U.S. DEPARTMENT OF ENERGY | Nuclear Energy

Status of NE Research Programs

Sue Lesica
Office of Nuclear Energy
U.S. Department of Energy

July 31, 2013

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R&D Budgets

	FY 2013	FY 2014 Congressional Request	House Mark	Senate Mark
SMR Licensing Technical Support	**62,999**	**70,000**	**110,000**	**70,000**
Small Modular Reactor R&D	23,958	20,000	20,000	20,000
Next Generation Nuclear Plant	38,720	0	0	0
LWR Sustainability	24,218	21,500	21,500	21,500
Advanced Reactor Concepts	21,178	31,000	45,000	21,000
Reactor Concepts RD&D	**108,075**	**72,500**	**86,500**	**62,500**
Modeling and Simulation Hub	24,588	24,300	24,300	24,300
Crosscutting Technology Development	17,242	13,901	27,885	25,437
NEAMS	13,646	9,536		
National Scientific Users Facility	14,563	14,563	14,563	14,563
Nuclear Energy Enabling Technologies	**70,040**	**62,300**	**66,748**	**62,300**

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R&D Budgets

	FY 2013	FY 2014 Congressional Request	House Mark	Senate Mark
Separations and Waste Forms	38,628	35,300	91,081	58,000
Advanced Fuels	40,378	37,100		57,100
Systems Analysis and Integration	22,700	21,500		
MPACT	7,203	7,600		
Used Nuclear Fuel Disposition	59,218	60,000		60,000
Fuel Resources	6,679	3,600		
SNF Analysis	450	0	0	0
Fuel Cycle R&D	**175,241**	**165,100**	**91,081**	**175,100**

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Nuclear Energy Enabling Technologies

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FY12 NEET Awardees – Materials Development

PRIME Award Recipient	Principal Investigator	Supporting Organizations	Project Titles
University of Nebraska	Michael Nastasi	Massachusetts Institute of Technology, Texas A&M	Radiation tolerance and mechanical properties of advanced ceramic/metal composites
Oak Ridge National Laboratory	Lizhen Tan	University of Wisconsin-Madison	Accelerated Development of Zr-Containing New Generation FM Steels for Advanced Nuclear Reactors
Pacific Northwest National Laboratory	Chuck Henager	None	Nanocrystalline SiC and Ti3SiC2 Alloys for Reactor Materials
University of California-Davis	Niels Gronbech-Jensen	Los Alamos National Laboratory	Study of Intermetallic Nanostructures for Light-Water Reactor Materials
Los Alamos National Laboratory	Kester Clarke	Colorado School of Mines, National Energy Technology Laboratory, Northwestern University	Nanoscale Stable Precipitation-Strengthened Steels for Nuclear Reactor Applications
North Carolina State University	Ronald Scattergood	None	Nanostructured Fe-Cr Alloys for Advanced Nuclear Energy Application
Electric Power Research Institute	Ken Yueh	Massachusetts Institute of Technology, Oak Ridge National Laboratory, Global Nuclear Fuel, Tennessee Valley Authority, Idaho National Laboratory, AREVA	SiC-SiC Composite for Fuel Structure Applications
Oak Ridge National Laboratory	Calvin Duckworth	None	Radiation Resistant Electrical Insulation Materials for Nuclear Reactors
Brookhaven National Laboratory	Nikolaos Simos	Rutgers University	Radiation-induced ductility enhancement in amorphous Fe and Al2O3+TiO2 nano-structured coatings in fast neutron

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FY 13 Solicitation ($6M)

- Released December 10, 2012
- Focused on research in advanced characterization and sample fabrication techniques
- Awards are expected to be announced in September

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Out-year solicitations

FY 2014

- Current plan to release solicitation this fall.
- Research focus area – possibly nanomaterials; possibly joining and fabrication

FY15

- Research focus area will be advanced materials development
  - New ideas
  - Continuation of FY12 awards

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Innovative idea development is intended to follow a SBIR approach

2012 2013 2014 2015 2016

Great idea 2012-1
Great idea 2012-2
Great idea 2012-3

Great idea 2012-1
Great idea 2012-3

Great idea 2013-1
Great idea 2013-2
Great idea 2013-3

Great idea 2013-2 transferred to SFR!

Great idea 2014-1
Great idea 2014-2

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