabidze

Employer: International School of Economics at Tbilisi State of University

Position/Title: Public Relations Manager

Employer Address: 16 Zandukeli Street, Tbilisi, Georgia 0108

Phone/Fax: +(995 32) 507 177

Cell Phone: +(995 99) 17 60 50

E-mail: sopha.gujabidze@iset.ge

Appendix 3b: Energy Economy, Technology and Policy workshop: American Experience

Tbilisi, October 2, 2009

Tbilisi, Georgia

Workshop Agenda

| | |
|-------------|--|
| 2:00 – 2:15 | <p>Opening Remarks Mr. John Hansen, Energy and Environment Office, USAID Caucasus</p> |
| 2:15 – 3:15 | <p>Presentation Mr. Nugzar Beridze, Georgian National Water and Energy Regulatory Commission]</p> |
| 3:15 – 3:30 | <p>Coffee Break</p> |
| 3:30 – 4:15 | <p>Presentation Mr. Gia Arabidze, Georgian Technical University</p> |
| 4:15 – 5:00 | <p>Discussions</p> |

List of Participants

Akaki Tsereteli State University (Kutaisi)

1. **Omar Zivzivadze**, Professor, Head, Electro-Technical Dep. (Technical Engineering)
2. **ketevan Yskhakaia**, Associate Professor, Machine-building Department
3. **Lali Zivzivadze**, Associate Professor, Electro-Technical Department
4. **Murman Keburia**, Associate Professor, Dep. of Technical Engineering

Georgian Technical University

5. **Gia Arabidze**, Full Professor, Dean, Dep. of Energy and Telecommunication
6. **Shalva Nachkebia**, Full professor , Head, Dep. of Electro-Energy
7. **Tengiz Jishkariani**, Full Professor, Dep. of Energy and Telecommunication
8. **Maka Gudiashvili**, Professor, Dep. of Energy and Telecommunication
9. **Omar Kiguradze**, Full Professor, Head, Dep. of Energy and Telecommunication)

Gr. Robakidze University

10. **Murtaz Kvirkvaia**, Associate Professor, Dean, Dep. of Business and Management
11. **Davit Sikharulidze**, Associate Professor, Department of Business and Management

!

International School of Economics at TSU

- 12. **Sophio Gujabidze**, Public Relations Manager
- 13. **Eric Livny**, Executive Director

Ministry of Energy of Georgia

- 14. **Maia Makharashvili**, Leading Specialist of International Relations Division
- 15. **Tamar Tsurtsunia**, Chief Specialist of International Relations Division

Georgian National Water and Energy Regulatory Commission

- 16. **Nugzar Beridze**, Head of Energy Department

Electricity System Commercial Operator

- 17. **Sandro Abashidze**, Deputy General Director Assistant

Ministry of Education and Sciences of Georgia

- 18. **Nugzar Chitaia**, Acting Head of Department of Education and Sciences

TELASI

- 19. **Mamuka Kobalia**, Technical Director

Georgian State Electrosystem

- 20. **Givi Sulava**, Deputy Procurement Manager
- 21. **Maia Pitskhelauri**, Reporting & International Projects Coordination, Executive Manager

USAID

- 22. **John Hansen**, Director, Energy and Environment Office
- 23. **Mariam Ubilava**, Project Management Specialist, Energy and Environment Office

The Energy Capacity Initiative

- 24. **Olga Mandrugina**, Vice President, Advanced Engineering Associates International, Inc.
- 25. **Charles Burge**, Chief of Party
- 26. **Tornike Gotsiridze**, Energy Expert/AEAI Georgia branch director
- 27. **Tsira Chikvaidze**, Education Expert
- 28. **Sophie Barrett**, Grants Administrator

Appendix 3C: Strategic Planning Workshop

December 18-20, 2009, Gudauri, Georgia

Strategic Plan for the Center for Excellence in Energy Education, Training, Applied Research, and Information (CEE)

December 18-20, 2009
Gudauri, Georgia

The primary objective of this retreat is to provide an informal forum for discussion of strategic issues critical to success of the newly-formed energy consortium in Georgia. More specific objectives are:

- 1. To learn about the strategic planning process;*
- 2. To discuss the critical strategic issues for the development and successful implementation of CEE; and*
- 3. To develop a strategic plan for the consortium.*

AGENDA

First Day – December 18, 2009

| | |
|---------------|---|
| 10:00- 11:45 | Introduction to strategic planning process |
| 11:45-12:00 | Coffee Break |
| 12:00 – 13:00 | Breakout Sessions: Brainstorming on the Consortium’s strategic plan (SWOT Analysis). The participants will be divided into two groups. First group will discuss and report the Strengths & Weaknesses of CEE. The second group will discuss and report the Opportunities and Threats for creating CEE. |
| 13:00 – 14:00 | Lunch Break |
| 14:00-15:00 | SWOT Presentations |
| 15:00-15:45 | Analysis of critical strategic issues using Structure® |
| 15:45-16:00 | Coffee Break |
| 16:00-17:00 | Prioritization of Strategic Issues using Decide 2000® |
| 17:00-18:00 | free time |
| 18:00 – 20:00 | Dinner |

Second Day – December 19, 2009

| | |
|---------------|--|
| 10:00 – 10:30 | CEE Vision, Mission, and Objectives Priorities of Objectives using Decide 2000 |
| 10: 30-11:30 | Breakout Sessions: Brainstorming on the Consortium’s strategic plan (Strategies). The participants will be divided into two groups. |

