

# EPSCoR Funding Impact in Oklahoma

## Science and Engineering

- EPSCoR researchers are developing nanostructure-based electrically conducting polymers for applications as chemical and biological sensors, including a nanotechnology-based infrared laser technique used in sensitive diagnosis of medical disease.
- EPSCoR scientists are studying the genes of biomass plants, such as switchgrass, a native 'big mass' grass in Oklahoma, to improve their growth and increase their resistance to disease and extreme weather conditions.
- EPSCoR played an instrumental role in promoting weather related research in Oklahoma, which has resulted in the permanent home of the National Weather Center in Norman, OK.



## Energy

- EPSCoR scientists and engineers are improving the conversion of popular grasses in Oklahoma into usable biofuels. Oklahoma has the potential to be the leading state in the conversion of cellulosic biomass to ethanol and hydrocarbon fuels.
- EPSCoR researchers have developed new processes based on specialized nanoparticle technology developed in Oklahoma used to accelerate reactions at the interface of water and oil; among the applications are conversion of biomass in the refinery process or in enhanced oil recovery processes.

## Workforce Development

- EPSCoR is increasing the number of highly trained MS and PhD graduates in Math, Science, and Engineering.
- Development of biorefineries resulting from bioenergy research has the potential of producing 50-million gallons of biofuels per year while creating up to 270 jobs.
- An estimated 1,221 K-12 students, 111 K-12 teachers, 1,621 university students, 463 university faculty members, 59 business and industry representatives, 91 national and state government staff members and 50 technology center employees were served directly through EPSCoR outreach programs in the past year.

## Commercialization

- EPSCoR research has underpinned the establishment of a nanotechnology industry in Oklahoma. Private sector nanotechnology R&D in Oklahoma has grown to more than 20 companies.
- Research initiated by EPSCoR funding resulted in the development and patenting of a radiation dosimeter which is now used in hospitals and nuclear facilities worldwide and established an affiliate company for Landauer, Inc. in Stillwater, OK.
- EPSCoR researchers are studying the characteristics of lightning discharges and the storms that produce them to improve the timeliness and reliability of lightning hazard warning decisions; researchers collaborated with Campbell Scientific in the establishment of a field-meter network of detectors which report data to a central station for the protection of the public and industry.
- EPSCoR researchers are developing advanced composite materials solutions for enhanced long-term durability in terrestrial and space environments; technology transferred resulted in a joint venture between Blue Energy Fuels and Tulsa Gas Technologies to manufacture and market natural gas storage and composite pressure vessel and composite over-wrapped pressure vessels delivery systems.
- Working with i2E, Inc., a private not-for-profit corporation focused on growing technology-based companies in Oklahoma, EPSCoR provided commercialization vouchers to future entrepreneurs in Oklahoma which has resulted in 119 technologies assessed and 17 new start-up companies.

