



EERE Technology Commercialization and Deployment Programs

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Tom Brennan, ARCH Venture Partners**

STEAB April 2008 Meeting
Albuquerque, NM
April 9, 2008



Industrial Partnerships and Strategy

Helping Sandia

- achieve its strategic objectives
- fulfill its mission
- build constituencies
- generate revenues



Technology Commercialization

Licensing

Intellectual Property

Agreements

Partnership Development

Business Intelligence

Business Planning

Market Analysis

International Partnerships

Entrepreneurial

Small Business

Science and Technology Park

Craig E. Tyner

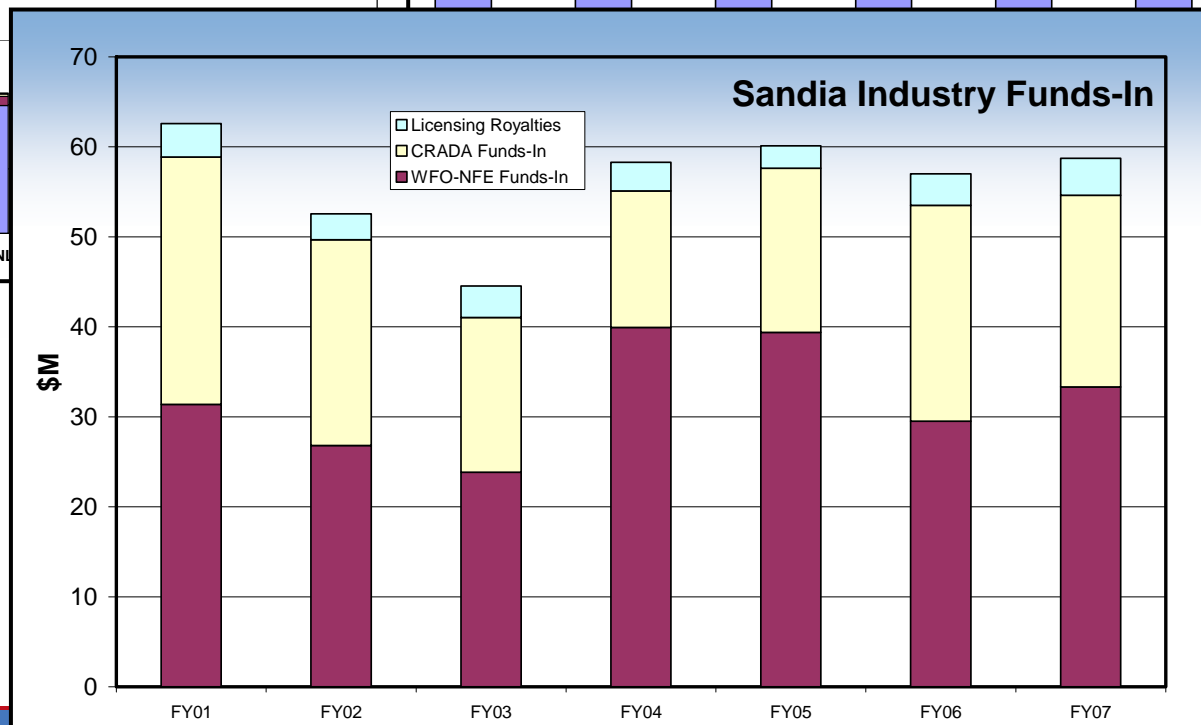
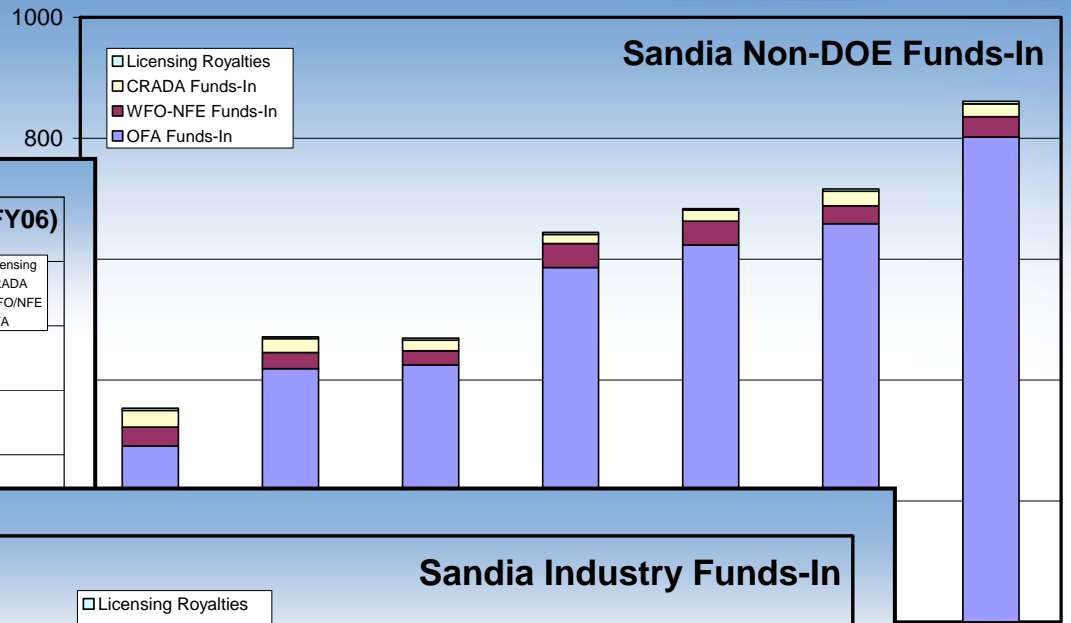
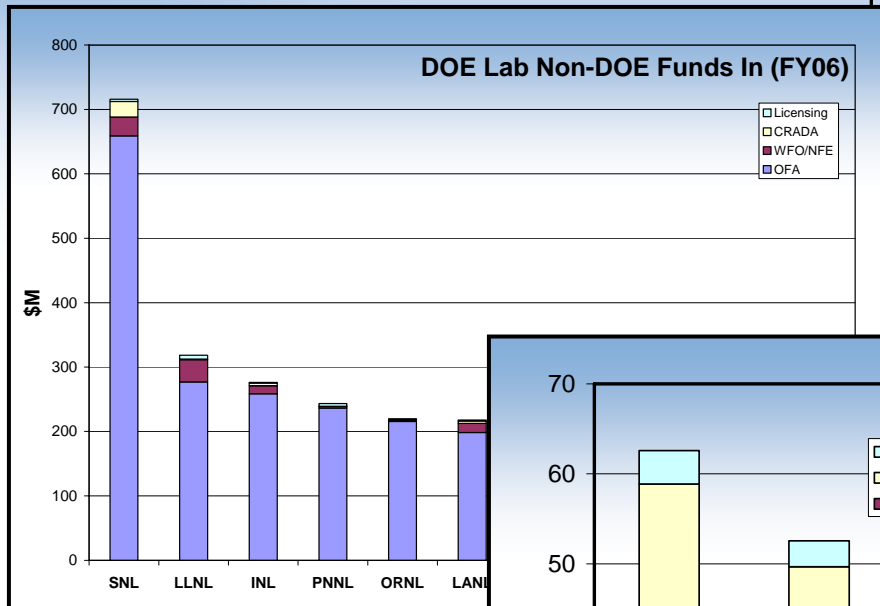