First group will discuss and report ***Teaching and Training Strategies*** of CEE. The second group will discuss and report ***Applied Research and Information Strategies*** of CEE.

| | |
|---------------|--|
| 11:30-11:45 | Coffee Break |
| 11:45-12:15 | Presentations of CEE Strategies |
| 12:15-12:45 | Priorities of Strategies using Decide 2000 |
| 12:45 – 13:00 | Concluding Remarks |
| 13:00 – 14:00 | Lunch Break |
| 14:00 | Departure to Tbilisi |

List of Participants

Georgian State Electrosystem

1. Maia Pitskhelauri - Reporting & International Projects Coordination, Executive Manager
2. Givi Sulava - Deputy Procurement Manager

Telasi

3. Mamuka Kobalia – Technical Director

Electricity System Commercial Operator

4. Vakhtang Ambokadze - Deputy Director

Georgian National Electricity and Water Regulatory Commission

5. Nugzar Beridze - Head of Energy Department

Akaki Tsereteli State University

6. Ketevan Tskhakaia – Project Coordinator, Master’s program in Power Industry Technology and Management
7. Omar Zivzivadze – Project Director, Master’s program Power Industry Technology and Management project

Georgian Technical University

8. Gia Arabidze – Project Director, Concentration in Demand Side Energy Management
9. Temur Mikiashvili- Project Coordinator, Concentration in Demand Side Energy Management

Gr. Robakidze University

10. Mikheil Gogatishvili – Professor, Concentration in Energy Management
11. Davit Sikharulidze – Project Director, Concentration in Energy Management

International School of Economics at Tbilisi State University

12. Eric Livny – Executive Director
13. Sopha Gujabidze – Public Relations Manager

Ministry of Energy of Georgia

14. Tamar Murtskhvaladze–Lead Specialist, Investments department
15. Marita Arabidze - International Relations and Investment Projects Department, Chief Specialist

Appendix 4: MOU

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (“MOU”) is intended to document the intentions of the undersigned Parties to establish a Center for Excellence in **Energy Education, Training, Applied Research, and Information** (CEE) in the Republic of Georgia.

THIS AGREEMENT shall become effective on the date the last signature is placed on the agreement.

WHEREAS, the Parties to this Memorandum of Understanding (“MOU”) are:

1. ***Georgian Technical University;***
2. ***International School of Economics (ISET) at Tbilisi State University***
3. ***Akaki Tsereteli State University***
4. ***Grigol Robakidze University***
5. ***JSC “Telasi”***
6. ***Georgian State Electrosystem Ltd.***
7. ***Electricity System Commercial Operator Ltd.***
8. ***Georgian National Electricity and Water Regulatory Commission***

AND WHEREAS, the Parties attest that they have the authority to be bound by this MOU, and all Parties agree not to contest their entry into the MOU, nor the terms and conditions of this MOU.

CEE MISSION AND OBJECTIVES

CEE Mission

The mission of CEE would be to provide energy education, training, applied research and information services.

CEE Objectives

1. To provide graduate, undergraduate, and vocational energy education in variety of fields including engineering, business, economics, public administration, and social sciences.
2. To utilize the physical, financial, and human resources of the universities as well as businesses, industries and governmental agencies in the region in training and applied research.
3. To serve as a forum for ideas and research on energy information dissemination, education and training.
4. To provide reliable, accurate and open energy information and assistance to the general public, businesses, industries, educational institutions, and governmental organizations.
5. To demonstrate cost-effective energy efficient products and renewable energy technologies.
6. To expand its activities to the Caucuses region.
7. To establish a fund with help from international donor organizations for applied research and educational activities in the region.

COMMITMENTS

By entering into this MOU, the UNDERSIGNED PARTIES agree to:

1. Establish a “**Steering Committee**” for the creation of CEE immediately after signing this MOU;
2. Assign a leader with overall responsibility for oversight of all CEE activities. The leader will be available to assist in guiding the **Steering Committee** in the establishment of CEE.
3. As promptly as possible, hold an Initial Planning Meeting with the **Steering Committee** respecting the formation of CEE. At the Initial Meeting, the Steering Committee must plan formation of CEE. The plan must include short, medium, and long term strategies for CEE.

4. Must diligently pursue mission, objectives and strategies of CEE after being finalized by the Steering Committee.
5. Each Party agrees to employ its best efforts to function as a true partner in the establishment and operations of CEE by, among other things, communicating with and educating each other, concerning technical, financial, logistic, and policy issues that are central to the successful operation of CEE; making themselves available at reasonable times for meetings, conference calls and other appointments; and adhering to adopted schedules and timetables.
6. Organizations and Individuals may not be added or deleted from the designated Steering Committee, identified in this MOU, without the written consent of all Parties.

MOU DURATION AND TERMINATION

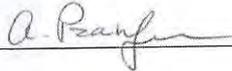
7. This MOU may be terminated at any time for any reason by any Party through written notice to all other Parties.
8. Unless previously terminated pursuant to Paragraph 7 above, this MOU will terminate after formal establishment of CEE, provided, however, that this MOU may be extended thereafter for subsequent terms of up to one (1) year each, upon written agreement of all Parties.
9. If this MOU is terminated, such termination will have no effect on the continuing viability of any other documents or agreements.

IV. SIGNATORIES

Each undersigned representative of the collaborating parties, hereby, certifying that he or she is authorized to enter into this MOU and to bind the parties to the terms of the MOU. The parties, intending to be legally bound, do hereby execute this MOU and commit to its principles and its responsibilities.

