

BOARD OF REGENTS  
BRIEFING PAPER

**1. Agenda Item Title: DRI Institutional Performance Metrics Review Presentation to the Board of Regents**

**Meeting Date: December 3 & 4, 2015**

**2. BACKGROUND & POLICY CONTEXT OF ISSUE:**

The Board of Regents of the Nevada System of Higher Education has asked each of the institutions to answer ten questions recommended by the American Council of Trustees and Alumni (ACTA) along with an institutional performance metrics review. In that the majority of the ACTA questions do not directly pertain to DRI, questions were developed for DRI in alignment with the ACTA goals and assessment of the institutional performance. DRI will present a PowerPoint presentation with supporting materials.

**3. SPECIFIC ACTIONS BEING RECOMMENDED OR REQUESTED:**

At the January 23 Board workshop, Board members supported the suggestion of scheduling a review of two institutions per quarterly meeting, focusing on performance metrics related to the ten questions trustees should ask set forth by ACTA. The Board officers will ask each institution to address only those questions applicable to the respective institutions.

**4. IMPETUS (WHY NOW?):**

Chairman Trachok and Vice Chairman Wixom have asked DRI be scheduled for the December 2015 Board meeting to give the opportunity to have a focused discussion regarding DRI's institutional performance metrics.

**5. BULLET POINTS TO SUPPORT REQUEST/RECOMMENDATION:**

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. DRI has established 5 critical objectives as part of its Strategic Plan that has been approved by the Board and sets DRI's course for the next five years to achieve greater heights. DRI's ability to serve NSHE and the State Nevada remains a relatively untapped resource, and given the proper resources can reach a significantly higher level of performance over the next 5 years. Although DRI's primary institutional performance is measured as research output in contracts and grants dollars which has been declining, other important metrics show improvement including the number of active awards, amount requested in proposals submitted, number of teaming and non-disclosure agreements, new patent applications, and new company spinouts as well as our ability to attract new companies to Nevada.

DRI has been continuously ranked nationally as at top tier institution as measured by the National Science Foundation's Research & Development Expenditures in the environmental sciences. It has maintained a relatively high ranking with the smallest research faculty and support staff when compared to over 400 institutions of higher education. DRI's nationally rankings correlate directly with the amount of state funding

invested in the institution, and although it continues to rank in the top 6-7%, its rankings have declined since FY2008 with declining state support for operations.

Ninety percent of all of DRI employees do not receive state support, allowing DRI to serve as a model for a blended academic and entrepreneurial approach to research. The success of DRI's model is reflected in a retention rate that has exceeded ninety percent for the past 10 years. DRI has demonstrated exceptional effectiveness and efficiencies when compared to nine nonprofit research institutions nationally, serving more personnel and managing more contracts & grants with the smallest support staff. DRI plays a crucial role in supporting the two universities in both undergraduate and graduate education, supporting up to 55 students per years and investing approximately \$1.6 million in graduate student support. DRI's STEM-related outreach program provide important supplemental materials and training to science teachers in 264 schools throughout Nevada, reaching approximately 19,000 K-12 students.

It is in the context of serving as a tier one institution for Nevada, working to achieve significantly higher levels of performance within a framework of measurable effectiveness and efficiencies, and clarifying the significance and potential of state investment in the institution that DRI sets forth its performance metrics review.

**6. POTENTIAL ARGUMENTS AGAINST THE REQUEST/RECOMMENDATION:**

No action is requested nor are recommendations being made.

**7. ALTERNATIVE(S) TO WHAT IS BEING REQUESTED/RECOMMENDED:**

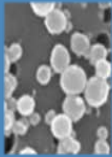
No is requested nor are recommendations being made.

**8. COMPLIANCE WITH BOARD POLICY:**

- Consistent With Current Board Policy: Title #\_\_\_\_\_ Chapter #\_\_\_\_\_ Section #\_\_\_\_\_
- Amends Current Board Policy: Title #\_\_\_\_\_ Chapter #\_\_\_\_\_ Section #\_\_\_\_\_
- Amends Current Procedures & Guidelines Manual: Chapter #\_\_\_\_\_ Section #\_\_\_\_\_
- Other: \_\_\_\_\_
- Fiscal Impact: Yes\_\_\_\_\_ No\_\_\_\_\_ Explain: \_\_\_\_\_

# Performance Metrics & Assessment Desert Research Institute

Presentation to the NSHE Board of Regents  
December, 2015



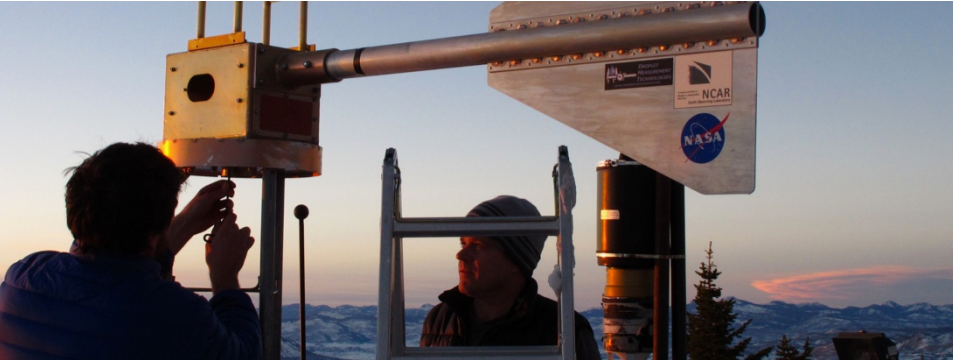
SCIENCE



ENVIRONMENT



SOLUTIONS



*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.



# DRI Legislative Mandate, Vision & Mission Statements

*“To **contribute** more effectively to the security of the nation and to **promote** the general welfare of the State of Nevada and its citizens through the development of **educational** and **scientific research**, the Board of Regents may establish... the Desert Research Institute.”*

*\*(1959) NRS 396.795, 396.7951*

## Our Vision:

***“Global leader in providing science, technology, and innovation to sustain Earth’s environment and to improve people’s lives.”***

## Our Mission:

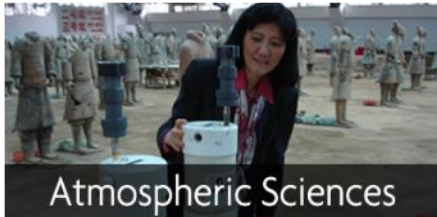
- ***Excel in innovation and environmental research***
- ***Foster scientific & engineering talent***
- ***Contribute to Innovation Based Economic Development in Nevada***
- ***Apply knowledge & technology to enhance management and sustainability of natural resources and earth’s systems***



## DRI Profile

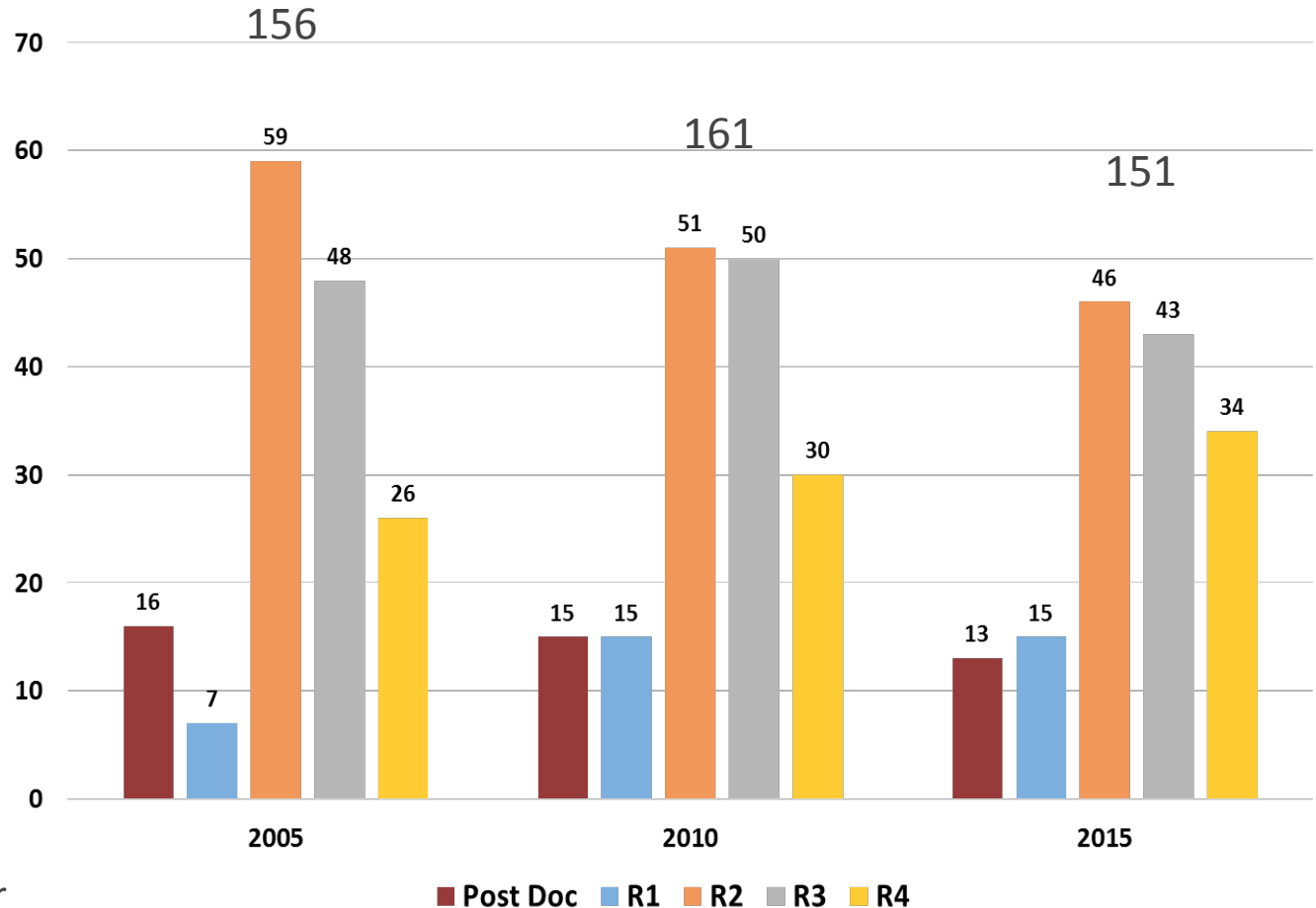
# 90% of DRI employees do not receive any state appropriation funding

