



Idaho National Laboratory

Idaho National Laboratory Progress to World Class Status



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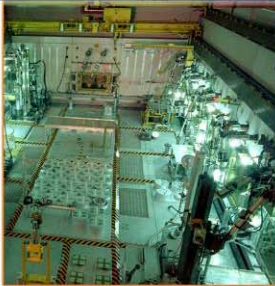


INL Strategic Goal — The DOE Vision

The Department of Energy's (DOE's) vision is for the INL to enhance the Nation's energy security by becoming the preeminent, internationally-recognized nuclear energy research, development, and demonstration laboratory **within ten years. The INL will also establish itself as a major center for national security technology development and demonstration. This requires that the INL be a multi-program National Laboratory with world-class nuclear capabilities. The INL will foster new academic, industry, government, and international collaborations to produce the investment, programs and expertise that assure this vision is realized.**

Idaho National Laboratory—Vision

Develop world-class nuclear energy capability



Foster education, research, industry, government and international collaborations to produce the needed investment, programs and expertise



Become the Preeminent Internationally-Recognized Nuclear Energy RD&D Laboratory



Become a major center for national and homeland security technology RD&D

Become a leading clean energy RD&D laboratory and a regional resource

The U.S. National Nuclear Laboratory with Multi-Program Capabilities

Research - Development - Demonstration - Deployment

RDD&D Programs of National Importance

Nuclear Energy

- ▶ Advanced Fuel Cycle Initiative (AFCI)
- ▶ Next Generation Nuclear Plant (NGNP)
- ▶ ATR National Scientific User Facility
- ▶ Space Nuclear

U.S. National Nuclear Energy Laboratory and an International leader



National & Homeland Security

- ▶ Supervisory Control and Data Acquisition (SCADA) Work
- ▶ Grid Reliability and Security
- ▶ Cyber Security
- ▶ Wireless Communications
- ▶ Nuclear Nonproliferation
- ▶ Armor, Explosive Blast Protection

A leader in critical infrastructure protection and homeland security



Energy & Environment

- ▶ Clean Energy and Water
- ▶ Bio-fuels and Synfuels
- ▶ Battery Technology
- ▶ Non-traditional Hydrocarbon use
- ▶ Hybrid Energy Systems

A leader in developing solutions to energy, resources and infrastructure challenges in the State, Region and Nation



Technologies that Benefit Our Communities, State, Region and Country

■ Technical Integration

- Main role described in the contract
- Building capabilities centered in Idaho, but involving the best laboratories at the right time

■ Effectively leveraging capabilities across the national laboratory system and with universities, involving:

- AFCI, NGNP, Generation IV International Forum, NHI, and LWR Sustainability Program
- Strengthened capabilities, the whole is stronger than the sum of the parts

■ CAES administration of DOE-NE university R&D will further drive integration

Serving the national interest — right sized, right talent, affordable infrastructure



