

PN-ACQ-078



EURASIAN - AMERICAN PARTNERSHIP FOR
E C O L I N K S
ENVIRONMENTALLY SUSTAINABLE ECONOMIES

A N N U A L M E E T I N G

April 23-27, 2001

**Hyatt Arlington, 1325 Wilson Boulevard
Arlington, Virginia**



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**Hyatt Arlington, 1325 Wilson Boulevard
Arlington, Virginia**

Goal and Objectives

Goal:

To improve the effectiveness of the EcoLinks Program through enhancement of: staff knowledge of relevant resources, cooperation and coordination of partner activities, and outreach and promotion.

Objective 1

To identify concrete actions that can be taken to more effectively tap the resources of all EcoLinks Partners and staff to ensure that the EcoLinks program meets its strategic objective.

Objective 2

To strengthen EcoLinks interaction with the US private sector.

Objective 3

To provide training for EcoLinks staff so that they can gain greater understanding of project financing issues, financial resources, follow up financing for grantees and germane internet resources.



Program

Monday April 23, 2001

*All sessions will take place in the Senate Ballroom, Salon A (2nd floor)
unless otherwise noted.*

910 – 930 *Welcome and Recap of the Year*
Loren Schulze

930 –1000 *Introduction to the discussion: The Future of EcoLinks*
John Butler , Carl Maxwell

Objective: Presentations by both Mr. Butler and Mr. Maxwell on the EcoLinks Program future. Explanation of goals and objectives of day's sessions.

Product: Mr. Butler and Mr. Maxwell each make a 15-minute presentation. Participants will understand successes and challenges of EcoLinks.

1000 - 1015 *Break*

1015 – 1100 *Grants Program Update*
Winston Bowman

Objective: Update of EcoLinks Grant Program activities and methods.

Product: Briefing on grants program activities, the results of a QRA survey and two examples of Best Practices.

1100-1200 *Working Together: How can EcoLinks Partners optimize cooperation for maximum results?*
Joe Atchue, Loren Schulze, and others

Objective: Analysis of goals and objectives: Are there ways Partners can use our resources more effectively? A presentation of the performance objectives/ indicators for each Partner organization will be made.

Product: A better understanding of the goals and objectives of each EcoLinks Partner organization and of how these organizations can work together to optimize cooperation and improve performance. Setting the stage for the afternoon sessions.

1200-1300 *Lunch*



ECOLINKS ANNUAL MEETING 2001

- 1300-1330 *Breakout: How can partners optimize cooperation for maximum results?*
Session held in: Senate Ballroom Salon A (2nd floor), Executive Boardroom (4th floor) and Douglas Room (1st floor).
Three Groups
- Objective: Each group identifies concrete actions that can be taken to help each other meet their goals and objectives.
Product: Concrete actions for achieving goals/objectives identified.
- 1330-1400 *Presentation by Each Group*
Three Groups
- Objective: Groups present their ideas on how to proceed.
Product: Three group presentations on concrete actions.
- 1400-1500 *Discussion of presentations and adoption of an approach*
Whole Group
- Objective: General discussion of the presentations.
Product: Whole group has reached consensus on concrete actions.
- 1500-1515 *Break*
- 1515-1615 *Success Stories*
Joe Atchue, Alison Evans
- Objective: Discuss Success Stories; explain why they are important and how partners can contribute.
Product: Stage set for discussion on the success story development process.
- 1615-1630 *Wrap Up for the Day*
Joe Atchue
- Objective: Summary of results of Day One. Discussion of remaining issues and concerns to be addressed during remainder of Annual Meeting.
Product: Understanding of results of day. Identification of outstanding issues and concerns.
- 1800 *Informal dinner (Venue to be determined.)*



Tuesday April 24, 2001

*All sessions will take place in the Senate Ballroom, Salon A (2nd floor)
unless otherwise noted.*

- 900-915 *Welcome to US EcoLinks Alliance Participants*
Senior managers of U.S. Agency for International Development
(USAID) and Department of Commerce (DOC)
- Objective: Brief welcome to EcoLinks staff, partners, and outside
participants.
Product: Participants understand the importance of day's activities and
are ready to work.
- 915-945 *EcoLinks past, present and future*
Loren Schulze
- Objective: Brief DOC and USAID senior managers and all participants
on the program.
Product: Senior staff understand the importance and successes of
EcoLinks.
- 945-1000 *US EcoLinks Alliance Objectives*
Jay McAllister
- Objective: Describe the reasoning behind the formation of the Alliance
and future expectations for the Alliance.
Product: EcoLinks Alliance objectives introduced.
- 1000-1045 *EcoLinks Technology Representatives Presentations*
Technology Representatives
- Objective: Allow each Technical Representative to talk briefly about
the main market opportunities in each of their respective countries.
Product: Greater understanding on the part of Alliance members of
environmental technology business opportunities in the CEE/NIS.
- 1045-1100 *BREAK*
- 1100-1130 *Environmental Export Council's Europe and Eurasia (E&E) Outreach
and US EcoLinks Alliance*
Chris Godlove
- Objective: Alliance formation both in the US and in the E&E region will
be discussed, and possible strategies for future coordination between
groups will be presented.
Product: Presentation on Alliance formation and strategies for future
coordination between groups.



ECOLINKS ANNUAL MEETING 2001

1130-1200 *Opportunities for Cooperation*
Chris Godlove

Objective: US EcoLinks Alliance participants will have an opportunity to comment upon how efforts can be better leveraged both here in the US and in the E&E region.

Product: Discussion of Alliance activities by whole group.

1200-1230 *US EcoLinks Alliance Next Steps*
Chris Godlove

Objective: Review of the morning's progress followed by drawing conclusions from those discussions, as well as establishment of a timeframe for the next Alliance meeting.

Product: Discussion of conclusions and establishment of framework for future alliance activities.

1230-1330 *Working lunch for Alliance participants.*

1330-1500 *EcoLinks Water Strategy Session*
John Butler, Chris Godlove

Objective: Discussion with Water and Wastewater Equipment Manufacturers Association (WWEMA) and EcoLinks Alliance participants on possibilities for focusing on water opportunities in the E&E region.

Product: A decision on whether and how EcoLinks should proceed with a water strategy.

1500-1515 *Break (End of Public Meeting)*

1515-1615 *EcoLinks internal meeting*
John Butler

Objective: All participants are encouraged to present outstanding issues and ideas regarding the EcoLinks program.

Product: Group discussion of issues and ideas regarding the program.

1615-1630 *Wrap up*
Joe Atchue

Objective: Process the day.

Product: Group articulates their understanding of the day.



- 1630-1645 *Break – Prepare to leave for reception.*
- 1645-1730 *Transportation to Reception. **Group will depart from hotel lobby at 1645.***
- 1730-1900 *Capital Hill Reception
Various*

Objective: A reception that attracts an audience from Capitol Hill and the Executive Branch, private sector, and Embassy representatives from target EcoLinks countries.
Product: A public event that highlights the importance and successes of the program.

Wednesday April 25, 2001

All sessions will take place in the Senate Ballroom, Salon A (2nd floor) unless otherwise noted.

- 900 *Introduction to the Day
Joe Atchue*
- 905-1045 *Finance Training: Consultant presents a case study.
Ralph Braccio*
- Objective: Training.
Product: Participants will gain a greater understanding of project packaging and financing.
- 1045-1100 *Break*
- 1100-1230 *Finance Training Continued
Ralph Braccio*
- 1230-1330 *Lunch*
- 1330-1400 *Financing issues.
To Be Announced*
- Objective: Discussion on environmental investments and financing.
Product: Participants will gain a greater understanding of how to work effectively with financing organizations.



1400-1500 *How EcoLinks can follow-up financing for grantees.*
John Butler , Winston Bowman

Objective: Mr. Butler and Mr. Bowman provide info on how EcoLinks can assist grantees to take the next step in the project cycle.
Product: Discussion of how EcoLinks can move grantees towards the next step in a project cycle.

1500-1515 *Break*

1515-1645 *Internet Resources Training*
Robert Bisceglie, Steve Rynecki, Tim Conners

Objective: Provide participants with information on e-commerce and other resources available on the Internet or in some electronic format. Included in this presentation will be demos of the new GTN platform and the Clean Technology Exchange.
Product: Participants better understand internet resources available

1645-1700 *Windup*
Joe Atchue

Objective: Take pulse of group
Product: Understand sense of group.

Thursday April 26, 2001

Meeting locations to be arranged individually.

900-1700 *Open for Meetings with Business Groups/ individuals*
Individual

Objective: Allow participants time to meet with business groups interested in pursuing partnerships within the region.
Product: Explain program to U.S. firms and interest them in using the program.



ECOLINKS ANNUAL MEETING 2001

Friday April 27, 2001

Meeting locations to be arranged individually.

900-1700

Open for Meetings with Business Groups/ individuals
Individual

Objective: Allow participants time to meet with business groups interested in pursuing partnerships within the region.

Product: Explain program to U.S. firms and interest them in using the program.



ECOLINKS ANNUAL MEETING 2001

Capital Hill Reception

Public-Private Environmental Partnership in Central and Eastern Europe and Eurasia

Tuesday April 24, 2001 – 5:30pm – 7:00pm

Rayburn House Office Building – Room 2200
(Metro: South Capitol) Washington, DC

Directions from Rosslyn Metro station:

Take the orange or blue line train towards New Carrollton/Addison Road and get off at Capital South (the ninth stop). Exit the Metro station and walk north towards Capitol Building (1st Street) to Independence Ave. At Independence Ave. go left. Walk 2 blocks to Rayburn House Office Building on left. Enter Rayburn Building at entrance with horseshoe driveway. Ask guard for directions to room 2200. Identification is required to enter the building.

Please bring a valid identification (passport, driver's license) and wear business dress.



ECOLINKS ANNUAL MEETING 2001

Meeting Evaluation

April 25, 2001

To help us prepare future meetings, we would like you to share with us some of your thoughts and feelings about the meeting.

1. Did the meeting achieve the following objectives:

Objective 1. To identify concrete actions that can be taken to more effectively tap the resources of all EcoLinks Partners and staff to ensure that the EcoLinks program meets its strategic objective.

- Not at all
- For the most part
- Completely

Objective 2. To strengthen EcoLinks interaction with the US private sector.

- Not at all
- For the most part
- Completely

Objective 3. To provide training for EcoLinks staff so that they can gain greater understanding of project financing issues, financial resources, follow up financing for grantees and germane internet resources.

- Not at all
- For the most part
- Completely

2. Did the meeting meet your expectations?

- Completely
- For the most part
- Not at all

3. How will you apply what you learned at the meeting in your workplace.

4. Was it helpful to meet with other EcoLinks personnel and representatives of other organizations? In what way?



5. How would you rate the training provided by Ralph Braccio?.

- *Excellent
- *Very Good
- *Good
- *Poor
- *Very Poor

6. Were the conference facilities provided adequate?

- Completely
- For the most part
- Not at all

7. Was the conference room large enough for you to work well together?

- Yes
- No

8. Were the materials provided adequate?

- Yes
- No

9. Was your hotel accommodation satisfactory?

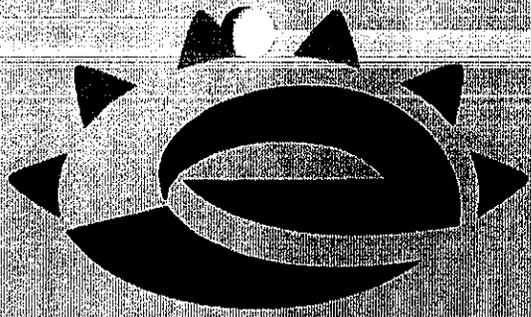
- Completely
- For the most part
- Not at all

10. What aspects of the facilities could be improved upon?

11. In what ways can we improve future meetings?

12. What are your overall feelings about the meeting?





EcoLinks— Where Have We Been & Where Are We Going?