- 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 **300** research projects on every continent
- **\$1.6M+** invested in graduate student education annually



## DRI Research Faculty Profile

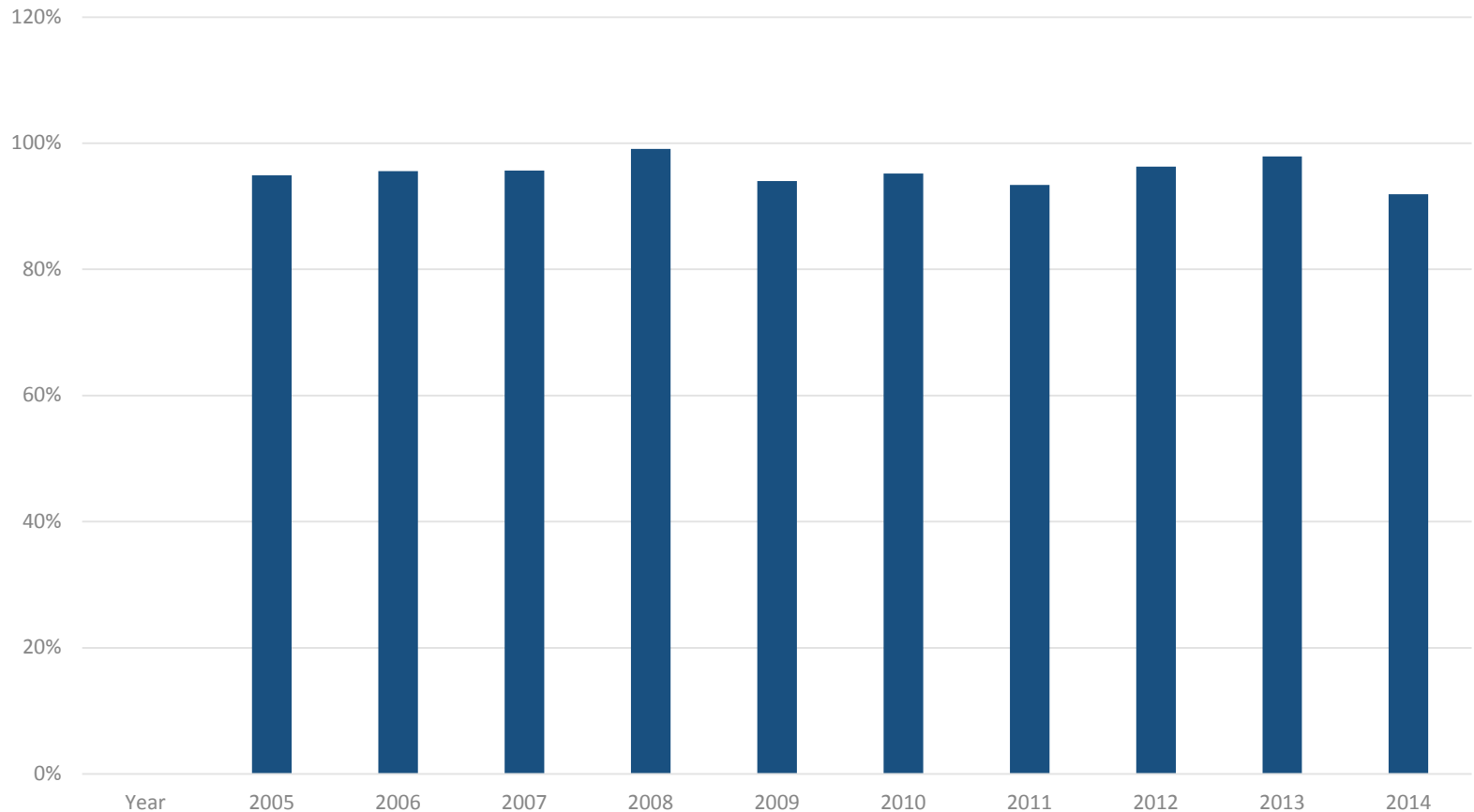
# DRI Faculty Profile over Past 10 Years



Rank 1 = Scientist/Engineer  
 Rank 2 = Assistant Professor  
 Rank 3 = Associate Professor  
 Rank 4 = Professor

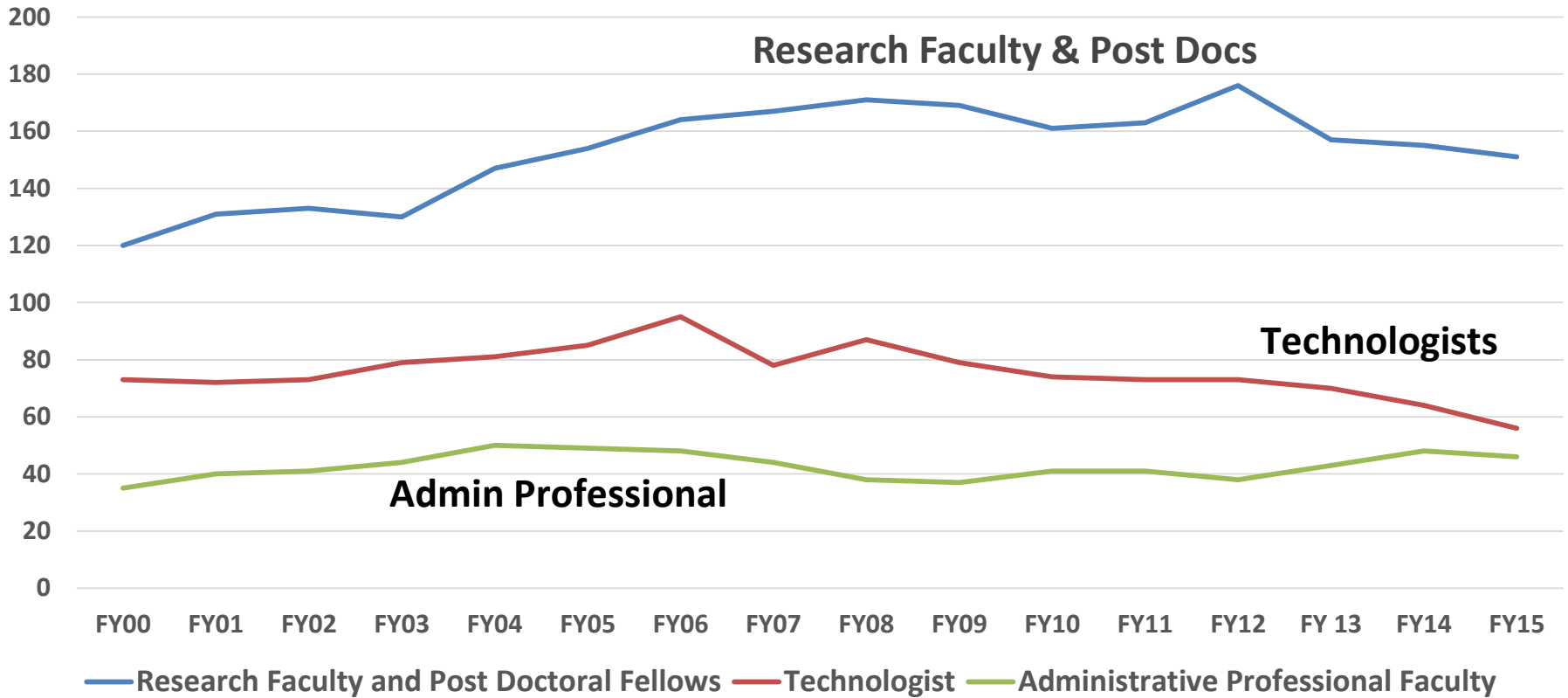
# Faculty Retention Rate

Over the last decade faculty retention has remained over 90%





# Research Faculty & Administrative Professional Headcount over Past 15 Years



# DRI Profile: Institutional Diversity

## Gender and Ethnic Distribution

2006

|               | % Female | % Male | % Under Represented Group |
|---------------|----------|--------|---------------------------|
| Professional  | 30%      | 70%    | 10%                       |
| Post Docs     | 16%      | 84%    | 26%                       |
| Technologists | 51%      | 49%    | 14%                       |
| GRA           | 20%      | 80%    | 25%                       |

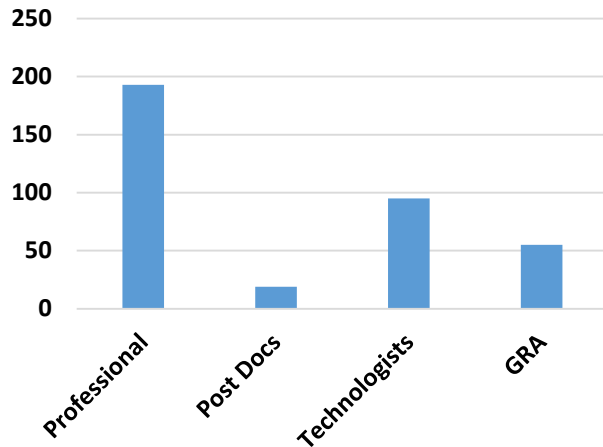
2011

|               | % Female | % Male | % Under Represented Group |
|---------------|----------|--------|---------------------------|
| Professional  | 31%      | 69%    | 13%                       |
| Post Docs     | 40%      | 60%    | 60%                       |
| Technologists | 51%      | 49%    | 12%                       |
| GRA           | 39%      | 61%    | 28%                       |