Georgian Technical University

Date: 12.17.2009

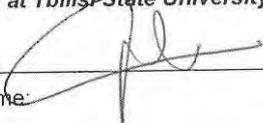
By: 

Name:

Title:

International School of Economics (ISET) at Tbilisi State University

Date: 12.17.2009

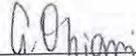
By: 

Name:

Title:

Akaki Tsereteli State University

Date: 12.17.2009

By: 

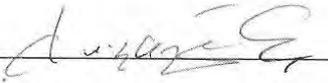
Name:

Title:

Revised January 19, 2009

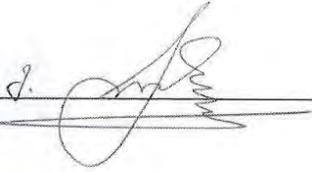
Grigol Robakidze University

Date: 12.17.2009

By: 
Name:
Title:

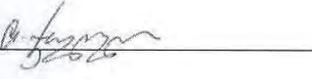
"Telasi"

Date: 12.17.2009

By: 
Name:
Title:

Georgian State Electrosystem Ltd.

Date: 12.17.2009

By: 
Name:
Title:

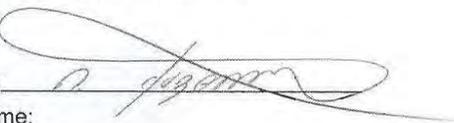
Electricity System Commercial Operator.

Date: 12.17.2009

By: 
Name:
Title:

Georgian National Electricity and Water Regulatory Commission

Date: 12.17.2009

By: 
Name:
Title:

Revised January 19, 2009

Appendix 5: CEE Strategic Plan

CEE Strategic Plan

2010-2015



Center of Excellence in Energy in Georgia (CEE)

CEE is a consortium of the following companies and universities that are involved in the energy sector in Georgia. The primary purpose of this consortium is energy education, training, applied research, and information.

- JSC Telasi;
- Georgia State Electrosystem (GSE);
- Electricity System Commercial Operator (ESCO);
- Georgian National Electricity and Water Regulatory Commission (GNEWRC).
- Georgian Technical University
- Grigol Robakidze University,
- Kutaisi Akaki Tsereteli University; and
- International School of Economics at Tbilisi State University

1. CEE SWOT Analysis

The **driving forces** for both the **internal** environment of CEE, i.e., **strengths** and **weaknesses** of the consortium and the **external** environment, i.e., **opportunities** and **threats** were identified by the members of the consortium at a retreat in Gudauri on December 18 and 19. The following tables list these driving forces.

Table 1: SWOT in Energy Teaching & Training

| Strengths | Weaknesses |
|---|---|
| <ol style="list-style-type: none"> 1. Involvement of key stakeholders of the energy sector in CEE 2. Teaching & training experience of CEE members 3. Experience of CEE members in some of the relevant energy fields 4. Availability of teaching facilities 5. Start-up USAID support 6. Collaborative relationship among CEE members 7. English competency | <ol style="list-style-type: none"> 1. Lack of experience in joint projects among CEE members 2. Lack of organizational structure 3. Lack of division of labor among CEE members 4. Different teaching programs, methods and culture of the four CEE-member universities 5. Lack of alumni networks 6. Lack of highly skilled teachers in some energy fields 7. Insufficient experience in providing training in some fields 8. No appropriate training facilities 9. Lack of international partners 10. Lack of training materials and appropriate teaching tools & methods |
| Opportunities | Threats |
| <ol style="list-style-type: none"> 1. Increasing demand for continuing education in GEO 2. lack of strong competitors 3. Possibility of regional expansion 4. Increasing demand for applied research 5. Grant opportunities from international organizations 6. Possibilities of establishing relationship with international organizations 7. Increasing employment opportunities in the energy field 8. Increasing demand for distance learning | <ol style="list-style-type: none"> T1. Lack of collaborative experience among key players in the energy sector T2. Legal barriers (red tapes) T3. Fundraising difficulties T5. Government instability T7. Low degree of public awareness of the energy issues |

Table 2: SWOT in Applied Energy Research

| Strengths | Weaknesses |
|---|---|
| <ol style="list-style-type: none"> 1. Experience in basic research 2. Ongoing cooperation between some consortium members and the energy sector 3. International cooperation experience | <ol style="list-style-type: none"> 1. Lack of familiarity with modern applied research tools and methods 2. Lack of financial resources by consortium members 3. Lack of experience in international cooperation 4. Lack of experience in project management 5. Lack of market oriented research experience 6. Inconsistent research priorities among CEE members |
| Opportunities | Threats |
| <ol style="list-style-type: none"> 1. Increasing demand for continuing education in GEO 2. lack of strong competitors 3. Possibility of regional expansion 4. Increasing demand for applied research 5. Grant opportunities from international organizations 6. Possibilities of establishing relationship with international organizations 7. Increasing employment opportunities in the energy field 8. Increasing demand for distance learning | <ol style="list-style-type: none"> T1. Lack of collaborative experience among key players in the energy sector T2. Legal barriers (red tapes) T3. Fundraising difficulties T5. Government instability T7. Low degree of public awareness of the energy issues |

Table 3: SWOT in Energy Information & Awareness Campaign

| Strengths | Weaknesses |
|---|--|
| <ol style="list-style-type: none"> 1. Availability of local IT experts to develop and maintain websites 2. Availability of funds to develop a website for CEE 3. Availability of information from consortium members 4. Availability of qualified local experts in energy | <ol style="list-style-type: none"> 1. Lack of information sharing network 2. Lack of public relations specialists |
| Opportunities | Threats |
| <ol style="list-style-type: none"> 1. Increasing demand for continuing education in GEO 2. lack of strong competitors 3. Possibility of regional expansion 4. Increasing demand for applied research 5. Grant opportunities from international organizations 6. Possibilities of establishing relationship with international organizations 7. Increasing employment opportunities in the energy field 8. Increasing demand for distance learning | <ol style="list-style-type: none"> T1. Lack of collaborative experience among key players in the energy sector T2. Legal barriers (red tapes) T3. Fundraising difficulties T5. Government instability T7. Low degree of public awareness of the energy issues |

2. CEE Mission Statement

The mission of CEE is to provide energy education, training, research and information services in Georgia and the South Caucasus region through collaborative efforts of its members.