**Presented At
The Second Annual EcoLinks Meeting
April 23, 2001**

Presented By: Loren Schulze



EcoLinks– Where Have We Been & Where Are We Going?

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Why Are We Here?

- We're here to:
 - ◆ Improve our effectiveness as EcoLinksians
 - ◆ Identify concrete actions we can take to do so
 - ◆ Learn new skills
 - ◆ Understand and celebrate our successes



A Recap of the Year

- Since we met last March we have been able to build on our common vision.



A Recap of the Year

- We have made a number of material gains, including:
 - ◆ Identifying more than 80 opportunities
 - ◆ Broadcasting information to more than 6,000 US firms
 - ◆ Completing three more grants cycles and initiating new types of grants
 - ◆ Adding several countries



Some Examples – Tech Transfer and Investment

- **Czech Republic**
 - ◆ \$9.7 million deal for water treatment
- **Kazakhstan**
 - ◆ KazEcology becomes a distributor for Hach Inc.
- **Romania**
 - ◆ More than 20 participants go to WEFTEC



Some Examples– Tech Transfer and Investment

- We have also expanded our activities to Romania, Bulgaria, and Croatia
- Tech Reps have attended “trade shows” in
 - ◆ The US
 - ◆ Czech Republic
 - ◆ France
 - ◆ Poland
 - ◆ Elsewhere



Some Examples – Grants Program

- **Awarded more than:**
 - ◆ 135 Challenge Grants worth \$6.3 million
 - ◆ 200 Travel Grants worth more than \$900,000



Some Examples– Grants Program

- **We have also:**
 - ◆ Expanded our program to Bosnia
 - ◆ Initiated the Twinning Grant Program
 - ◆ Identified five “Best Practices” (with more to come)
 - ◆ Launched fifth (and final) Challenge Grant cycle



Other Successes

- **Completed**
 - ◆ EcoLinks Website-- redesigned and enhanced
 - ◆ EcoLinks Annual Report
 - ◆ EcoLinks Brochure-- redesigned and enhanced

- **In progress**
 - ◆ GTN's new database



New Partners

- **EcoLinks continues to add new strategic partners including:**
 - ◆ Global Environmental Technology Foundation
 - ◆ Environmental Export Council



Future Challenges

- Increasing our visibility throughout the Region and the US
- Increasing the size and number of our deals
- Making grant projects sustainable
- Implementing the Twinning Grants
- Adding new "Best Practices"
- Continuing to maintain high quality



EcoLinks Partnership Grants

Presentation to Partners Meeting

Rosslyn, VA

April 23, 2001

Presented By: Winston Bowman



EcoLinks Partnership Grants

Presentation to Partners Meeting

Rosslyn, VA

April 23, 2001



Agenda

Quick Response Awards

- Activity Report
- Survey Results
- Trade results

Challenge Grants

- Activity Report
- Examples of Best Practices



QRA Status: 199 QRAs for \$848,000

Bulgaria	33	Macedonia	16
Baltics	7	Moldova	1
Croatia	10	Poland	19
Czech Rep	10	Russia	26
Georgia	2	Romania	29
Hungary	14	Slovakia	4
Kazakhstan	17	Ukraine	11



QRA Survey

Scope of survey:

- 164 grantees from Dec 1999-Oct 2000
- 60% response rate
- 80% challenge grant / 20% trade



QRA Survey

Results of survey:

- 78% reported continuing partnership
- 75% rated staff support as excellent, 23% as good



QRA Survey: Quote from RRSI Recycling

“The EcoLinks staff have been more than excellent. They are extremely valuable liaisons and global representatives for US companies that need this type of support and assistance in order to explore business opportunities in eastern European countries like Romania”.



Trade Results from QRAs

- ENSAT (\$560,000 from World Bank)
- Ticon Trading (\$5 million joint venture)
- Wynn Oil (\$240,000 in sales)
- Genesis et al (\$100,000 in sales)
- Udell Technologies (\$300,000 in sales)



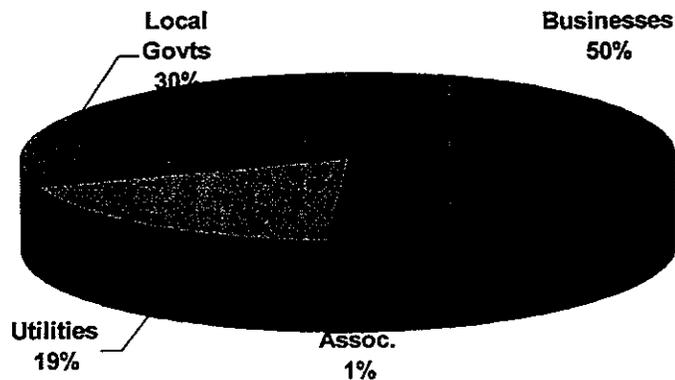
Status of Challenge Grants: 135 grants for \$6.3 million

Bulgaria	34	Poland	2
Croatia	9	Romania	33
Estonia	2	Russia	9
Hungary	3	Slovakia	7
Kazakhstan	7	Ukraine	17
Macedonia	12		



Status of Challenge Grants

Types of organization for Project Leader:



Challenge Grant Topics

- 45% Global Climate Change
- 33% Cleaner Production
- 22% Water Quality Management



Challenge Grant Best Practice

Title: Energy Efficiency Action Plan in Bulgaria

Grant Amount: \$45,300 (plus \$26,400 as a cost share)

Project Team:

Leader: Municipality of Sofia, Bulgaria

Partner: Good Consulting, Washington Grove, MD, USA

Associate: Energy Efficiency Foundation, Sofia, Bulgaria



Project Objectives

Overall goal: Reduce energy consumption by 30% in both residential and public buildings

- Assess energy consumption for buildings
- Identify appropriate energy conservation measures
- Develop conservation plan that includes
 - necessary financing
 - possible financing resources
 - implementation steps for selected measures



Project Description

- Collecting data on current energy consumption
- Energy audit based on developed methodology
- Identification of energy efficiency measures
- Preparation of Action and Marketing Plans



Project Results/Outcomes

- **Action Plan**
 - setting up of Energy Efficiency Fund
 - list of efficiency measures for municipal buildings
 - setting up of Municipal Agency for Energy Management
 - list of measures for residential buildings
- **Marketing Plan**
- List of institutional and other barriers
- Database



Environmental Benefits

Annual reduction of CO₂ emissions:

Municipal buildings	19,600 t/year
Residential buildings	224,000 t/year
Total CO₂ reduction	243,000 t/year



Economic Benefits

Municipal Buildings:

Energy savings:	125,000 MWh
Investment outlays:	\$2.33 million
Annual savings:	\$2.05 million
SPBT:	1.2 years



Economic Benefits

Residential Buildings:

Energy savings:	975,000 MWh
Investment outlays:	\$31.5 million
Annual savings:	\$20.4 million
SPBT:	1.6 years



Best Practices

- Energy audit methodology
- Database on energy consumption
- Energy Efficiency Fund
- Municipal Agency for Energy Development
- Identification of institutional barriers



Post Grant Financing

- \$2.33 million to set up self-recovery Energy Efficiency Fund to finance energy efficiency measures in municipal buildings
- \$136,000 to set up Municipal Agency for Energy Management (grant from EU's SAVE 2 Program)
- \$31.5 million for implementation of energy efficiency measures in residential buildings (bank loans repaid through energy savings)



Challenge Grant Best Practice

Title: Clean Sky Vladivostok

Grant Amount: \$50,000

Project Team:

Leader: Speczavod Waste-to-Energy Facility,
Vladivostok, Russia

Partner: Energy and Environmental Consulting
Engineers (EECE), Viejo, California

Associate: Far Eastern State University, Vladivostok,
Russia



Background

Speczavod: 3 incinerator waste-to-energy facility built in 1979. Currently processes 2/3 of Vladivostok's municipal waste and sells steam for heat and hot water production.

Problems:

- 2000 tons fly-ash emissions per year;
- Speczavod facility constructed without acid gas emissions control (over 300 tons SO_x & NO_x)
- Outdated, energy inefficient incinerator and boiler units;
- High dioxin emissions (low burn temperature)



Project Objectives

Overall goal: Assess options for improving environmental and economic performance of Speczavod:

- reducing fly-ash and dioxin emissions
- reducing SO_x and NO_x emissions
- analyze potential for using fly-ash in concrete materials



Project Description

- Lobbying local government support
- Collection of data on current emissions levels and energy consumption/production
- Analysis of environmental controls in similar sized waste-to-energy facilities (USA and RU)
- Development of technical plans for fly-ash control system, analysis of existing acid gas control systems
- Modernization of incinerator unit and steam boiler
- Construction of fly-ash control system (installation to be completed May 2001)



Project Results/Outcomes

- Development of technical plans for fly-ash capture system and analysis of acid gas control systems
- Modernization of incinerator #2 and boiler increased energy efficiency, reduced dioxin emissions
- Construction of fly-ash capture system (installation to be completed in May)
- Web site: www.dvgu.ru/vido/cleansky/ and e-mail list serve on "greening" waste-to-energy facilities



Environmental Benefits

- Modernization of incinerator #2 and boiler reduced CO by 62%, SO₂ by 85% and dioxin emissions significantly
- Installation of fly-ash capture system in one incinerator unit will reduce fly-ash emissions by 93%
- Installation of acid gas control system will reduce SOx and NOx by 64%



Economic Benefits

- Modernization of incinerator unit and steam boiler (\$52,000) results in 36% increase in efficiency, \$70,000 in increased steam sales and \$160,000 in fuel savings (reduced need for mazut)
- Installation of fly-ash capture system (\$70,000) results \$52,000 in reduced environmental fines/fees



Best Practices

- Local government support was secured from initial stage of project inception
- Identification of low-cost measures with quick pay-back time, appropriate to local conditions
- Project and is highly transferable to other waste-to-energy facilities in NIS



Post Grant Financing

\$120,000 grant in follow-up financing from the local EcoFund for modernization of incinerator # 2 and to install a fly ash capture system on one incinerator unit.

Speczavod is currently seeking:

- \$140,000 soft-loan for fly-ash capture system on 2 remaining incinerator units
- \$1,000,000 grant for installation of acid gas control system on 2 incinerator units



Success in Building Capacity

Prepare and implement project plan

- Market-based approach
- Cleaner-production approach
- Cross-border partnership
- Funds accountability
- Final report with results



Our Performance Indicators

**Presented at the
Second Annual
EcoLinks Partners' Meeting
April 24, 2001**

Presented By: Joe Atchue



Our Performance Indicators

Presented at the
Second Annual
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April 24, 2001



Why Performance Indicators?

- **Why are they important?**
 - ◆ Measure progress
 - ◆ Understand others needs
 - ◆ Required by Congress



How Can We Use Them?

- Knowing what each group does allows:
 - ◆ Planning of common activities
 - ◆ Coordination of activities
 - ◆ Increases our ability to support each other



The EcoLinks Performance Indicators

- EcoLinks has three indicators (Interim Results)
 - ◆ Increased environmental trade, finance, & investment
 - ◆ “Best Practices” adopted by industrial and public sectors
 - ◆ Increased institutional ability to identify and remedy environmental problems



Who Are We Including?