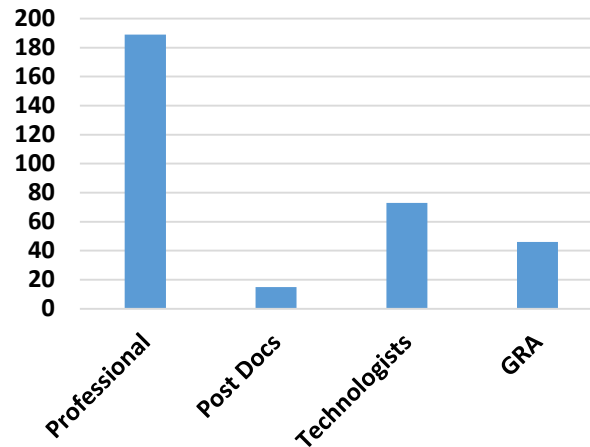
2014

|               | % Female | % Male | % Under Represented Group |
|---------------|----------|--------|---------------------------|
| Professional  | 30%      | 70%    | 13%                       |
| Post Docs     | 20%      | 80%    | 50%                       |
| Technologists | 47%      | 53%    | 17%                       |
| GRA           | 49%      | 51%    | 23%                       |

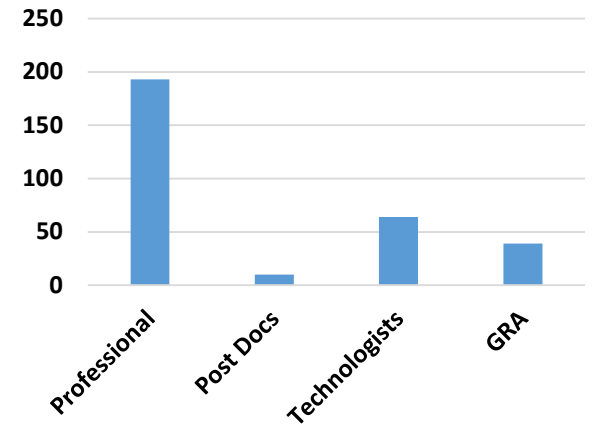
Total Employees by Category



Total Employees by Category



Total Employees by Category



## DRI Leadership Profile over Past 10 Years

# Key Administrative Leadership Positions at DRI

1. President
2. Sr. Vice President of Finance & Administration
3. Vice President of Research
4. Vice President of Government & Business Relations
5. Vice President of Institutional Advancement
6. Vice President of Academic Affairs
7. Executive Division Director (EDD) of Hydrologic Sciences
8. EDD of Atmospheric Sciences
9. EDD of Earth & Ecosystems Sciences

2005

1. President
2. Sr. Vice President of Finance & Administration
3. Vice President of Research
4. Vice President of Development
5. Vice President of Academic Affairs
6. Executive Division Director (EDD) of Hydrologic Sciences
7. EDD of Atmospheric Sciences
8. EDD of Earth & Ecosystems Sciences

2010

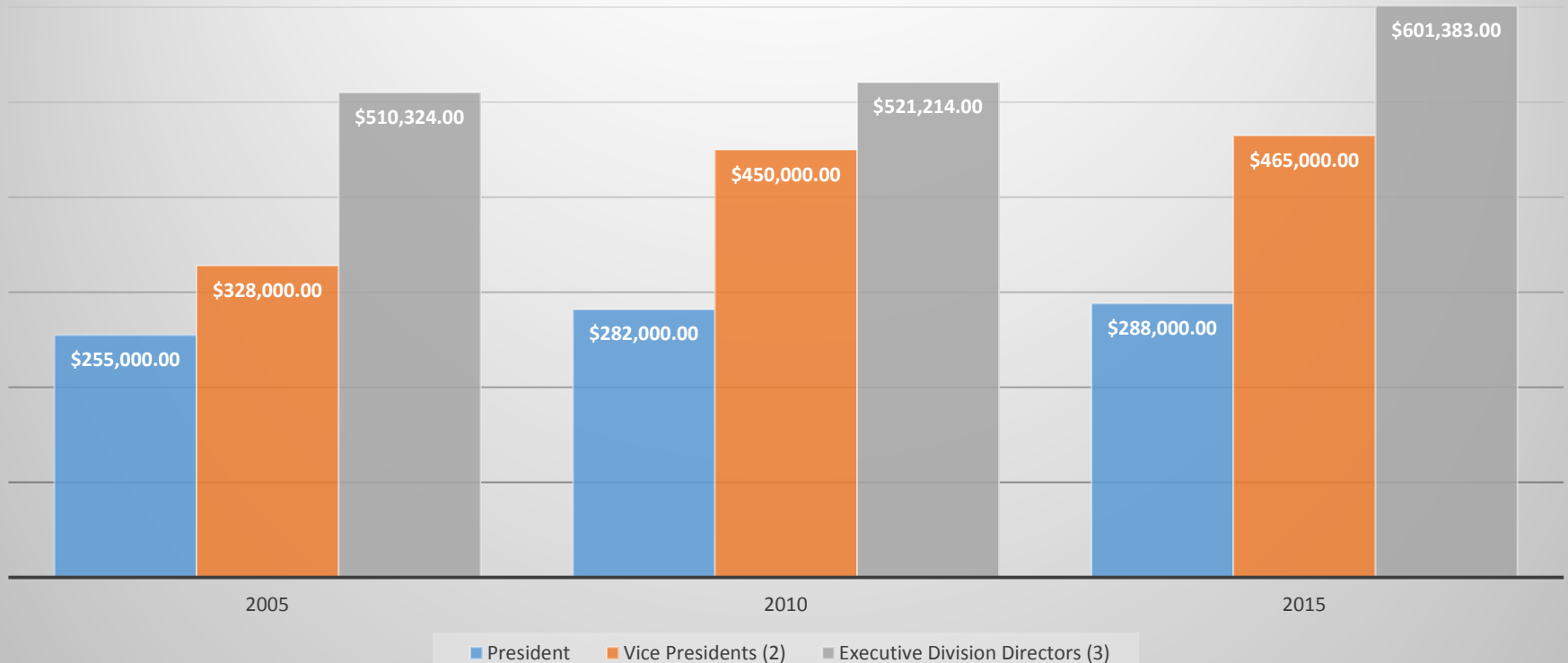
1. President
2. Sr. Vice President of Finance & Administration
3. Vice President of Research
4. Vice President of Development (*unfilled*)
5. Vice President of Academic Affairs (*unfilled; being restructured*)
6. Executive Division Director (EDD) of Hydrologic Sciences
7. EDD of Atmospheric Sciences
8. EDD of Earth & Ecosystems Sciences