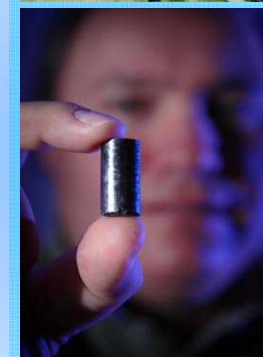
People

Capabilities
Depth
Experience



Places

Critical
Infrastructure



Programs

Technical
Leadership

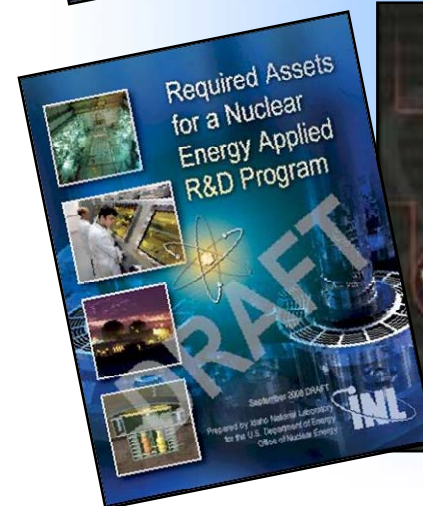
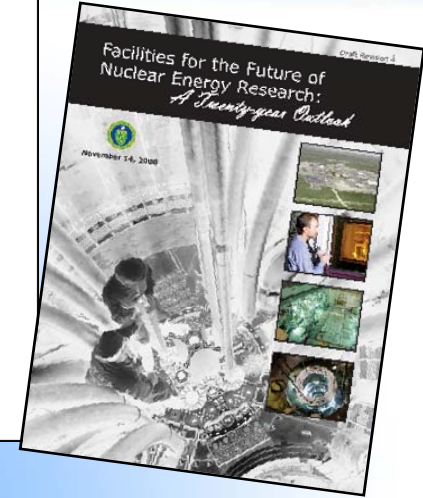
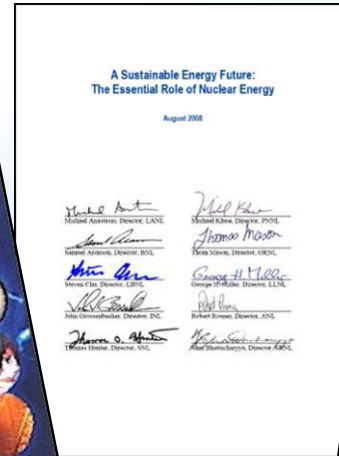
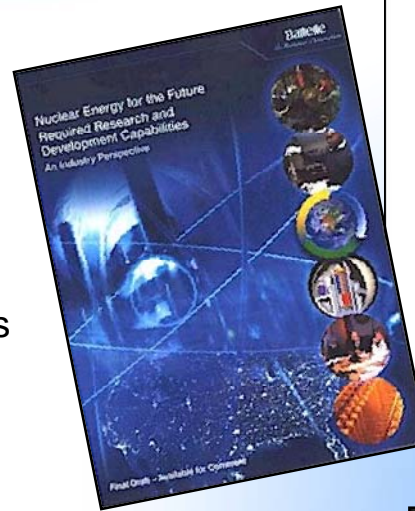


Partnerships

Industry
Universities
International

INL — Strategy Development for NE

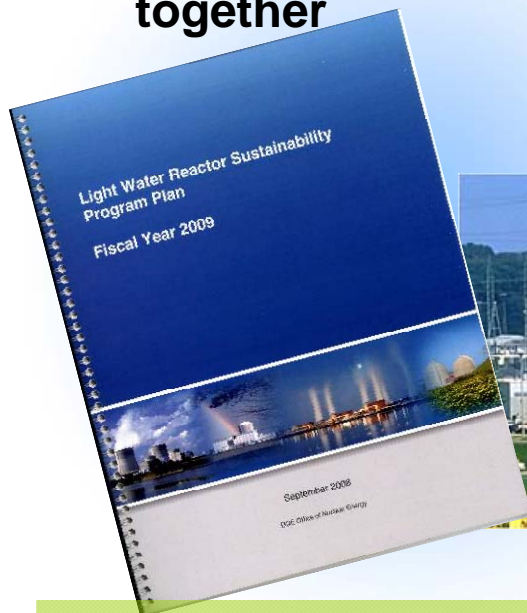
- **Influencing the direction of policy**
 - Nuclear energy policy paper by 11 national laboratory directors led by John Grossenbacher
- **... and investment in capabilities**
 - BMI capabilities for the future of NE, with input from more than 100 experts from industry and universities (Aug 2008)
 - INL study on U.S. and international research facilities, their condition and readiness to support NE R&D
 - Battelle Executive Committee report and letter to NE (Aug 2008)
- **INL co-wrote with NE, the Facilities for the Future of Nuclear Energy Research (November 2008)**
 - The first assessment by NE to identify a set of core facilities, with needed functionality and affordable
- **INL-EPRI Strategic Plan for LWR R&D established foundation for new LWR sustainability program**
- **EPRI-INL Research Agenda paper issued March 2009**