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Sandia's Non-DOE Funds In





Energy Policy Act of 2005 Tech Transfer Requirements

Title X/Sec 1001:

Improved Technology Transfer of Energy Technologies

- **Technology Transfer Coordinator**
 - Principal advisor to DOE Secretary on technology transfer and commercialization matters, overseeing
 - ♦ Technology Transfer Working Group
 - ♦ Technology transfer funding
 - ♦ Private sector engagement, including venture capital firms
- **Technology Transfer Working Group**
 - Coordination of TT activities at National Labs
 - Exchange of TT practices information
 - Dissemination TT information to the public and prospective technology partners
- **Energy Technology Commercialization Fund**

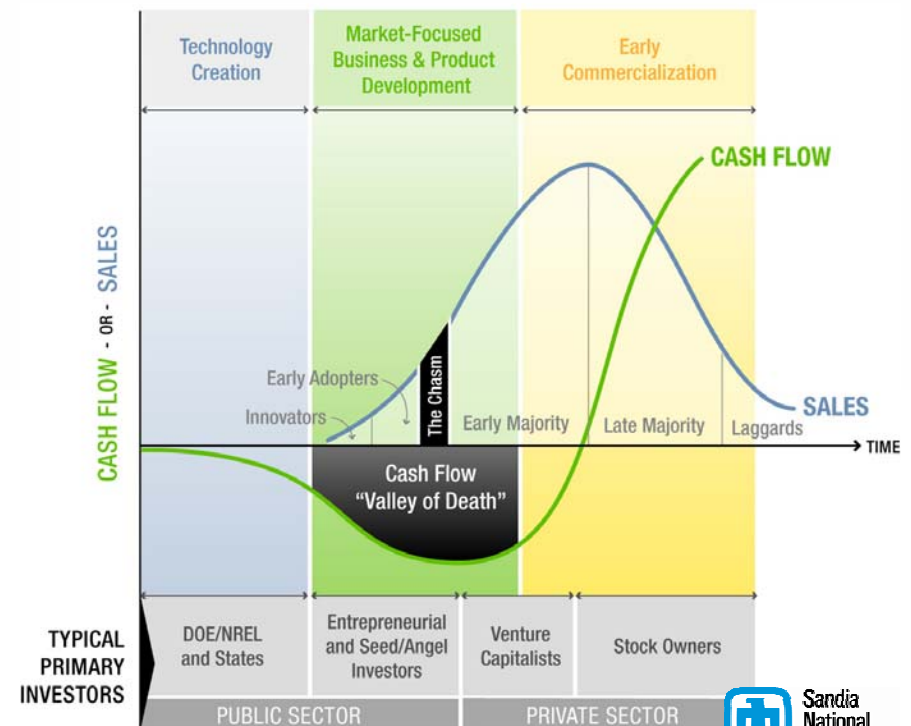
Energy Policy Act of 2005

Technology Commercialization Fund

- Directs that 0.9% of DOE funding for applied research, development, demonstration, and commercial application be used to

“Provide matching funds with private partners to promote promising energy technologies for commercial purposes”

- EERE's Implementation
 - Venture Capital Technology Showcase
 - Technology Commercialization and Deployment Fund (TCDF)
 - Entrepreneur in Residence (EIR)



The EERE Commercialization Team is building four bridges across the “Commercialization Valley of Death”



- **Talent**
 - DOE traditionally hires scientists – not businessmen
 - Developing technologies requires different skill sets than building businesses
- **Information**
 - Commercialization is impossible if a businessman never learns of a technology
 - Effective communication is a fundamental prerequisite of commercialization
- **Capital**
 - Competition is stiff for venture capital funding
 - Venture capitalists are more likely to fund business plans and prototypes than research papers

The Venture Capital Technology Showcase introduced leading investors to the most commercially promising EERE technologies developed



Need

- Many EERE funded technologies stall in the “commercialization valley of death” simply because the innovation has not been clearly communicated to the business community

Structure

- Challenged EERE Program Managers to identify 8-10 most promising technologies in their portfolio
- Created simple, layman’s descriptions of the innovation opportunity
- Invited prominent venture capital firm to come to Washington DC for a 2-day conference full of technology presentations

Venture Capital Firms Represented



TCDF is designed to provide funding for highly-focused projects that move early-stage technologies past the R&D stage by removing specific commercialization hurdles.



Need

- Innovations struggle to find financing post-research and pre-venture capital funding as described by the "Commercialization Valley of Death"

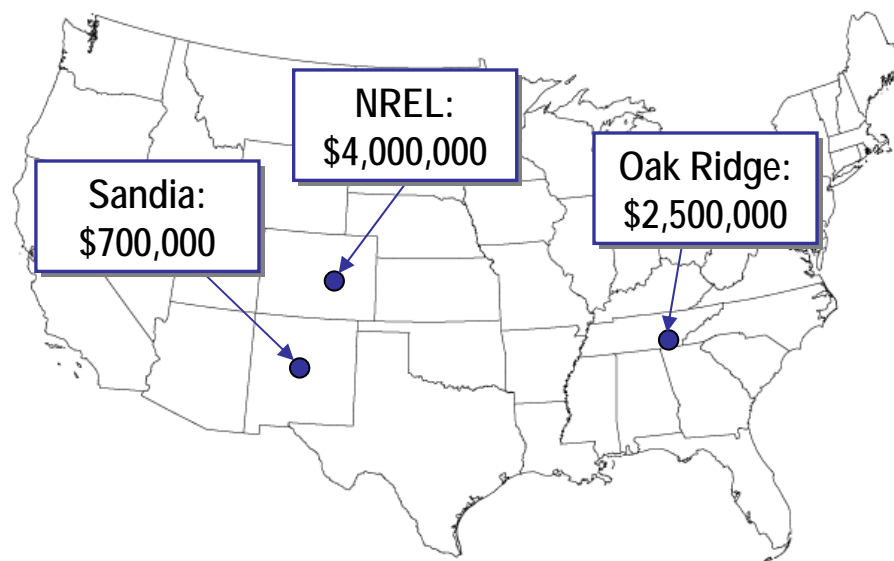
Structure

- 50-50 industry matched funds required to participate
- Designed to complement angel investment, venture capital series A financings or early stage corporate product development
- Funds restricted to prototype development, demonstration and deployment – not further basic science research
- Rolling basis funding decisions