2015

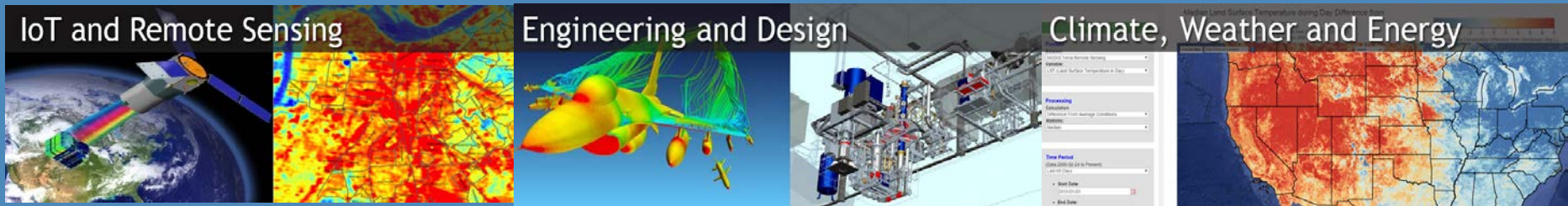
# DRI's Top Administrator's Salaries

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

### DRI Leadership Base Salaries



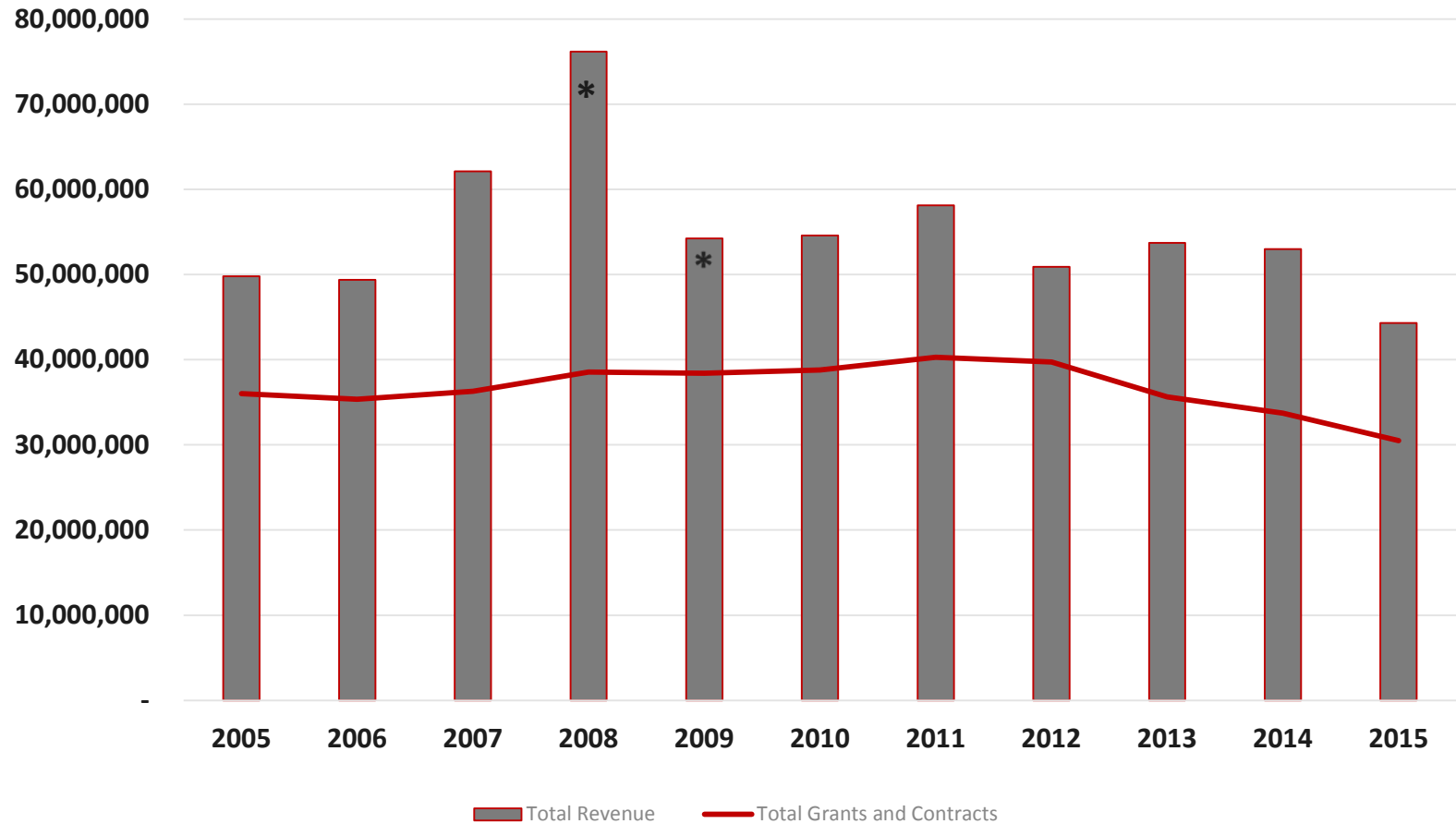
# What are DRI's Revenue Sources and Trends over Past Decade?





## DRI's Revenue over Past 10 Years

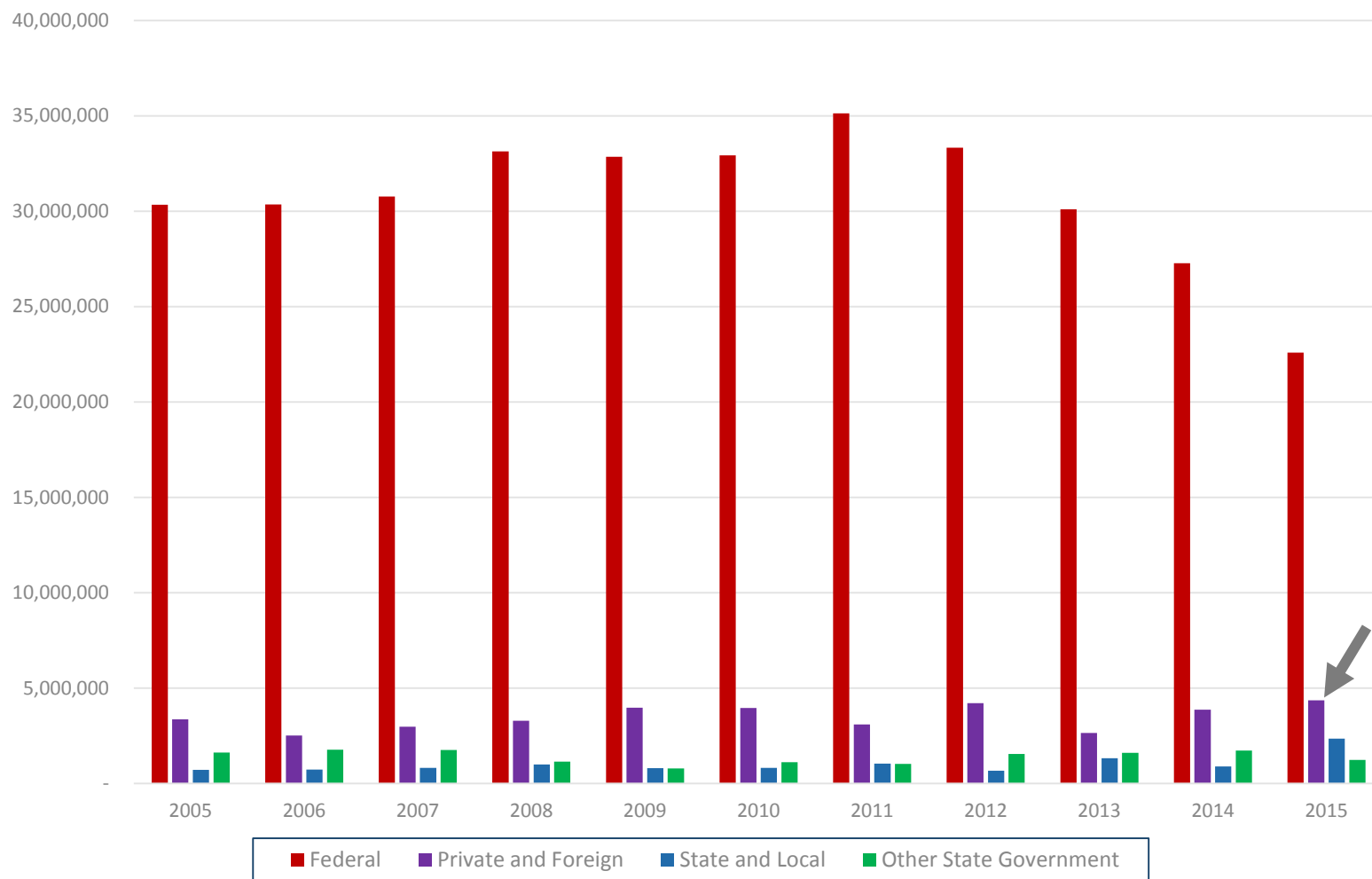
# Total Revenue and Total Grants and Contracts



\* Includes Capital Funding

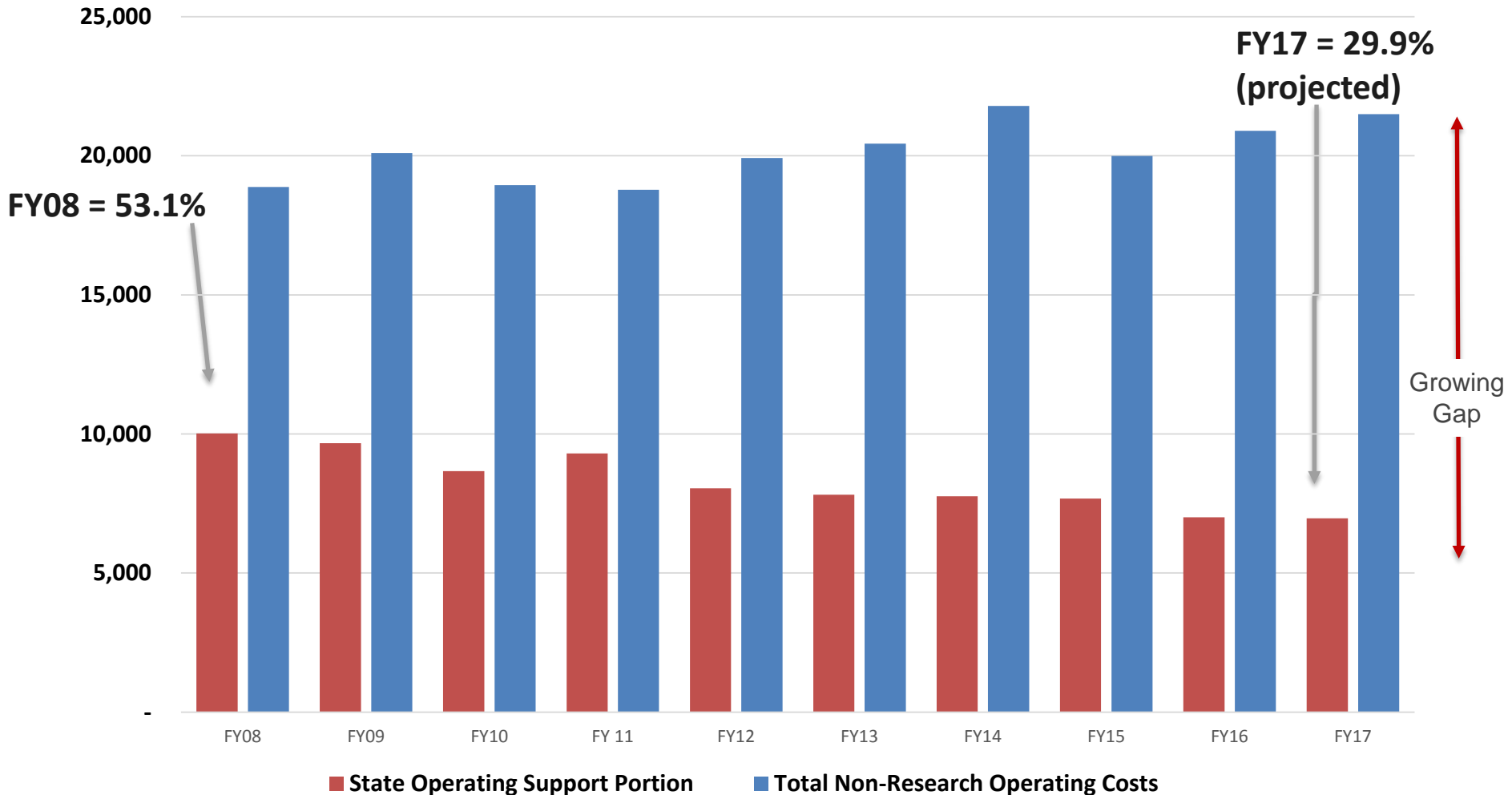
# DRI's Contract & Grants by Source over Past 10 Years