Sustained NE R&D agenda and infrastructure

Delivering Results to Industry Must be at the Forefront of NE/INL Strategy

- INL and others have unique capabilities for nuclear energy R&D
- Critical expertise exists across the DOE complex and at universities and industry
- Industry needs solutions
- Challenge for INL is bringing the capabilities, expertise and problems together



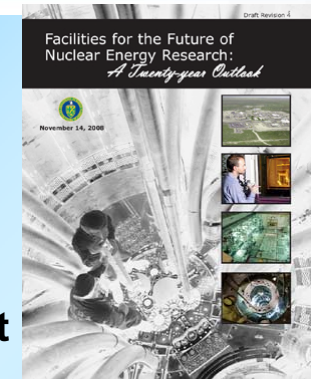
Development of the INL-EPRI LWR Sustainability Program Plan is the model for structuring industry-laboratory collaboration on issues affecting current and future reactor fleet

INL — The Hub of NE's Facility Complex

- **GOAL: Identify a core set of high value, long lead time to construct, currently operating facilities with the infrastructure to support nuclear energy R&D for 20 years**
 - Materials test reactors, hot cells, and specialized facilities required
 - Lower hazard facilities, scientific computing available through other means
 - Based on research priorities identified by NEAC and the National Academies
- **Considers:**
 - Supporting infrastructure demands, e.g., security and safety, remote locations
 - Economy of co-location of capabilities of existing facilities currently supporting NE R&D
- **Evaluates existing national laboratories capabilities against needs, and identifies gaps**
- **Seeks greater use of university and international capabilities**
- **Fills gaps with international capabilities and as a last resort, new facilities**

NE Research Priorities

- **Improve safety, reliability and sustainability of existing fleet**
- **Increase deployment of ALWRs**
- **Deploy new, advanced reactor technologies for nontraditional applications**
- **Support development of spent fuel technology options, including reprocessing and fast reactors**
- **Develop and sustain an affordable facility infrastructure**



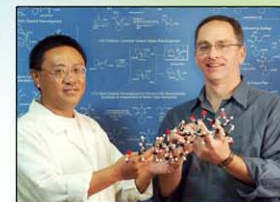
Consolidation at a center a necessity given flat or declining budgets — experts access to that center will be critical to success of NE research