- Technology Transfer & Investment (TTI)
- Grants Program (GP)
- Department of Commerce (DoC)
- Global Technology Network (GTN)
- Environmental Export Council (EEC)
- Global Environment & Technology Foundation (GETF)



Technology Transfer and Investment

- Increased institutional ability...
 - ◆ Provide extensive information on a wide variety of environmental technologies, policies, and issues using the EcoLinks website



Technology Transfer and Investment (cont.)

- **Best practices adopted...**
 - ◆ Those identified in Challenge Grants reports are made available on the EcoLinks website



Technology Transfer and Investment (cont.)

- **Increased environmental trade...**
 - ◆ Tech Reps report on number of deals facilitated and the value of those deals



Technology Transfer and Investment (cont.)

- Focus here is on all three areas.
 - ◆ Bulk of activity is in trade, investment and finance
 - ◆ Next largest area is capacity building



The Grants Program

- Increased institutional ability...
 - ◆ Number of proposals meeting prescreening criteria
 - ◆ Number of partner searches resulting in an on-going relationship
 - ◆ Number of projects that result in institutional changes enhancing participant's ability to identify and remedy environmental problems



The Grants Program (cont.)

- **Best practices adopted...**
 - ◆ Number of projects resulting in a best practice or a market-based solution to solve an environmental problem



The Grants Program (cont.)

- **Increased environmental trade...**
 - ◆ Number of QRAs or challenge grants projects resulting in an agreement to pursue environmental trade...



The Grants Program (cont.)

- Grants also touches on all three areas
 - ◆ Major focus is institutional capability building
 - ◆ Best practices and trade and investment also are important



Department of Commerce

- Increased environmental trade...
 - ◆ Commerce also reports on number of deals facilitated and the value of those deals
- The main focus is on facilitating trade



Global Technology Network

- **Increased environmental trade...**
 - ◆ Transactions facilitated (dollar value and number of deals)



Environmental Export Council

- **Increased institutional ability...**
 - ◆ Foster the transfer of US environmental technology, expertise, and practice



Environmental Export Council (cont.)

- **Best practices adopted...**
 - ◆ Strengthen awareness
 - ◆ Strengthen capacity



Environmental Export Council (cont.)

- **Increased environmental trade...**
 - ◆ Promote awareness regarding environmental markets in E&E countries.



Environmental Export Council (cont.)

- All three areas are addressed
 - ◆ Major focus is on best practices
 - ◆ Institution building and trade and investment also important



Global Environment & Technology Foundation

- Increased institutional ability...
 - ◆ Promote the successful development of environmental technology partnerships and projects



Global Environment & Technology Foundation (cont.)

- **Increased environmental trade...**
 - ◆ Identify and select sectors of focus for new generations of technologies
 - ◆ Design, develop, and launch an information system for matching technology vendors with end-users and possible financiers in the focus countries
 - ◆ Network to better promote activities of both projects

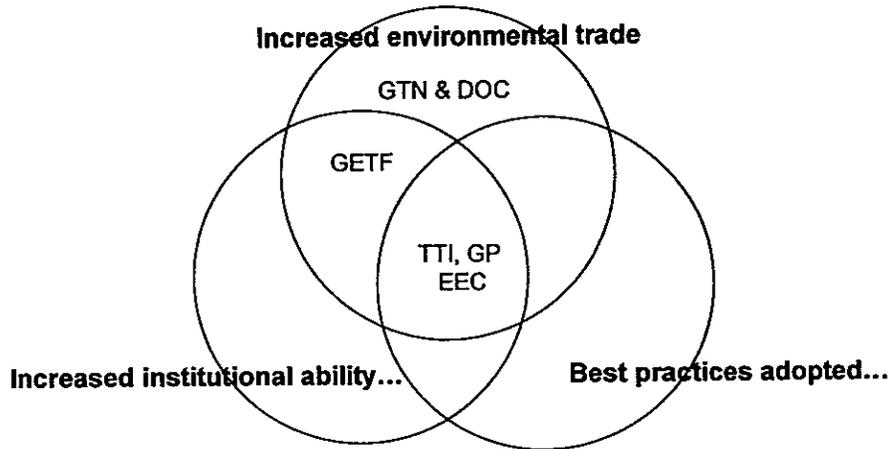


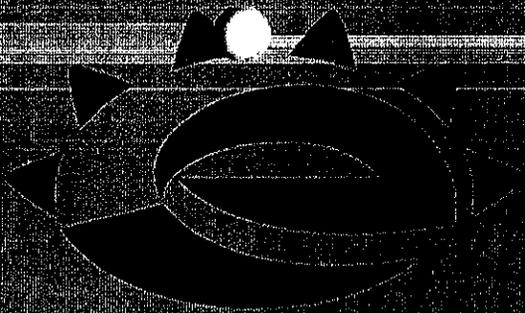
Global Environment & Technology Foundation (cont.)

- **Primary focus on trade with a secondary focus on institutional capacity building**



Relationships Between Our Partners' Objectives





The EcoLinks Program — History and Vision

Presented At

The Second Annual EcoLinks Meeting

April 24, 2001

Presented By: Loren Schulze



The EcoLinks Program — History and Vision

Presented At
The Second Annual EcoLinks Meeting
April 24, 2001



What is EcoLinks?

- A program that:
 - ◆ Solves urban and industrial environmental problems in the Europe & Eurasia (E&E) Region
 - ◆ Promotes sustainable relationships between Regional organizations and US counterparts



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 - ◆ Solves urban and industrial environmental problems in the Europe & Eurasia (E&E) Region
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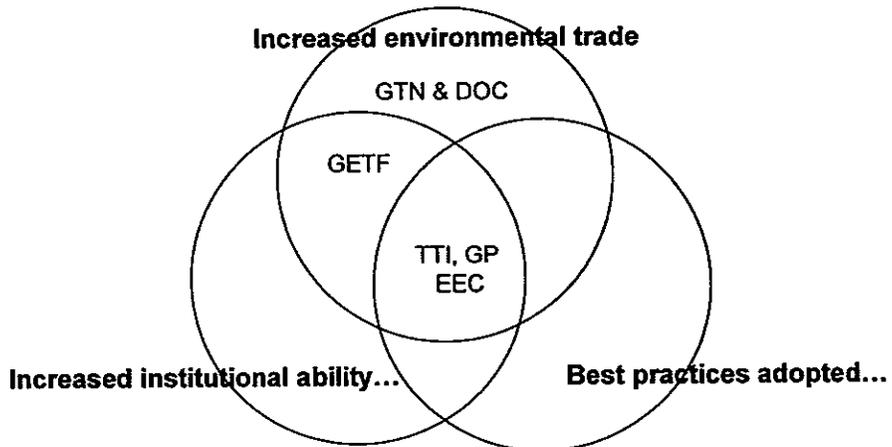


How Does EcoLinks Function?

- EcoLinks uses a variety of approaches to facilitate deals and build capacity:
 - ◆ Technology Transfer and Investment (TTI)
 - ◆ The Grants Program (GP)
- These approaches are supported by several partner organizations and extensive Internet presence



How Does EcoLinks Fit Into USAID's Strategy



A Brief History

- Program initiated in 1998
- First countries included
 - ◆ Czech Republic
 - ◆ Poland
 - ◆ Russia
 - ◆ Others



A Brief History (continued)

- Grants Program started operating in late 1999
- First Technology Representatives started about the same time



A Brief History (continued)

- Subsequent countries that have been added (2000 & 2001)
 - ◆ Bulgaria
 - ◆ Croatia
 - ◆ Romania
- We also have relationships with Slovenia and Bosnia



Significant Achievements

- Over the life of the EcoLinks Program we have:
 - ◆ Identified more than 80 environmental business opportunities
 - ◆ Broadcasted information to more than 6,000 US firms
 - ◆ Initiated five grants cycles and awarded hundreds of grants
 - ◆ Added several countries



Some Examples– Tech Transfer and Investment

- Czech Republic
 - ◆ \$9.7 million deal for water treatment
- Kazakhstan
 - ◆ KazEcology becomes a distributor for Hach Inc.
- Romania
 - ◆ More than 20 participants go to WEFTEC



Some Examples – Tech Transfer and Investment

- Poland
 - ◆ Import of US bio-remediation products valued at >\$100,000
- Hungary
 - ◆ Import of tire incineration technology for a waste to energy project valued at >\$250,000



Some Examples – Tech Transfer and Investment

- We have expanded our activities to Romania, Bulgaria, and Croatia
- Tech Reps have attended “trade shows” in
 - ◆ The US
 - ◆ Czech Republic
 - ◆ France
 - ◆ Poland
 - ◆ Elsewhere



Some Examples – Grants Program

- Awarded more than:
 - ◆ 135 Challenge Grants worth \$6.3 million
 - ◆ 200 Travel Grants worth more than \$900,000



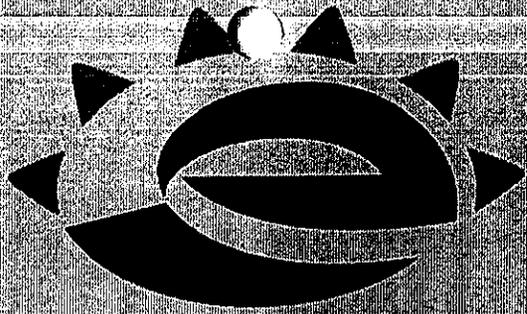
Some Examples – Grants Program

- We also have:
 - ◆ Expanded our program to Bosnia
 - ◆ Initiated the Twinning Grant Program
 - ◆ Identified five “Best Practices” (with more to come)
 - ◆ Launched fifth (and final) Challenge Grant cycle



Future Challenges

- Increasing our visibility throughout the Region and the US
- Increasing the size and number of our deals
- Making grant projects sustainable



Technology Representatives Presentations

**Presented at the
Second Annual
EcoLinks Partners' Meeting
April 24, 2001**

Opportunities in Hungary

- Equipment to recycle plastic and rubber waste (including household waste and appliances, computers, etc.)
- Technology to handle sludge produced by wastewater treatment plant of the city of Veszprem
- Technology to recycle (road) construction debris (crushers, etc.)
- Equipment to remove iron and manganese from drinking water.



Population: 10,138,844

GDP: \$79.4 billion

GDP per capita: \$7,800

ECOLINKS Technical Representative

Budapest, Hungary

Gabor Kaczmarczyk

Tel: (36 1) 475-4306

Fax: (36 1) 475-4676

E-mail: gabor.kaczmarczyk@mail.doc.gov

www.ecolinks.org

Environmental Export Council (EEC)

Program Manager, Washington, DC

Chris Godlove

Tel: 202-312-2911

Fax: 202-312-2925

E-mail: godlovec@ctc.com

www.eec.org

Global Technology Network

International Trade Analyst, Washington, DC

Robert Bisceglie

Phone: 202 628 9750

Fax: 202 628 9740

E-mail: rbisceglie@usgtn.org

www.usgtn.org



EURASIAN - AMERICAN PARTNERSHIP FOR

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ENVIRONMENTALLY SUSTAINABLE ECONOMIES

Opportunities in Bulgaria

- Technology to utilize geothermal energy for district heating
- Detection equipment to limit drinking water leakage
- Insulation & Other Energy Efficient Building Materials (including geomembranes, geotextiles, photovoltaics, etc.)



