

ENVIRONMENTAL RESEARCH, DEVELOPMENT,
AND EDUCATION FOR THE NEW ECONOMY
(ERDENE)



NORTHERN
ARIZONA
UNIVERSITY

December 2005

ERDENE

Environmental Research, Development, and Education for the New Economy (ERDENE) will continue its focus on Northern Arizona University's (NAU) environmental research strengths in five major technology areas addressed in the Sustainable Systems platform identified in the 2002 Arizona's Bioscience Roadmap. These areas include: ecological restoration, water resources, renewable energy technologies, applied research for sustaining rural communities, and comprehensive monitoring and management of complex systems.



ERDENE faculty member and NAU students working on the Wind Turbines

Viable long-term environmental and human health depends on ecological understanding, economic vitality, and social values. ERDENE integrates ecological understanding and technological ingenuity to sustain the health of our environment and the vitality of our communities.

ERDENE applies ecological knowledge to lessen human impact on the natural world, mitigates previous actions detrimental to our natural heritage, and stimulates economic and community development. ERDENE promotes environmental and ecological health and addresses real problems in innovative ways.

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Dr. Gary Deason,
ERDENE Director

PERFORMANCE ANALYSIS

METRICS (\$ in millions)	FY 02 Proj	FY 02 Act	FY 03 Proj	FY 03 Act	FY 04 Proj	FY 04 Act	FY 05 Proj	FY 05 Act	FY 06 Proj	FY 07 Proj	FY 08 Proj	FY 09 Proj	FY 10 Proj	FY 11 Proj
<u>Return on Investment</u>														
Federal and State Funds	\$4.5	\$5.5	\$4.3	\$4.3	\$4.3	\$4.4	\$5.7	\$12.9	\$6.3	\$5.0	\$5.5	\$6.0	\$6.5	\$7.0
Industrial Dollars	\$1	\$4	\$1	\$4	\$1	\$5	\$1	\$5	\$2	\$3	\$3	\$4	\$4	\$5
Other Dollars	\$2	\$6	\$2	\$3	\$2	\$5	\$3	\$5	\$3	\$5	\$6	\$7	\$8	\$9
Qualitative Returns Including Presentations & Publications	10	121	120	180	120	138	130	305	27	140	150	160	170	180
<u>Technology Transfer</u>														
Products Generated and in the Market-place	0	0	0	0	0	49	0	6	2	1	3	6	8	10
Business Spinoffs	0	1	1	0	1	1	1	1	2	0	0	1	2	3
Patent Apps Generated	0	1	1	0	1	0	1	0	2	0	1	2	3	4
Conferences Sponsored	0	14	15	19	15	21	17	28	8	3	5	10	15	20
Business Expansions	2	2	2	1	3	5	4	16	8	0	1	2	3	4
<u>Work Force Contributions</u>														
Graduate/Postdoc Students in Pipeline or Graduated	35	56	50	87	56	102	60	35	61	60	62	65	68	70
High End Bachelaureates in Specific Disciplines	23	38	33	27	38	47	45	23	84	6	6	6	6	6
Bachelaureates Produced in Related Disciplines	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	40	42	45	48	50
Certificates Granted	0	0	5	0	5	3	7	73	8	5	5	5	5	5
Undergrad Students in Pipeline	0	26	30	126	32	63	35	40	35	50	55	60	65	70
Continuing Ed Professionals	0	85	85	312	85	1361	90	142	46	120	130	140	150	160
<u>Specific Curriculum Innovations</u>														
New Programs such as Certificates (full time students)	5	3	5	1	6	1	6	0	9	0	1	1	1	1
Revised Courses	5	10	6	14	6	16	8	22	9	1	3	4	4	4
New Courses (full time students)	5	2	7	9	10	29	10	31	15	0	2	3	3	3
New Programs – Participating Professionals	0	0	0	0	0	0	0	0	0	1	2	2	2	2
<u>Partnerships</u>														
Community College 2+2 Programs	2	2	3	9	3	7	4	8	5	2	4	6	8	10
Tri-University (ASU, NAU, UofA)	4	4	3	6	3	7	4	10	5	5	8	12	15	18
Industry/Private Sector Collaborations	13	17	18	73	18	58	24	79	27	35	38	40	42	45
Community-based (including tribes)	8	34	25	58	30	51	30	60	46	35	38	40	42	45
Regional, Nat'l, International Research and Linkages	5	20	20	41	22	54	25	72	15	35	38	40	42	45
Companies identifying the university as a reason to relocate	0	0	0	0	0	0	0	0	0	0	0	1	2	3