Decision criteria

- Potential market opportunity
- Likelihood of commercial success
- Management team
- DOE priorities
- Private sector partners

FY07 TCDF Funding

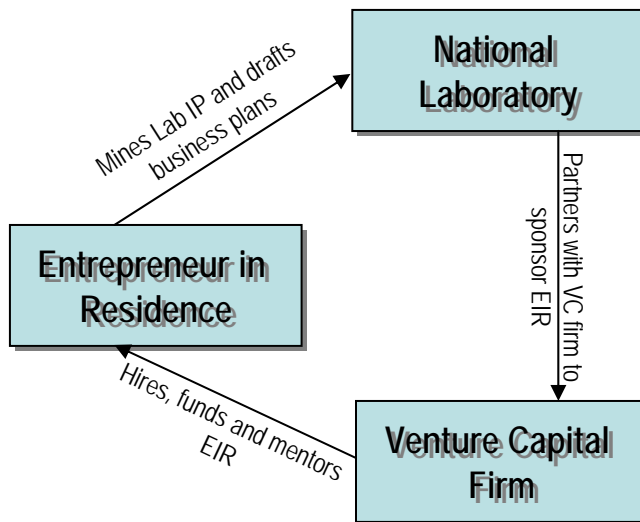
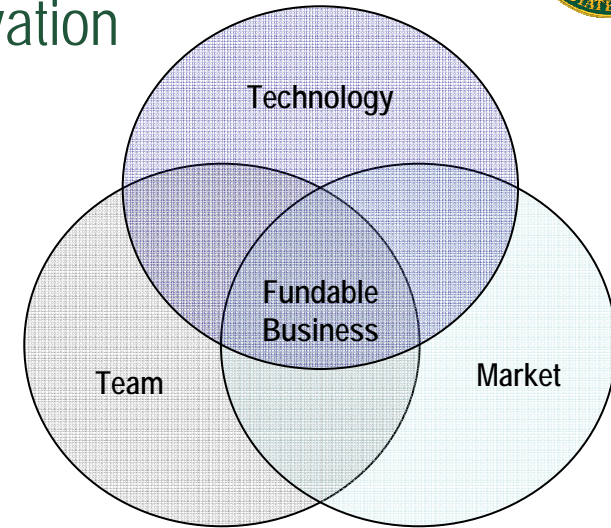


The Entrepreneur in Residence (EIR) program will bring business talent along side research scientists to amplify and accelerate the market impact of energy innovation



Need

- Researching innovative technologies requires a vastly different skill set than creating new businesses. National laboratories traditionally employ research scientists who excel at delivering research reports, white papers and patents rather than a business plans.



Structure

- DOE partnership with Venture Capital Firm
- EERE will provide \$100k and full access to selected labs
- Pre-negotiated standard equity share license agreement
- Venture Capital Firm will identify, hire, manage and mentor "best-of-breed" EIRs
- 2008 EIR Pilot National Laboratories:
 - National Renewable Energy Laboratory (Golden, CO)
 - Oak Ridge National Laboratory (Oak Ridge, TN)
 - Sandia National Laboratory (Albuquerque, NM)





Entrepreneur-in-Residence Program

- **Winning VC firms announced Feb 27 by the Ass't Secretary**
 - NREL (Kleiner Perkins Caufield & Byers)
 - Oak Ridge (Foundation Capital)
 - **Sandia (ARCH Venture Partners)**

- **EIR Objective: Identify promising EERE-related technologies and spin out start-up company(ies) to commercialize those technologies**
 - Fairness-of-Opportunity met by competitive solicitation (allowing exclusive licensing)
 - Technologies across the EERE space available to the EIR under terms of the solicitation
 - Direct researcher/EIR interactions on a daily basis



Entrepreneur-in-Residence Program

- **Extended briefing for ARCH on March 18**
 - Sandia's EERE and Partnerships programs

- **Sandia's EIR is Tom Brennan**
 - Former Sandia Member of Technical Staff (and former EIR)
 - Successfully spun out Sandia technology in the past
 - Started March 31

- **Regular updates with DOE and other labs on EIR Progress**

- **Ancillary benefit for Sandia**
 - Feedback to Sandia's TT programs – what works, what doesn't