Population: 8,190,900

GDP: \$11.4 billion

GDP per capita: \$1,390

*ECOLINKS Technical Representative
Sofia, Bulgaria*

Stanislava Dimitrova

Tel: (359 2) 963-2014

Fax: (359 2) 980-6850

E-mail:

stanislava.dimitrova@mail.doc.gov

www.ecolinks.org

*Grants Program Officer for
Bulgaria*

Krustina Mandova

Tel. 359-2-981-4820

Fax. 359-2-981-4820

E-mail: kmandova@mbox.digsys.bg

*Environmental Export Council (EEC)
Program Manager, Washington, DC*

Chris Godlove

Tel: 202-312-2911

Fax: 202-312-2925

E-mail: godlovec@etc.com

www.eec.org

*Global Technology Network
International Trade Analyst*

Washington, DC

Robert Bisceglie

Phone: 202 628 9750

Fax: 202 628 9740

E-mail: rbisceglie@usgtn.org

www.usgtn.org



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Opportunities in Croatia

- Wastewater management
- Waste disposal sanitation
- Incineration of waste
- Air pollution emission control



Population: 4,282,216 million
 GDP: \$ 23.9 billion
 GDP per capita: \$ 5,100

U.S. Embassy in Croatia
EcoLinks Environmental Technology
Representative for Croatia

Mirjana Matesic

Tel. 385-1-492-3777

Fax. 385-1-492-1900

E-mail. Mirjana.Matesic@mail.doc.gov

Grants Program Officer for
Croatia

Sandra Balent

Tel. 385-1-4873-622

Fax. 385-1-4873-622

E-mail. ecolinks@zamir.net

Environmental Export Council (EEC)
Program Manager, Washington, DC

Chris Godlove

Tel: 202-312-2911

Fax: 202-312-2925

E-mail: godlovec@ctc.org

url: www.eec.org

Global Technology Network
International Trade Analyst,
Washington, DC

Robert Bisceglie

Phone: 202 628 9750

Fax: 202 628 9740

E-mail: rbisceglie@usgtn.org

url: www.usgtn.org



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Opportunities in Czech Republic

- PET waste recycling
- Paper waste recycling
- Waste to energy
- Storm water management in urban areas
- Contaminated land remediation
- Alternative/renewable energy
- Earth-sheltered houses



Population: 10,272,179
GDP: \$120.8 billion
GDP per capita: \$11,700

ECOLINKS Technical Representative
Prague, Czech Republic
Zdenek Svoboda
Tel: (420-2) 5753-1162
Fax: (420-2) 5753-1165
E-mail: zdenek.svoboda@mail.doc.gov
www.ecolinks.org

Environmental Export Council (EEC)
Program Manager, Washington, DC
Chris Godlove
Tel: 202-312-2911
Fax: 202-312-2925
E-mail: godlovec@ctc.com
www.eec.org

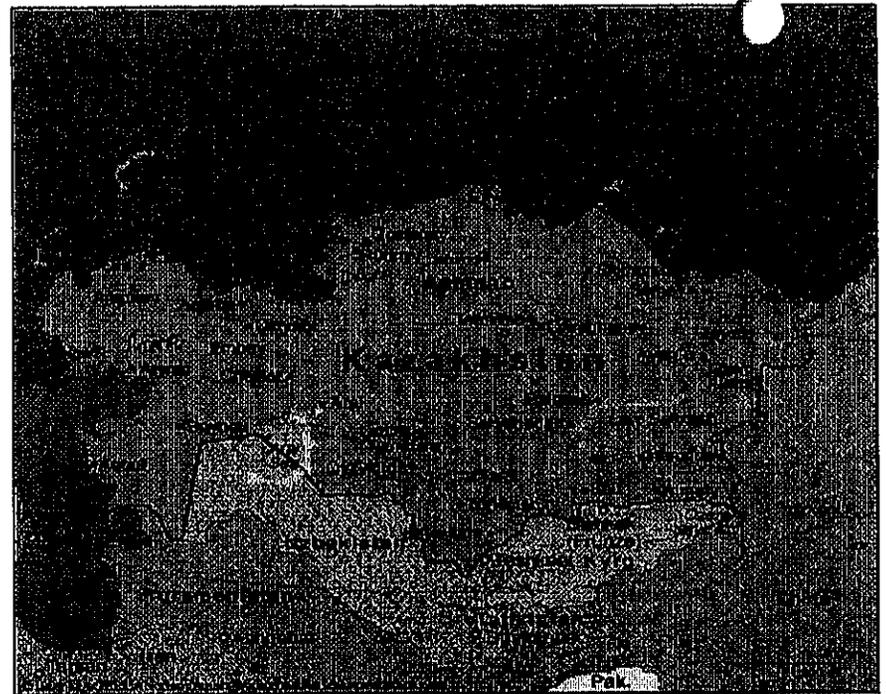
Global Technology Network
International Trade Analyst, Washington, DC
Robert Bisceglie
Phone: 202 628 9750
Fax: 202 628 9740
E-mail: rbisceglie@usgtn.org
www.usgtn.org



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ENVIRONMENTALLY SUSTAINABLE ECONOMIES

Opportunities in Kazakhstan

- Oil clean up technologies
- Wastepaper recycling equipment
- Catalytic filters for vehicles
- Solid industrial waste recycling equipment
- Environmental management consulting services
- Wastewater treatment equipment
- Equipment for drinking water preparation



Population: 15.4 million

GDP: \$ 15.6 billion

GDP per capita: \$ 1,071

*US Embassy/Commercial Section
Almaty, Kazakhstan*

Olga Fedotova

Tel. 7-3272-58-79-20/18/17/16

Fax. 7-3272-58-79-22/23

E-mail: olga.fedotova@mail.doc.gov

*Grant Program Officer for
Kazakhstan*

Gulia Yessengali

Tel. 7-3272-587906

Fax. 7-3272-587906

E-mail: guliaiie@nursat.kz

*Environmental Export Council (EEC)
Program Manager, Washington, DC*

Chris Godlove

Tel: 202-312-2911

Fax: 202-312-2925

E-mail: godlovec@ctc.com

www.eec.org

*Global Technology Network
International Trade Analyst, Washington, DC*

Robert Bisceglie

Phone: 202 628 9750

Fax: 202 628 9740

E-mail: rbisceglie@usgtn.org

www.usgtn.org



EURASIAN • AMERICAN PARTNERSHIP FOR
E C O L I N K S
ENVIRONMENTALLY SUSTAINABLE ECONOMIES

Opportunities in Poland

- Production of photovoltaic cells and/or modules
- U.S. technology to produce enriched compost from agricultural forest and garden waste materials
- Equipment to extract Freon R11
- Washing/cutting line for PET bottles
- Recycling equipment and technology
- Water and waste water treatment equipment
- Renewable energy equipment and technology



Population: 38,646,023

GDP: \$276.5 billion

GDP per capita: \$7,200

ECOLINKS Technical Representative
Warsaw, Poland
Anna Janczewska
Tel: 48-22-625-4374
Fax: 48-22-621-6327
E-mail: ania.janczewska@mail.doc.gov
www.ecolinks.org

Environmental Export Council (EEC)
Program Manager, Washington, DC
Chris Godlove
Tel: 202-312-2911
Fax: 202-312-2925
E-mail: godlovec@ctc.com
www.eec.org

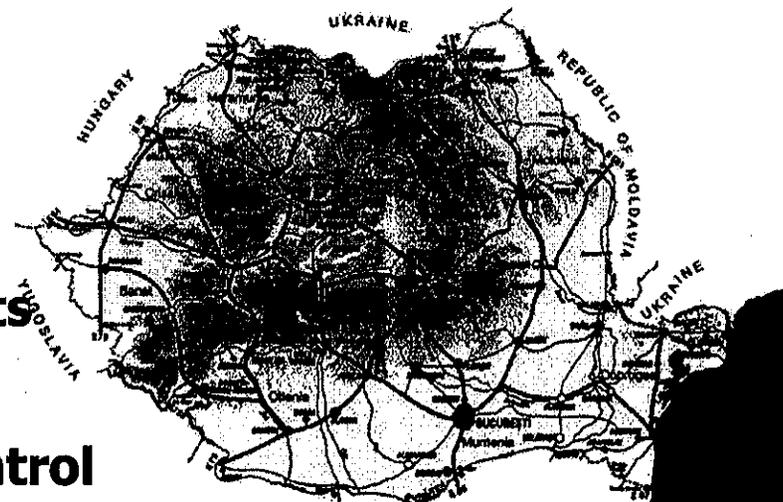
Global Technology Network
International Trade Analyst, Washington, DC
Robert Bisceglie
Phone: 202 628 9750
Fax: 202 628 9740
E-mail: rbisceglie@usgtn.org
www.usgtn.org



EURASIAN - AMERICAN PARTNERSHIP FOR
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ENVIRONMENTALLY SUSTAINABLE ECONOMIES

Opportunities in Romania

- Sludge recycling from petrochemical industry
- Wood waste and saw dust recycling
- Municipal waste water treatment plants
- Waste management for municipalities
- Water monitoring systems for flood control and accidental pollution prevention and mitigation
- Co-generation technologies
- Air pollution prevention from industrial sector



Population: 22,430,000
Surface: 237,500 sq. km
GDP: \$36.6 billion GDP

ECOLINKS Technical Representative
Bucharest, Romania
Adriana Mircea
Tel: 40-1-2104042/ext. 342
Fax: 40-1- 2100690
E-mail: adriana.mircea@mail.doc.gov
www.ecolinks.org

Grants Program Officer for Romania
George Catalin Guran
Tel: 40-1-315-3526, 3140433
Fax: 40-1-315 3527
E-mail: georgeg@fx.ro

Environmental Export Council (EEC)
Program Manager, Washington, DC
Chris Godlove
Tel: 202-312-2911
Fax: 202-312-2925
E-mail: godlovec@ctc.com
www.eec.org

Global Technology Network
International Trade Analyst
Washington, DC
Robert Bisceglie
Phone: 202 628 9750
Fax: 202 628 9740
E-mail: rbisceglie@usgtn.org
www.usgtn.org



EURASIAN • AMERICAN PARTNERSHIP FOR
ECOLINKS
ENVIRONMENTALLY SUSTAINABLE ECONOMIES

USAID—ECOLINKS
International Finance Seminar
Washington, D.C.
April 25, 2001

CASE STUDY BASED ON THE
PROJECT PROPOSAL OF
GALATEX AD COTTON AND TEXTILE PROCESSING PLANT
(VARNA, BULGARIA) FOR A
ENERGY AND WATER CONSERVATION PROGRAM

This case-study is based on the actual materials developed for the project by EETEK HUNGARY and others. Please read the enclosed material prior to the seminar, scheduled for the afternoon of April 25, 2001.

CONTENTS

I.	Introduction	1 page
II.	Galatex AD, Best Practice #1—Project Description	9 pages
III.	Galatex AD, Financial Results	3 pages
IV.	Galatex AD, Energy Performance Contract	6 pages
V.	Questions for Discussion	2 pages

INTRODUCTION

Please read the attached material carefully, paying particular attention to the Best Practice #1 description and the Financial Results. It is not important to study the details regarding the Energy Performance Contract.

During the seminar, we will review the most important details of the project and focus our attention on the cash-flow table.

In preparation for the seminar, you should ask yourself if the information in this package is sufficient for the screening process: that is, can you make a decision to “go ahead” or not to go ahead regarding the next step—asking an interested investor to study and evaluate the proposal.

You should review the list of “Questions for Discussion” at the end of this package (these questions will be used during the seminar), and you should come to the seminar with a list of additional questions or information you would like to see in the proposal. You should also identify the assumptions “behind the numbers” and bring to the seminar suggestions for presenting the assumptions in a clearer manner.

Don’t worry about having the “right” or the “wrong” answer. There is none! This case study is an instrument to guide our discussion and to explore the items you need to review as your screen projects for the ECOLINKS program.

