



NRC and the Nuclear Education Grant Program

Oak Ridge National Laboratory

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USNRC
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The NRC

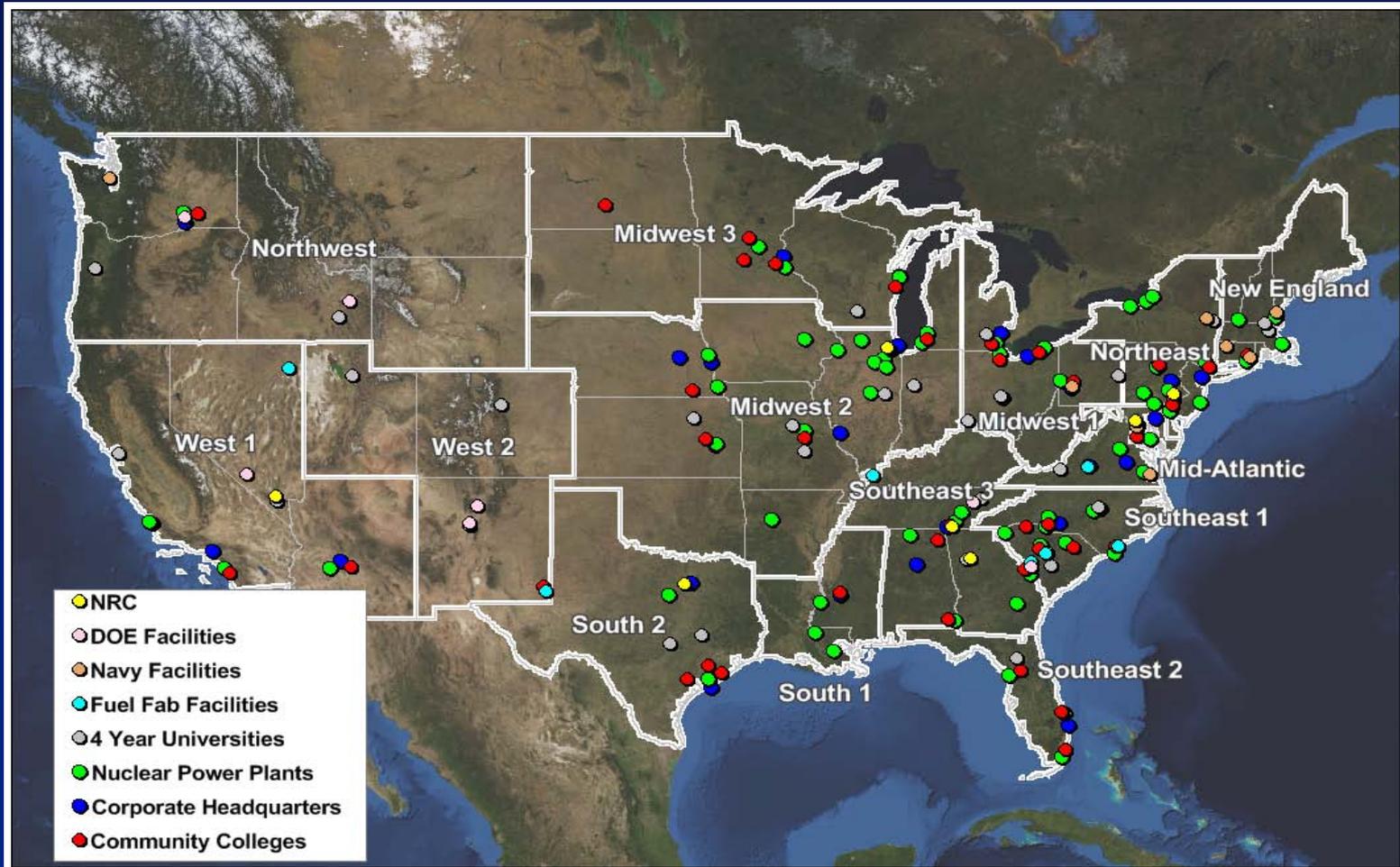
- **Established by the Energy Reorganization Act of 1974**
- **The Act separated the regulatory activities of the former Atomic Energy Commission from promotional activities now conducted by DOE**
- **Headed by five Commissioners appointed by the President to five-year terms, with one designated as Chairman**
- **Headquartered in Rockville (MD) with regional offices in King of Prussia (PA), Atlanta, Lisle (IL), and Arlington (TX)**