3. CEE Objectives

The primary objectives of CEE are:

Objective 1

To provide graduate, undergraduate and vocational energy education in variety of energy fields including engineering, business, economics, public administration, and social sciences.

Objective 2

To utilize the physical, financial, and human resources of the universities as well as businesses, industries and governmental agencies in the region in training and applied research.

Objective 3

To serve as a forum for ideas and research on energy information dissemination, education and training.

Objective 4

To provide reliable and accurate energy information and assistance to the general public, businesses, industries, educational institutions, and governmental organizations.

Objective 5

To demonstrate cost-effective energy efficient products and renewable energy technologies.

Objective 6

To expand its activities to the South Caucasus region.

Objective 7

To facilitate regional and international cooperation.

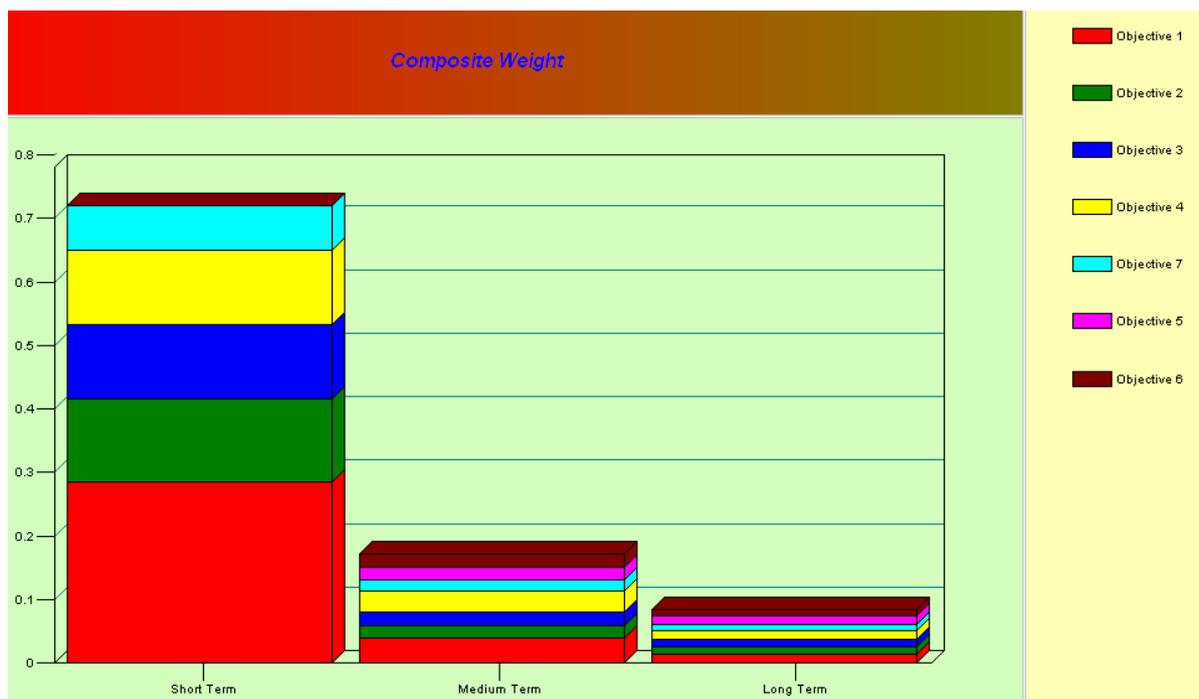
4. Priorities of Time Periods

To prioritize objectives and strategies, the following three time periods were considered:

Short -Term: January 2010-March 2011
 Medium-Term: January 2010-December 2013
 Long-Term: January 2010-December 2015

These three time periods were prioritized by Dr. Hameed Nezhad and Tsira Chikvaidze. These priorities were presented to the energy team of the Akaki Tsereteli State University in Kutaisi and they accepted the priorities. CEE members as a group will develop their priorities and the results will be included in the final version of the strategic plan. Based on our assessment, CEE performance in the short term will be critical to its medium and long-term success as shown in the following figure.