## Contracts and Grants by Source



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

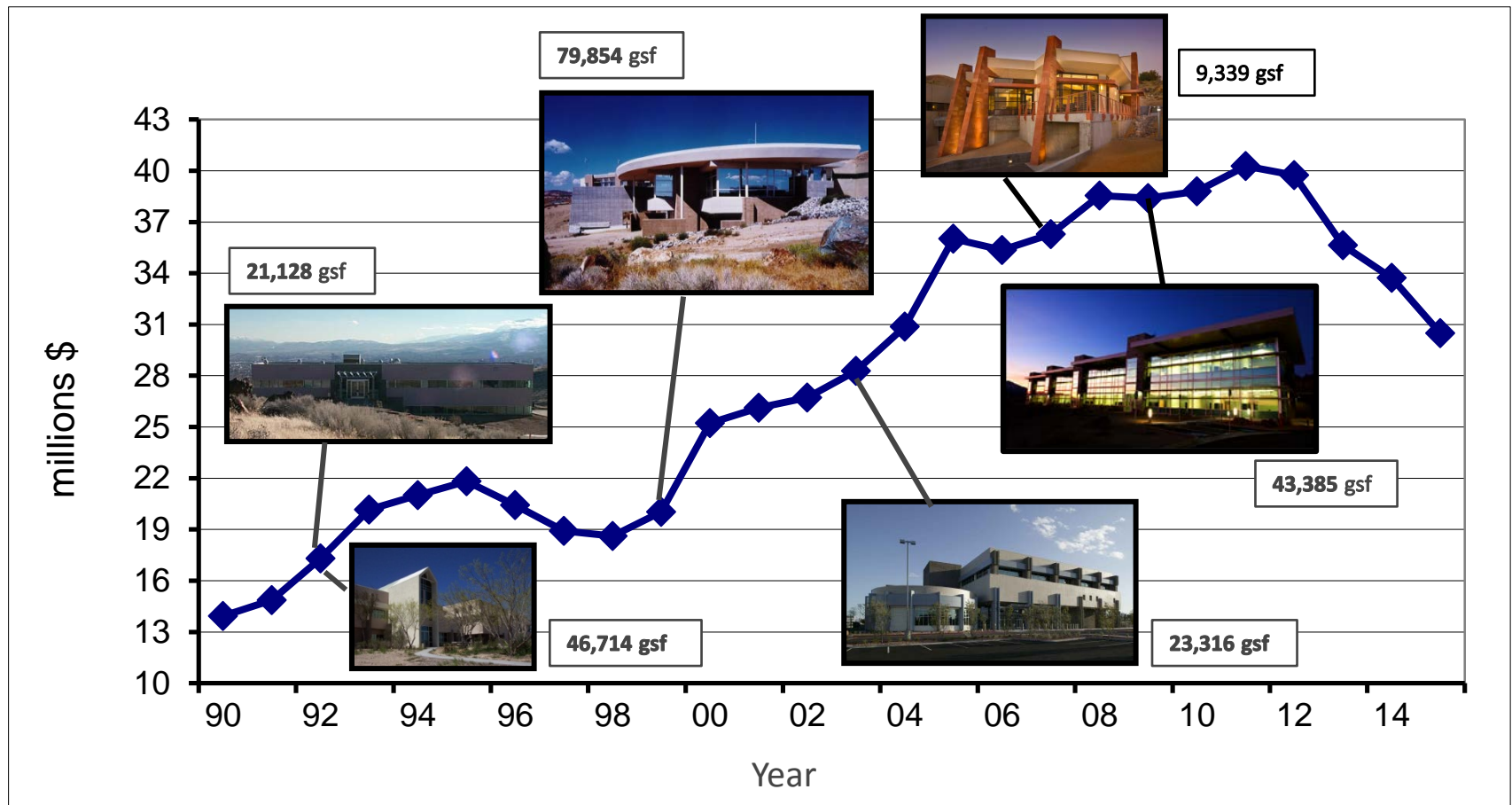
# State Appropriations for Institutional Operations



*Based on 2013 adopted formula. \$35.8M in grants and contracts expenditures and \$21.3 in budgeted operated costs.*  
(BOARD OF REGENTS 12/03/15 & 12/04/15) Ref. BOR-24, Page 16 of 41

# Research Productivity versus Research Space

## DRI Research Revenue FY1990 to FY2015



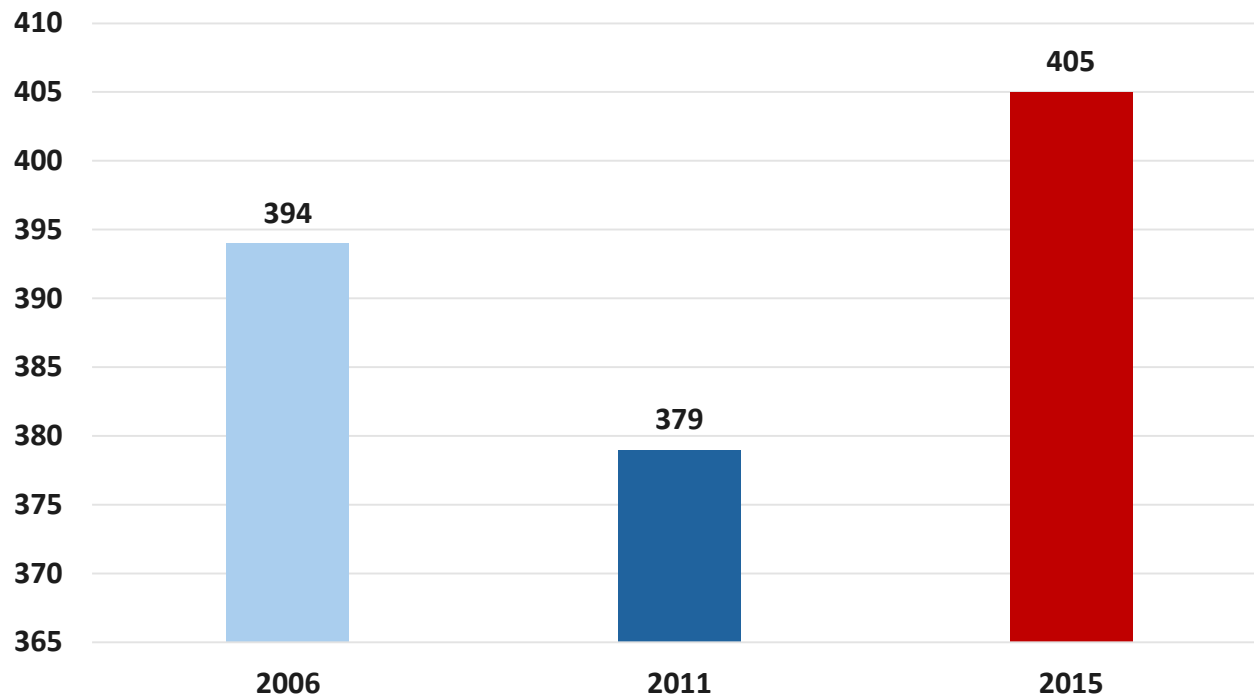
**Increased Facilities = Growth in Number of Research Faculty, Research Productivity, and Revenue**