NRC Mission

“To regulate the nation’s civilian use of byproduct, source, and special nuclear materials to ensure adequate protection of public health and safety, to promote the common defense and security, and to protect the environment”

Nuclear Statistics

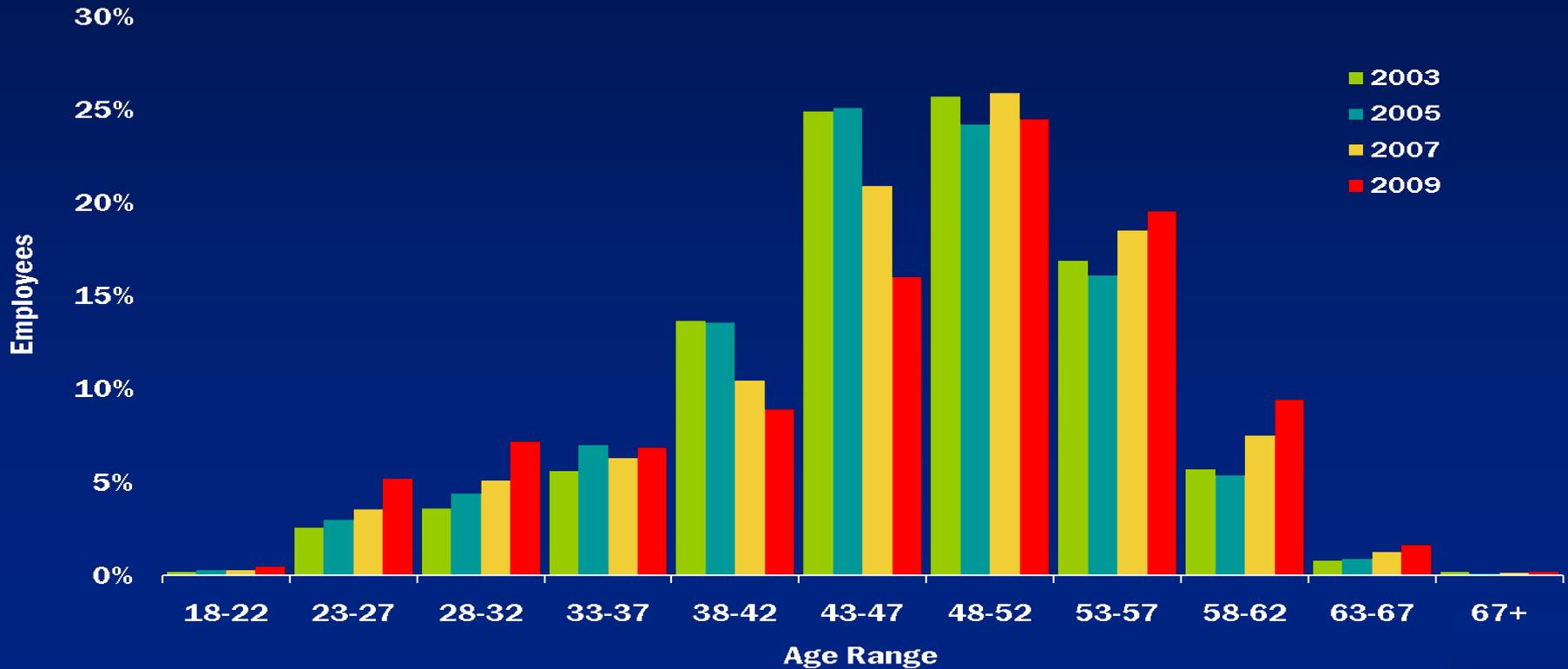
US Nuclear Infrastructure



Existing or Expected ESP / COL Applications in the U.S.

