

(dollars in thousands)

FY 2002	FY 2003	FY 2004
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The research underpins many technological areas, such as batteries and fuel cells, catalysis, friction and lubrication, membranes, electronics, and environmental chemistry. New techniques for fabrication of nanocrystals, such as a unique inverse micellar process, make possible the efficient elimination of dangerous chlorinated organic and phenolic pollutants (e.g., PCPs). Research on solid electrolytes has led to very thin rechargeable batteries that can be recharged many more times than existing commercial cells. Research on chemical vapor deposition (CVD) continues to impact the electronics industry. The development of synthetic membranes using biological synthesis may yield materials for separations and energy storage, and research on polymers may lead to light-weight structural materials which can be used in automobiles and thereby providing substantial savings in energy efficiency.

In FY 2004, work will continue on the systematic and parallel patterning of matter on the nanometer scale. There are many powerful approaches to patterning on the nanoscale that are fundamentally serial in nature, for instance, atom manipulation using scanning probe tips or electron beam lithography. The research in this activity will focus on methods to prepare macroscopic quantities of nanoscale components in complex, designed patterns, using techniques of self assembly.

Capital equipment is provided for such items as chambers to synthesize and grow new materials, nuclear magnetic resonance and electron spin resonance spectrometers, lasers, neutron reflectometers, x-ray beamlines, and atomic force microscopes.

▪ **Experimental Program to Stimulate Competitive Research 7,679 7,685 7,673**

This activity supports basic research spanning the complete range of activities within the Department in states that have historically received relatively less Federal research funding. The EPSCoR states are Alabama, Alaska, Arkansas, Hawaii, Idaho, Kansas, Kentucky, Louisiana, Maine, Mississippi, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oklahoma, South Carolina, South Dakota, Vermont, West Virginia, and Wyoming, and the Commonwealth of Puerto Rico. The work supported by the EPSCoR program includes research in materials sciences, chemical sciences, biological and environmental sciences, high energy and nuclear physics, fusion energy sciences, fossil energy sciences, and energy efficiency and renewable energy sciences. The following table shows EPSCoR distribution of funds by state.

EPSCoR Distribution of Funds by State

(dollars in thousands)

	FY 2002	FY 2003 Estimate	FY 2004 Estimate
Alabama	814	375	815
Alaska ^a	0	0	0
Arkansas	205	65	140
Hawaii ^b	0	0	0
Idaho	0	60	0
Kansas	802	615	560
Kentucky	611	471	355
Louisiana	130	130	0
Maine	0	0	0
Mississippi	589	535	535
Montana	580	465	515
Nebraska	475	300	300
Nevada	543	325	250
New Mexico ^b	0	0	0
North Dakota	0	55	0
Oklahoma	204	65	140
Puerto Rico	435	435	375
South Carolina	558	120	140
South Dakota	0	0	0
Vermont	857	585	857
West Virginia	794	525	360
Wyoming	31	65	0
Technical Support	51	400	100
Other	0	2,094 ^c	2,231 ^c
Total	7,679	7,685	7,673

^a Alaska became eligible for funding in FY 2001.

^b Hawaii and New Mexico became eligible for funding in FY 2002.

^c Uncommitted funds in FY 2003 and FY 2004 will be competed among all EPSCoR states.