Energy and Water Conservation Program at a Textile Processing Plant in Bulgaria

Project Area: Global Climate Change, Energy Efficiency

Project Partners:

Project Leader: Galatex AD, Cotton and Textile Processing Plant (Varna, Bulgaria)

Project Partner: EETEK Hungary - Energy Efficiency Technologies (Budapest)

Location of Project: Varna, Bulgaria

Project Duration: July 1999 – March 2000

Abstract: Galatex AD, a cotton and textile processing plant located in Varna, Bulgaria, faces numerous challenges in adjusting to a market economy. Both the energy and water it consumes per unit of production is exceptionally high, resulting in an annual energy bill of \$1.5 million. In addition, CO₂ emissions are estimated at 12,000 – 15,000 tons per year. Galatex recognized that improving its energy efficiency was essential for the success of its operations. With an EcoLinks Challenge Grant, Galatex partnered with a Hungarian environmental consulting company, EETEK Energy Efficiency Technologies, to plan an energy and water conservation program at the plant. Their project is presented as an EcoLinks Best Practice because it demonstrates a successful methodology to identify and assess energy efficiency measures, and it shows the benefits of working with an Energy Services Company (ESCo).

The project partners conducted both preliminary and detailed energy audits to measure current consumption, and they proposed specific measures to improve energy efficiency. These measures were supported by technical and financial evaluations and ranged from improvements in the plant's boiler and heating systems to the water distribution system for cooling. They also prepared an Energy Performance Contract that included terms and conditions for further cooperation between the organizations in implementing and financing the conservation program.

The results of their analyses show that implementation of the program will yield significant environmental benefits, such as reduced air emissions through decreased heavy fuel oil and electricity consumption, a decline in water losses and reduced discharge of wastewater. If the energy and water conservation program is implemented, Galatex will also realize annual cost savings of \$800,000.

The project team's methodology to identify and assess energy efficiency measures can be easily transferred to other plants in the region that face similar problems. Some of the lessons learned during the project were the importance of selecting an independent and experienced consulting company

and of establishing an energy council that ensured shared ownership of the project.

Problem Statement

Established in 1905, Galatex AD Cotton and Textile Processing Plant is a large integrated facility, which produces cotton yarn, dyed yarn, and crude and finished fabrics. It is a private company with less than 30% of shares owned by the state. Production volume of the plant is six million meters of fabric per year. Over the past five years production volume has been stable, with a 5% increase last year.

The plant uses large amounts of steam for fabric production and for heating. Energy sources used are heavy oil-fueled boilers and the electric grid. The plant also uses large amounts of water from the city water supply system, mainly for steam generation and cooling.

The average annual consumption of heavy fuel oil is 4,800 tons, of electricity 7,300 MWh, and of water 700,000 cubic meters. As a result of this high energy and water usage, Galatex's average annual energy cost is approximately \$1.5 million.

Galatex's energy and water usage is high for a number of reasons. There are long distances between buildings on the plant site (the plant covers 400,000 square meters); the nature of the production process requires multiple stages of wetting, drying, and heating; and efficient energy management practices are not followed. Galatex's daily energy consumption is constant over the entire year in spite of varying production volume and weather conditions. This fact, along with the high-energy consumption per unit of production, indicates significant potential for energy savings.

In addition, the high energy and water consumption result in increased environmental problems. Emissions of CO₂ are estimated at 12,000 to 15,000 tons annually, generated by Galatex's boilerhouse and by power plants that supply the national power grid. Not entire pre-treated wastewater from the dyeing and finishing activities can be discharged into the city sewer and undergo further treatment. About one half of the water ends up discharged directly into the Black Sea because of the huge total volume of discharged wastewater and the small diameter of the sewer-connecting pipeline.

Project Description

In order to reduce energy and water consumption, reduce air and water pollution and lower production costs, the plant's management decided to identify and implement cost-effective energy and water conservation measures for various stages of the production process. The first step was to conduct an energy audit. Galatex selected a reputable and independent Energy Service Company (ESCO) for this task due to the following considerations:

- The plant lacked the human resources to identify energy efficiency measures alone
- The project would be more attractive to outside investors (banks)
- The plant needed assistance in identifying the best financing options for project implementation
- The ESCo would provide a guarantee that the savings from energy conservation measures would not only cover investment costs but also result in a profit
- The ESCo would assess the entire production process for energy savings potential

The project consisted of the following stages and corresponding activities:

Preliminary audit: The plant's production process and management practices were assessed and areas for a detailed energy audit were identified. The tasks completed under this activity included:

- Established an Energy Council
- Collected and assessed available energy and water consumption data;
- Identified and assessed the present condition of plant's production process, equipment, and installations;
- Identified main heat (steam) and water consumption points;
- Assessed existing measuring and flow control equipment;
- Started to measure heat and water consumption;
- Prepared preliminary heat, electricity, and water balances;
- Identified areas to be analyzed in the detailed energy audit.

Detailed energy audit: Based on the findings and conclusions of the preliminary audit, a more detailed energy audit was conducted with the following tasks:

- Conducted measurements and collected data regarding heat, electricity, and water consumption;
- Prepared complete energy and water balances;
- Identified possible malfunction of energy and water systems;
- Verified correlation between energy production and consumption,
- Identified necessary equipment to measure and control energy production and consumption.
- Calculated potential energy and cost savings and investment needs

Analyses and Planning: The gathered data was analyzed from both a technical and financial perspective in order to identify possible energy and water conservation measures. First, a list of short-term (low-cost) and long-term (higher-cost) energy conservation measures was developed. Next, an energy efficiency program was prepared that included a Proposal for Development of an Energy Efficiency Business Plan. Finally, opportunities were identified to further improve energy conservation in line with the plant's growth.

An important aspect of EETEK's approach was to establish an energy council at the beginning of the project. The council included representatives of different departments of the plant (energy, production, maintenance, sales, control and management) as well as representatives of the ESCo. The council served to obtain shared ownership of the project, to keep everyone informed of project developments, to identify and solve problems and to coordinate activities. This decision-making body met regularly and was chaired by Galatex's Executive Officer.

Outputs/Results

The main project outputs/results are below listed:

Assessment of energy and water losses

The following main reasons of energy and water losses were identified:

1. Lack of energy and water management and monitoring system
 - Lack of institutionalized managerial support to save energy and water;

- Working environment that tolerates inefficient use of energy and water;
 - Lack of basic measuring equipment;
2. Obsolete or lack of proper equipment in the steam generation and supply system
 - Obsolete boilerhouse (poor control over burning process, no automatic control of steam pressure, obsolete burners, and no independent oil heating system);
 - No control over parameters of steam supplied to the production process;
 - No proper control of space heating and ventilation systems;
 3. Lack or poor insulation of tanks and of the steam pipelines as well as very long steam distribution system;
 4. Poor or lack of energy and water recovery in various installations. For example, most of the condensate is discharged directly to the sewage without any heat recovery;
 5. Inefficient generation and usage of compressed air;
 6. Large water losses and unnecessary generation of wastewater;

Proposed energy conservation measures

A set of energy conservation measures related to different energy systems was identified that address the above findings. These measures were prioritized in terms of the plant's organizational and financial resources to implement them. The list of measures together with expected energy savings, necessary investment outlays, financial benefits, and payback period is attached to this report. (Appendix 1).

Of special attention is the first identified energy conservation measure – Energy Management. The objective of this measure is to establish an energy monitoring and control system. The system would be comprised of an energy policy, energy-use norms based on the production level and weather conditions, an assigned energy manager, a computer-based monitoring program, energy-utilization data reported on a weekly basis, a management system for quick reaction, and an energy-utilization reporting procedure. The total costs for implementation of the measure would be approximately \$100 000 and it would result in a 5% reduction in energy consumption.

Description of each conservation measure

For each energy and water conservation measure, a separate comprehensive form was completed. The form included a description of the existing condition of the related energy production/utilizing system, recommended actions to improve the efficiency of the energy system, expected results (energy savings), and cost-benefit projections. The purpose of the form is to report each identified energy conservation measure in a consistent and clear manner and serve as a basis for financial analyses. An essential benefit of the form is that it communicates in an understandable manner the results of the analyses and assures credibility of the technical and financial information. A model form is provided as attachment to this report. (Appendix 2).

Financial Projections

Cost estimates and cash-flow projections for the entire energy and water conservation program were developed based on realistic assumptions.

Energy Performance Contract

An Energy Performance Contract for services, to be further discussed and possibly signed between the two organizations (Galatex and EETEK), was prepared. In general, the contract sets out the terms and conditions for services to be provided in designing and implementing the energy conservation program. In particular, the contract includes a list of measures selected for technical evaluation; criteria for determining the viability of the measures; the scope and financing arrangements for undertaking further technical evaluation and preparing a business plan; the general provisions for implementing the agreement; the provisions for arranging financing of the measures; the provisions for investment costs calculation; terms for provision of guarantees for the services and allocation of savings; and the terms for maintenance, monitoring, and operations support. The following main obligations arise from the contract:

- (1) EETEK agrees to arrange financing from its own capital or debt for each selected and approved energy conservation measure, unless Galatex finances the measures from its own funds;
- (2) EETEK agrees to provide a guarantee that the savings accrued from implementation of the program, or group of approved measures, will sufficiently cover the total annual debt service costs from financing or EETEK will pay the shortfall;
- (3) For the period of all principal and interest repayments to the lender (loan term), the value of saving above debt service costs will be split evenly (50%-50%) between both organizations.

Costs of EcoLinks Project

The total cost of the EcoLinks project was \$27,420 of which \$17,370 was funded by the EcoLinks grant and \$10,050 was provided as cost share by both organizations. To keep costs as low as possible, EETEK used the assistance of local consultants. A breakdown of total costs follows:

Labor	\$15,220 (55.5%)	Travel	\$ 3,480 (12.7%)
Equipment	\$ 3,400 (12.4%)	Other costs*	\$ 5,320 (19.4%)

* publications, translation services, computer services, and communication costs

Expected Environmental and Economic Benefits

The results of the analysis show that implementation of the energy conservation program will lead to the following benefits:

Environmental Benefits

Reduced air pollution as follows:

Air pollutants	Current emissions (t/year)	Expected reductions (t/year)
CO ₂	9,391.3	3,117.9
CO	2.6	0.87

SO ₂ *	297.4	98.7
NO _x	26.1	8.7
Particulates	14.3	4.8

* Assumed content of sulfur in heavy fuel oil: 3,0%

Note: All emissions are related only to consumption of heavy fuel oil in Galatex's boilerhouse

Economic Benefits

Reduced energy and water consumption as follows:

	Consumption	Expected reductions
Heavy fuel oil (t/year)	4,800	33.2%
Electricity (MWh/year)	7,300	18%
Water (c. meters/year)	700,000	44%

* Average annual consumption for the period 1995-1999

This reduction in energy and water usage will result in an annual cost savings of \$800,000.

Financial Analysis

Economic indicators	Value
Total project investment costs (million USD)	1.1
Annual cost savings (million USD)	0.8
Overall project pay back time (years)	1.4
NPV (at 35% discount rate) (million USD)	1.04
IRR (%)	77
Loan term (years)	4

If all energy efficiency measures are implemented, the EcoLinks grant of approximately \$17,400 will foster environmental investment of \$1.1 million (leverage ratio over 60).

Transferability

The basic scheme and components of this methodology can be easily transferred to many production facilities in the CEE/NIS region where energy production is not their main activity. Many plants in the region face similar problems: low efficiency of energy utilization, lack of proper energy management, and lack of awareness that vast environmental and economic effects can be achieved with limited funds. The project does not appear to be site sensitive. However, the costs of developing similar projects may vary to a certain extent, depending on the capacity of other plants.