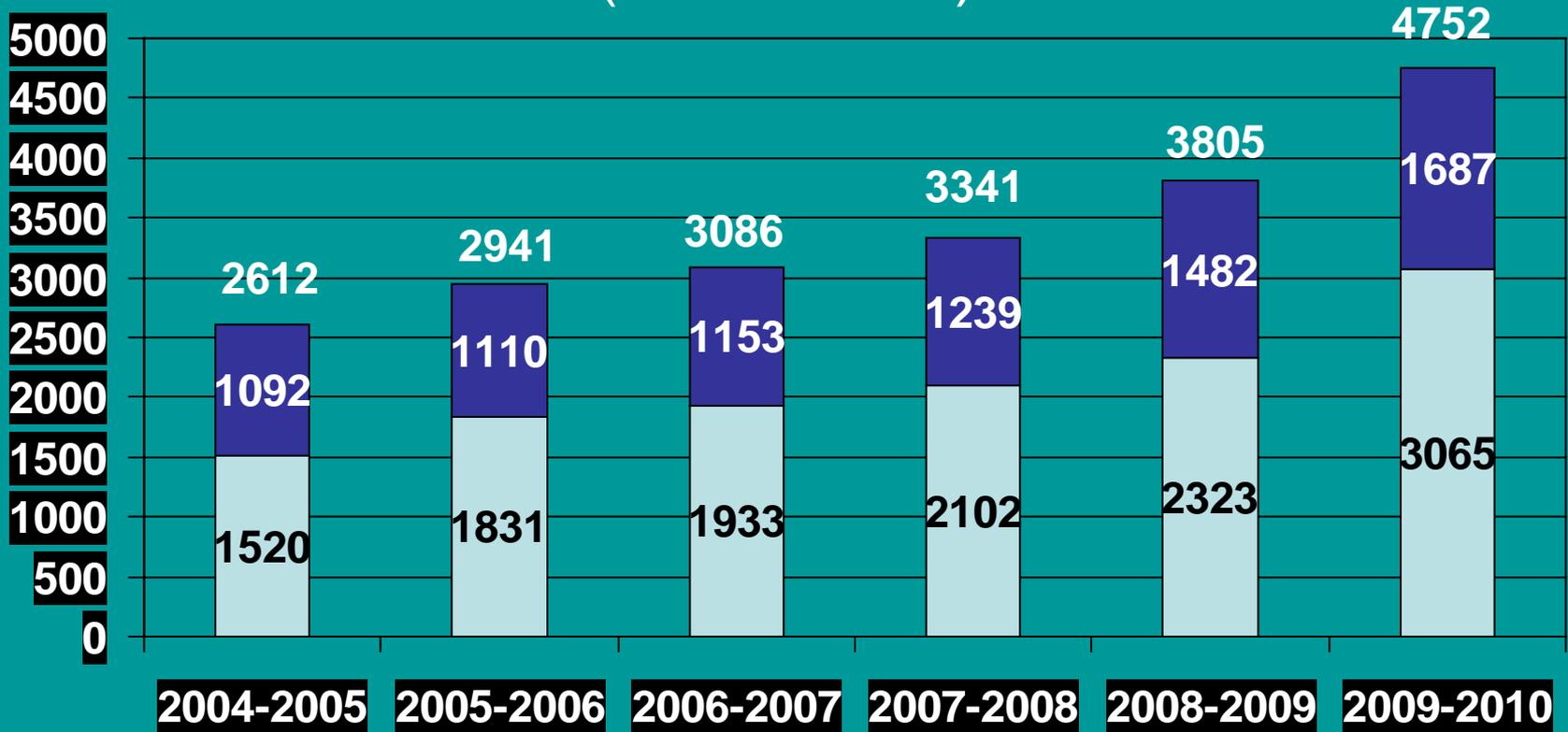
Reactor Type	Number
AP1000 (Westinghouse)	14
EPR (AREVA)	7
ABWR & ESBWR (GE)	8
USAPWR + TBA	2 + 2
Total	33 (22 applications)