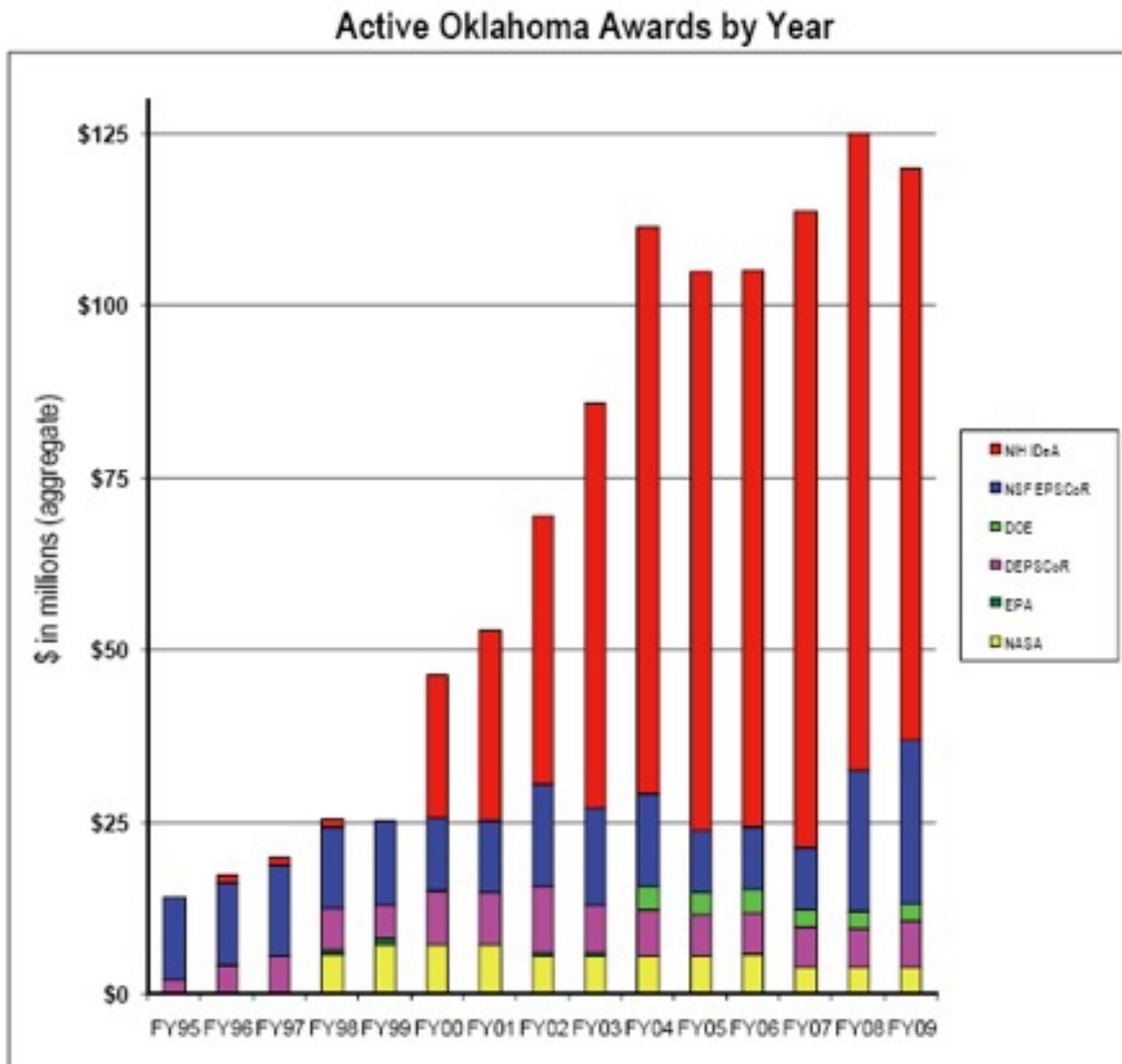


## Cyberinfrastructure

- An RII C2 award has established the Oklahoma Optical Initiative which will provide substantial increases in connectivity rates for many research institutions in our state and will transform Oklahoma’s existing research ring from routed to optical.
- EPSCoR researchers are developing cyberinfrastructure tools that will create an opportunity for knowledge discovery and education across complex environmental phenomena. The scientific focus is on grassland ecology in the central plains, which is second only to the arctic tundra in sequestering carbon below ground.

Funding

**Current Active Oklahoma EPSCoR/IDEA Awards**



<b>Program</b>	<b>Award</b>	<b>Amount</b>	<b>Type of Award</b>	
NSF	EPSCoR	\$24.97 million	Research Infrastructure	(3 awards)
NIH	IDeA	\$19.6 million	INBRE	(1 award)
NIH	IDeA	\$63.5 million	COBRE	(6 awards)
DoD	DEPSCoR	\$6.8 million	Applied Research	(9 awards)
DOE	DOE EPSCoR	\$5.4 million	Implementation Grant	(2 awards)
NASA	EPSCoR	\$3.8 million	Research Infrastructure	(3 awards)