Lessons Learned

The following lessons were learned during project implementation:

- Selecting an independent and reliable Energy Service Company or a consulting company has significant advantages in the development of energy conservation programs;
- Establishing an energy council and working closely with the 'users' of the energy systems is a valuable way to obtain buy-in from the plant's employees and to coordinate the project;
- Providing sufficient time for systematic data collection and program development is a key success factor;
- The availability and condition of the plant's existing measuring equipment can have important implication on the costs for developing and implementing an energy conservation program.

Additional Information

Project Leader

George Borissov, Head of Energy Committee
Galatex A.D.
G. Stamatov 1
9003 Varna, Bulgaria
Tel: + 359 52 772 002
E-mail: galatex@telecoms.bg

Project Partner

Janos Zhelev, Managing Director
EETEK Ltd., Hungary
Revay ut. 12
1065 Budapest
Tel: + 36 1 42 802 33
E-mail: zselev@eetek.hu

Appendix 1

ENERGY CONSERVATION MEASURES (OPPORTUNITIES) IN GALATEX AD						
	Energy Conservation Measure	Electricity Reduction (MWh)	Heat Reduction (GJ)	Investment Costs (USD)	Cost Saving (USD)	Simple Payback Period (years)
ECO 01	ENERGY MANAGEMENT	366	9 750	100 160	79 110	1.4
ECO 02	BOILERHOUSE	-45	36 556	260 160	181 798	1.4
ECO 021	<i>Increasing Efficiency Of Burners</i>	315	16 631	184 470	96 600	1.9
ECO 0211	New burners	0	13 325	122 420	66 268	1.8
ECO 0212	Oxygen trim	0	3 306	29 530	16 440	1.9
ECO 0213	FAD	315	0	32 520	13 895	2.3
ECO 022	<i>Oil Additive</i>	0	959	2 170	4 770	0.8
ECO 023	<i>Reduction Of Steam Consumption In Boilerhouse</i>	-360	18 669	42 235	76 970	0.5
ECO 0231	Insulation of heavy fuel oil tanks	0	1 750	17 110	8 700	2.0
ECO 0232	Electrical heating of heavy fuel oil tank	-360	16 919	25 125	68 270	0.4
ECO 024	<i>De-aerator</i>	0	297	31 285	1 480	1.4
ECO 03	STEAM AND CONDENSATE SYSTEMS	0	28 424	225 590	174 040	1.3
ECO 031	<i>Insulation</i>	0	21 280	147 930	113 133	1.3
ECO 0311	Insulation of steam pipes	0	14 080	108 800	102 815	1.1
ECO 0312	Insulation blankets for fittings	0	5 787	32 630	42 260	0.8
ECO 0313	Insulation of steam headers and tanks	0	1 413	6 500	10 317	0.6
ECO 032	<i>Condensate Recovery</i>	0	5 894	58 070	51 775	1.1
ECO 033	<i>Flash Steam</i>	0	1 250	19 590	9 130	2.1
ECO 04	HEATING	-30	9 394	69 325	87 780	0.8
ECO 041	<i>Automatic Control For HVAC Units</i>	0	2 265	27 375	21 475	1.3
ECO 042	<i>Decentralized Heating</i>	-30	7 130	41 950	66 307	0.6
ECO 05	TECHNOLOGY	-30	10 657	115 980	76 510	1.5
ECO 051	<i>Waste Heat Recovery Form Hot And Wet Air</i>	0	6 475	58 350	47 284	1.2
ECO 052	<i>Proper Steam Pressure Maintenance</i>	-30	4 182	57 630	29 230	2.0
ECO 06	COMPRESSED AIR SYSTEM	394	671	84 590	33 545	2.3
ECO 07	FREQUENCY ADJUSTED DRIVES	590	0	57 890	25 990	2.2
ECO 08	WATER	123	1 630	168 925	141 645	1.2
ECO 081	<i>Water Management, Leak Abatement</i>	0	0	62 095	72 580	0.9
ECO 082	<i>Closed Cycle Cooling</i>	123	1 630	106 830	69 060	1.5
TOTAL		1 370	97 082	1 082 620	800 418	1.4

77

Appendix 2

RECOMMENDED ACTION - ENERGY CONSERVATION OPPORTUNITY			GTX06
			ECO 02
			February 2000
Facility name:	GALATEX		
Address:	VARNA G.Stamatov Str.1		
Auditor:	EETEK Hungary Energy Efficiency Technology Ltd. - Budapest, Révay u.12		
ACTION Name:	IMPROVE BOILER EFFICIENCY		
AREA AFFECTED:	Boilerhouse		
FINDINGS CONCERNING EXISTING CONDITIONS:			
<p>There are two KM12-steam boilers and one newer and more efficient PKM 12 with manual control of oil and air. Practically there is no excess air control. There is no automatic control for steam pressure. The burners are old, deteriorated and with low efficiency. The parameters of oil change frequently and usually the oil is of bad quality. It is impossible to keep the optimum temperature of oil for atomization. The efficiency of the boilers is very low. The combustion is incomplete, the value of excess air parameter is too high, the temperature of the flue gas is high, and a lot of smoke is generated. The oil has to be heated also on non-working days. Often, a boiler is being run only to heat the oil. The storage tank is with bad insulation and is heated with steam. There is no de-aerator in the boilerhouse, what causes corrosion and erosion of fittings.</p>			
			Work hours 7 200
RECOMMENDED ACTION TO IMPROVE EFFICIENCY:			
<p>Change burners to new RAY rotary burners for the PKM 12 and KM12 boilers. Install full automatic control for the steam pressure, oil temperature, and oil to air ratio. Install oxygen trims in the chimneys for continuous on-line control of excess air. FAD for air fans. Maximum use of the better PKM12 boiler. Install de-aeration tank with automatic control of pressure and water level; this is absolutely needed for proper operation of the steam and condensate system. Insulate the oil tank. Replace the steam heating of oil with electric heating. Use additives to ensure better oil atomization and burning.</p> <p>It is possible to increase boilers' efficiency with more than 20%. Additionally, elimination of a need for steam heating of noninsulated tanks will save more than 10% of heat.</p>			
			Work hours 7 200
EXPECTED RESULTS	Electric energy MWh	Heat GJ	Total cost (BGL)
Baseline -existing conditions	6 952	184 976	2 769 427
After recommended action	6 997	148 420	1 372 885
Net reduction	-45	36 556	338 144
COST-BENEFIT ANALYSIS:			
<i>Project cost estimate</i>	Cost (BGL)	Notes	
Detailed engineering	14 20		
Equipment procurement	345 35		
Installation & commissioning	25 96		
General contractor's fee	57 73		
Technical contingency	40 64		
TOTAL INSTALLED COST	483 90		
Price contingency			
COST incl. contingency	483 90	Life of assets	10
Additional Op.& maint. cost			
PAYBACK PERIOD:	1.4 years	IRR:	



**GALATEX AD - VARNA
ENERGY AND WATER CONSERVING PROGRAM**

ECOLINKS GRANT NUMBER: C1-08-BG

FINANCIAL RESULTS

**EETEK HUNGARY
Energy Efficiency Technologies Ltd.**

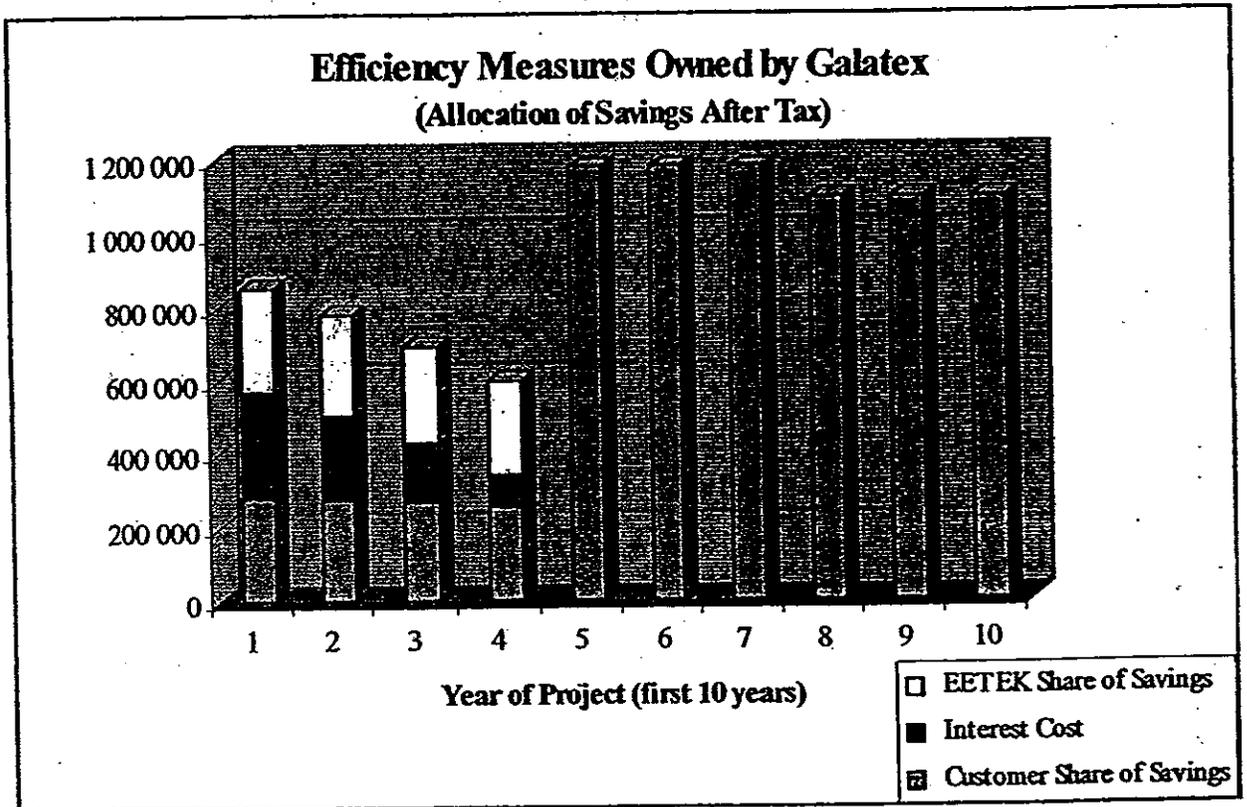
**1065 Budapest Révay u. 12.
Phone: (1) 42 802 33 Fax: (1) 42 802 35**

2000 march 10

**Galatex AD - Varna
Energy and Water Conservation Program
Cash Flow**

Semi-annual Periods	0	1	2	3	4	5	6	7	8	9	10
Total Investment Cost	2 020 413										
CJ of Energy Savings		97 360	97 360	97 360	97 360	97 360	97 360	97 360	97 360	97 360	97 360
Value of Savings (b)		1 563 961	1 563 961	1 563 961	1 563 961	1 563 961	1 563 961	1 563 961	1 563 961	1 563 961	1 563 961
IRR before Financing		77%									
Interest Cost		-282 838	-225 380	-159 855	-85 156	0	0	0	0	0	0
Depreciation Expense		-288 630	-288 630	-288 630	-288 630	-288 630	-288 630	-288 630	0	0	0
Income Before Taxes		992 472	1 049 951	1 115 475	1 190 174	1 275 330	1 275 330	1 275 330	1 563 961	1 563 961	1 563 961
Income Tax Expense		-297 742	-314 983	-334 643	-357 052	-382 599	-382 599	-382 599	-469 188	-469 188	-469 188
Add Back Depreciation		288 630	288 630	288 630	288 630	288 630	288 630	288 630	0	0	0
Principal Payments		-410 538	-468 036	-533 561	-608 239	0	0	0	0	0	0
Net Cash Flow		572 804	555 560	535 903	513 493	1 181 362	1 181 362	1 181 362	1 094 772	1 094 772	1 094 772
Gross NPV at 35%	1 931 904										
Customer Share of Savings		286 402	277 780	267 951	256 747	1 181 362	1 181 362	1 181 362	1 094 772	1 094 772	1 094 772
Interest Cost		282 838	225 380	159 855	85 156	0	0	0	0	0	0
EETEK Share of Savings		286 402	277 780	267 951	256 747	0	0	0	0	0	0
Loan term	4 years										
Real interest	14%										
Depreciation life	10 years										
Economic life	7 years										
Income tax	30%										

**Galatex AD -- Varna
Energy and Water Conservation Program**





**GALATEX AD – VARNA
ENERGY AND WATER CONSERVING PROGRAM**

ECOLINKS GRANT NUMBER: C1-08-BG

ENERGY PERFORMANCE CONTRACT

**EETEK HUNGARY
Energy Efficiency Technologies Ltd.**

**1065 Budapest Révay u. 12.
Phone: (1) 42 802 33 Fax: (1) 42 802 35**

2000 march 10

82

**Energy Performance Contract Between
Galatex AD
and
EETEK Hungary Ltd.**

This Energy Performance Contract (EPC) is made this day [date] between EETEK Hungary Ltd., 1065 Budapest Révay str. 12, Hungary. (Hereafter, "EETEK"), and the Galatex AD, 9003 G. Stamatov Str. 1., Varna, Bulgaria (Hereafter "Galatex"). This EPC covers the services to be provided by EETEK to Owner in designing and implementing an energy reduction program in Galatex's facilities and sets out the terms of these services and the promises made between both parties in undertaking this EPC.