Nuclear Industry Employment Distribution by Age



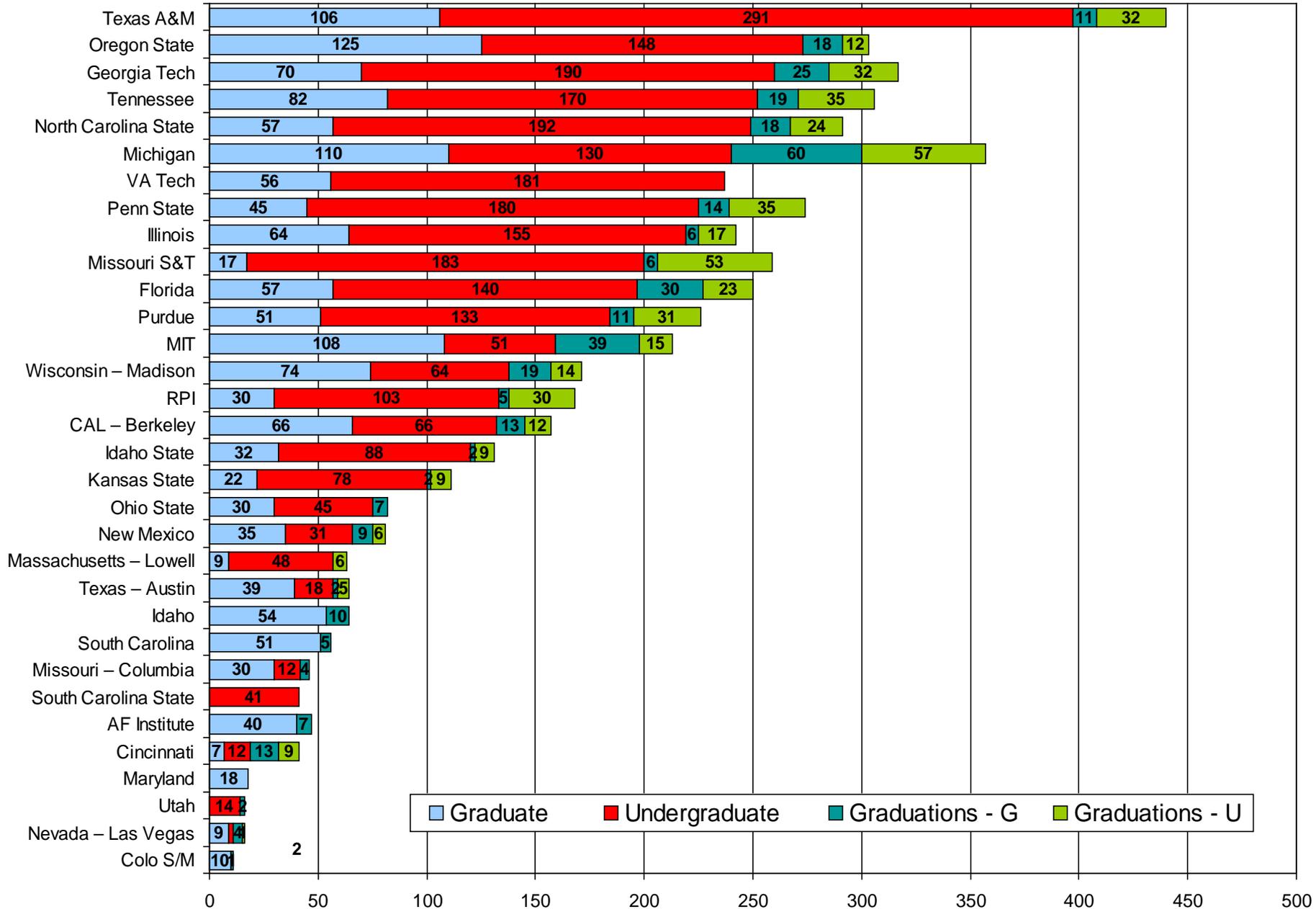
Source: 2009 NEI Pipeline Survey Preliminary Results, Contractors not included

