

# Post-Secondary Technician Curriculum Transfer Pilot

## Case Study: Energy Systems Instrumentation and Control Technician Curriculum Transfer

### Institutions:

- Idaho State University Energy Systems Technology and Education Center
- College of Southern Maryland (recipient institution)
- Constellation Energy
- Idaho National Laboratory

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# ESTECC Operating Partners

Operating Partners guide the strategic direction of the Center

Idaho State UNIVERSITY



INL Idaho National Laboratory



The Energy Systems Technology and Education Center

Partners for Prosperity  
NEW BEGINNINGS FOR EASTERN IDAHO



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# Our Mission

Educate the people and cultivate the learning resources required to grow and sustain the current and future energy infrastructure.

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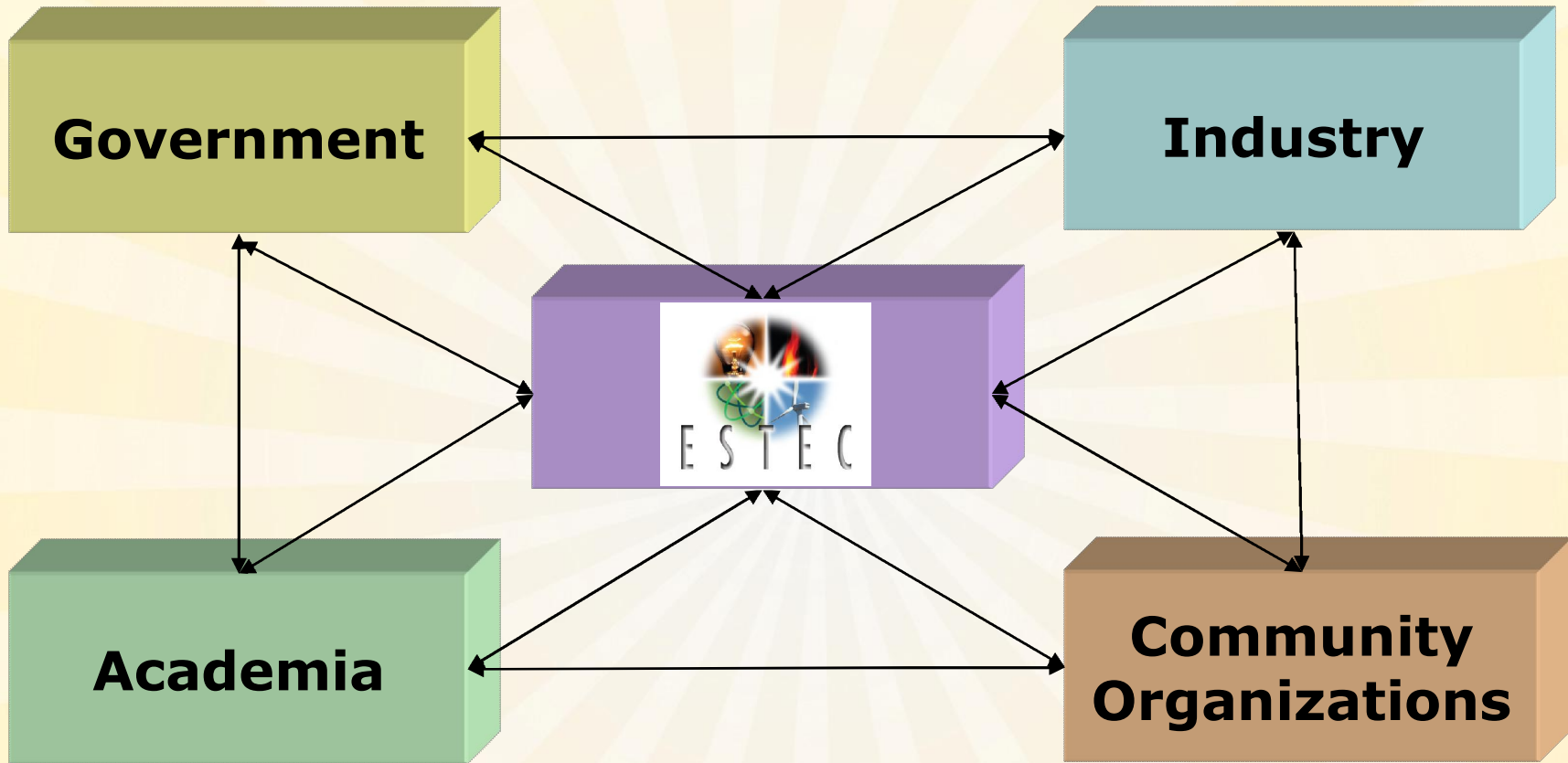
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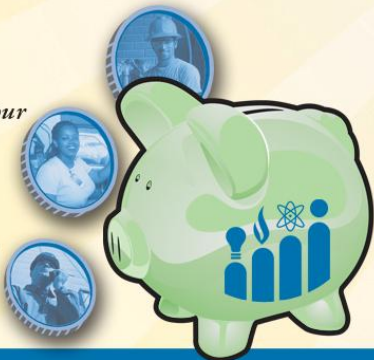
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# A New Dialogue... A Shared Lexicon

Synchronizing Needs, Methods and Means



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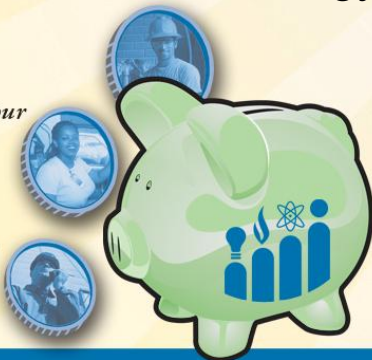