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



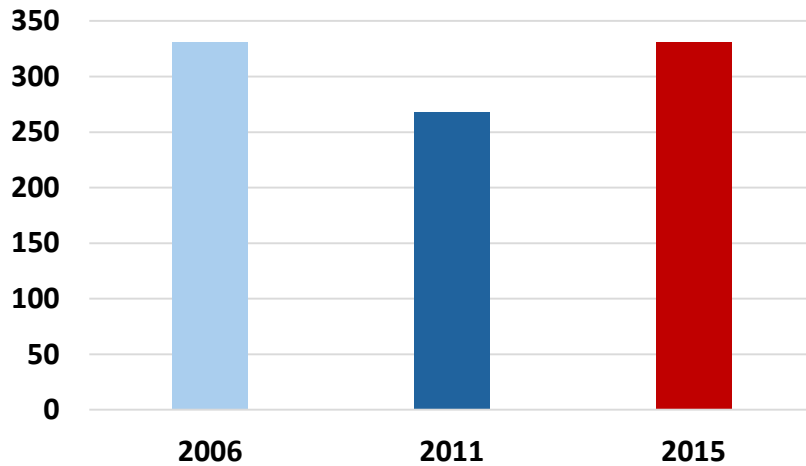


# Number of Active Awards

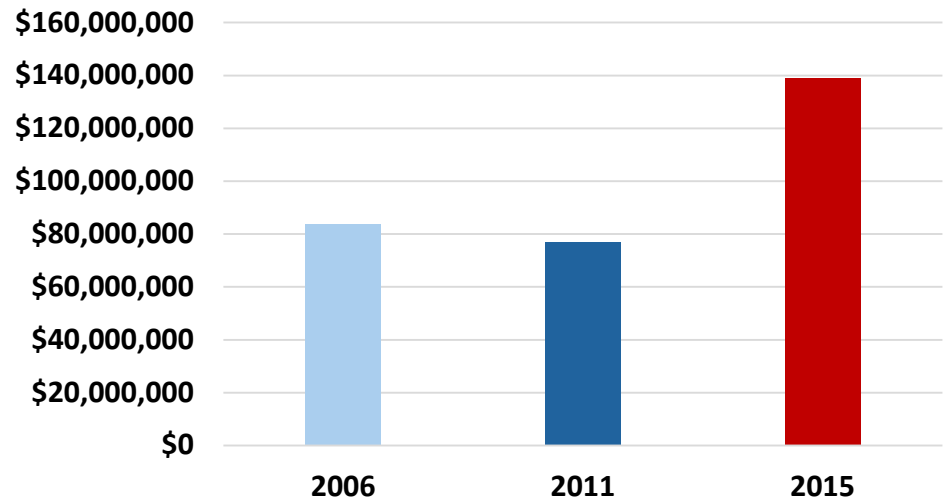


# Proposals Submitted

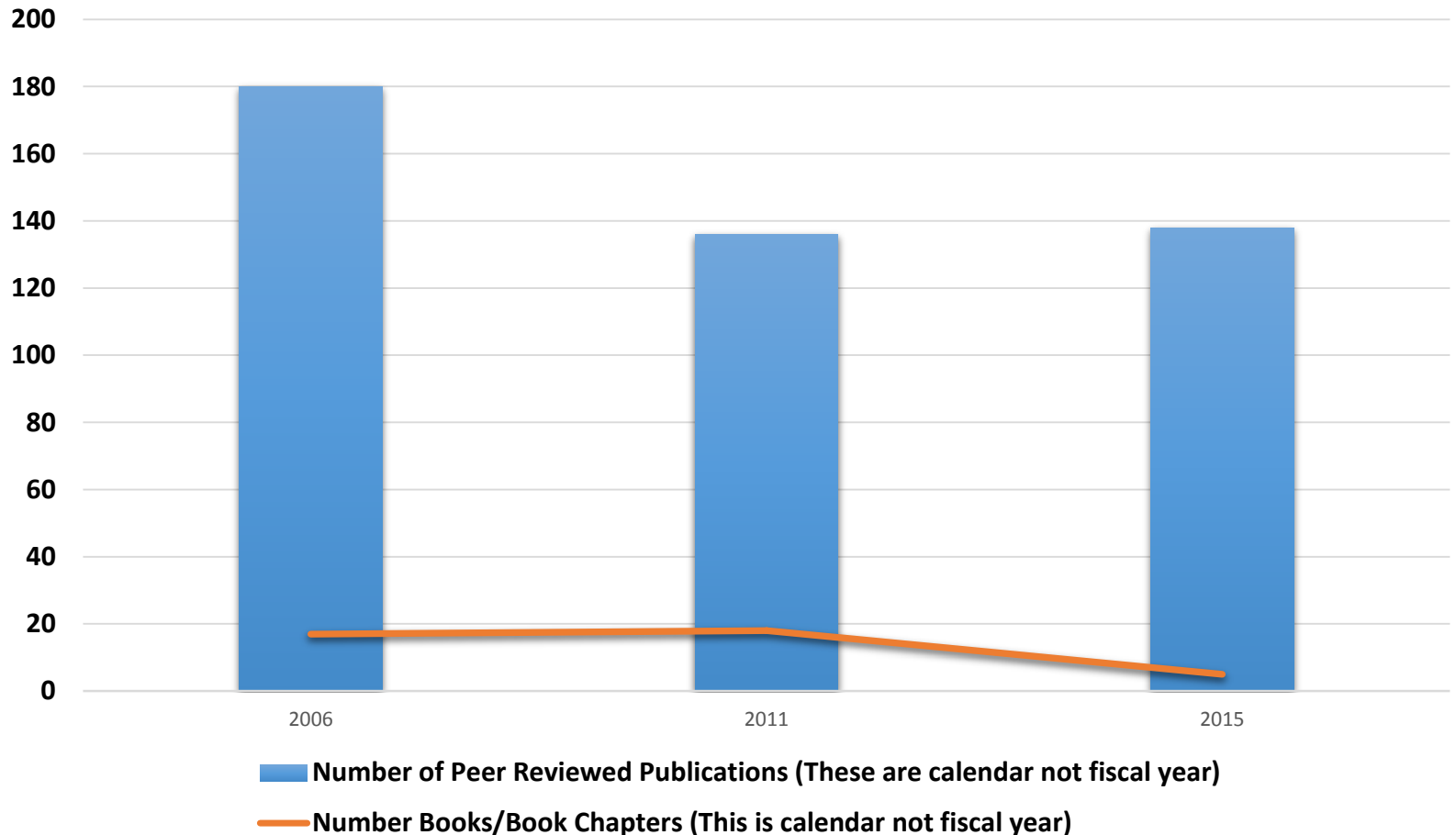
**Number of Submitted Proposals**



**Amount Requested in Proposals**



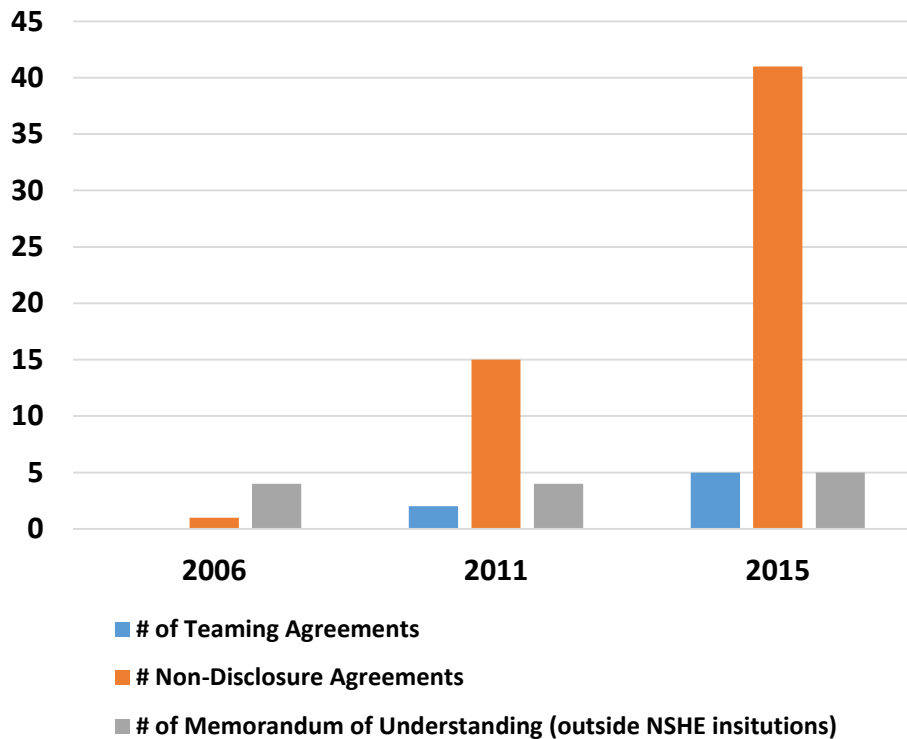
# Faculty Peer-Reviewed Publications



# DRI's Output: Business Development & Partnerships



## Agreements (Teaming and Non-Disclosure) & MOUs



|  | <u>2013</u> | <u>2014</u> |
|--|-------------|-------------|
| <b>Business Development and Partnerships</b> |             |             |
| New Company Spinouts                         | 0           | 1           |
| New Companies Moving to NV                   | 0           | 4           |
| New IP Disclosures                           | 4           | 3           |
| New Patent Applications                      | 7           | 9           |
| New Patents Issued                           | 3           | 3           |

# How is DRI Ranked Nationally and What is DRI's National Rankings over Past 10 Years?





## DRI's Current Competitive Ranking



### DRI's Competitiveness

FY13 Academic Institutional Rankings by R&D Expenditures in the Environmental Sciences

- 1 Woods Hole Oceanographic Institute
- 2 University of Washington, Seattle
- 3 University of Colorado, Boulder
- 4 University of California, San Diego (includes Scripps)
- 10 University of Alaska, Fairbanks
- 15 Massachusetts Institute of Technology (MIT)
- 24 Desert Research Institute**
- 27 University of Maryland, Center for Environmental Sciences
- 45 Stanford University
- 51 University of California, Davis
- 60 UNLV
- 62 University of California, Berkeley
- 63 UNR