PERFORMANCE ANALYSIS

- Return on investment is measured by comparing the total dollars invested with the number of dollars those activities attract through grants, contracts, and gifts. ERDENE will focus its efforts on securing new funding in five areas: ecological restoration, renewable energy technologies, rural and tribal community development, water resource management, and environmental monitoring.
- Technology transfer performance covers a broad spectrum of activities including patents, spin-off

companies, products, and business expansions. A significant measure of ERDENE's technology transfer productivity is through sponsored conferences and workshops for business, industry, and government agencies .

- ERDENE works closely with the Greater Flagstaff Economic Council and the Northern Arizona Technology and Business Incubator to develop and recruit new sustainable resource focused companies to northern Arizona.
- Workforce contributions are measured by: undergraduate and graduate students in the pipeline or graduated with degrees or certificates relevant to area and the number of continuing education professionals participating in training programs offered through ERDENE.
- ERDENE supports student research and critical skill development to enhance preparedness for Arizona's workforce opportunities.
- ERDENE collaborations are measured by the number of partnerships with community colleges, universities, industries, communities, and regional/national/international organizations.



The Ecological Restoration Institute

FINANCIAL INFORMATION

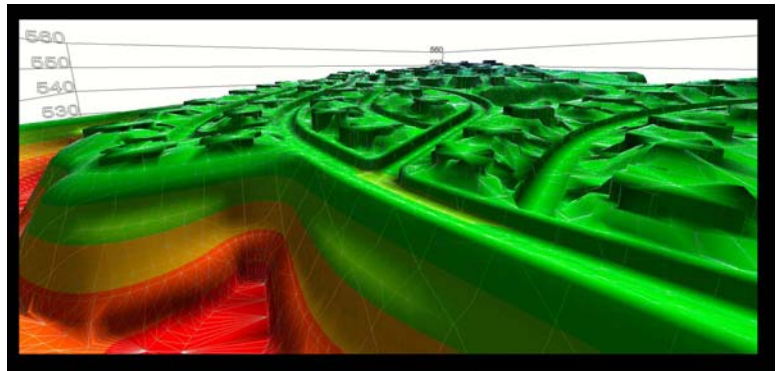
	FY 2002 Actual	FY 2003 Actual	FY 2004 Actual	FY 2005 Actual	FY 2006 Budget	FY 2007 Budget	FY 2008 Budget	FY 2009 Budget	FY 2010 Budget	FY 2011 Budget	TOTAL
REVENUE											
Carry Forward	\$0	\$175,540	\$224,067	\$254,812	\$333,688	\$	\$	\$	\$	\$	
New TRIF Revenue	1,450,500	1,551,412	1,681,405	1,977,600	2,076,480	1,872,092	1,872,092	1,872,092	1,872,092	1,872,092	\$18,097,857
TOTAL REVENUE	1,450,500	1,726,952	1,905,472	2,232,412	2,410,168	1,872,092	1,872,092	1,872,092	1,872,092	1,872,092	
OPERATING BUDGET											
Personal Services	\$1,062,225	\$1,260,419	\$1,426,244	\$1,639,348	\$2,072,745	\$1,759,766	\$1,759,766	\$1,759,766	\$1,759,766	\$1,759,766	\$16,259,811
Operating	212,735	242,466	224,416	259,376	337,423	112,326	112,326	112,326	112,326	112,326	\$1,880,046
TOTAL EXPENDITURES	\$1,274,960	\$1,502,885	\$1,650,660	\$1,898,724	\$2,410,168	\$1,872,092	\$1,872,092	\$1,872,092	\$1,872,092	\$1,872,092	\$18,097,857
ROI	5.1:1	3.4:1	3.0:1	7.2:1	2.8:1	3.1:1	3.2:1	3.4	3.5:1	3.6:1	