Figure 1: Priorities of Time Periods



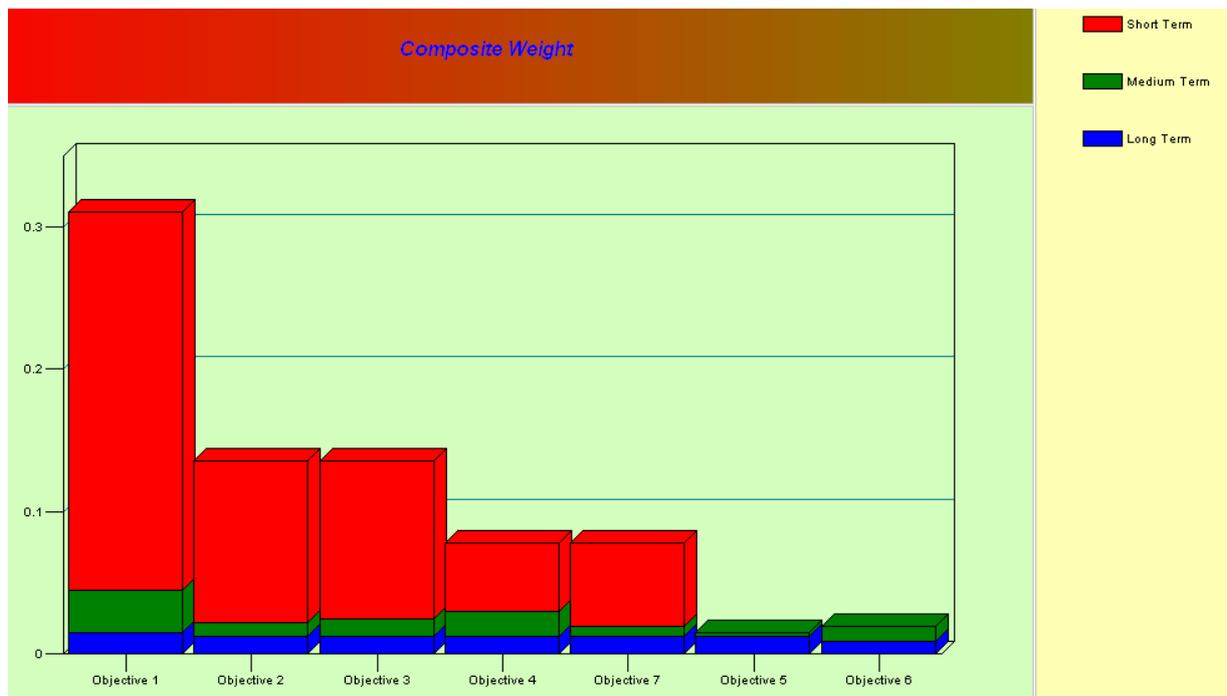
5. Priorities of Objectives

Based on our judgment, the most important objective of CEE would be Objective 1 “To provide graduate, undergraduate and vocational energy education in variety of energy fields including engineering, business, economics, public administration, and social sciences” followed by Objectives 2 and 3 which are:

“To utilize the physical, financial, and human resources of the universities as well as businesses, industries and governmental agencies in the region in training and applied research;” and

“To serve as a forum for ideas and research on energy information dissemination, education and training.”

Figure 2: Priorities of Objectives



6. CEE Strategies

CEE will achieve its objectives through the following strategies. The strategies are divided into three time periods as follows:

Short -Term Strategies: January 2010-May 2011
Medium-Term Strategies: January 2010-December 2013
Long-Term Strategies: January 2010-December 2015

6.1. Short-Term Strategies (2010-2011)

- **ST1.To harmonize energy curriculum of the four universities.**
- **ST2- To create an effective organizational structure for CEE.**
- **ST3-To provide training of trainers in relevant energy fields.**
- **ST4-To create a single database for human resources and educational facilities.**
- **ST5-To conduct labor market surveys once every three years.**
- **ST6. To develop an effective mechanism for recruitment of students.**
- **ST7. To identify and document applied energy research needs of the energy sector and research skills of CEE members.**
- **ST8. To create a web site for CEE to support the following activities:**
 - **Online energy journal subscriptions.**
 - **Monthly E-newsletter for CEE.**
 - **CEE's success stories.**
- **ST9. To promote CEE activities by making presentations at energy companies, government agencies, and educational institutions.**

6.2. Medium-Term Strategies (2010-2013)

- **MT1-To develop courses/curriculum and teaching materials for all degree programs to meet the needs of employers. The teaching materials must be in both English and Georgian.**
- **MT2-To improve and unify educational facilities and library resources.**
- **MT3-To facilitate placement of graduates.**
- **MT4-To facilitate formation of a professional energy education association.**
- **MT5-To plan and implement internships.**
- **MT6-To establish international relations and cooperation with universities by organizing joint conferences, exchange programs, and other joint activities.**
- **MT7. To sign MOUs between CEE and the energy sector organizations for applied research and to publish applied research papers.**

6.3. Long-Term Strategies (2010-2015 & Beyond)

- **LT1-To ensure continuous improvement of energy curriculum of the four universities**
- **LT2- To attract new and highly skilled teachers**
- **LT3-To develop regional cooperation for sharing of teaching experience**
- **LT4. To develop online courses**
- **LT5. To seek international accreditation**

7. Priorities of Strategies

The strategies were divided into three groups--short, medium, and long-term strategies. These strategies were then prioritized according to their effectiveness in achieving CEE objectives. Based on our judgment, the most important strategy is ***“To create an effective organizational structure for CEE.”*** Without an effective organization, CEE will not be able to implement its proposed activities. Since this form of collaboration is new in Georgia, there are several legal and procedural issues that must be addressed before forming the organization.

The second and third most important strategies are:

MT3: -To facilitate placement of graduates.

LT1: To ensure continuous improvement of energy curriculum of the member universities.

Implementation of these strategies is critical to the success of the education and training programs that will be the main drivers of other CEE activities. Figure 3 shows priorities of other strategies. Figures 4, 5, and 6 show priorities of strategies in each period.