# Top 6%

416  
Institutions  
Ranked

*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.*

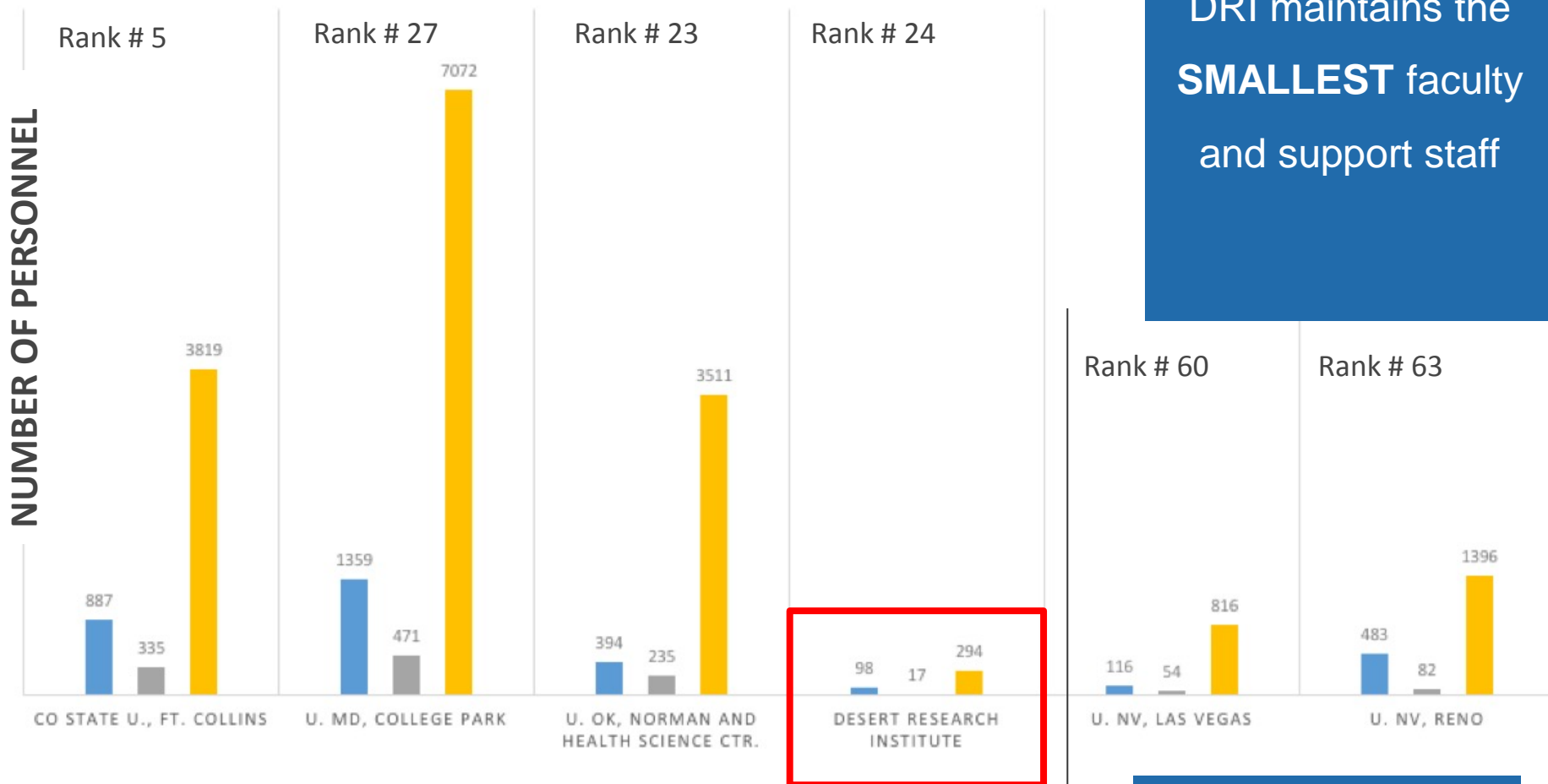
# DRI's Competitive Ranking & Effectiveness



Of the four that  
report Atmospheric  
and Earth Sciences  
DRI maintains the  
**SMALLEST** faculty  
and support staff

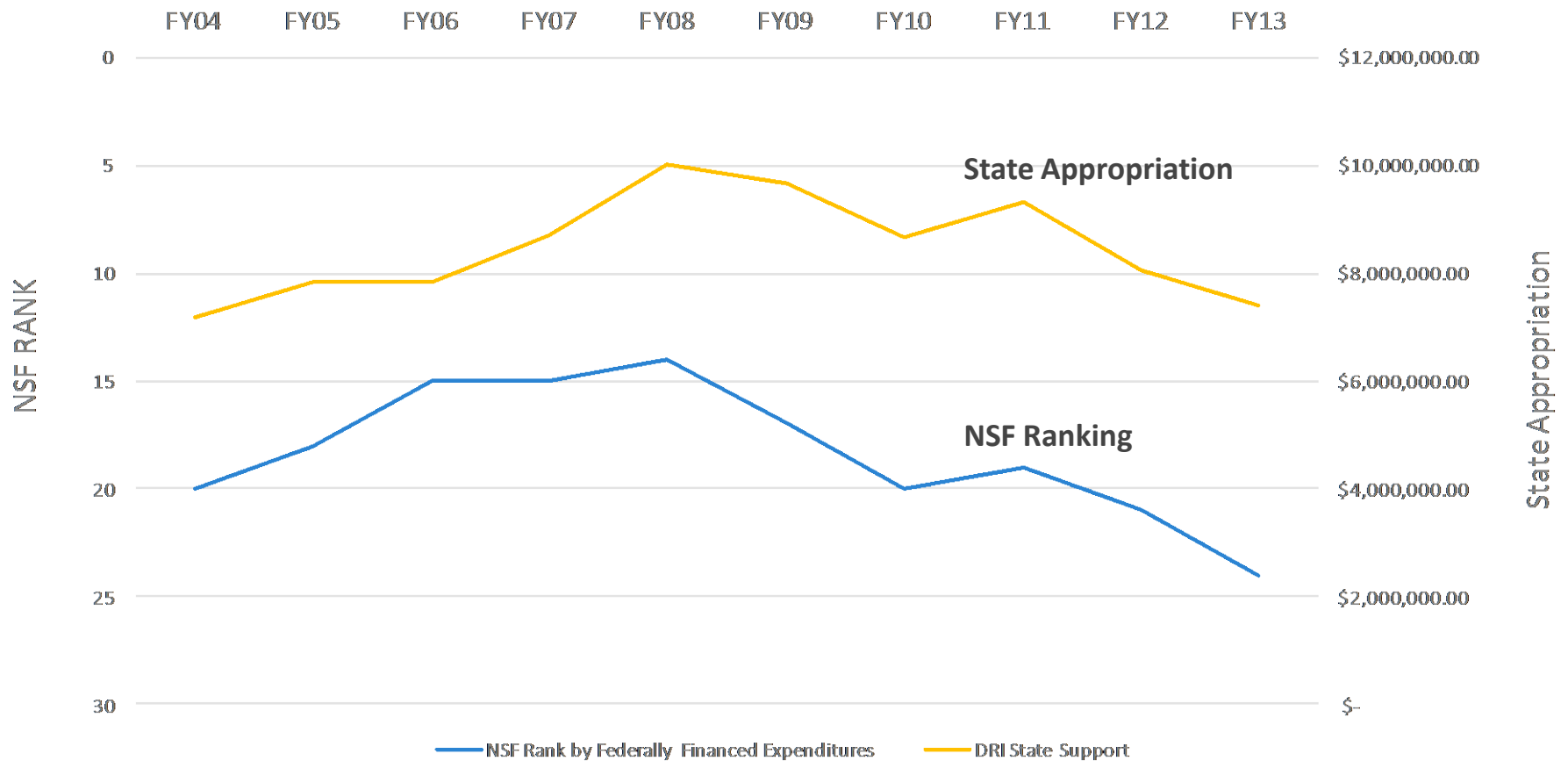
## R&D PERSONNEL

■ PI ■ Postdocs ■ Support





## NSF Rankings and State Funding



# 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



**DRI's Benchmark  
Data – 9 Nonprofit  
Research  
Institutions**

# Institutional Size Comparison

*Total Employees*



*FTE*



*Revenue*



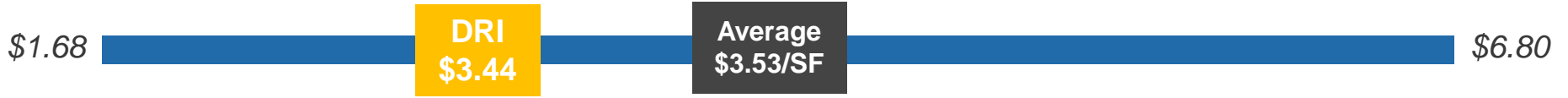
**DRI  
EFFICIENCIES +  
EFFECTIVENESS**