NE Enrollment Trends (2004-2010)



Undergraduate
 Graduate

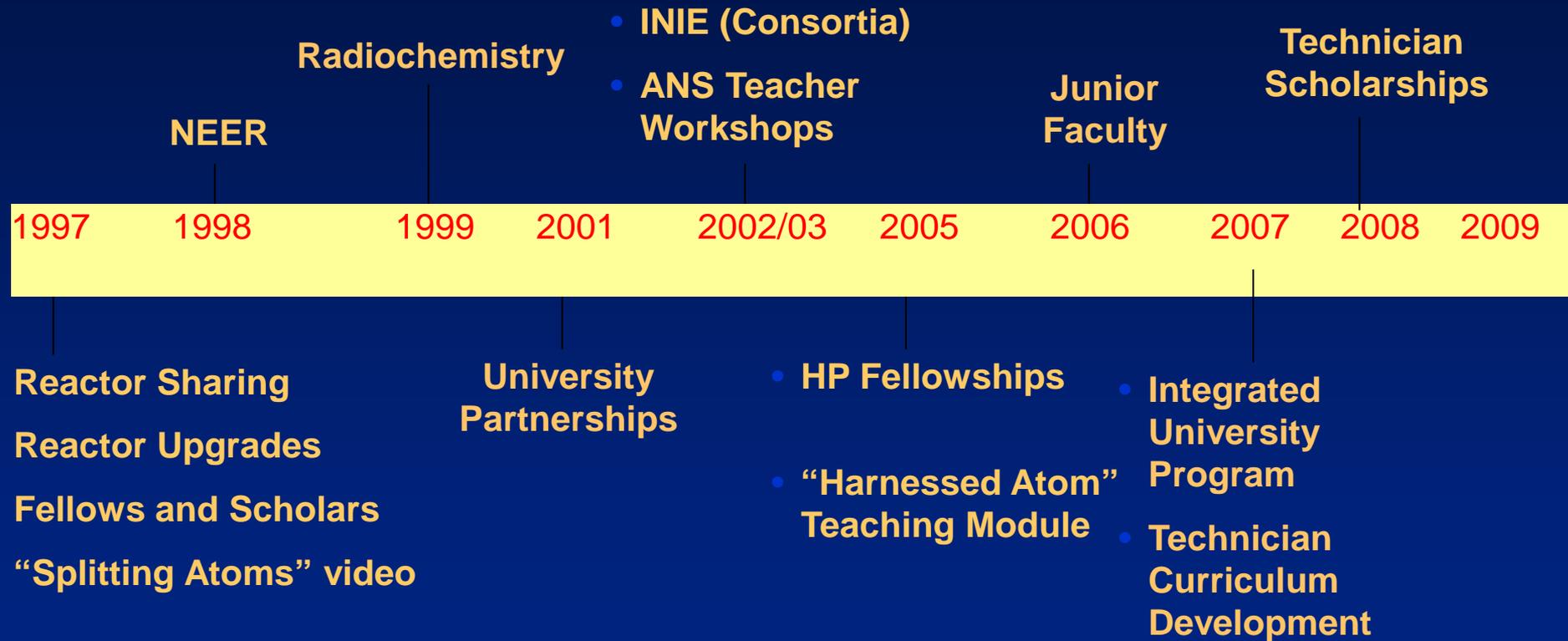
Nuclear Engineering Enrollments and Graduations - 2009-2010