# The Energy Systems Technology and Education Center – A “Proven” Model

- A unique partnership of regional, state, national and international industry, learning institutions, social service agencies, government and DOE Laboratory, in alliance with the Center for Advanced energy Studies.
- Funded by a \$2M U.S. Department of Labor Community-based Job Training Grant and \$600K National Science Foundation Grant and \$1.1M Idaho Public Works Renovation Funding. Asset Value - \$30+M. **Goal – Create and share an energy systems curriculum.**
- **Active integration of educational, employment and economic development programs/plans.**
- Delivering ABET-accredited and nationally standardized Engineering Technology AAS and BS degrees in energy systems operations and maintenance. **Goal – Re-populate the energy technician pipeline.**
- Addressing the unique needs of unemployed, underemployed and under-represented populations. **Goal – Improved Workforce Diversity.**
- Providing learning programs for K-12 students, teachers, parents and counselors. **Goal – Energy Career Awareness.**
- Applied Industrial Energy Research Program. **Goal – Sustain the Center.**

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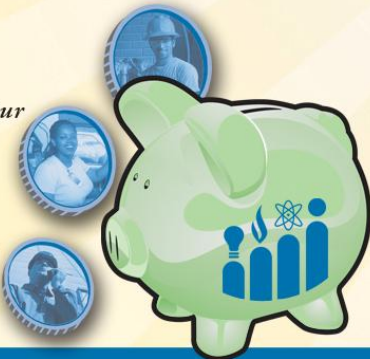
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# What is ESTEC and What Have We Done?

- Focus on **engineering technician education and training** for the energy market sector.
- Four initial **maintenance-oriented** degree programs:
  - **Instrumentation and Control Engineering Technology (2007)**
  - **Electrical Engineering Technology (2008)**
  - **Mechanical Engineering Technology (2009)**
  - **Wind Generation Technology (2009)**
- ABET accreditation in process
- Nuclear Operations Technician Program slated for Fall 2010
- Fall 2009 enrollment - 80 >>> Total - 125 >>> Waiting List - 50
- Glowing on-site review by U.S. Department of Labor.
- Partnered with educational institutions across the U.S.
- Partnering with tribal entities in the Western U.S. (Crow, Navajo, Shoshone Bannock, Northern Shoshone).

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# Creating Fidelity for Transfer

## Synchronizing the Institutional Learning Environments

- The Learning System Context*
- Student Demographics
  - Industry Needs/Involvement
  - Economic Development Plans
  - State & Institutional Policies
  - Resources

- Curriculum
- Instruction
- Equipment

What

**The Learning Environment**

Why

- Instructors
- Administration
- Staff

Who

- Facilities
- Classrooms
- Laboratories

Where

Transfer is:

- A Negotiation
- A Contact Sport

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# The Breakdown: Curriculum

- Differences in General Education requirements
  - ISU - 20% CSM – 33%
- Student load
  - ISU – 18-20 Credit hours CSM – 3-6 Credit hours
- Lab and Theory Integration
  - ISU – 15 Laboratory hours/wk CSM – 3 Laboratory hrs/wk
- Graduation requirements
  - ISU – 80 hrs CSM – 60 hrs (increasing to 64)

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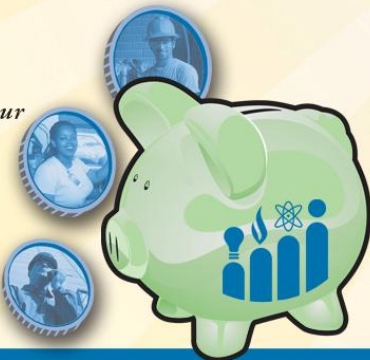
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# The Breakdown: Facilities

- Facility space for laboratory and classroom – what is needed to support the instruction being transferred
- Equipment needs – industry contributions
- Assembly of equipment into useful systems
- Fidelity of equipment in core programs (i.e. test equipment)
- LAB, LAB, LAB – its all about application

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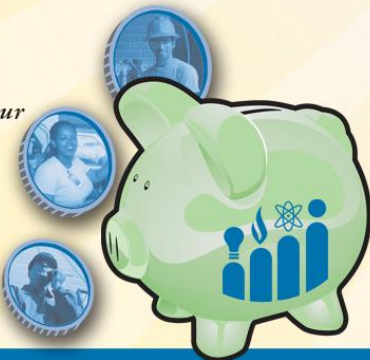
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# The Breakdown: Staff

- Faculty work experience and content-specific skills
- Availability of utility-furnished adjuncts to teach generation content in the correct time frames
- Ability of utility adjuncts to instruct given:
  - Structure of content (collegiate course requirements)
  - Available contact time (class management)
  - Instructional/platform skills
  - Utility schedules (outages, unplanned maintenance)

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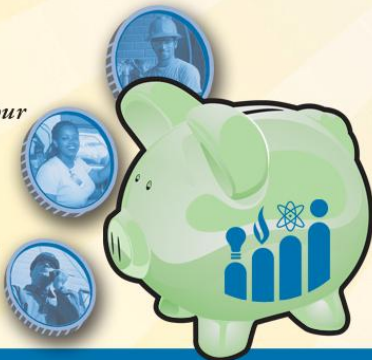
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# General Observations

- Significant differences exist between technical colleges and community and junior colleges
- Hands-on component of curriculum is problematic
- The current trend in many States is to cut not increase laboratory time and total credit hours to reduce costs
- Intent of ACAD 006 may not be achievable within the current 60 hour Associate in Applied Science degree allocation of most States
- Emerging “technology heavy” technical education requires a re-evaluation of allowable salary levels to attract qualified candidates

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