# ***FACILITIES & IT***

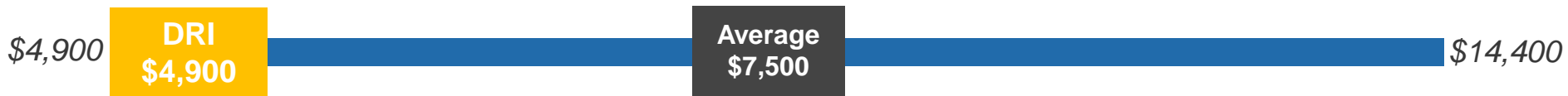
*Total O&M Expenses per SF*



*Utilities Expenses per SF*



*IT Expenses per FTE*



*Employees served per IT FTE*

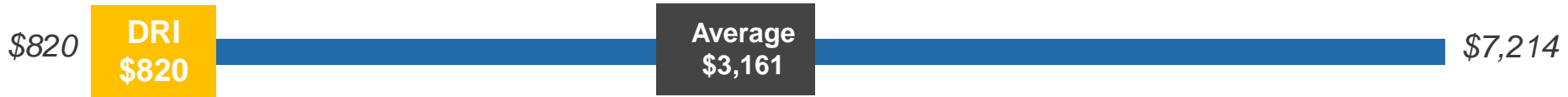


*DRI is Extremely Efficient and Effective*

**DRI  
EFFICIENCIES +  
EFFECTIVENESS**

# HUMAN RESOURCES & FINANCIAL SERVICES

*HR Budget per employee*



*Employees served per HR FTE*



*Financial Services FTE Staffing*



*DRI is Extremely Efficient and Effective*

# ***CONTRACT MANAGEMENT***

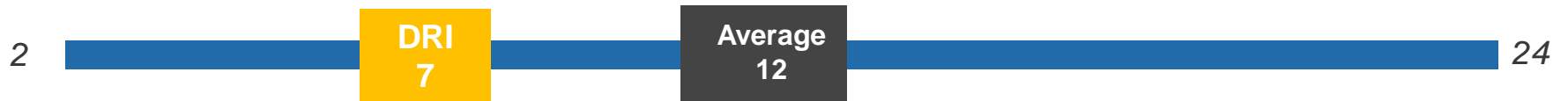
*Total Contracts Administered*



*Contracts processed per contract FTE*



*Staff dedicated to admin of contracts and grants in FTE*



# How Does DRI Bring Value-Added to Higher Education & STEM Education?



## 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:**

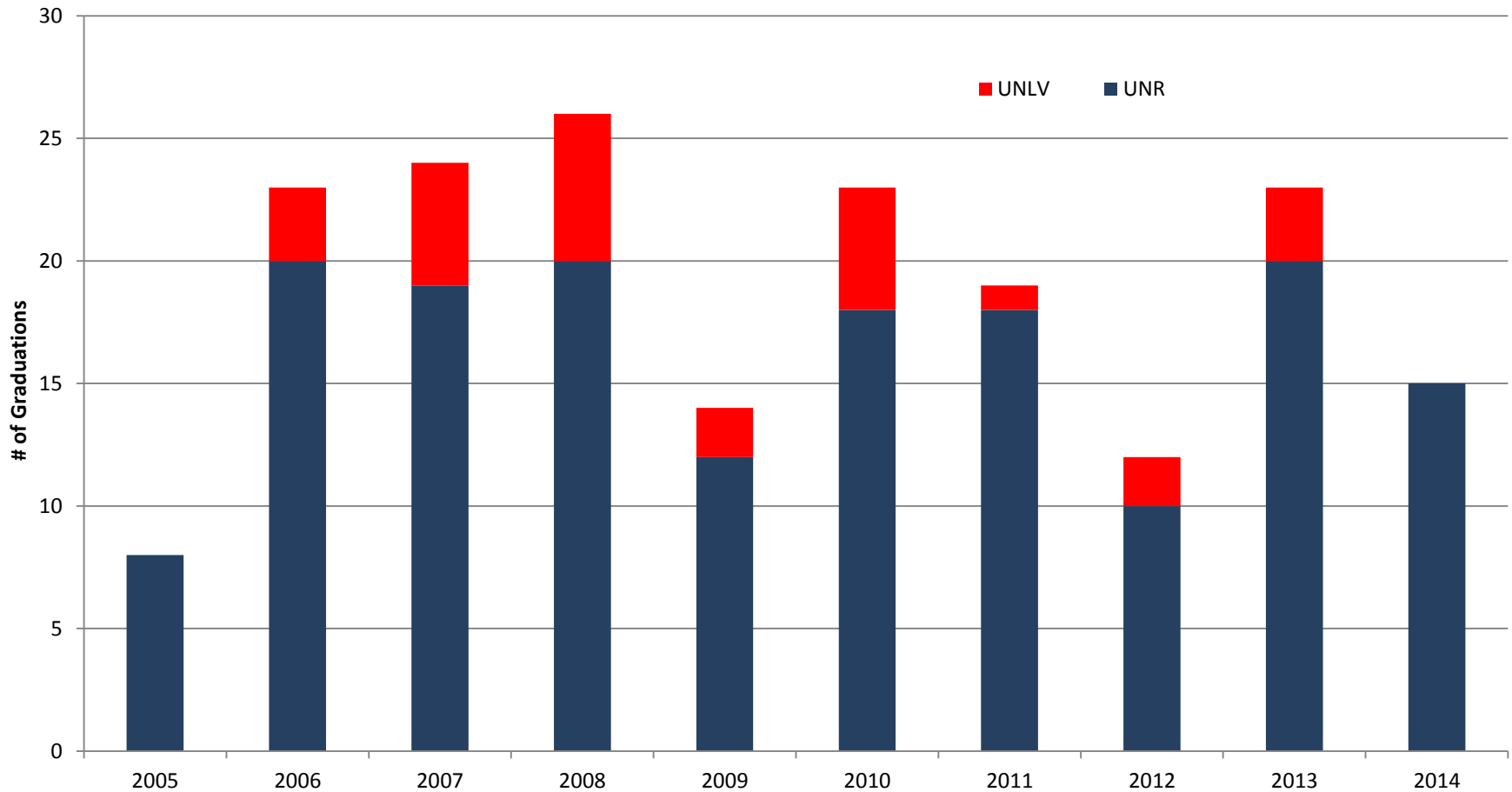
- In addition to serving as Major advisors/co-advisors to the 50 students, DRI faculty serve as advisors on graduate committees and thus help in educating and graduating PhD students at both UNR and UNLV



## DRI's Role in Higher Education

# DRI's Historic Contributions

## Conferred PhDs at UNR and UNLV: Humanities, Social Sciences, STEM, Other Professional





# DRI's ROLE IN & SUPPORT FOR UNR TEACHING



## UNR classes:

Atmospheric Sciences

Hydrologic Sciences

Other (anthropology, geology, biology, engineering, etc.)

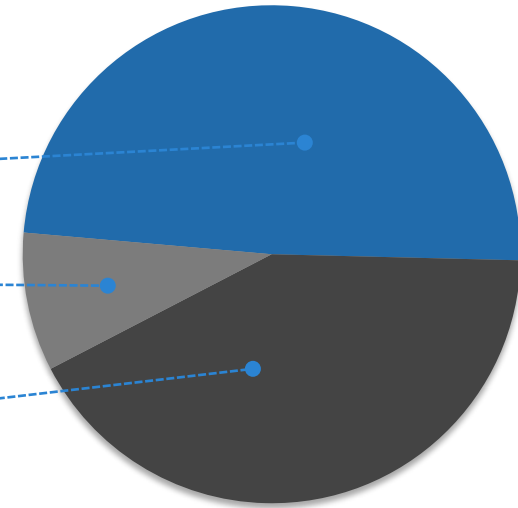
**NOTE: No formal programs exist between UNLV & DRI such as these!**

## WHAT DRI INVESTS AT UNR

Atmospheric Sciences (\$164K)

New Course Dev. (\$30K)

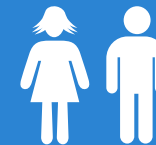
Graduate Program in Hydrology (\$140K)



**\$334K**

DRI Indirect Cost and Endowment Support for UNR Teaching Programs

Additional DRI Grant & Contract Student Costs



\$1.5M Salaries  
\$538K Fringe

UNR Support for DRI Teaching Programs

**\$200K**

Additional Funding to UNR

\$180K\* Student Fees  
\$600-\$800K\* WSCH Funding

*\*approximate*

# DRI's STEM-Related Outreach Program



**GreenPower 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-<br>November 1,<br>2015 |
|---|-------------|-------------|---|
| <b>Number of Schools Involved in GreenPower</b>       | <b>125</b>  | <b>247</b>  | <b>264</b>                              |
| <b>Number of K-12 Students Involved in GreenPower</b> | <b>6557</b> | <b>7238</b> | <b>19106</b>                            |

# Fundraising

## DRI Global Water Knowledge Campaign

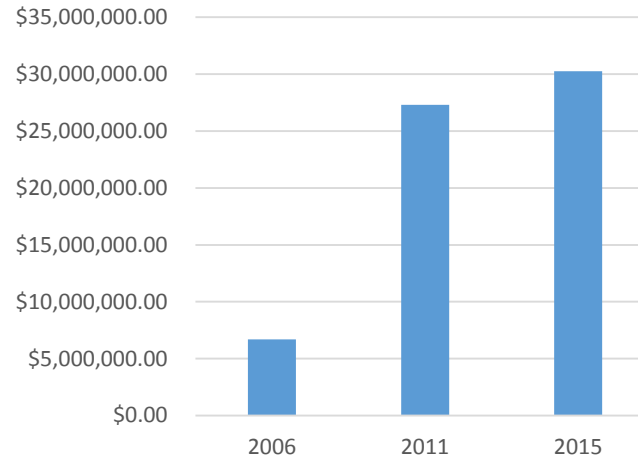
*DRI LAUNCHES GLOBAL INITIATIVE TO PROVIDE WOMEN IN DEVELOPING COUNTRIES WITH CLEAN WATER*



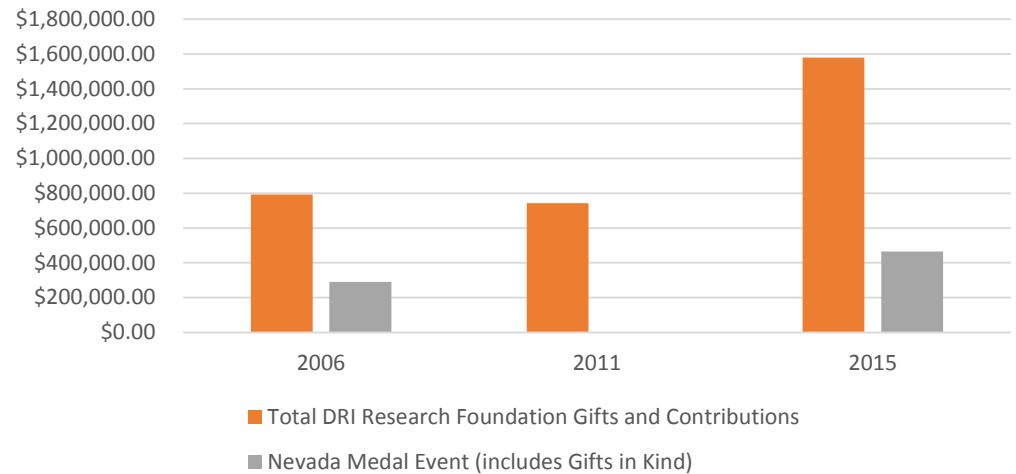
# Endowments & Fundraising



Endowment



Foundation Gifts & Contributions



# Additional Information Requested

1. Strategic Planning Status – completed in 2015 with ~60% institutional participation & BoR approved in 2015
  
1. Institutional Evaluations (Internal & External)
  - a. National Science Advisory Committee review – completed in 2012, next review in 2017
  - b. 360-Degree Institutional Assessment – completed in 2011, next review in 2016
  
2. 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.

# QUESTIONS?