ATR National Scientific User Facility: Prototyping the Lab of the Future

Discovery through Collaboration



Capability through Partnerships

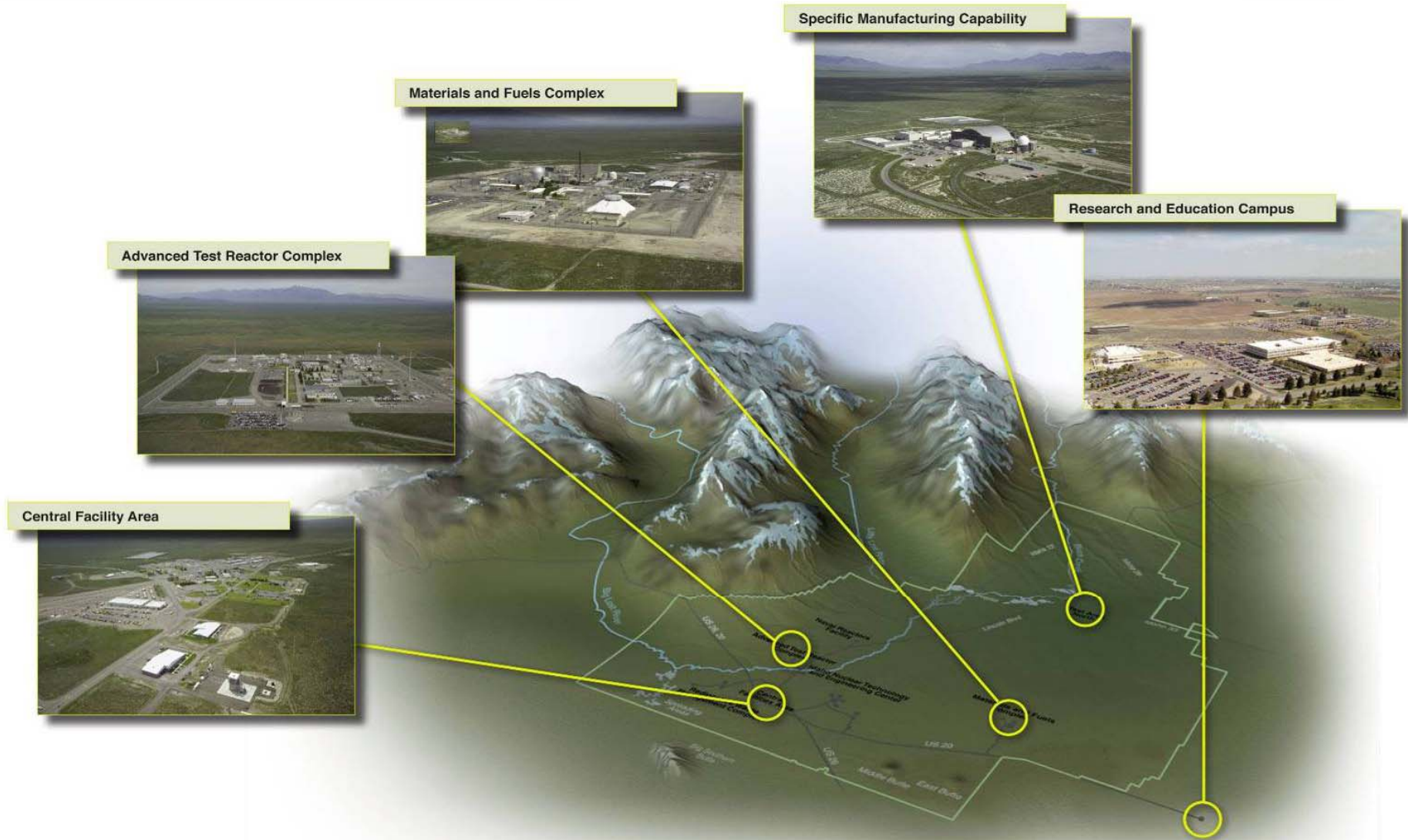


Support through Infrastructure

Development through Learning

Focal Point for Innovation --
Stewards of the National Nuclear Capability

INL's Main Facilities



Consolidate Capabilities in Town and “Right-Size” Site Facilities

■ Strategy:

- Consolidate RDD&D capabilities at the INL Research and Education Campus
- Focus on capabilities - streamline site facilities to support program missions
- Modernize/upgrade existing facilities
- Invest in new facilities.

■ Outcomes:

- Improved mission support
- Improved facility reliability
- New state-of-the-art facilities
- Reduced operating costs
- Reduced energy use
- Reduced transportation costs
- Leveraged lease facilities.



INL's Changing Landscape

The Idaho National Laboratory real estate landscape is changing. Many of the 332 buildings managed by Battelle Energy Alliance will be modernized, demolished or replaced with newer more modern facilities. A typical building is designed for a 40 year life. 122 of the 331 buildings are older than 40 years. As a result, the Laboratory established an aggressive modernization program. In 2008, nearly 150K square feet of new office and or laboratory space came on line. Additionally, since the inception of the contract in 2005, nearly 300K square feet has been taken off line. The whole intent of the modernization concept is to establish facilities with state-of-the-art equipment and capabilities that enable the advancement of science and can be used to attract and retain the best and brightest resources for the Laboratory.