Figure 3: Priorities of Strategies

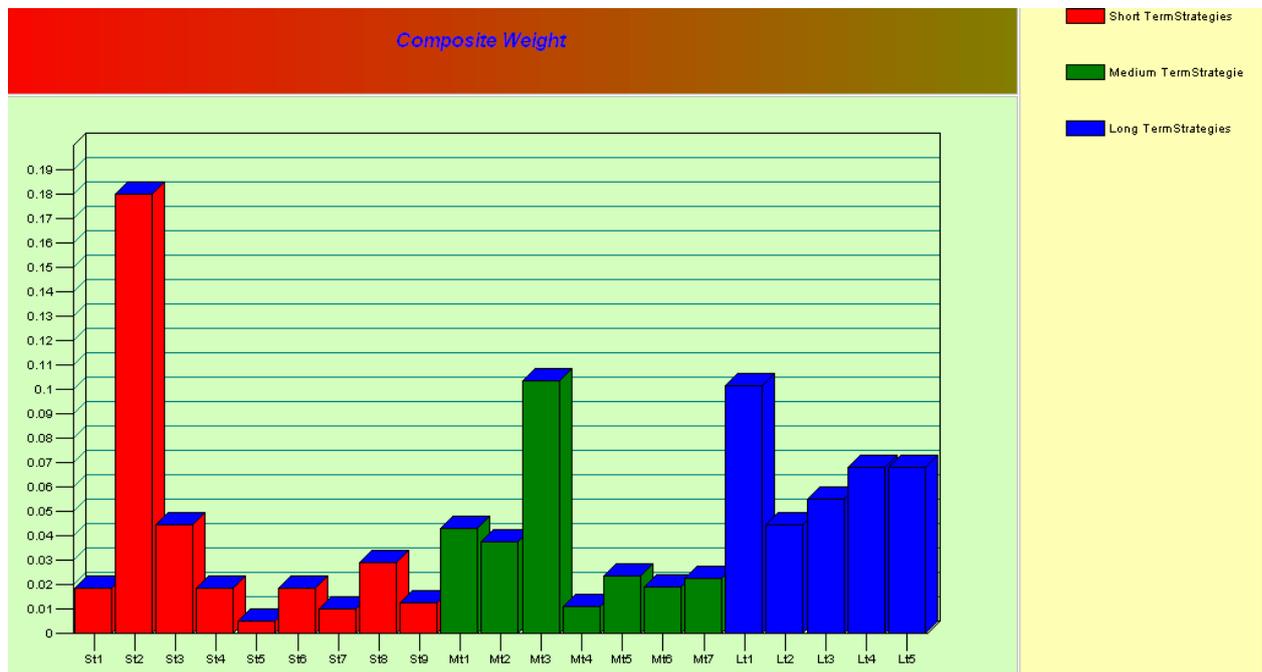
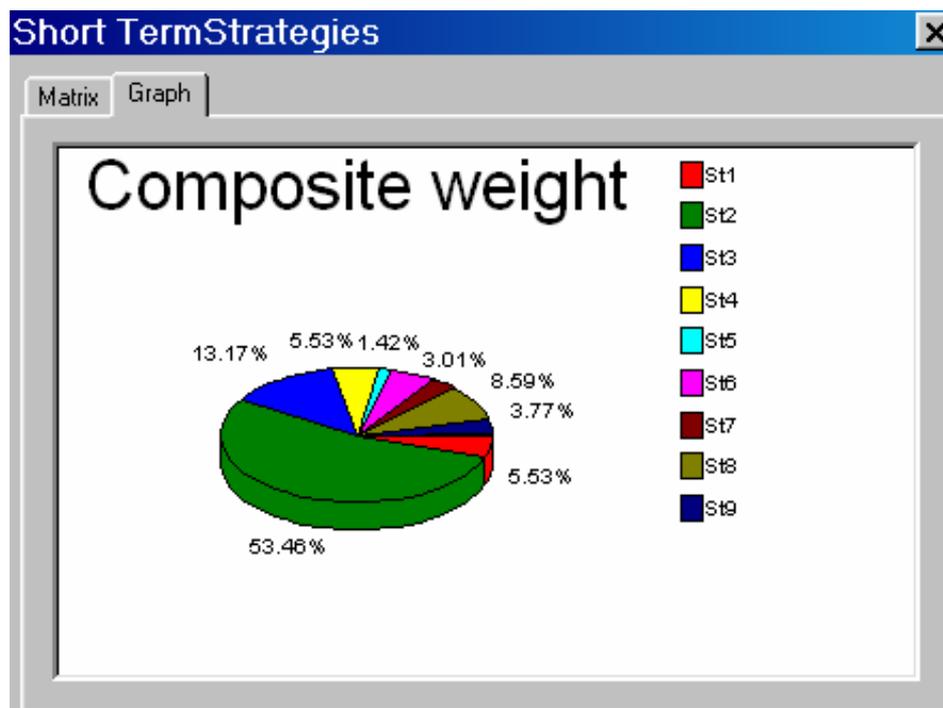


Figure 4: Priorities of Short-Term



Short-Term Strategies (2010-2011)

ST1. To harmonize energy curriculum of the four universities.

ST2- To create an effective organizational structure for CEE.

ST3- To provide training of trainers in relevant energy fields.

ST4- To create a single database for human resources and educational facilities.

ST5- To conduct labor market surveys once every three years.

ST6. To develop an effective mechanism for recruitment of students.

ST7. To identify and document applied energy research needs of the energy sector and research skills of CEE members.