1.01 Measures Selected for Technical Evaluation. After reviewing the energy audit prepared by EETEK, Galatex and EETEK have agreed on the following potential energy efficiency Measures which merit further evaluation. These Measures include:

- 1/ Energy monitoring and management system
- 2/ Boilerhouse improvements
- 3/ Reducing losses of steam and condensate system
- 4/ Heating upgrade, decentralized heating
- 5/ Technology (proper steam pressure, waste heat recovery)
- 6/ New screw compressors
- 7/ Frequency adjusted drives
- 8/ Elimination of water leaks and installation of cooling towers

1.02 Criteria for Determining Viability of Measures. EETEK agrees to carry out a Technical Evaluation and prepare a Business Plan for Measures listed in 1.01 above. Measures will be considered viable by Galatex if they meet the following Criteria:

- (a) Measures have a simple, pre-financing payback of 2.5 years or less;
- (b) Measures have a pre-financing, pre-tax Internal Rate of Return (IRR) of 20% or more;
- (c) The total cost of all the proposed Measures in aggregate is not less than US\$ 200,000.

1.03 Technical Evaluation and Business Plan. The Technical Evaluation and Business Plan provide more detailed engineering and financial analysis of potential energy efficiency Measures identified during the energy audit. The Business Plan allows EETEK and Galatex to evaluate whether it is economically justified to implement Measures, and the Business Plan can be submitted to banks in the event that a third party is sought for project financing. Following completion of the Business Plan and review by Galatex, EETEK will meet with Galatex to discuss the results. Galatex may request further clarifications of or changes to the Business Plan which EETEK will make every reasonable effort to accommodate. Initially, EETEK will fund its own costs of preparing the Technical Evaluation and Business Plan, but EETEK will charge a fixed fee to be funded from the project financing according to the following guidelines:

- (a) If EETEK is not able to recommend any Measure which meets Galatex's Criteria in 1.02 above, then Galatex will not owe anything for preparation of the Technical Evaluation and Business Plan and this Agreement will be terminated;

- (b) If EETEK recommends implementing a group of Measures which meet Galatex's Criteria and have a total project cost in excess of US\$ 450,000, then EETEK will be paid \$45,000 from the project financing and will include this sum in the Total Project Costs for the purposes of guarantees;
- (c) If EETEK recommends implementing a group of Measures meeting Galatex's Criteria which have a total project cost equal to or less than US\$ 450,000, then EETEK will be paid 10% of the estimated project costs out of project financing and include this value in Total Project Costs;
- (d) If EETEK meets Galatex's Criteria but Galatex does not agree to implement the Measures under an Implementation Agreement, then Galatex will pay the fee in (b) or (c) above directly to EETEK. In the event that Galatex implements the Measures itself or with another energy service provider, Galatex will pay EETEK an additional fee of US\$ 30,000. If Galatex neither rejects nor accepts implementation of a Measure within sixty (60) days of the Business Plan being submitted, the Measure will be considered rejected and Galatex will reimburse EETEK the fee in (b) or (c) above.

1.04 Implementation Agreement. Following acceptance of a Measure by Galatex, the parties will negotiate an Implementation Agreement which elaborates how that particular Measure will be installed, financed, monitored and operated and will detail the obligations of both parties during and after implementation. While Implementation Agreements will vary depending on the type of Measure being implemented, they will typically cover at least the following items:

- (a) A list of the Measures to be installed by EETEK together with technical specifications, design requirements, costs and an implementation schedule;
- (b) A fixed-price offer that EETEK proposes to charge for preparation of technical specifications, design requirements and bidding documents (or an estimated price if Galatex would prefer to receive competing bids);
- (c) A tender and procurement procedure that will satisfy both Galatex and EETEK;
- (d) Terms and conditions for construction and installation including provisions for access to Galatex's facilities at agreed times;
- (e) The schedule for payments and guarantees;
- (f) The methodology for calculating savings and the process for monitoring the results of the Measures;
- (g) The baseline production levels which will be used to calculate savings;
- (h) The responsibilities of both parties in maintaining the installed equipment.

1.05 Financing of Measures. For each approved Measure, EETEK agrees to arrange Project Financing between Galatex and a bank or other lending facility (Lender) unless Galatex chooses to finance the Measures from Galatex's own funds. EETEK will seek financing with a repayment schedule of at least 4 years, and EETEK will prepare all the necessary documentation in order to support the application for financing. Galatex agrees to either accept such financing arranged by EETEK, subject to Galatex's reasonable acceptance of Lender's terms and conditions, or to arrange its own financing. Galatex will be the legal borrower of these funds, but EETEK will provide guarantees to Galatex that project savings will minimally cover the costs of this financing (see Article 3).

- (a) If EETEK fails to obtain a written commitment from a Lender for financing of the Measures within one year of signing an Implementation Agreement, then Galatex may terminate that Implementation Agreement with no cost to Galatex for the corresponding Business Plan and no further obligations by either Party.
- (b) If Galatex elects to finance the Measures from its own funds, then EETEK and Galatex will calculate a notional debt service schedule in the Implementation Agreement at a fixed 9% rate of interest which will be used for the purposes of determining whether energy savings are sufficient to cover the costs of financing as established in EETEK's Guarantee (see 3.01). Galatex will therefore recoup its own costs of financing first before any Shared Savings or Guarantee is assessed.

ARTICLE 2. CALCULATION OF TOTAL PROJECT COSTS

2.01 Total Project Costs. Total Project Costs for a Measure (or a series of Measures to be financed together as a Project) shall be used as the basis for assessing project performance, financing requirements and guarantees. Total Project Costs shall be comprised of the following items:

- (a) Business Plan. The cost of the Technical Evaluation and Business Plan will be included in Total Project Costs and financed out of the Project Financing at the beginning of project implementation as will any other detailed design fees agreed as part of the Implementation Agreement;
- (b) Equipment and External Resources. The costs of equipment and material purchases for each Measure, vendor fees, shipping costs, freight insurance, subcontractor and consulting fees, travel expenses, taxes, duties and legal fees related to implementation of each Measure shall be included in Total Project Costs;
- (c) EETEK project management fees. A project management fee of fifteen percent (15%) shall be assessed by EETEK on all Equipment and External Resources except for taxes and duties as defined in 2.01 (b);
- (e) Interest During Construction and Finance Fees. All interest payments made to the Lender during construction of the Project, any fees paid to the Lender for committing this capital, and any fees paid to third-party entities to provide guarantees for financing shall be accrued during Project construction and included in the Total Project Costs;

2.02 Refundable Taxes. Refundable taxes, such as Value Added Tax, will not be included in Total Project Costs and will not be covered by the Guarantees in 3.01 below. Galatex will be responsible for paying VAT on Total Project Costs and seeking reimbursement from the Government Tax Authorities. Project Financing will not finance the costs of VAT, but short-term financing may be arranged at Galatex's request and EETEK's separate agreement to cover costs of VAT until Galatex recovers these costs.

2.03 Tracking of Project Costs. Project Costs will be tracked on an ongoing basis as they are accrued, starting with the costs of the Technical Evaluation and Business Plan. EETEK will send invoices directly to Galatex for approval, and Galatex can then forward them to the Lender for payment. In addition to actual invoices, EETEK will send Galatex monthly statements to assist Galatex in tracking Total Project Costs. In the event that Galatex has questions or concerns about an invoice, Galatex should notify EETEK in writing within thirty (30) days of receiving the invoice.

ARTICLE 3. EETEK GUARANTEE AND ALLOCATION OF SAVINGS

3.01 EETEK Guarantee. EETEK provides a Guarantee to Galatex that the value of savings from a Project will be sufficient to pay the annual Debt Service costs (interest and principal) from financing that Project or

EETEK will pay Galatex the shortfall. Details of how savings will be measured and valued will be included in each Implementation Agreement.

- (a) Short Loan Repayment Schedules. Galatex may desire to finance the Measures over a shorter period of time (less than 4 years) than EETEK would normally arrange, and such a period may not be reasonably long enough to generate the Savings to cover the rapid debt repayment schedule. Under such a circumstance, EETEK and Galatex may agree in the Implementation Agreement on a notional debt repayment schedule against which Guarantees and Shared Savings will be calculated;
- (b) Backing to Guarantee. At the completion of project implementation, EETEK will negotiate with an independent bank or insurance company to provide and maintain a performance bond or letter of credit equivalent to three (3) months of debt service requirements. Galatex will therefore be able to withdraw these funds directly from the third party in the event that the project under-performs the guaranteed level;
- (c) Damage to Equipment. If damage or destruction to the Equipment installed by EETEK arises due to the negligence, willful misconduct, or other default under the terms of this Contract by Galatex or any employee or agent of Galatex, the EETEK Guarantee will not apply until the equipment is repaired or replaced by Galatex.

3.02 Allocation of Savings. Savings will accrue to Galatex in the form of lower energy costs per unit of output or per period of operation. It is Galatex's responsibility to repay Lender for the Project Financing, and this repayment will be carried out as a separate transaction from the calculation of Guarantees and Shared Savings. The EETEK Guarantee will first apply the value of savings from the Project to cover the Project Financing costs during each year of repayment before any Shared Savings are allocated. The value of savings above debt service costs will be split evenly (50%-50%) between Galatex and EETEK.

- (a) Savings During the Construction Period. In some cases, components of a Measure will begin to realize savings before construction is complete and before debt repayments begin (for example, some but not all variable speed drives might be installed before construction completion). The Implementation Agreement will detail how any savings will be measured during the construction period, and these savings will be applied toward the first year's repayment of Project Financing.
- (b) Savings After Debt is Retired. Following the last payment of principal and interest to Lender (or the last payment of notional debt service as agreed in the Implementation Agreement), all savings (100%) will be retained by Galatex.

3.03 Maintenance and Monitoring of Measures. Following completion of construction for a particular Measure, EETEK will carry out reasonable tests of the equipment and then initiate normal operations of the Measure. EETEK and Galatex will carry out their respective responsibilities in maintaining the equipment and measuring and monitoring the energy savings according to the schedule and terms defined in each Implementation Agreement. Galatex will not be required to pay any additional fees beyond the shared savings and the monitoring costs unless specifically agreed in an Implementation Agreement.

