Nuclear Energy Enabling Technologies (NEET) Reactor Materials

Award Recipient	Estimated Award Amount*	Award Location	Supporting Organizations	Project Description
University of Nebraska	$979,978	Lincoln, NE	Massachusetts Institute of Technology (Cambridge, MA), Texas A&M (College Station, TX)	Project will explore the development of advanced metal/ceramic composites. These improvements could lead to more efficient production of electricity in advanced reactors.
Oak Ridge National Laboratory	$849,000	Oak Ridge, TN	University of Wisconsin-Madison (Madison, WI)	Project will develop novel high-temperature high-strength steels with the help of computational modeling, which could lead to increased efficiency in advanced reactors.
Pacific Northwest National Laboratory	$977,577	Richland, WA	None	Project will develop a new high-temperature structural material that can be used in advanced reactors as an accident tolerant replacement for zircaloy cladding, among other alternative uses, which could extend fuel lifetimes – decreasing the cost of electricity production in both nuclear reactors.
University of California - Davis	$749,940	Davis, CA	Los Alamos National Laboratory (Los Alamos, NM)	Project will develop an understanding of the microscopic mechanisms underlying the radiation tolerance of tool steels, which could improve the performance and efficiency of light water reactors.
Los Alamos National Laboratory	$880,000	Los Alamos, NM	Colorado School of Mines (Golden, CO), National Energy Technology Laboratory (Albany, OR), Northwestern University (Evanston, IL)	Project will explore and develop nanoscale stable precipitation-strengthened steels that are manufacturable and joinable for structural applications in nuclear reactors, which could lead to increased efficiency in the production of electricity in advanced reactors.
North Carolina State University	$788,156	Raleigh, NC	None	Project will develop new nanocrystalline Fe-Cr alloys that have exceptional resistance to irradiation damage, which could allow for

				increased efficiency in the production of electricity in advanced reactors.
Electric Power Research Institute	$800,000	Palo Alto, CA	Massachusetts Institute of Technology (Cambridge, MA), Oak Ridge National Laboratory (Oak Ridge, TN), Global Nuclear Fuel (Wilmington, NC), Tennessee Valley Authority (Chattanooga, TN), Idaho National Laboratory (Idaho Falls, ID), AREVA (Lynchburg, VA)	Project will develop the necessary technical data to support the demonstration of using SiC-SiC composite material in fuel structure applications. The strength and long lifetimes of these composites will decrease costs and increase the efficiency of both light water reactors and advanced reactors.
Oak Ridge National Laboratory	$940,000	Oak Ridge, TN	None	Project will initiate the development of a transformative materials system to increase the radiation and thermal resistance and high voltage performance of electrical insulating materials, which could increase the lifetimes of wiring and cables used in nuclear reactors, decreasing costs and increasing performance.
Brookhaven National Laboratory	$990,000	Upton, NY	Rutgers University (Piscataway, NJ)	Project will evaluate the effects of radiation on specific materials under extreme temperatures, which could increase efficiency in the production of electricity in advanced reactors.

Nuclear Energy Enabling Technologies (NEET) Advanced Methods for Manufacturing

Award Recipient	Estimated Award Amount	Award Location	Supporting Organizations (Locations)	Project Description
Purdue University	$792,572	West Lafayette, IN	Westinghouse (Cranberry Township, PA)	Project will develop Steel-plate Composite wall connection strategies, and evaluate their behavior, fabrication efficiency, and construction economy for use in Small Modular Reactors, which could speed the deployment of that technology.

Electric Power Research Institute	$800,000	Charlotte, NC	Carpenter Technology (Wyomissing, PA), General Electric-Hitachi (Wilmington, NC), The Ohio State University (Columbus, OH)	Project will study if powder metallurgy/hot isostatic processing can be used to produce very large near-net shaped components with erosion/corrosion resistant surfaces, which could lead to significant advancements in a new sustainable manufacturing methodology for large components employed in advanced nuclear power plants.
Lockheed Martin	$640,226	Palo Alto, CA	Quad City Manufacturing Lab (Rock Island, IL)	Project will use Laser Direct Manufacturing (LDM) to manufacture nuclear power generation components that demonstrate accelerated schedule for deployment, reduction in manufacturing costs while incorporating improved resistance to nuclear radiation over standard state of the art components.
Idaho National Laboratory	$800,000	Idaho Falls, ID	Edison Welding Institute (Columbus, OH), Nuclear Fabrication Center (Columbus, OH), Electric Power Research Institute (Charlotte, NC)	Project will develop and demonstrate a prototype system to monitor and provide real-time weld process control information, which could lead to a more efficient fabrication process.

***Actual project funding will be established during the negotiation phase of the cooperative agreement.**