Nuclear Science and Engineering

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Boise State University
Idaho State University
INL Idaho National Laboratory
University of Idaho

CAES
Center for Advanced Energy Studies

Initiative Description and Focus

- In a nutshell, the initiative focuses on NSE education and research. Primary target customers are DOE and NRC in the government sector, and AREVA, GEH, and W-Toshiba in the private sector. The three universities combined provide a nationally competitive group in a reasonably broad spectrum of research.
- Outcome: All three universities to benefit in terms of increased student enrollment, research dollars, and beneficial collaboration with INL, etc. INL benefits by having a research-oriented academic component.

Initiative – Goals

- Engage all three universities in collaborative efforts
- 3 or more major collaborative proposals per year per university, with a success rate of at least 2 per university
- Support of 60 graduate students continuously ($3.0M)
  - 10 Full-time faculty (6 students per)
- Outcome per university
  - Graduate 15 in 2 years, 30 in 5 years
  - $4M dollars research funding (faculty and student support)
  - $1M dollars fellowship/scholarship funding/year

Initiative – Strategy and Tactics

- Key Activities
  - Respond to rotating RFP's (ATR NSUF, DOE, NRC)
  - Continue collaborations with national laboratories (primarily INL, but also PNNL, LANL, etc.)
  - Continue collaborations with other universities (UNLV, NCSU, MIT, RPI, etc.)
  - Outcome: The three universities broaden their research reputation

Initiative Outcomes – Projects

Year ($)	Project	Customer	Collaborators
FY 2009 Total $	$2.9M - DOE (NEUP, AFCI, I-NERI) $1.3M - NRC $50K - 2+2	DOE NRC AREVA	INL, MIT Internal infrastructure support IUC
FY 2010 Total $	$2.6M NEUP Research $175K NEUP Fellowship $180K NRC Scholarship $225K Minor Actinide (MANTRA) $225K Flux Sensors $195K LSDS	DOE DOE-OS ATR-NSUF	Too numerous to list ANL, INL INL, CEA
FY 2011 Total $	Target is again around $4M	DOE - MPACT	PNNL, RPI, LANL, UNLV

All Awarded

Initiative Outcomes – Highlights

- Faculty
  - University of Idaho – 2
  - Idaho State University – 2
  - Boise State University – 2
  - Idaho National Laboratory – 2
- Students
  - Very large increase (>100 UG, >100 G)
- Competitive bidding on proposals
- Successful creation of new “summer schools”

Initiative – Investments

FY 2009 Total: $985K	$125K LDRD $30K PDF $680K Capital Equipment $150K ACE
FY 2010 Total: $355K	$175K LDRD $30K PDF $150K ACE
Non-continuous	$3.5M IUC (roughly 2 to NSE over 3 years) $4.5M State Stimulus (roughly 3 to NSE over 3 yrs)

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Initiative – Investments

- LDRD (2009 outcomes and 2010 investments)

2010

  – Optimization of Ceramic Waste Forms Used for Electrochemical Processing of Spent Nuclear Fuel $140K

Initiative – Investments

- PDF (2009 and 2010)

Activity	2009 $K	2010 $K
Proposals	15	
Meetings	15	

- ACE ($150K)
  - Laboratory Die Press
  - Planetary Ball Mill
  - Travel, Labor, and Meetings

Initiative – Investments

Funds	Faculty	Students	Other (List)
IUC ($)	$175K/year ISU	$200K/year ISU	$50K recruitment, travel, etc ISU
Stimulus ($)	$500K/year ISU	$0 ISU	$0 ISU

Initiative – Infrastructure and Human Capital

- Infrastructure needs
  - Faculty (we are close to maximum regarding grant performance ability)
  - Equipment
    - Obviously CAES needs to populate the labs with equipment
    - State and NEUP money will help enormously
  - Space !
  - Computing power !

Initiative – Discussion Points

- We need to continue building relationships with our potential commercial partners (especially AREVA)
- What will new AREVA university bring?
- Pursue long-term joint appointments
- Have programmatic money that is flexible?