Radiation Measurements Laboratory



Radioanalytical Chemistry Laboratory



Test Train Assembly Building



ATR Technical Support Building



Naval Reactors Facility

Advanced Test Reactor Complex

Central Facilities Area

Radioactive Waste Management Complex

Idaho Nuclear Technology and Engineering Center

Critical Infrastructure Test Range Complex Power Burst Facility

Test Area North

INL
Industrial and Research Complex

Materials and Fuels Complex

Research and Education Campus

Center for Advanced Energy Studies (CAES)



MFC Radiochemistry Laboratory



National & Homeland Security Buildings



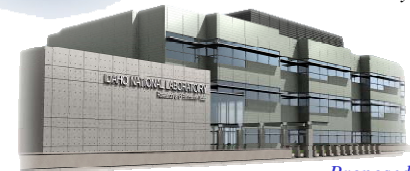
To Rexburg



Supply Chain Management Facility

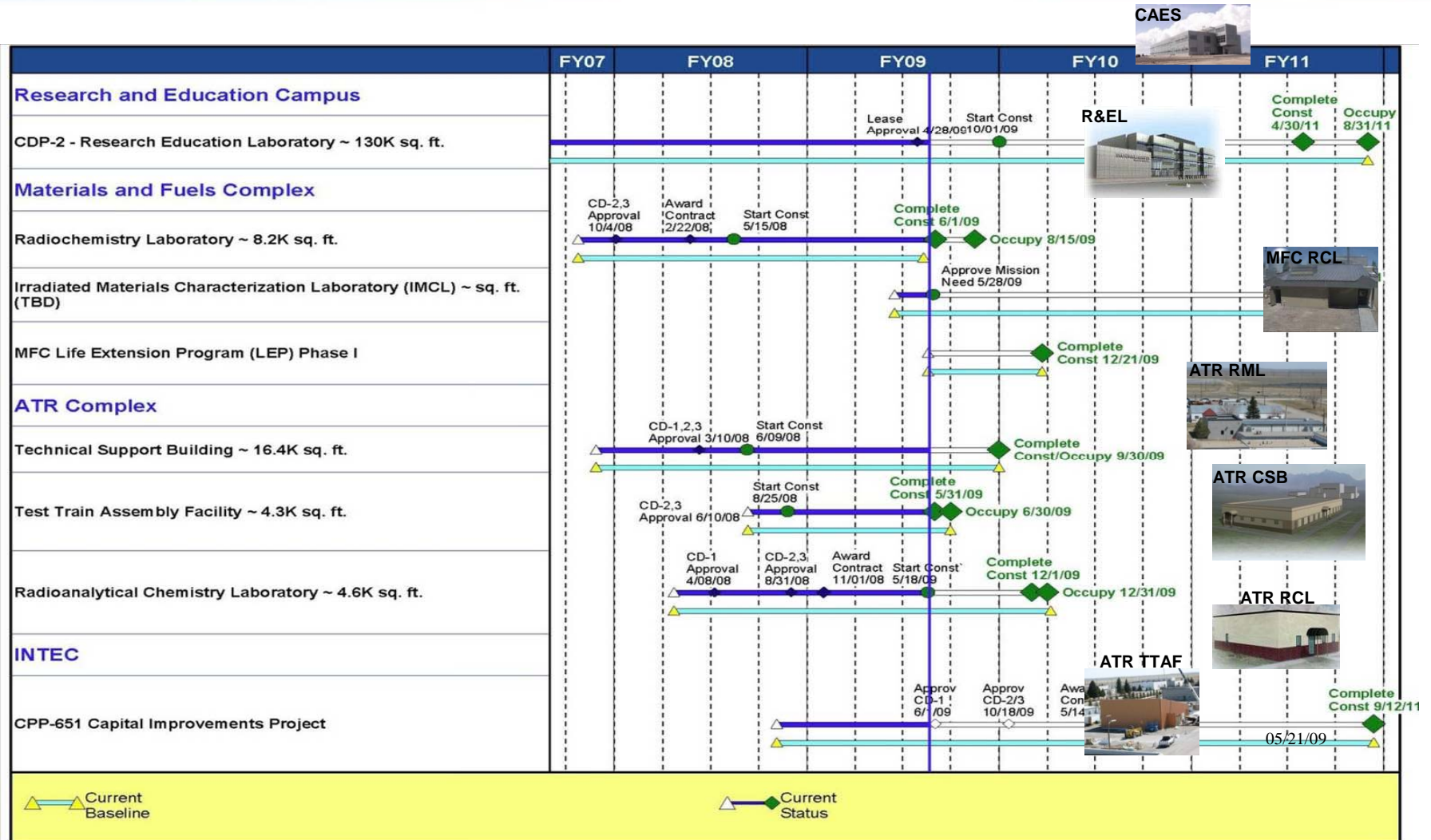


Research & Education Laboratory



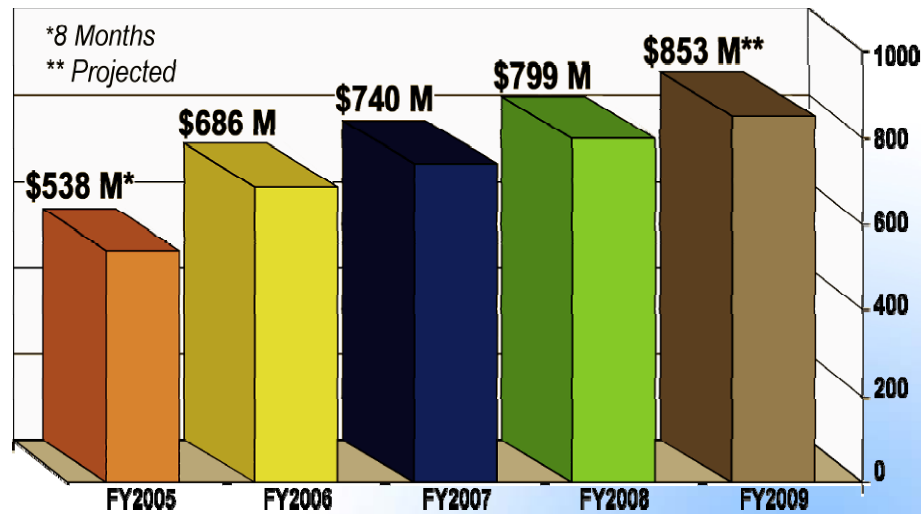
Proposed

Current Construction Projects



*(A) = Actual Status

How Are We Doing? — Business Growth

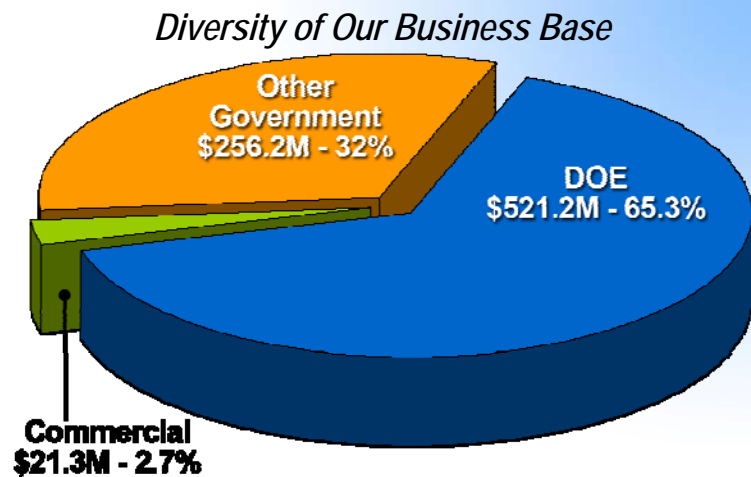


■ FY-2008 Business Volume of \$799M

- 8% growth from FY-2007

■ Procurement

- INL purchased more than \$122M worth of goods & services from Idaho large and small businesses in FY-2008



■ Employment

- INL is Eastern Idaho's largest employer



Idaho National Laboratory

The National Nuclear Laboratory