ST8. To create a web site for CEE to support the following activities:

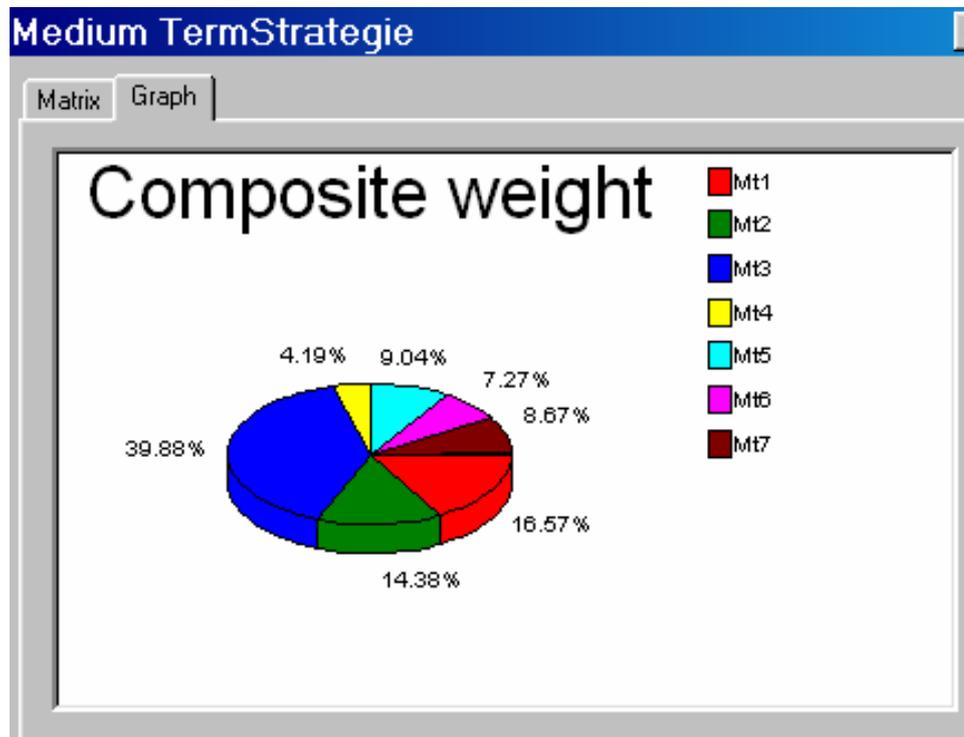
Online energy journal subscriptions.

Monthly E-newsletter for CEE.

CEE's success stories.

ST9. To promote CEE activities by making presentations at energy companies, government agencies, and educational institutions. **Strategies**

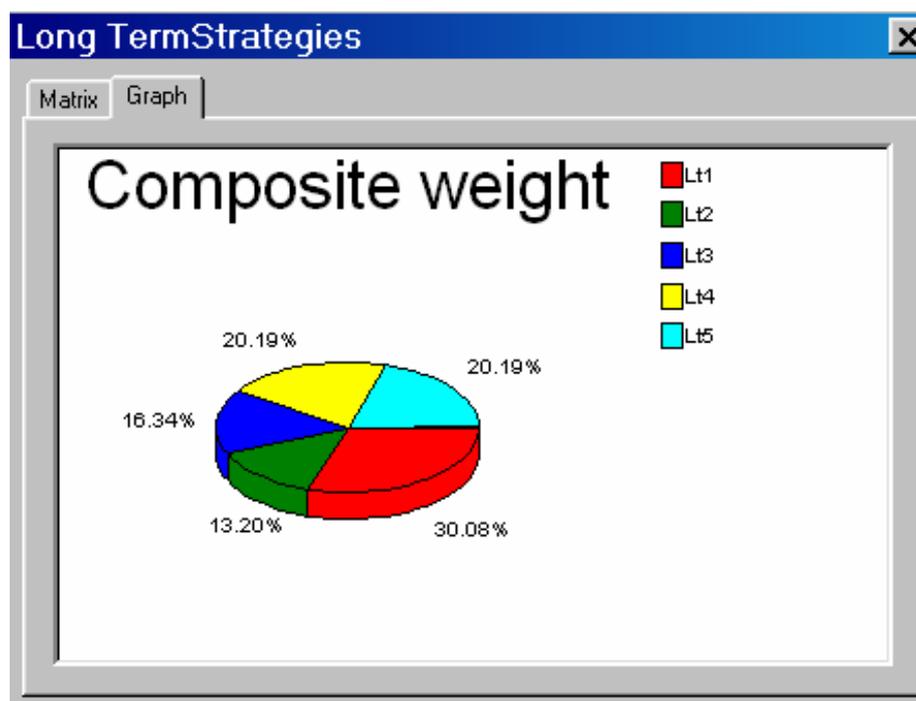
Figure 5: Priorities of Medium-Term Strategies



Medium-Term Strategies (2010-2013)

- **MT1-To develop courses/curriculum and teaching materials for all degree programs to meet the needs of employers. The teaching materials must be in both English and Georgian.**
- **MT2-To improve and unify educational facilities and library resources.**
- **MT3-To facilitate placement of graduates.**
- **MT4-To facilitate formation of a professional energy education association.**
- **MT5-To plan and implement internships.**
- **MT6-To establish international relations and cooperation with universities by organizing joint conferences, exchange programs, and other joint activities.**
- **MT7. To sign MOUs between CEE and the energy sector organizations for applied research and to publish applied research papers.**

Figure 4: Priorities of Long-Term Strategies



Long-Term Strategies (2010-2015 & Beyond)

- **LT1-To ensure continuous improvement of energy curriculum of the four universities**
- **LT2- To attract new and highly skilled teachers**
- **LT3-To develop regional cooperation for sharing of teaching experience**
- **LT4. To develop online courses**
- **LT5. To seek international accreditation**

Recommended Short Term Activities for CEE

1. Create a Formal Organizational Structure.
2. Web-page and e-newsletter development.
3. Publications of teaching materials in both Georgian and English.
4. Subscriptions to online data bases and energy journals.
5. Membership in international associations such as the International Association for Energy Economics and the Association of Energy Engineers.
6. to present papers at regional conferences.