3.04 Comfort Standard and Production Level. EETEK guarantees that the existing comfort standard and the existing production level of Galatex's Facility as defined in the Implementation Agreement will not be affected by the Measures recommended by EETEK and accepted by Galatex.

3.05 Minimum Production Level and Savings Estimate. Each Implementation Agreement will define the methodology for calculating Savings. Under most circumstances, the Implementation Agreement will specify a Minimum Level of Production at which Savings will be calculated in the event that there are changes in Galatex's operating procedures for the Facility that affect energy use. In the event

that Galatex cannot or neglects to provide information required under the monitoring clauses of the Implementation Agreement, or that EETEK cannot have access to this information within fifteen (15) days of the end of the period to which the invoice applies, EETEK will continue to invoice for the period on the basis of the Minimum Production Level and Savings Estimate plus 10% until such a time as the information is made available and adjustments can be made to the previous invoices.

QUESTIONS FOR DISCUSSION

During our discussion of the case-study, i.e., as we screen the project together, we will make certain that we understand:

- the type of project proposed
- who “owns” the project and what the ownership structure is
- the role of other players in the proposed project
- the quality of the information
- the environmental benefits to be realized
 - what assumptions are behind these benefits
- the financial consequences of the project
 - what is the type of investment proposed?
 - are the terms of the loan, for example, realistic?
 - is the cash-flow model for the project or the whole enterprise?
 - is the cash-flow model complete?
 - is the future cash-flow adequate? realistic?
 - what is the break-even scenario and how likely is it?
- the general economic conditions in the country for the foreseeable future
- the general economic conditions in the industry of concern for the foreseeable future
- how a banker would rank the risks involved
- the answer to our “golden question” (from the presentation earlier)
- potential next steps

The final step of a good screening process is to assume the project funding, as proposed, will be *denied* by the investor (bank, equity-partner, etc.). We need to think creatively about what would make it a better (i.e., more acceptable) project:

- Are all the components of the project equally risky? Can some be eliminated?
- Are there ways of reducing the overall project risk? Forms of guarantees?
Assurances?
- Can we clearly specify what recourse the lender would have?
- Can we increase revenues to cover the debt payment?
- Can we reduce the amount of debt needed?
- Can we sequence the up-front investment to reduce risk?

We also should think about how we could make it a different project:

- Is the type of financing appropriate? Could we suggest a different type of investment?
- Can the ownership of the project be changed in a way so as to reduce risk?

	ECOLINKS SEMINAR			
	Financial Screening for Environmental Projects			
	Ralph Braccio			
	<i>Principal, Environmental Resources Management</i>			
	Washington, D.C.			
	April 25, 2001			

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	<i>Principal, Environmental Resources Management</i> Washington, D.C. April 25, 2001			


ERM

Delivering sustainable solutions in a more competitive world

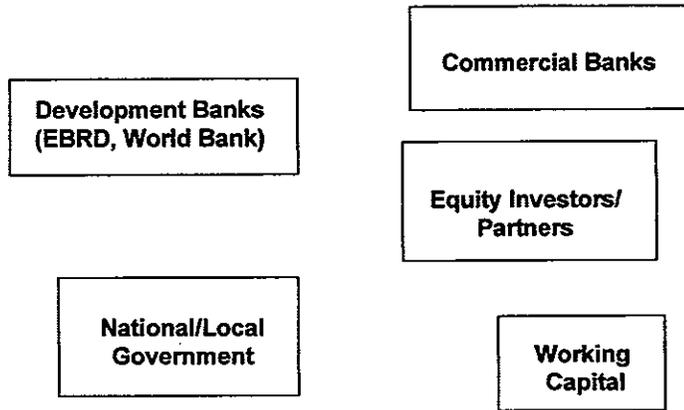
Types of Environmental Projects

Increase efficiency sell more product	Increase efficiency save money
Improve process for environmental compliance	Expand public infrastructure
Nature preservation	Completely modernize process


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Sources of Funds



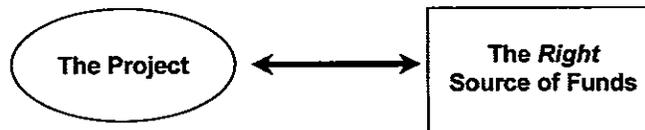
W.O./Init./Date, 3

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Financial Packaging

The goal is to match the project with the source —



W.O./Init./Date, 4

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Types of Borrowers (Project Sponsors)

- **Private firms**
- **Quasi-private firms**
- **Municipal entities**
- **Government agencies**

W.O./Init./Date: 1

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Borrowers' Expectations

- **Money without "strings"**
- **Low-cost project preparation**
- **Credibility -- or *Believe me, I'm telling the truth***

W.O./Init./Date: 2

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Types of Lenders (Investors)

- **Development Banks**
 - IFC
 - EBRD
 - World Bank
 - EIB
 - NEFCO, BSDB, others

W.O./Init./Date, 7

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Types of Lenders (con't)

- **Commercial Banks**
- **Credit facilities (working with Dev. Banks)**
- **Private equity investors**
- **Government agencies**
 - Domestic
 - Foreign

W.O./Init./Date, 8

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Lenders' Expectations

- **I'm going to get my money back**

W.O./Init./Date: 9

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Lenders' Expectations (con't)

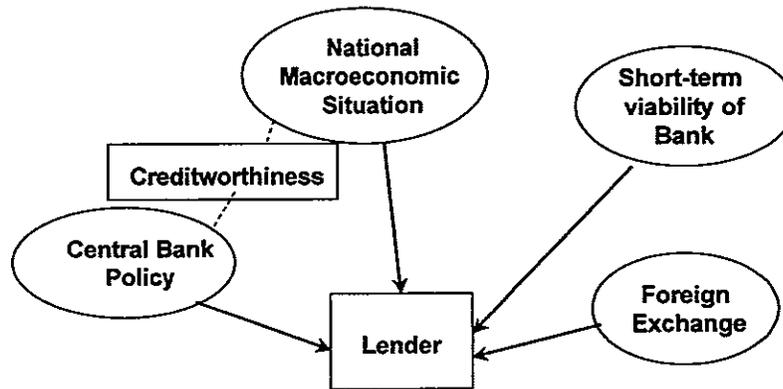
- **Clear ownership**
- **Clear control**
- **Effective management**
- **Collateral (?) or recourse**
- **Cash-flow or viability of the firm**

W.O./Init./Date: 10

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External Pressures on Lenders



W.O./niL/Date, 11

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The Project Proposal

- Does the type of investment make sense?
- Is there enough information about the project?
- Is there enough information about the sponsor?
 - What information is missing?

W.O./niL/Date, 12

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The Project Proposal

- **Ask yourself the “golden” question**
 - If it were my money, would I lend it for this project?

W.O./Init./Date, 13

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ECOLINKS & Project Screening

- **The role of the “matchmaker”**
 - Are expectations realistic?
 - Is the project and the source of funds the right fit?
 - Can you work with the project sponsor to make the proposal better?
 - Can you bring the proposal to the next step and feel good about prospects for success?

W.O./Init./Date, 14

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ECOLINKS & Project Screening (con't)

- **Criteria for success**

- projects move forward
- for projects that don't move forward, the sponsors understand why—we haven't created *frustration*
- long-term environmental improvement

W.O./Init./Date, 15

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GTN

U.S. AGENCY FOR INTERNATIONAL DEVELOPMENT

Global Technology Network

...creating strategic linkages and partnerships for sustainable development.

USAID



The Global Technology Network (GTN) is a network of domestic and international partners that assists U.S. small- and medium-sized firms seeking access to emerging overseas markets. GTN partners are linked together with an Internet-based communications and trade lead system that facilitates collaboration throughout the GTN partnership. GTN is operated out of USAID's Office of Business Development and focuses primarily on **agribusiness, communications and information technology, environment and energy, and health technology**. GTN also provides trade lead and related services to other USAID programs: US-Asia Environmental Partnership (US-AEP) and the Euro-American Partnership for Environmentally Sustainable Economies (ECOLINKS).

> GTN Trade Lead Process

GTN facilitates the transfer of U.S. technology and services to developing countries by matching a local company's development needs with U.S. firms equipped to provide the appropriate technological solutions:

- ◆ Business opportunities are identified and tracked by a network of in-country partner organizations and individuals.
- ◆ Trade leads are transmitted to GTN/Washington where they are qualified, matched, and electronically disseminated to U.S. firms registered in GTN's databases.
- ◆ U.S. firms are eligible to register free of charge to receive GTN trade leads.

> GTN Travel Grants

A small travel grant program supports firms pursuing GTN trade leads. GTN grants are available for both developing country and U.S. entrepreneurs, up to \$3000, to fund travel, equipment and product demonstrations, and other approved activities.

> Business Support Centers (BSC)

GTN works with USAID missions to establish in-country BSCs to provide local business services and market linkages. The BSC assist foreign small- and medium-sized enterprises in gaining access to U.S. technology and services.

> GTN Business Outreach

Follow-up on trade leads, as well as information on general USAID procurement, is provided through outreach offices in California, Florida, and Illinois. Additional outreach is provided through the *U.S. Export Assistance Centers* and 35 state trade partner organizations in:

Alaska	Arkansas	California	Colorado
Delaware	Florida	Georgia	Hawaii
Idaho	Illinois	Iowa	Louisiana
Maine	Massachusetts	Maryland	Michigan
Minnesota	Missouri	Montana	Nevada
New Jersey	New York	North Carolina	Pennsylvania
South Carolina	South Dakota	Tennessee	Texas
Utah	Vermont	Virginia	Washington
Washington D.C.	West Virginia	Wisconsin	

> GTN Regional Trade Initiatives

GTN provides electronic commerce linkages that facilitate domestic and regional trade in USAID-assisted regions worldwide. With USAID regional bureau or mission funding, GTN will install an electronic trade opportunity matching system and a communications network in selected host country organizations, and train local staff on their use. The GTN regional initiative complements USAID strategic objectives by creating a permanent link to domestic, regional, and US markets. GTN regional trade programs have already been initiated in Southeastern Europe and sub-Saharan Africa.

> GTN Business Development Mission Services

GTN business development mission services, which include sector briefings and networking support to USAID field missions and domestic partners, is provided in cooperation with other federal and multilateral agencies. Business development missions are held at USAID offices in the International Trade Center in Washington, DC. Similar services are available for in-coming GTN trade delegations sponsored by USAID missions and U.S. Embassies abroad, foreign Embassies, or other GTN partner organizations.

US Agency for International Development

1300 Pennsylvania Avenue, NW

Washington, DC 20523

Tel: 800-872-4348 Fax: 202-216-3526 Internet: www.usgtn.org

GTN Countries of Operation

Asia and the Near East

Egypt	Malaysia	Thailand
Hong Kong	Mongolia	Tunisia
India	Philippines	Vietnam
Indonesia	Singapore	
Jordan	Sri Lanka	
Korea	Taiwan	

Africa

Botswana	Rwanda
Côte d'Ivoire	Senegal
Ghana	South Africa
Kenya	Tanzania
Madagascar	Zambia
Namibia	Zimbabwe

Latin America

Brazil
Colombia
Mexico
Jamaica

Eastern Europe and NIS

Albania	Kazakhstan
Bulgaria	Macedonia
Bosnia-Herz.	Montenegro
Croatia	Poland
Czech Rep	Romania
Hungary	Slovenia

GTN works in partnership with the following government agencies:

