

SCIENCE



ENVIRONMENT



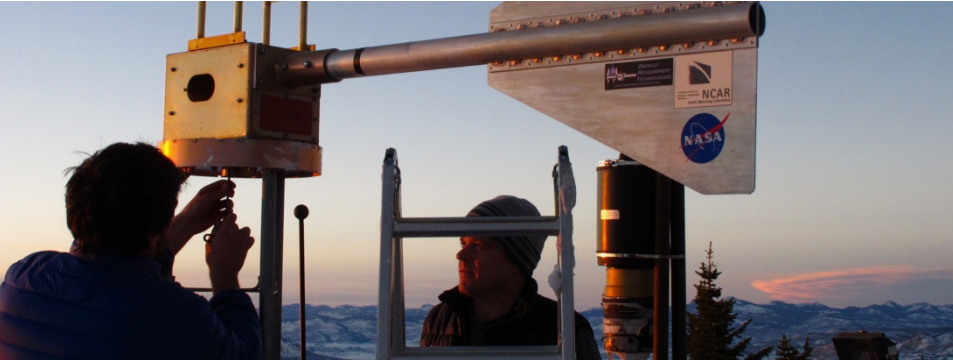
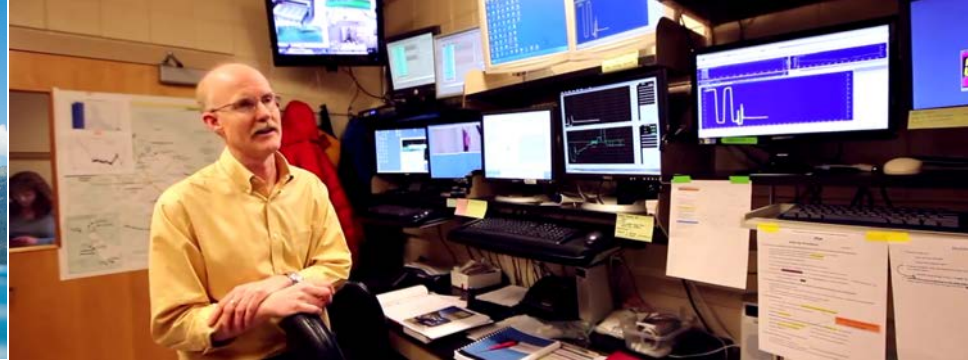
SOLUTIONS



Performance Metrics & Assessment Desert Research Institute

Presentation to the NSHE Board of Regents - March 2016

- Introduction
- Revenue Sources and Trends
- Other Key Research Output Metrics
- DRI's National Ranking
- DRI's Efficiencies and Effectiveness
- DRI Faculty Profile
- Higher Education and STEM Impact
- Fundraising
- Trends and Future Needs



Applying scientific understanding to the effective management of natural resources while meeting Nevada's needs for economic diversification and science-based educational opportunities.

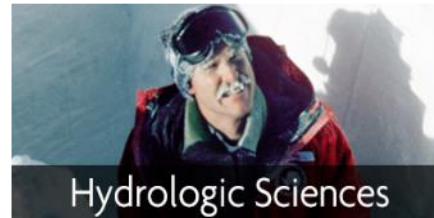
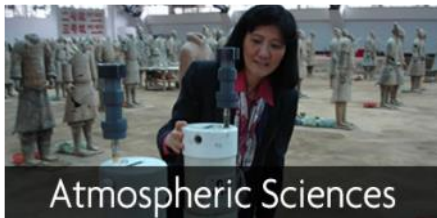


Since 1959, DRI has stood at the forefront of understanding Earth's complex environmental systems; promoting preservation of diverse ecosystems, responsible natural resource management, and improving human health and welfare throughout Nevada and the world.

Institutional Snapshot 2016

Approximately 10% of DRI employees receive some state appropriation funding for salaries

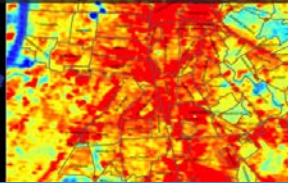
- Over **500** highly-skilled scientists, engineers, students and staff
- **60** specialized labs and unique facilities in Reno & Las Vegas
- **\$31M** in external grants and contracts annually
- Of which ~**150** have Ph.D.'s in more than **40** disciplines
- Over **400** research projects on every continent
- **\$1.6M+** invested in graduate student education annually



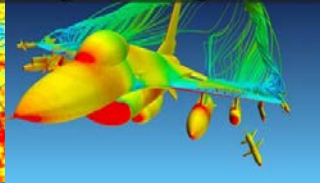
DRI's Revenue Sources, Trends and Operations



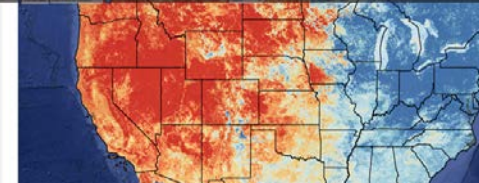
IoT and Remote Sensing



Engineering and Design

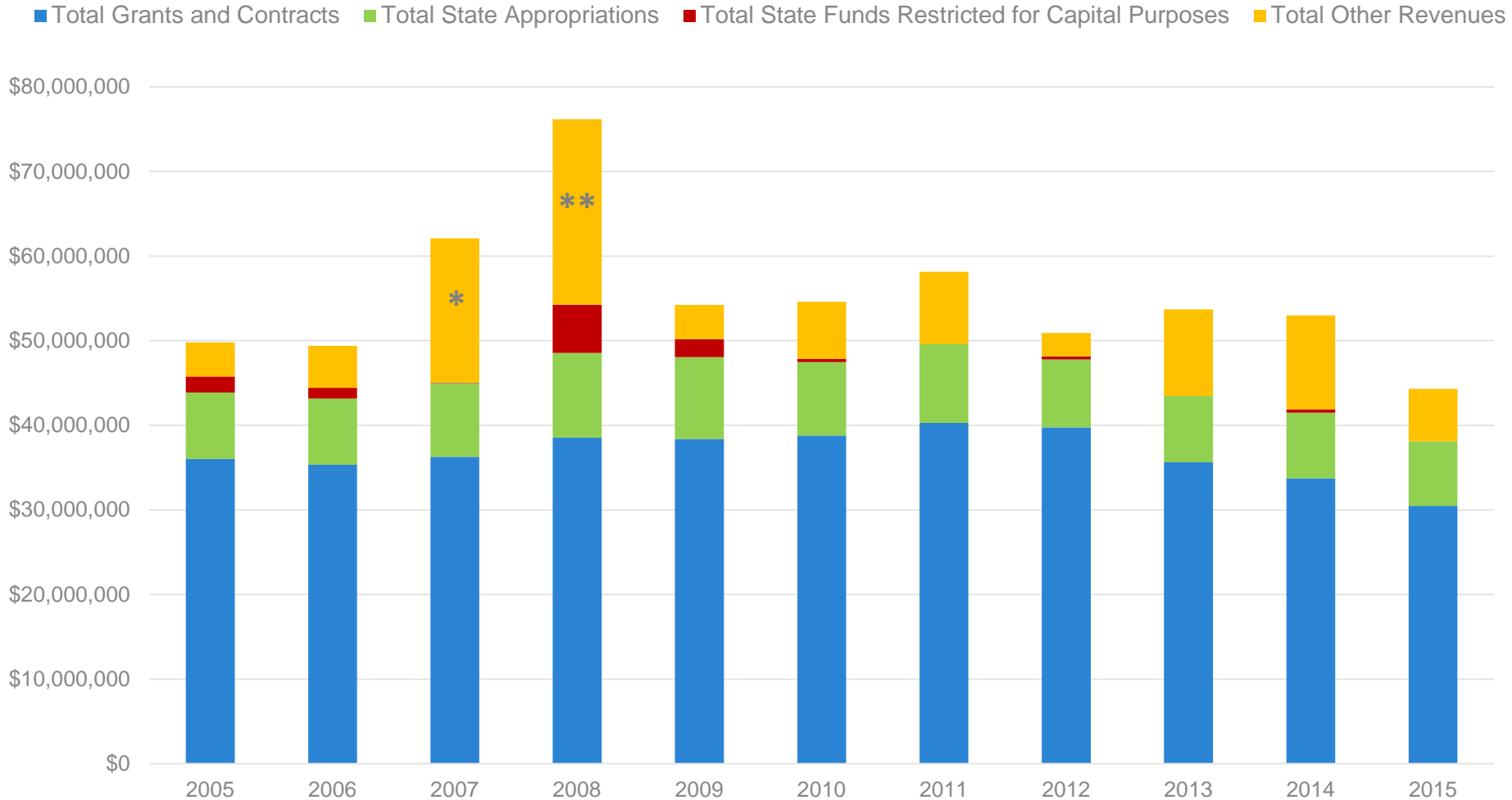


Climate, Weather and Energy



DRI's Revenue Trends

Total revenue over past 10 years by source



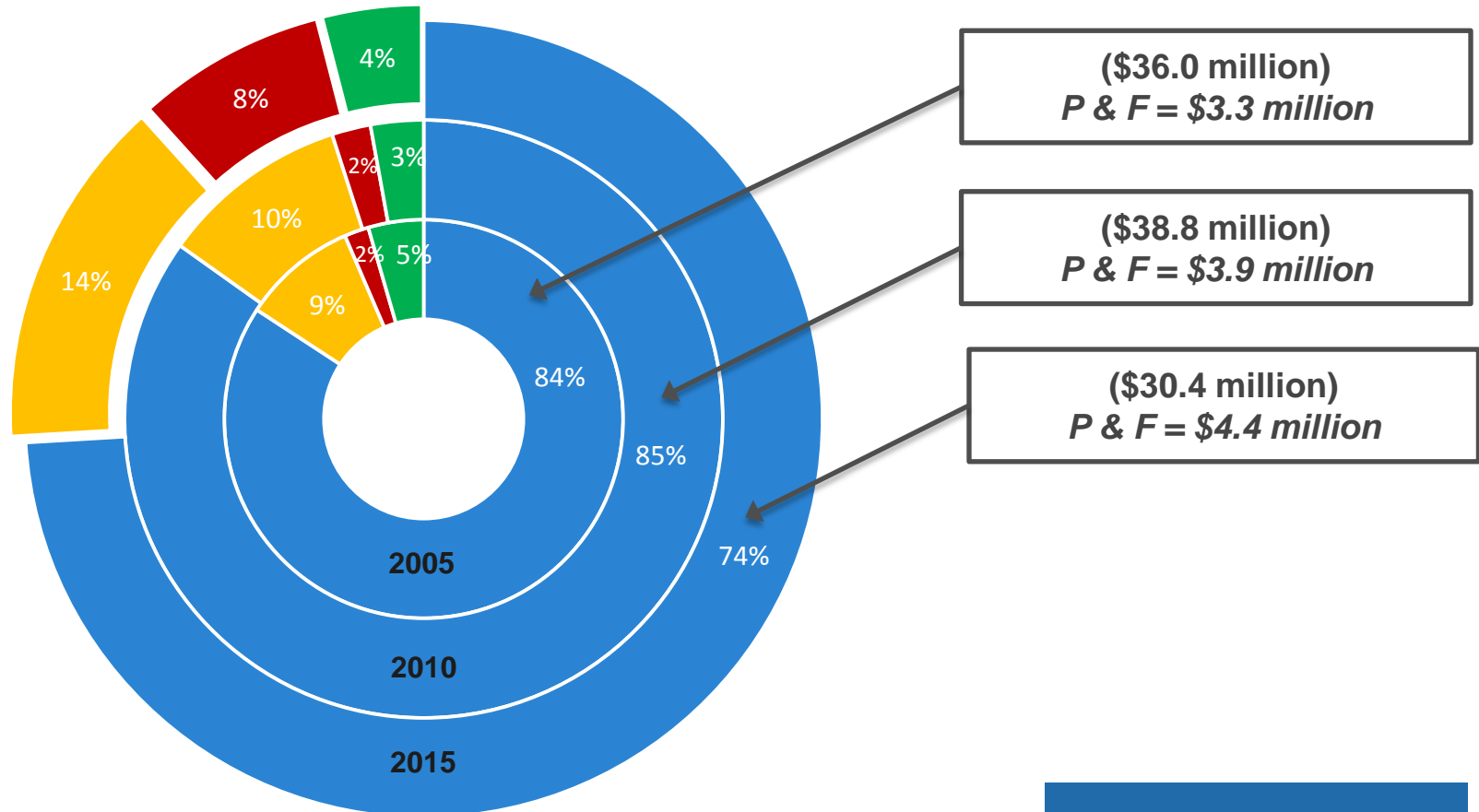
* Investment Transfer from System Office

**Maki Endowment (restricted)

DRI's Contract & Grants Revenues

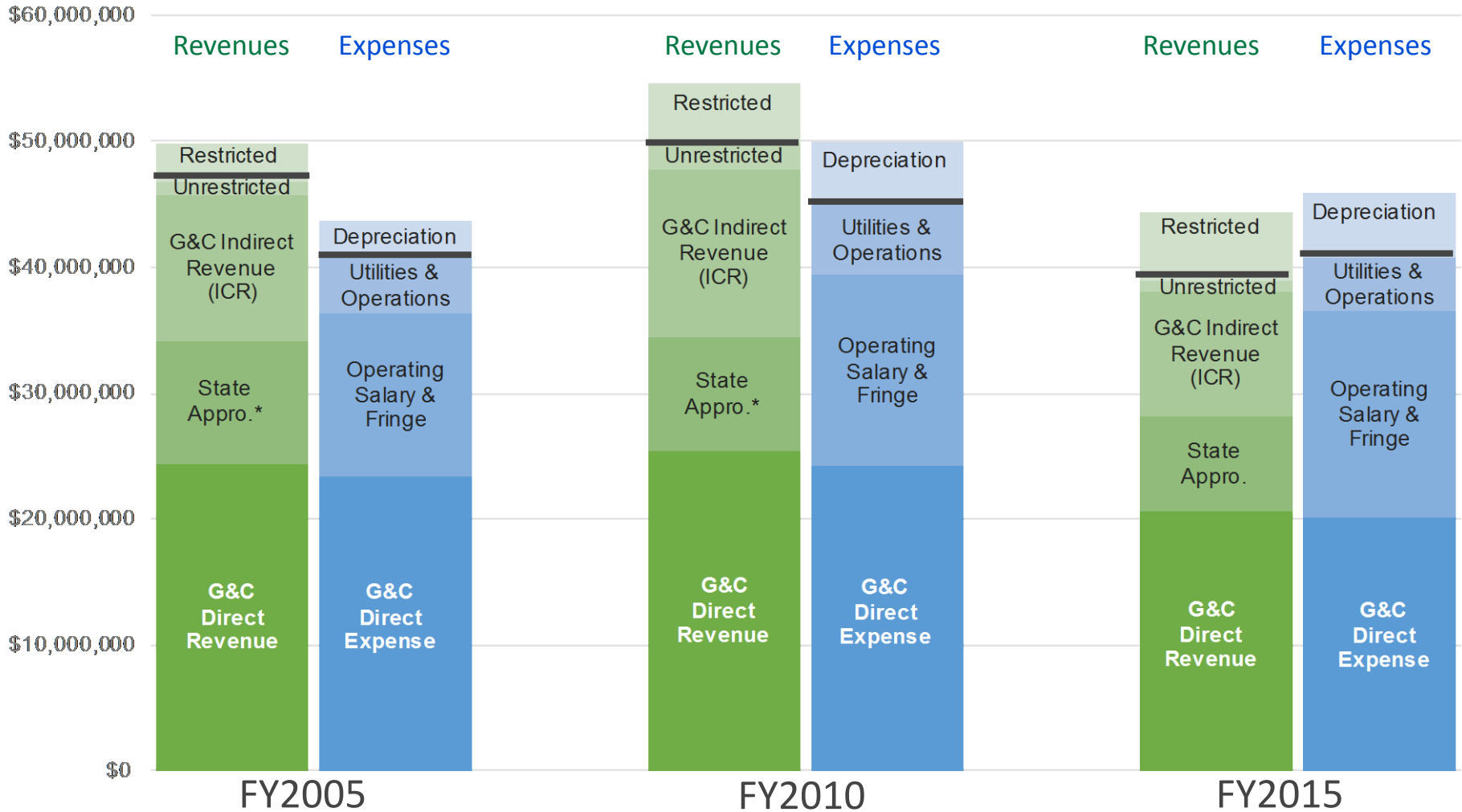
Grants and Contracts Revenues by Source

- Federal
Grants &
Contracts
- Private and Foreign
Grants & Contracts
- State and Local
Grants & Contracts
- Other State Government
Grants & Contracts



DRI's Revenues and Expenses

How DRI Operates



* State Appropriations for FY2005 and FY2010 includes funds restricted for capital purposes of \$1,906,000 and \$383,000 respectively.

Indirect Cost Recovery (ICR) Trend

	FY2005	FY2010	FY2015
Proposed Indirect Cost Rate	76.1%	80.2%	71.8%
Approved Indirect Cost Rate	69.0%	71.0%	66.5%
Effective Indirect Cost Rate	51.0%	63.1%	56.9%

Examples of what does ICR pay for?

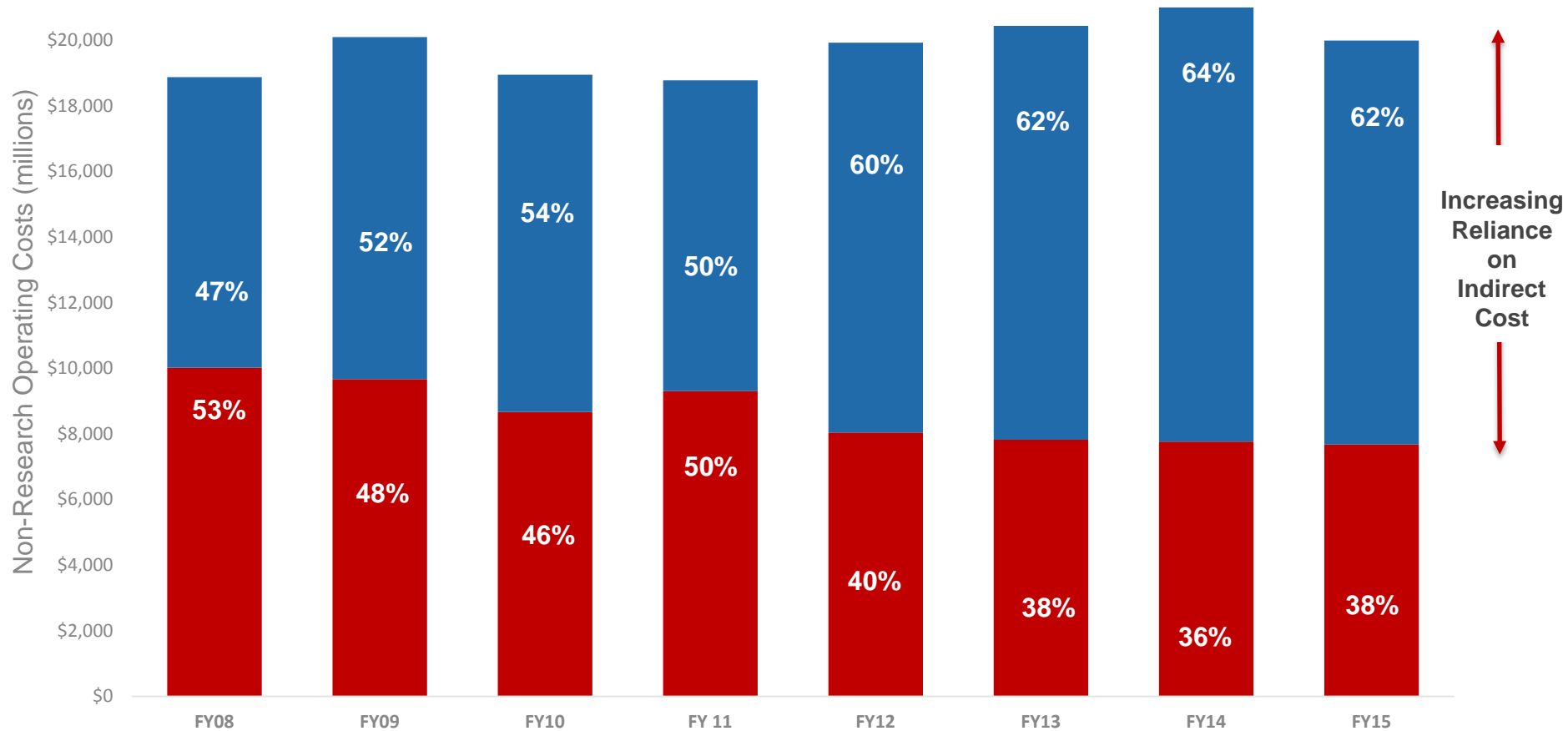
- Academic affairs and library services
- Faculty Senate, faculty sabbaticals
- Post doctoral support
- New faculty support
- O&M not supported by the State

**DRI TOTAL
OPERATING
COSTS & STATE
SUPPORT LEVELS**

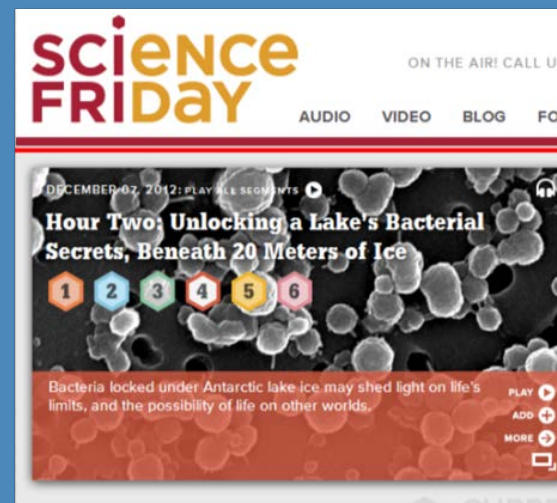
Trends in State Appropriations for Institutional Operations, FY08 to FY15

■ State Operating Support Portion ■ DRI Funded Portion

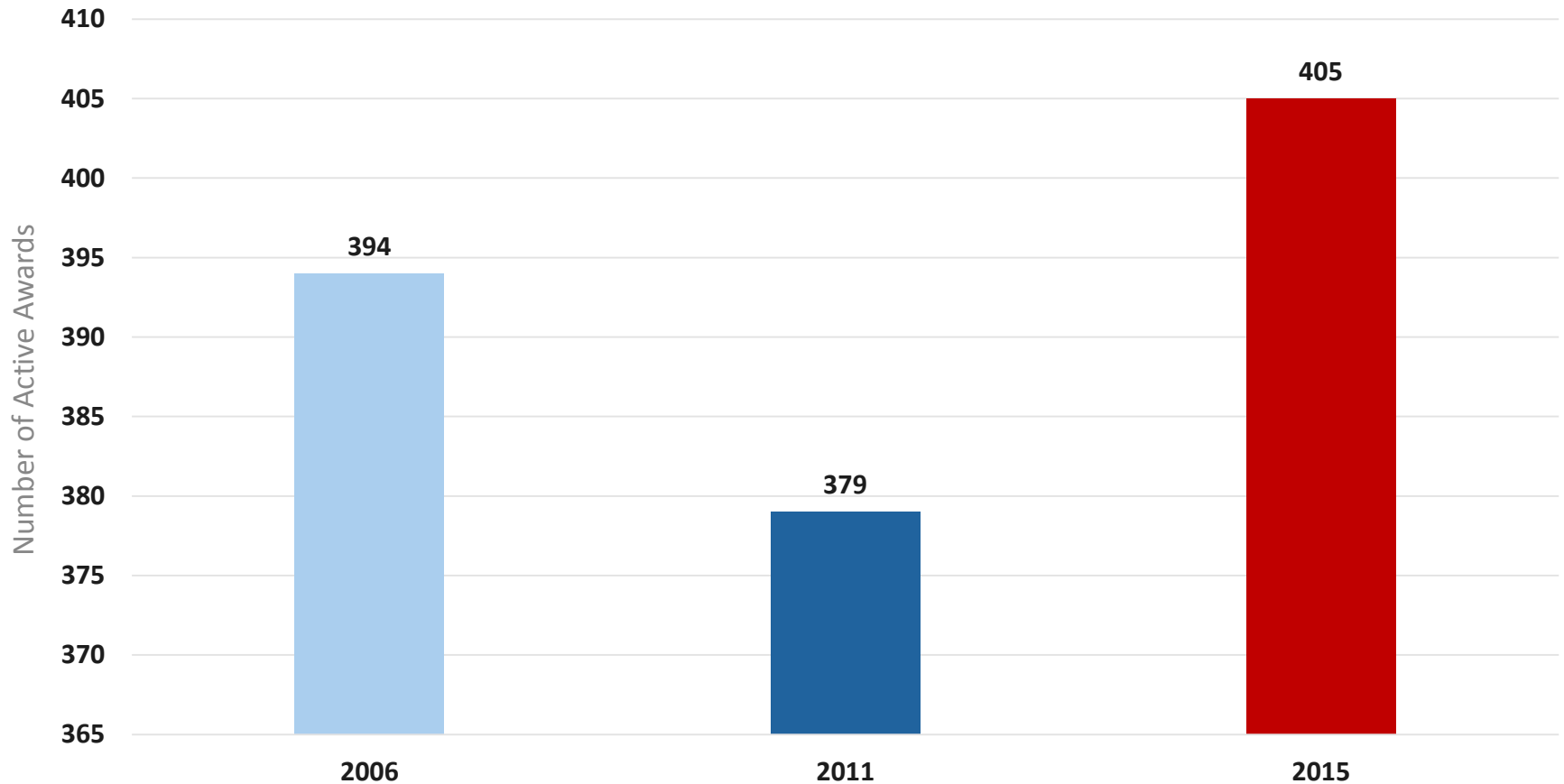
Excludes restricted capital appropriations.



What is DRI's Other Key Research Output Metrics over Past Decade?

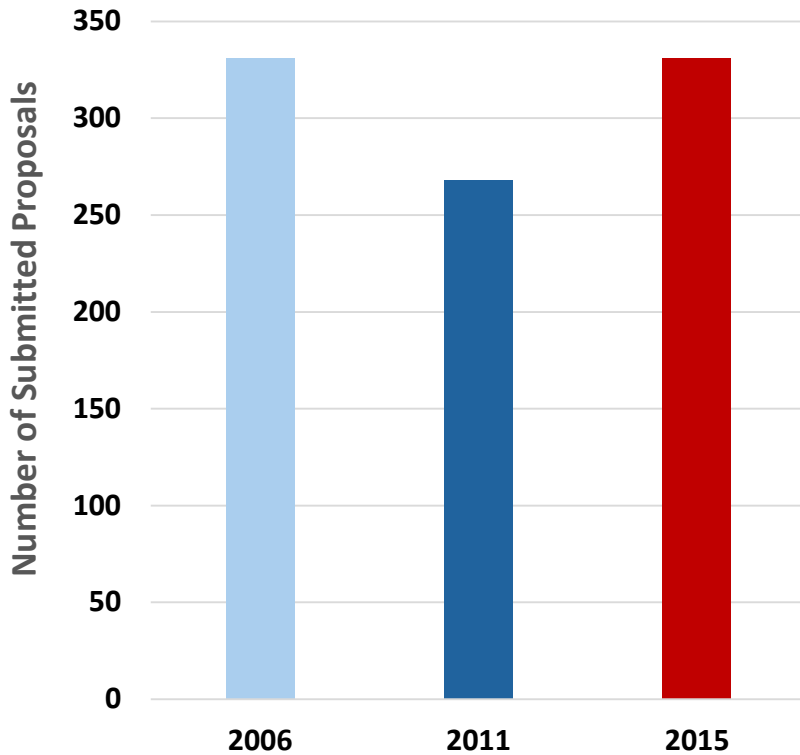


Active Awards Trend

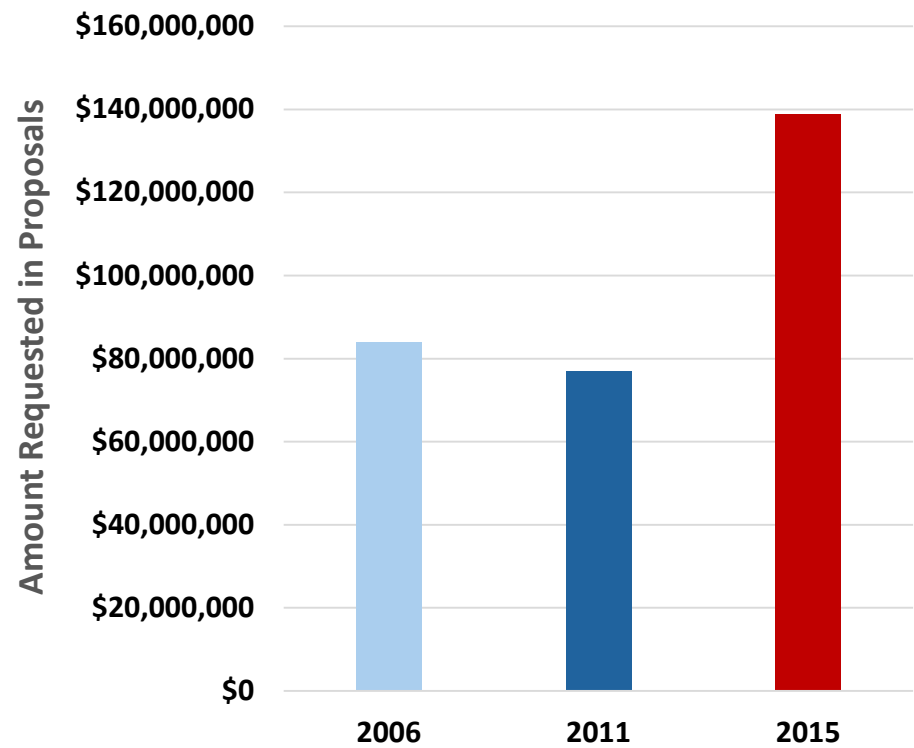


Trends in Proposals Submitted & Research Dollars Requested

Grants & Contracts Proposals

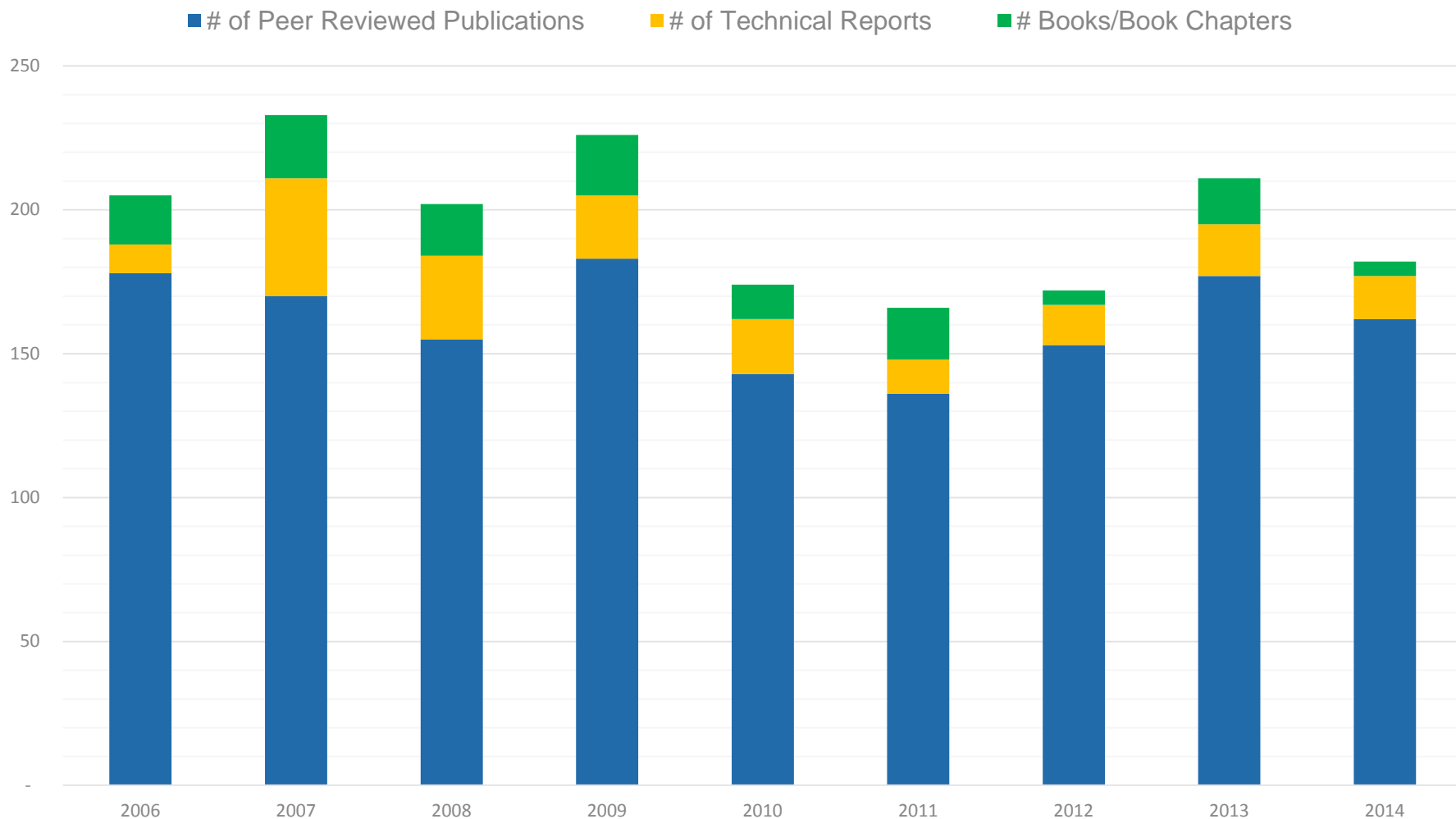


Funding Requested

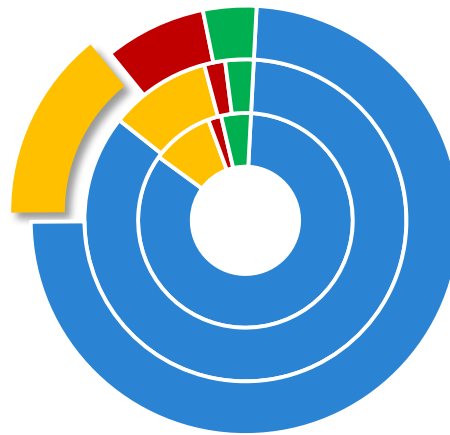


DRI Research Output Over Time

Faculty Publications and Technical Reports

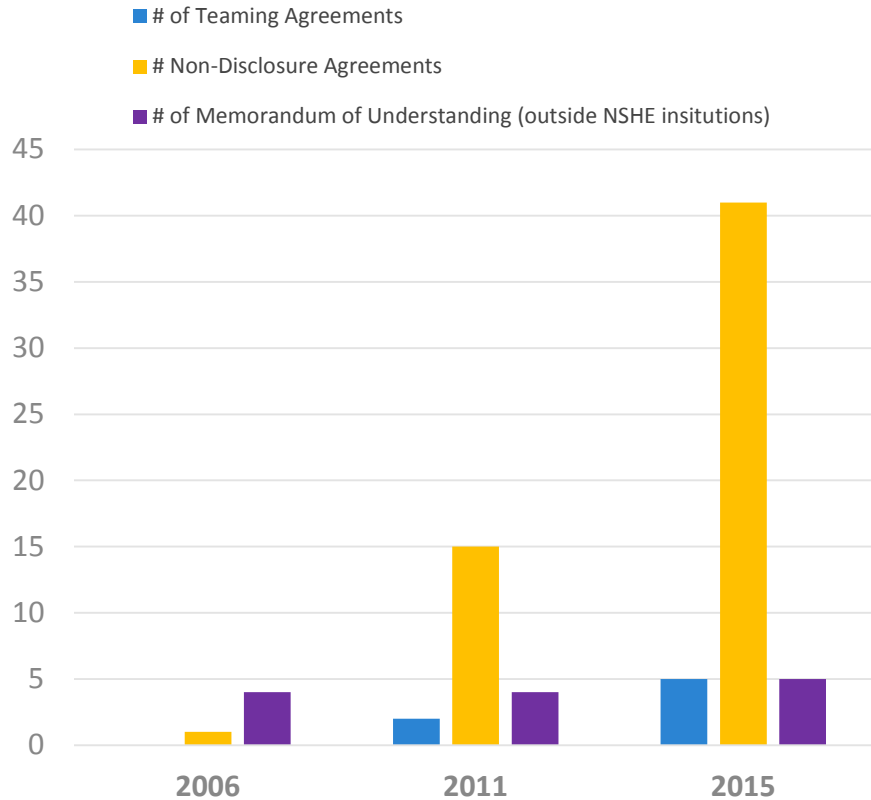


DRI's Output: Business Development & Partnerships



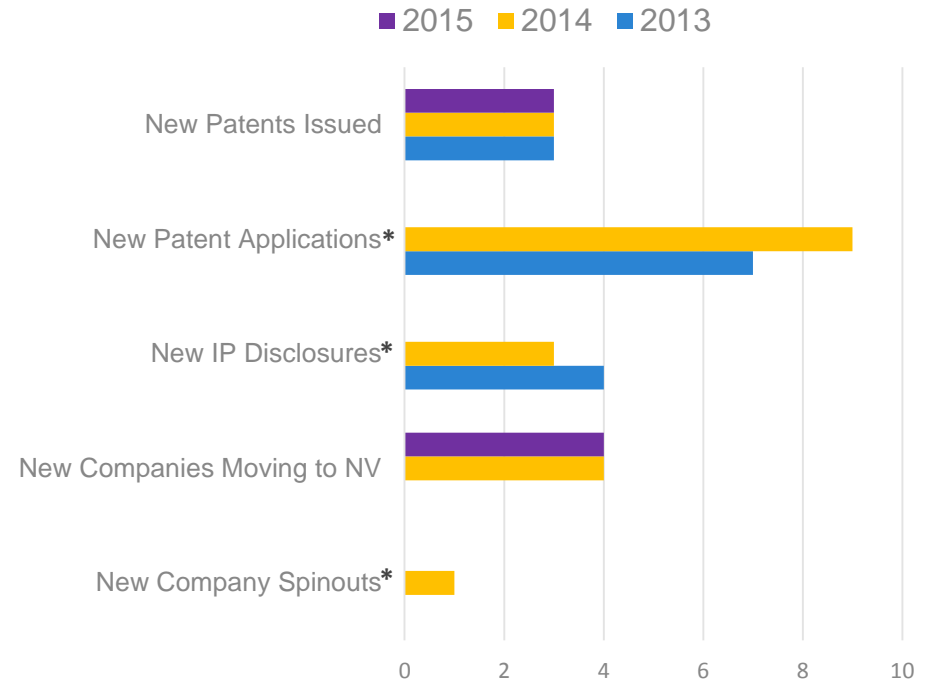
- Federal
- Private and Foreign
- State and Local
- Other State Government

Industry and Private Sector Outreach & Engagement



Innovation and Entrepreneurship

**Some 2015 data incomplete at this time*



DRI's National Rankings Current and 10-Year Trend



DRI's Current Competitive Ranking



*The Higher Education
Research and Development
(HERD) Survey is the
primary source of information
on separately accounted for
R&D expenditures within
higher education institutions
in the United States and
outlying areas.*

DRI's Competitiveness

FY14 Academic Institutional Rankings by
Federally Financed R&D Expenditures in the
Environmental Sciences

- 1 Woods Hole Oceanographic Institute
- 2 University of Washington, Seattle
- 3 University of Colorado, Boulder
- 4 Colorado State U., Fort Collins
- 10 University of New Hampshire
- 14 Massachusetts Institute of Technology (MIT)
- 17 U. Maryland, College Park
- 23 U. Oklahoma, Norman and Health Science Center
- 26 Desert Research Institute**
- 33 University of Maryland, Center for Environmental Sciences
- 38 Stanford University
- 57 University of California, Davis
- 63 UNR
- 70 UNLV
- 72 University of California, Berkeley

Top 6%

416
Institutions
Ranked

DRI's Competitive Ranking

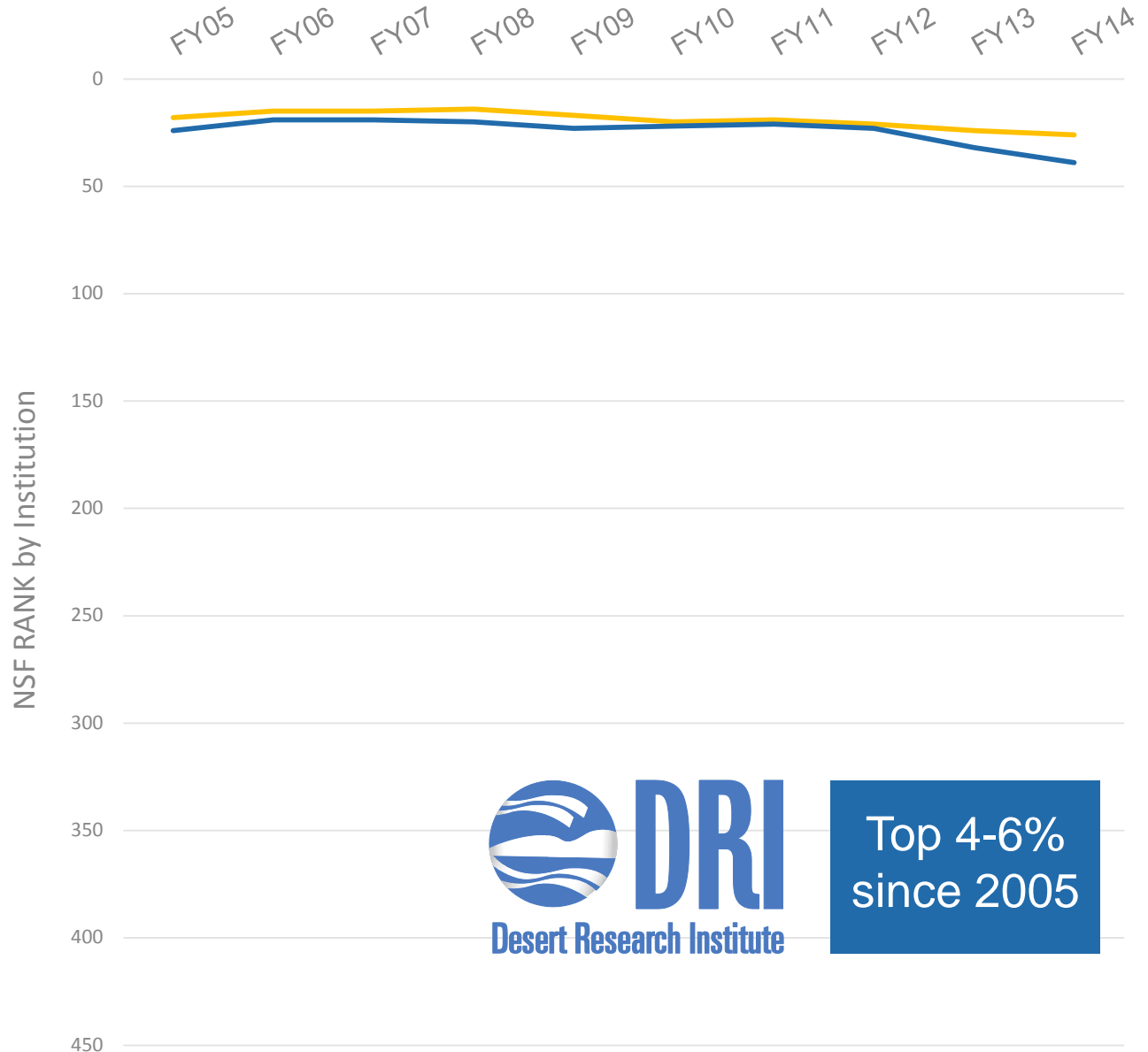
NSF RANK: Total R&D expenditures in the environmental sciences

NSF RANK: Total Federally Financed R&D expenditures in the environmental sciences



Data sourced from the NSF Higher Education Research and Development (HERD) Survey website. <http://www.nsf.gov/statistics/srvyherd/>

NSF Rankings over time



Top 4-6% since 2005

DRI's Competitive Ranking

NSF RANK:

Total Federally Financed R&D expenditures in the environmental sciences

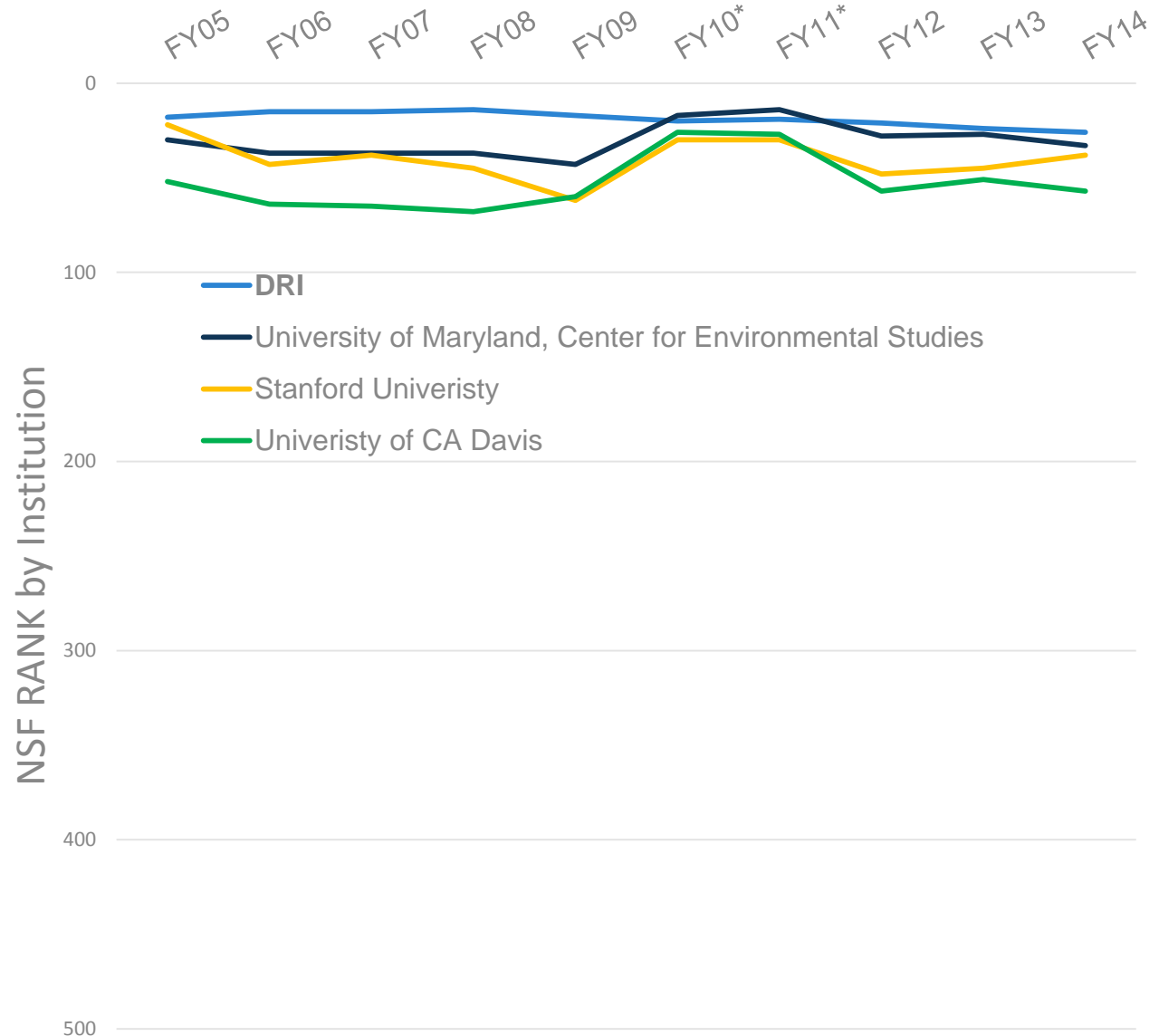
Top 4-6% since 2005



Data sourced from the NSF Higher Education Research and Development (HERD) Survey website. <http://www.nsf.gov/statistics/srvyherd/>

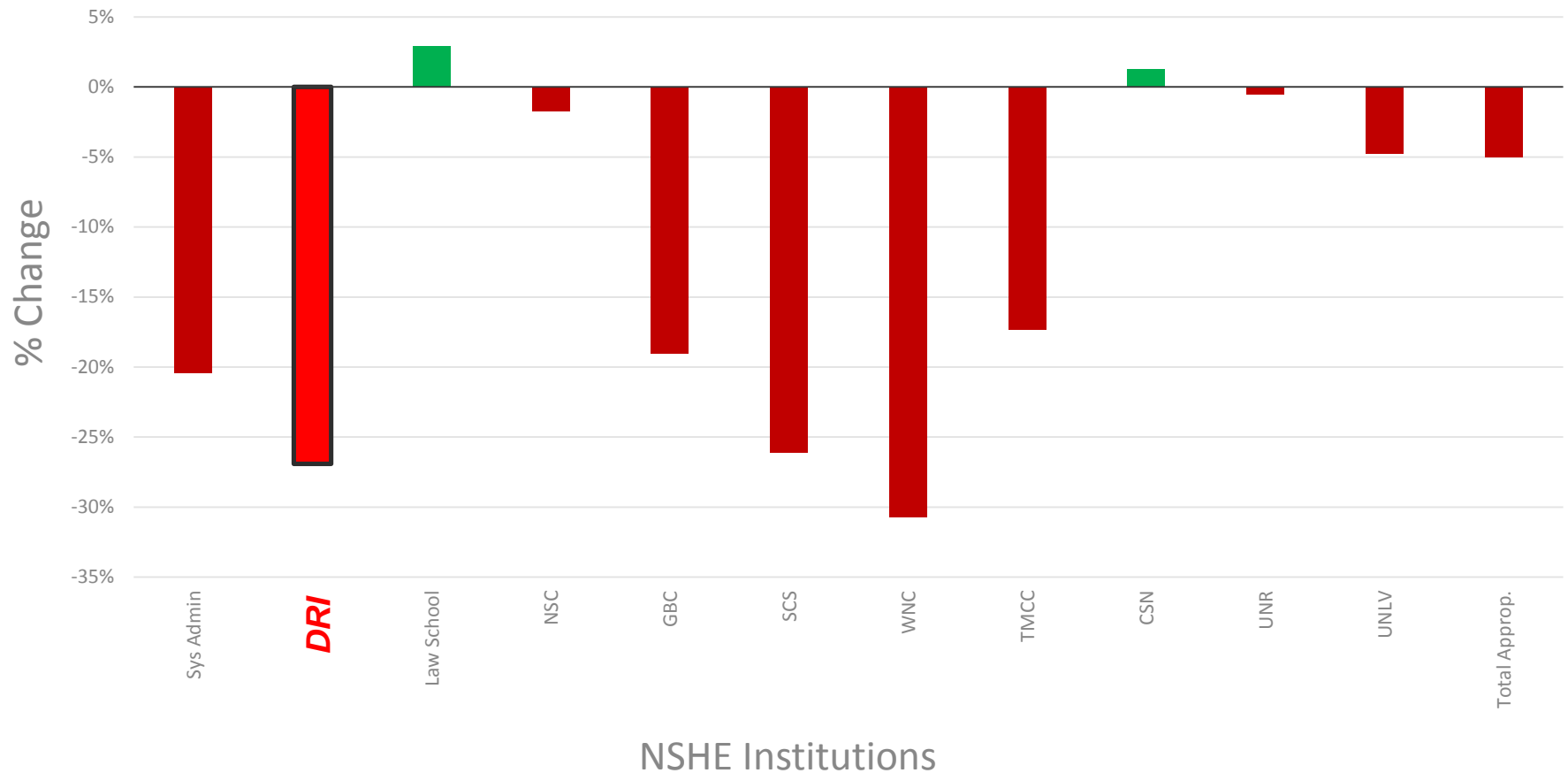
*FY10 and FY11 total R&D expenditures (including federally financed and other)

NSF Rankings Over Time



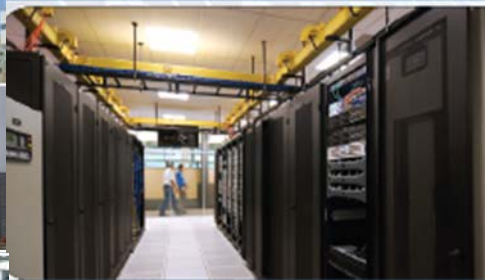
State support of NSHE Institutions

Percent change in state appropriations to NSHE institutions, FY09 to FY16



Data sources from NSHE's website (<http://system.nevada.edu/Nshe/>) under Administration, Finance, Budget, Operating Budgets

How Does DRI's Administration Efficiency & Effectiveness Compare Nationally?



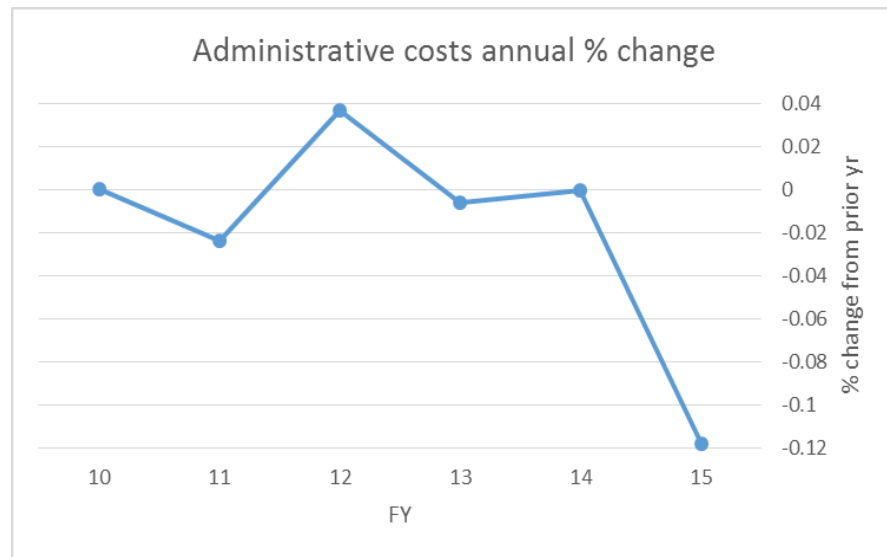
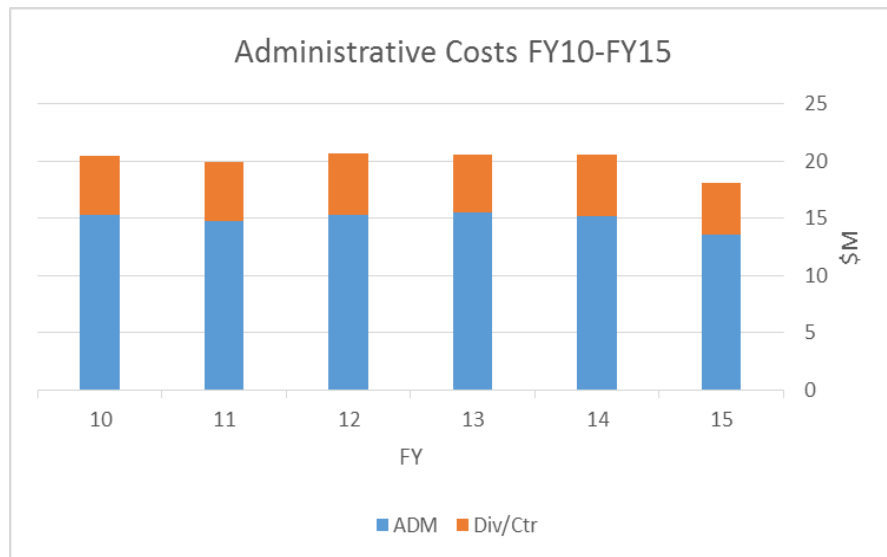
Institution-Wide Adjustments Since 2008

Reduced campus operational and research support staffing by 17% (\$1.8M reduction)

Opened 42,000 sq. ft. CRVB research building in 2009 with no additional support staff

Administrative staff carrying duties of multiple lost positions

Administrative Cost Reductions



Operating Budget: \$20.5M in FY14 to \$18.1M in FY15

- A Reduction of 12%

Increased Operating Funds for Direct Research Activities in FY16

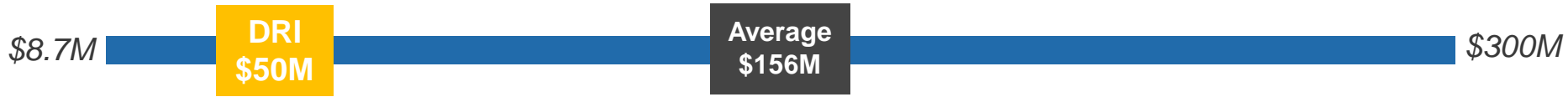
- Increase of \$916,000 or 5% of DRI operating budget
 - Proposal development, research faculty support, post-doctoral support, interdisciplinary science center support, matching funds for grants & contracts

Institutional Size Comparison

Total Employees



Revenue



Facilities & Information Technology (IT)

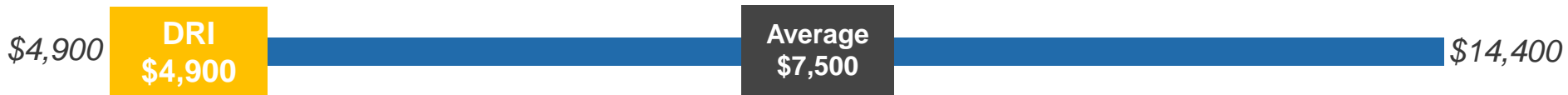
Total O&M Expenses per SF



Utilities Expenses per SF



IT Expenses per FTE



Employees served per IT FTE



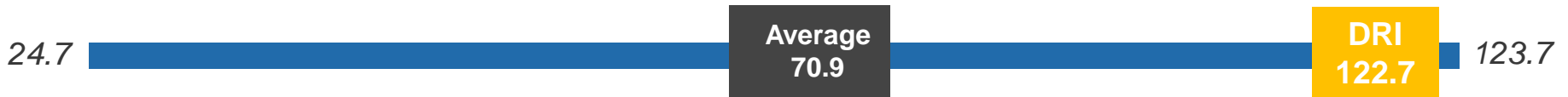
DRI is Extremely Efficient and Effective

Human Resources (HR)

HR Budget per employee



Employees served per HR FTE

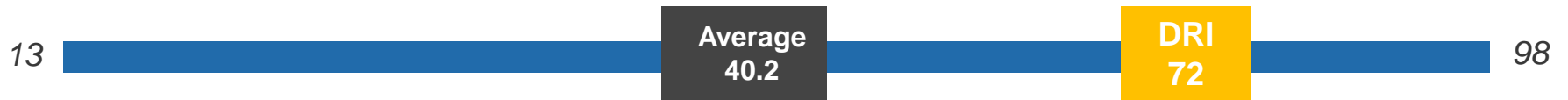


Contract Management

Total Contracts Administered



Contracts processed per contract FTE



Average Revenue per contract administered (millions)



Other Metrics

DRI Research Facilities & Productivity

2005:

- 13 Buildings Owned or Leased
- 284,680 GSF
- 139,736 ASF
- **\$257.8/ASF**



2010:

- 18 Buildings Owned or Leased
- 355,158 GSF
- 170,457 ASF
- **\$227.6/ASF**



2015:

- 21 Buildings Owned or Leased
- 361,195 GSF
- 175,737 ASF
- **\$173.5/ASF**

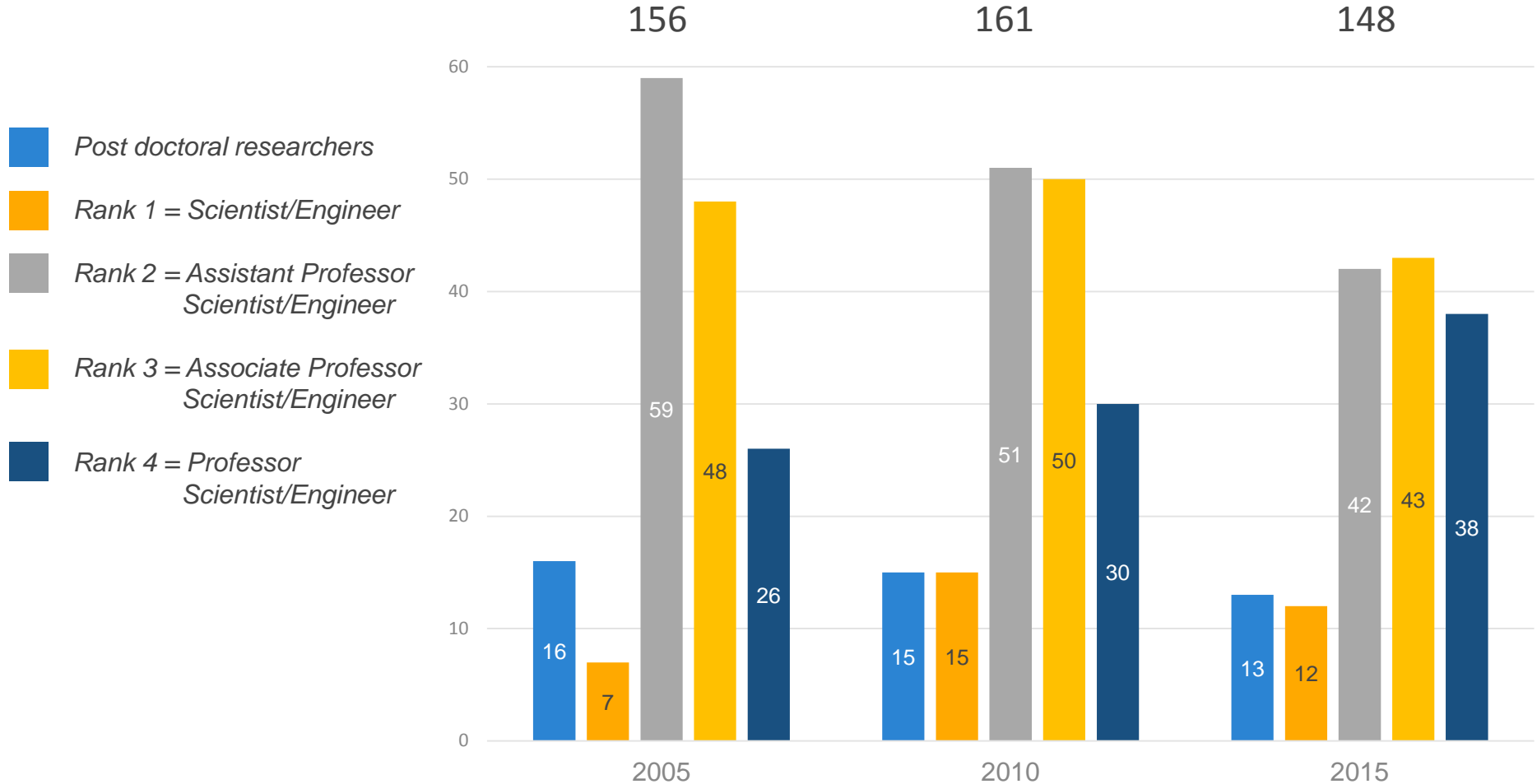


Faculty Demographic Profile



DRI Research Faculty Profile

DRI Faculty Demographic Profile over Past 10 Years



Grant & Contract Dollars per Research Faculty Member over Past 10 Years

*(Combined Assistant, Associate, Full Research Professors,
and Scientists/Engineers)*

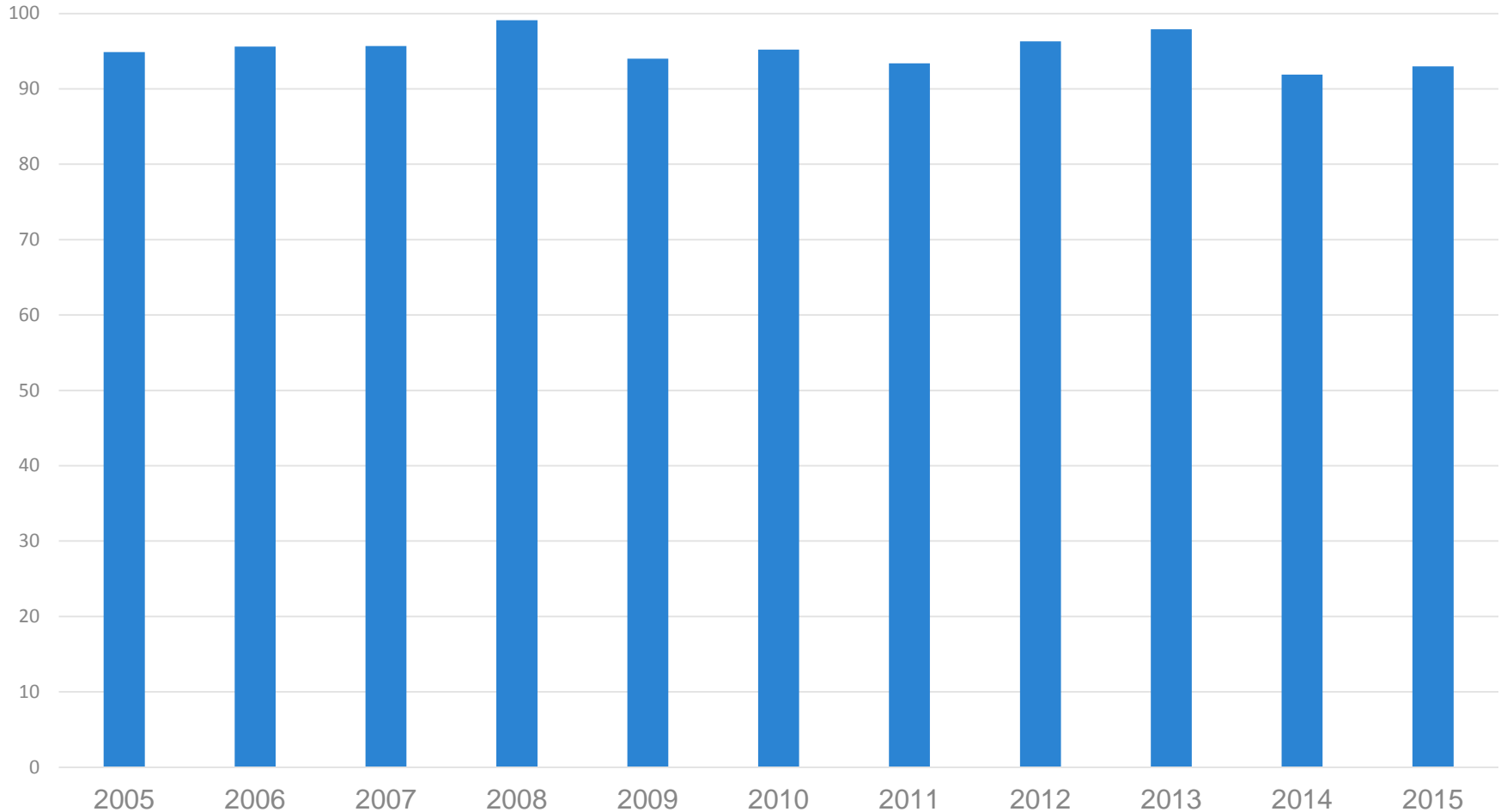
- **2005 = \$270,800 per research faculty member**
- **2010 = \$296,000 per research faculty member**
- **2015 = \$247,900 per research faculty member**
- **2016* = \$268,000 per research faculty member**

* = based upon annualized estimate using unaudited grants & contracts revenue as of 12/31/16 and relatively stability of research faculty headcount

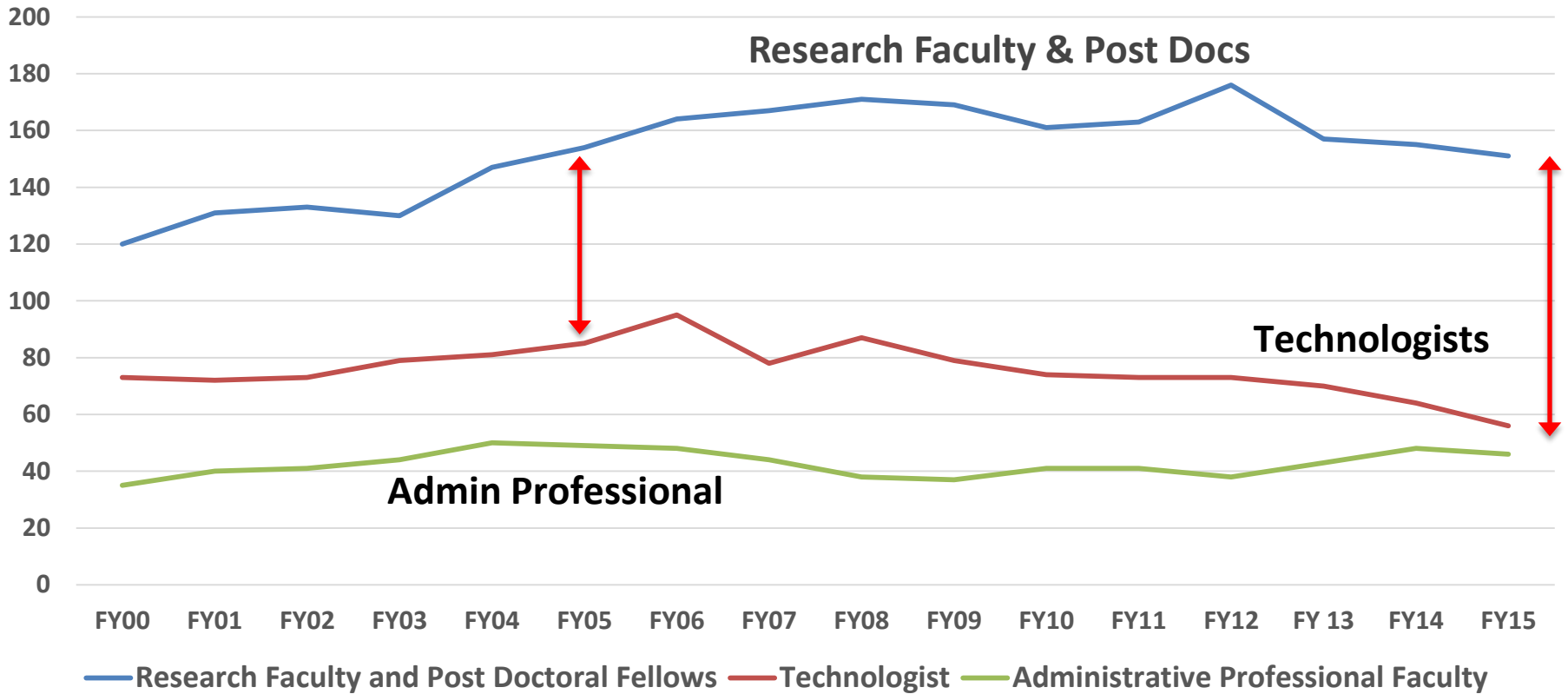


Faculty Retention

Faculty Retention Rate
Over the last decade DRI faculty retention has remained over 90%



Research Faculty & Administrative Professional Headcount over Past 15 Years



DRI Profile: Institutional Diversity

Gender and Ethnic Distribution Over Time

FY05

	% Female	% Male	% Under Represented Group
Professional	27%	73%	12%
Post Docs	12%	87%	31%
Technologists	53%	47%	16%
GRA	28%	72%	37%

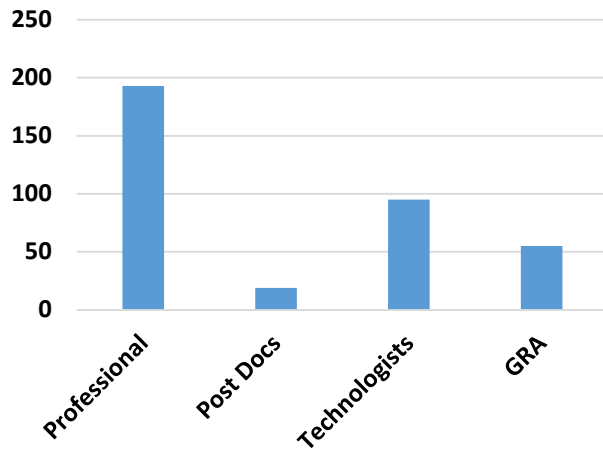
FY10

	% Female	% Male	% Under Represented Group
Professional	28%	72%	11%
Post Docs	20%	80%	56%
Technologists	54%	46%	16%
GRA	34%	66%	27%

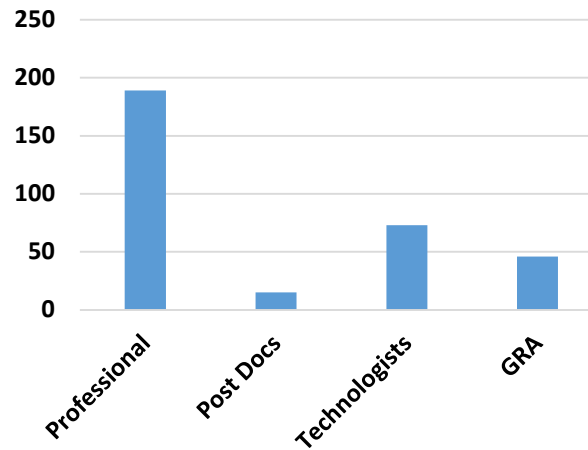
FY15

	% Female	% Male	% Under Represented Group
Professional	33%	67%	11%
Post Docs	46%	54%	46%
Technologists	46%	59%	16%
GRA	37%	64%	38%

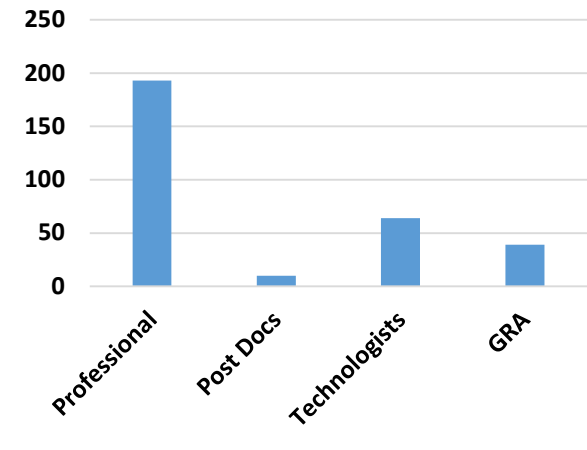
Total Employees by Category



Total Employees by Category



Total Employees by Category



Key Administrative Leadership Positions at DRI

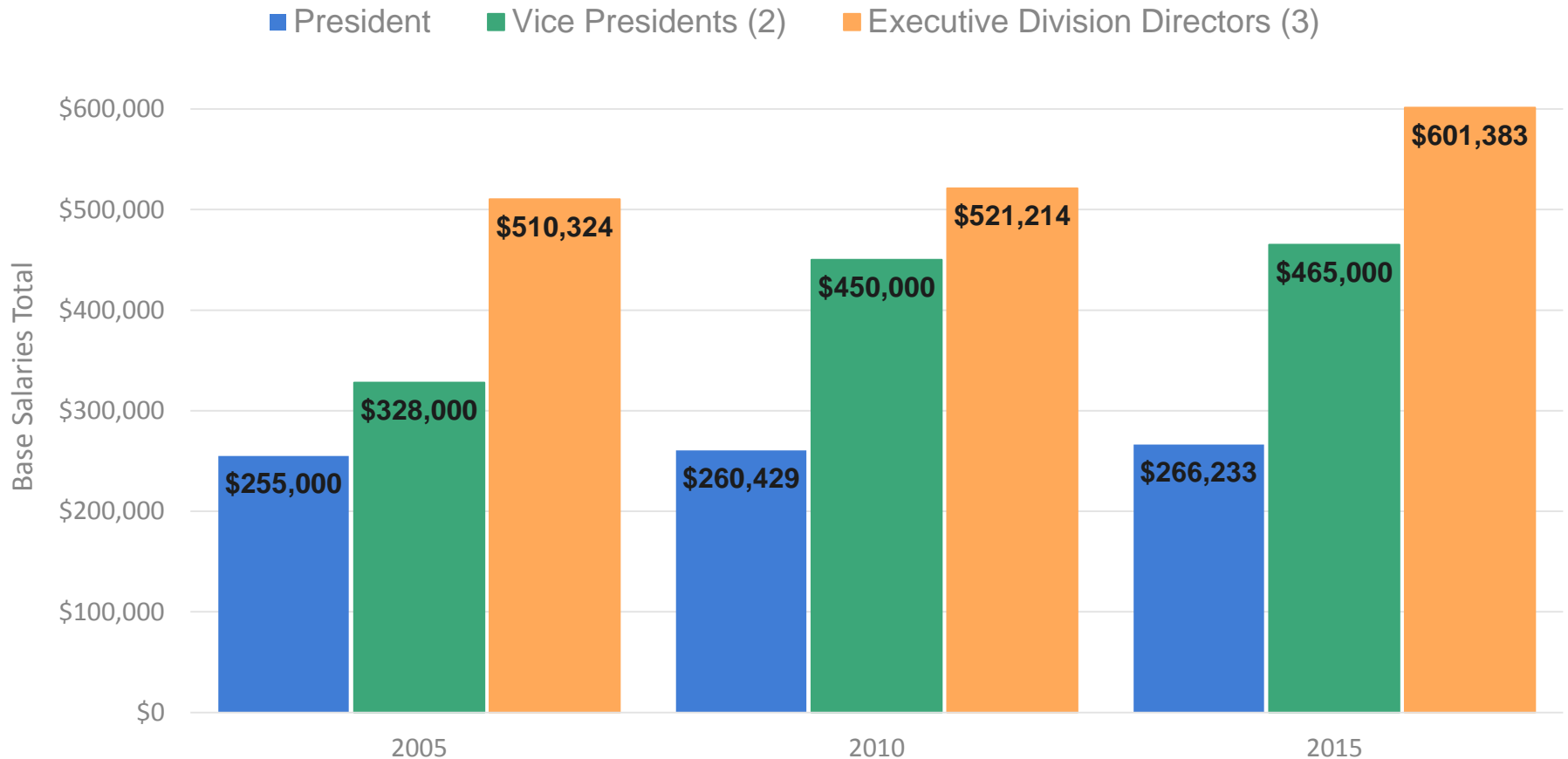
DRI Leadership Profile over Past 10 Years

2006	2011	2015
President	President	President
Sr. Vice President of Finance & Administration	Sr. Vice President of Finance & Administration	Sr. Vice President of Finance & Administration
Vice President of Research	Vice President of Research	Vice President of Research
Vice President of Government & Business Relations	Vice President of Development	<i>Vice President of Development (VACANT)</i>
Vice President of Institutional Advancement	Vice President of Academic Affairs	<i>Vice President of Academic Affairs (VACANT, being restructured)</i>
Vice President of Academic Affairs	Executive Division Director (EDD) of Hydrologic Sciences	Executive Division Director (EDD) of Hydrologic Sciences
Executive Division Director (EDD) of Hydrologic Sciences	Executive Division Director (EDD) of Atmospheric Sciences	Executive Division Director (EDD) of Atmospheric Sciences
Executive Division Director (EDD) of Atmospheric Sciences	Executive Division Director (EDD) of Earth & Ecosystems Sciences	Executive Division Director (EDD) of Earth & Ecosystems Sciences
Executive Division Director (EDD) of Earth & Ecosystems Sciences		

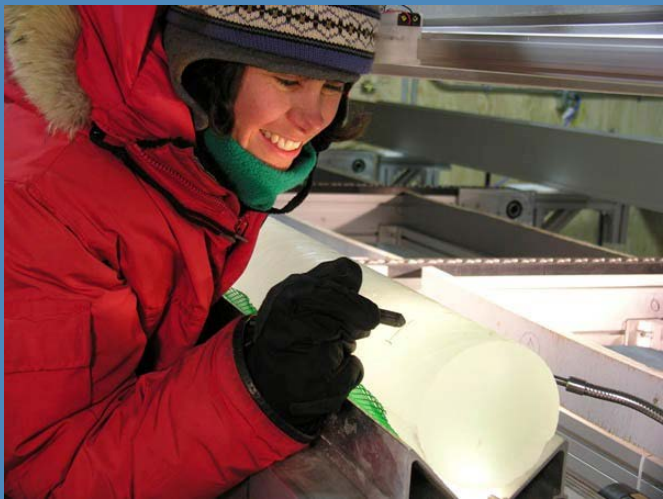
DRI's Top Administrator's Salaries

What are the base salaries of top administrators and how have salaries for these positions changed over past 10 years?

DRI Leadership Base Salaries



DRI's added value to Higher Education and STEM Outreach



DRI's Role in Higher Education



DRI's Current Impact on Graduate Students at UNR & UNLV

Direct Students: Presently DRI has 50+ Graduate Students. All students are classified as being in STEM

- 27 in ATMS at UNR
- 20 in GPHS at UNR
- 8 in Life Sciences, Geosciences and WRMP at UNLV

Current Metrics:

- ~50% are PhD students

Advising:

- In addition to serving as Major advisors/co-advisors to the 50 students, DRI faculty serve as advisors on graduate committees and thus help in educating and graduating PhD students at both UNR and UNLV

UNR Impact - accomplished with the equivalent of two FTE

DRI's STEM-Related Outreach Program



Green Power Mission:

“Support Nevada’s pre-K-12 educators in science-based, environmental education by providing the tools, resources, and knowledge they need, so all students acquire the knowledge and skills needed to work, live and contribute in our community.”

Outreach Programs	<u>2013</u>	<u>2014</u>	January 1, 2015- November 1, 2015
Number of Schools Involved in Green Power	125	247	264
Number of K-12 Students Involved in Green Power	6557	7238	19106

Fundraising

DRI Global Water Knowledge Campaign

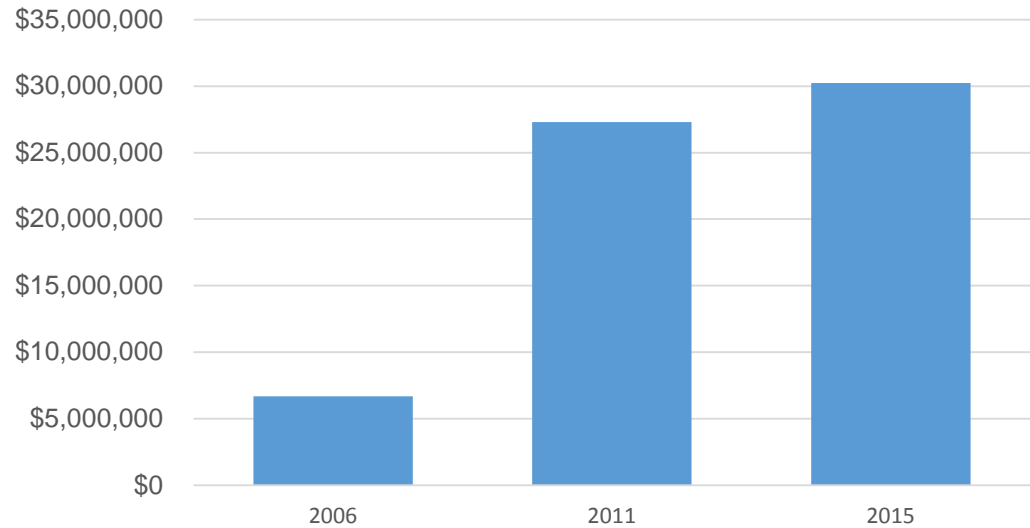
*DRI LAUNCHES GLOBAL INITIATIVE TO PROVIDE WOMEN
IN DEVELOPING COUNTRIES WITH CLEAN WATER*



Endowments & Fundraising



Institutional Endowments (*primarily restricted*)



Foundation Gifts & Contributions



- Total DRI Research Foundation Gifts and Contributions
- Nevada Medal Event (includes Gifts in Kind)

Additional Information Requested

1. **Strategic Planning Status** – Completed in 2015 with ~60% institutional participation & BoR approved in 2015

2. **Institutional Evaluations (Internal & External)**
 - National Science Advisory Committee review – completed in 2012, next review in 2017
 - 360-Degree Institutional Assessment – completed in 2011, next review in 2016

3. **Facilities Master Plan Status** –
 - The DRI Facilities Master Plan is now 12 years old and an updated one is due in the near future. Due to lack of state CIP funding, an update plan was delayed.

Summary

Recent Positive Trends to Meet the Changing R&D Landscape Nationally

TRENDS:

- DRI is up 34% in awards to date compared to last year (FY15 to FY16)
- Number of proposals submitted year to date up significantly 108 last year and 135 this year (FY15 to FY16)
- Increased private industry engagement
- New marketing approaches to public-private partnerships
- Trend is changing on the federal front, and our research faculty have stepped up amazing to address the new opportunities:
 - Enhanced efforts with key federal agencies such as DoD with up to \$10.5M in pipeline
- Leveraging DRI's science management experience for new significant opportunities: DRI-TN & ORISE

Nevada's Research Institution

DRI is

- NSHE's research institution with a unique mission and legislative mandate.
- A top tier institution when measured nationally, and maintained rankings over period of a ~17% reduction in national R&D funding.
- Recognized nationally and internationally in terms of quality and scientific achievement.
- Attracting top flight graduate students to UNR and UNLV through its reputation.
- Efficient in operation, and effective, but very lean.

Needs of the Institution

- Enhance DRI's critical need for flexibility and ability to invest in faculty and research infrastructure
 - ***Adjustments to DRI's Funding Formula***
- Nevada's asset is the intellectual capital of DRI's faculty & DRI's success is measured on attracting and supporting leading researchers
 - ***Address faculty pay, merit & one-time incentives***
- DRI's Mission and 56-Year Legislative Mandate is "to promote the general welfare of the State of Nevada and its citizens through the development of educational and scientific research", providing science in support of humanity.
 - ***Provide critical support of DRI's proposal to serve as State Science Advisor to the Governor and... Provide needed support of DRI's effort to significantly enhance Nevada's efforts in economic growth by assessing vital water resources***
- DRI's brings value role to higher education as a leading research institution and through its "educational research" legislative mandate
 - ***Provide significant support of DRI's proposed Earth & Education Program***

QUESTIONS?