A Brief History of University Nuclear Education

- **Over the past 30 years the U.S. has:**
 - **Seen a decline from approximately 66 university research reactors to just 24**
 - **Watched a student population in nuclear engineering go from 1800 to 600 to 4700 and counting**
 - **Witnessed a decline in university nuclear engineering programs from about 50 to fewer than 30 to a recent resurgence to about 35**
 - **Recorded measureable shifts in public perception/acceptance of nuclear energy**

Federal Support for Nuclear Education



Growth, Hiatus, Transfer, and Resumption

- **Late 1990's – 2006: DOE “University Programs” grow from \$3M to \$30M/year**
- **2007: DOE ends most support to nuclear engineering schools; NRC Curricula Program (\$5M) begins**
- **2008: Congress transfers some of former DOE program to NRC (\$15M)**
- **2009: DOE restarts its program to support universities**

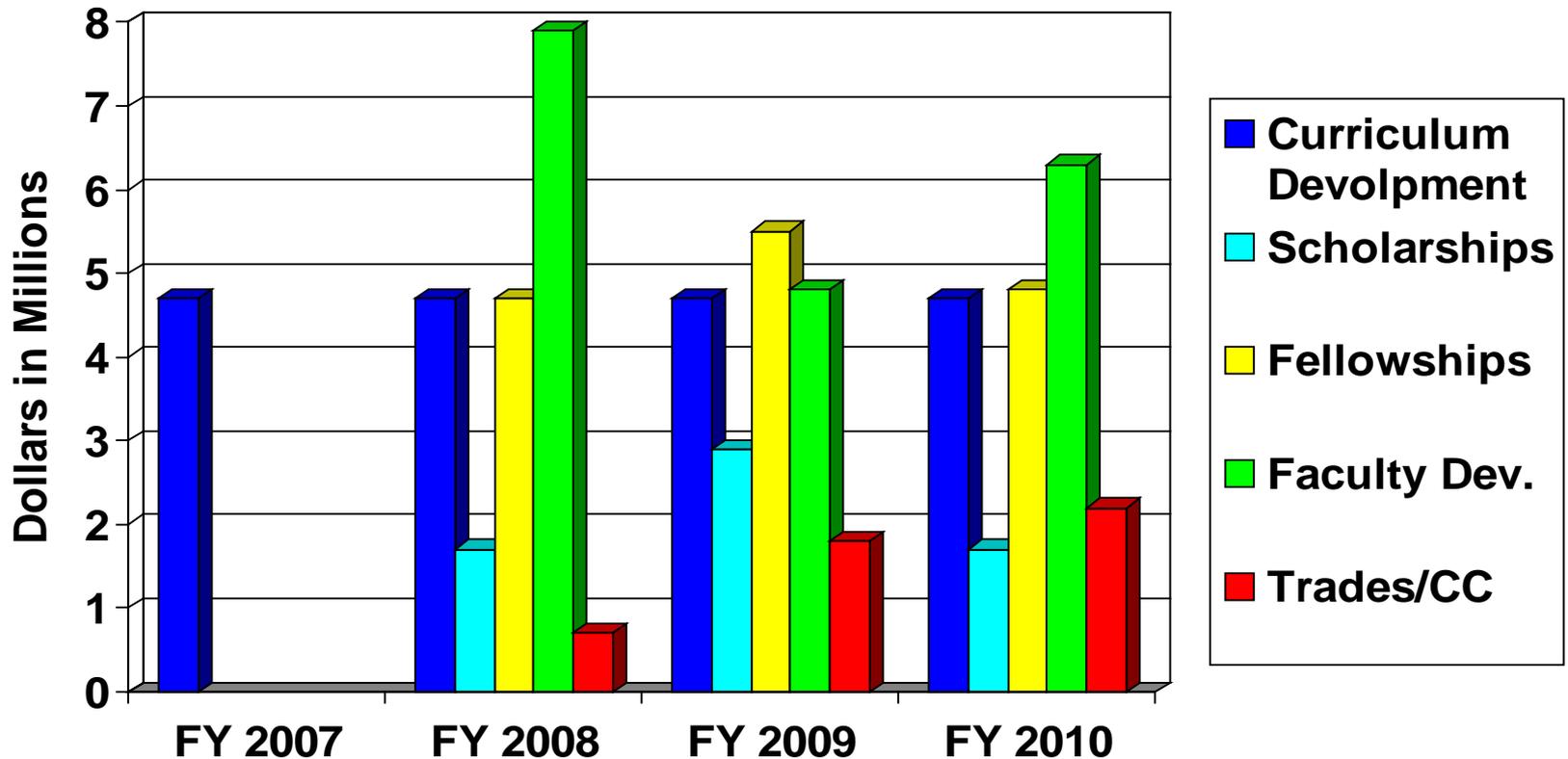
Program Overview

- **Two Education Grant Programs: \$5M & \$15M**
 - **Energy Policy Act of 2005 - \$5M**
Curricula Development
 - **FY 2008 Language - \$15M**
Scholarships, Fellowships, Faculty Development and Trade Schools
 - **Focus is on Nuc. Engr., HP, and Rad. Chem.**

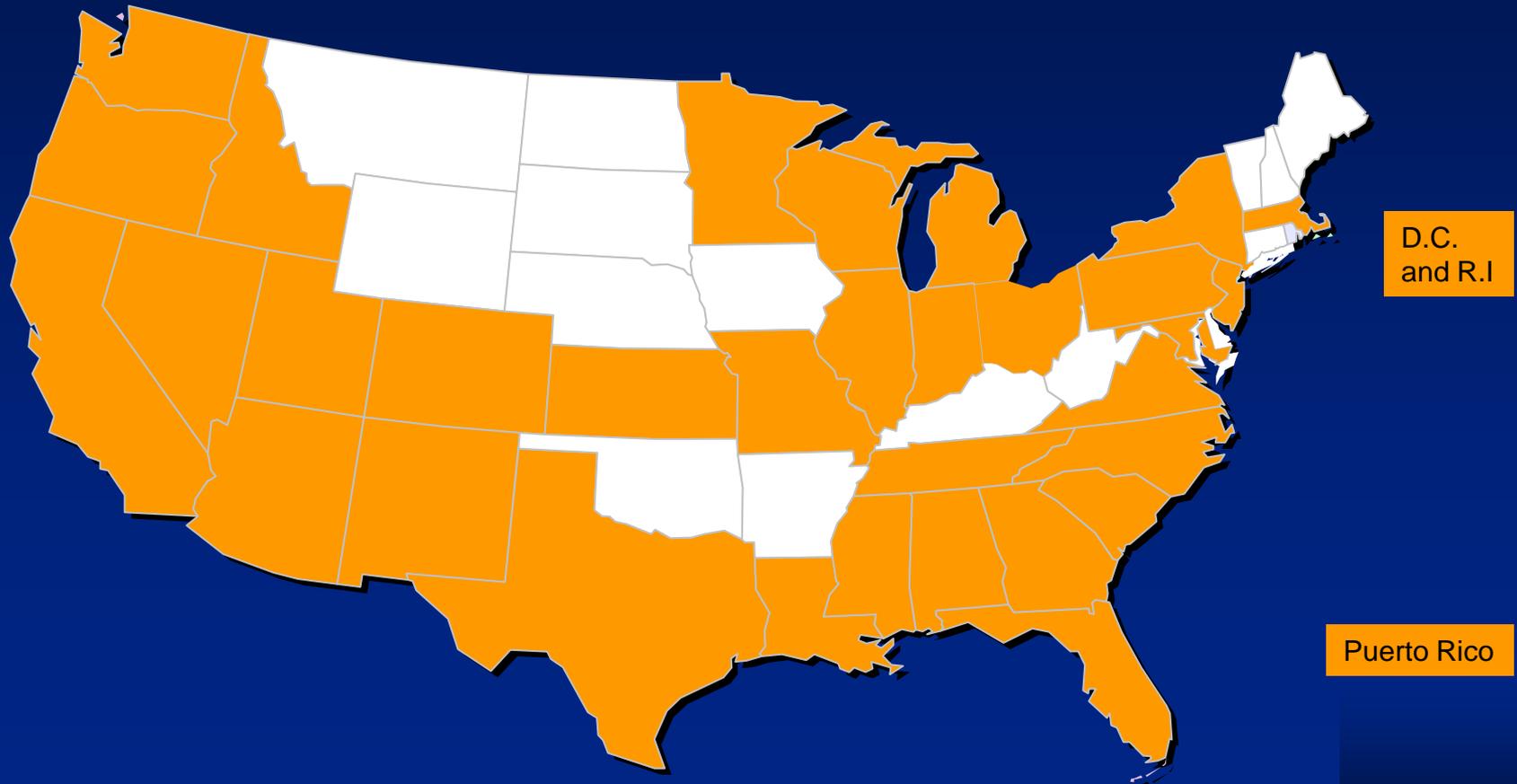
Current NRC Grant Programs (\$20M)