Funding of the Arizona Board of Regents' Technology and Research Initiative Fund (TRIF) is provided by a 0.6 percent increase in the Arizona sales tax rate approved by the voters through Proposition 301 on the November 2000 general election ballot.

GOALS

ERDENE goals specifically include:

- ◆ Promote environmental, economic and ecological health through research, development, outreach, and educational programs.
- ◆ Address Arizona's environmental issues with a focus on sustainable systems.
- ◆ Support initiatives with specific economic and social benefits to Arizona citizens.
- ◆ Continue to identify and capture new funding to leverage support of the TRIF program to further the economic development of Arizona.



Wind Resource Modeling

ADVISORY BOARD

A new Research and Development Advisory Board has been formed to oversee Growing Biotechnology (GBI) and Environmental Research, Development, and Education for the New Economy Initiatives. This board will consist of deans, faculty, and people from off campus, with expertise in environmental biotechnology areas.

Michael Bittner

Translational Genomics Research Institute

Russell Douglass

Northern Arizona Technology and Business Incubator

Barry Gold

Gordon and Betty Moore Foundation

Laura Huenneke

NAU College of Engineering and Natural Sciences

David LaRoche,

U.S. Environmental Protection Agency

Edwin Lewis

NAU Department of Chemistry and Biochemistry

Stephanie McKinney,

Greater Flagstaff Economic Council

Mary O'Connell

New Mexico State University Plant and Environmental Science Department

David Patton

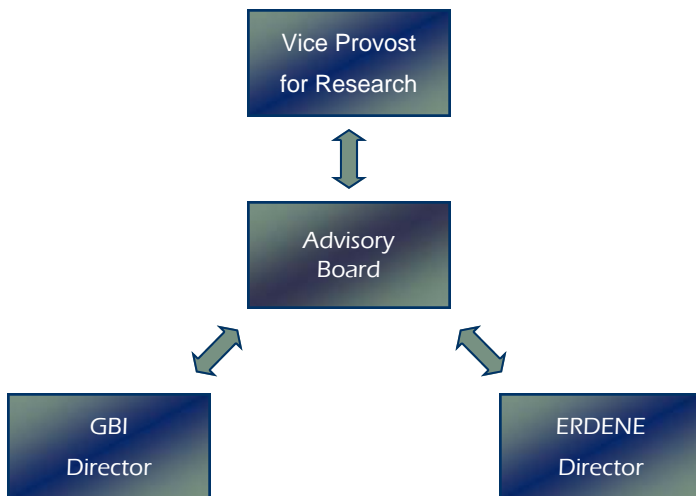
NAU Consortium of Professional Schools

Thomas Whitham

NAU Department of Biological Sciences

MANAGEMENT

ERDENE director, Gary Deason, reports through the Center for Sustainable Environments to Carl Fox, Vice Provost for Research & Graduate Studies for TRIF related activities.



LEARN MORE

Contact Dr. Gary Deason, ERDENE Director, at the Center for Sustainable Environments at Gary.Deason@nau.edu, or 928-523-4889, or visit any of the following websites to learn more about individual initiatives:

- ◆ Center for Sustainable Environments: <http://www.environment.nau.edu>
- ◆ Sustainable Energy Solutions: <http://ses.nau.edu>
- ◆ Ecological Restoration Institute: <http://www.eri.nau.edu/cms/>
- ◆ Merriam Powell Center for Environmental Research: <http://www.mpcer.nau.edu/smallindex.html>

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