7. Formation of the Energy Educator Association.
8. Organizing a regional conference (Energy Forum) in Georgia in 2011.
9. Conducting two training workshops on business plans and principles of energy management.
10. Scholarship fund drive.
11. Lessons learned seminar by the four universities
12. Organizing a Job fair.
13. Singing of MOU between the four universities to synchronize their programs and to develop a mechanism for credit transfer.

Appendix 6: Students' Transcripts

1. Zibzibadze,Mikheil

University of Minnesota Transcript

Name : Zibzibadze,Mikheil
 Student ID: 4171406
 Birthdate : 04-07
 Print Date : 01-12-2010

MOST RECENT PROGRAMS

Campus : University of Minnesota, Twin Cities
 Program : Graduate School
 Plan : Management of Technology MSMOT Major
 Degree Sought : Master of Science in Management of Technology

----- Beginning of Graduate Record -----

Fall Semester 2009

University of Minnesota, Twin Cities

Graduate School

Management of Technology MSMOT Major

| | | | Attempted | Earned | Points | |
|------------|------|-------------------------|---------------|--------|--------|-------------|
| MOT | 8112 | Mgmt Accounting | 2.00 | 2.00 | A | 8.000 |
| MOT | 8114 | Strategic Tech Analysis | 2.00 | 2.00 | A- | 7.340 |
| MOT | 8121 | Mng Org Tech Environ | 2.00 | 2.00 | A- | 7.340 |
| MOT | 8133 | Commun Tech Environ | 2.00 | 2.00 | A- | 7.340 |
| MOT | 8900 | Conflict Mgmt | 0.50 | 0.50 | A | 2.000 |
| TERM GPA : | | 3.767 | TERM TOTALS : | | 8.50 | 8.50 32.020 |

University of Minnesota Summary Information

Graduate Career Totals

| | Attempted | Earned | Points |
|-------------------|-------------------|--------|-------------|
| CUM GPA : 3.767 | CUM TOTALS : 8.50 | | 8.50 32.020 |
| GPA UNITS : 8.500 | CUM TOTALS : 8.50 | | |

2. Marina Arabidze



Office of the Registrar

333 East Campus Mall
Suite 10101
Madison, WI, 53715-1384

GRADE REPORT

Run Date: Jan 26, 2010

Term: Fall 2009-2010
Name: Marina Arabidze
Career: Graduate
Program: Land Resources
 Environment & Resources
Year: Graduate

| Dept. Name | Course | Session | Descriptive Title | Credits | Grade | Grade Points |
|------------|--------|---------|--------------------------------|---------|-------|--------------|
| ENVIR ST | 332 | Regular | The Global Warming Debate | 3 | A | 12.000 |
| ENVIR ST | 367 | Regular | Renewable Energy Systems | 3 | A | 12.000 |
| ENVIR ST | 809 | Regular | Intro-Energy Analysis & Policy | 3 | AB | 10.500 |
| ENVIR ST | 901 | Regular | Envr St Orient Fld Trip&Smr | 2 | CR | 0.000 |

| | Advanced Standing Credit | Earned Credit | GPA Credits | GPA Grade Points | GPA |
|------------|--------------------------|---------------|-------------|------------------|-------|
| Term | 0 | 11 | 9 | 34.5 | 3.833 |
| Cumulative | 0 | 11 | 9 | 34.5 | 3.833 |

End of Term Action: None

Plan : Environment & Resources MS
 Environment & Resources MS

Grading System:

| Grades in GPA: | Grades NOT in GPA | | Symbols: |
|----------------|-------------------|-------------------------------|----------------------------------|
| A 4.000 | I or IN | Incomplete NW No Work | > No Degree Credit |
| AB 3.500 | P | Progress IF Incomplete | # Pass/Fail Program |
| B 3.000 | S | Satisfactory (Med. Only) | H Course Taken for Honors Credit |
| BC 2.500 | U | Unsatisfactory R Registered | GPA Grade Point Average |
| C 2.000 | M | Missing CR Credit | |
| D 1.000 | Q | Credit N No Credit | |
| F 0.000 | NR | No Report DR Dropped | |

3. Nana Gurgenidze

Grades - Opera

File Edit View Bookmarks Widgets Tools Help

Gmail - re: US Scholarshi... myNYIT Grades

https://nyitconnect.nyit.edu:443/webadvisor/webadvisor?TOKENIDX=12345&SS=6&APP=ST&CONSTITUENCY=WBST nyitconnect.nyit.edu Google

NYIT Connect

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STUDENT Welcome Nana!

Grades

DISCLAIMER - This is an unofficial grade report. Print a copy and retain with your academic records. Contact the department for missing grades.

Advisor
None

Term Term GPA
Fall 2009 3.30

| Course Section | Title | Final Grd | Course Credits |
|----------------|--------------------|-----------|----------------|
| PHYS-115-M01 | Humanity/Phys Un | B+ | 3.00 |
| ENGY-610-M01 | Energ Management | B+ | 3.00 |
| MGMT-605-M02 | Org Devpt & Behvrl | B+ | 3.00 |

OK

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