- Scholarships – 2 year, \$10,000 per student per year, awarded to institution (\$200,000)
- Fellowships – 4 year, \$50,000 per student per year, awarded to institution (\$400,000)
- Faculty Development – 3 year, \$150,000 per year plus institution match (\$450,000 + \$150,000)
- Trade schools/community colleges – 1 year, \$10,000 per student (\$150,000)
- Curriculum development - ~ \$200,000 over 2 years

Funding by Year/Grant Type



33 States, DC and Puerto Rico Have Received Grants



Education - Not Promotion

- **As a regulator, NRC's educational reach is more limited than other agencies, such as DOE**
- **Congress has provided NRC funding for workforce development but not physical infrastructure support – universities desire/need both**
- **NRC dilemma: Balance educational needs of the nuclear sector with regulatory mission**
- **At present, NRC alone cannot conduct an educational program that will satisfy all of the Nation's nuclear education infrastructure needs**

Examples of Other Education Areas that Require Support

- **University research reactors**
- **Internships for students – gov't, labs and industry**
- **Nuclear engineering/science research grants**
- **International – students and curriculum**
- **Pre-college outreach programs – i.e., DOE's "Harnessed Atom"**
- **Cooperative programs among universities, Federal agencies and private sector**
- **A nationwide survey to gauge the expected demand for nuclear trained workers (engineers, health physicists, radio-chemists, the trades, etc.), and the demographics of the current workforce**

What Can NRC Offer Students?

- **“Best place to work” in the Federal Government**
- **Scholarships and fellowships**
 - **\$10,000 to \$50,000 per year for up to four years**
- **Summer internships offered to grant recipients**
- **Enhanced employment opportunities at NRC**
- **Repayment of student loans**
- **Nuclear Safety Professional Development Program**

Observations

- **Success in nuclear education and training will, for the foreseeable future, depend upon continued government support**
- **Currently, the greatest near-term workforce needs are in the trade and craft areas**
- **Outreach to pre-college students is essential to enable students to make informed decisions about pursuing the study of nuclear technology**

Summary

- **NRC is a key player in nuclear workforce development and currently the sole player developing the vitally needed trades and crafts through two year institutions**
- **Structured outreach program is absent from NRC education program**
- **Within the funding made available, NRC and DOE are fulfilling the congressional mandate to build nuclear education infrastructure and train the future workforce**
- **Other government and non-government entities are making important contributions to workforce development**
- **Efforts to move nuclear education disciplines to other non-specialized federal agencies are counterproductive**

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“We cannot always build the future for our youth, but we can build our youth for the future.”

- Franklin D. Roosevelt