

# National Academy of Sciences

## Assessment of EPSCoR/IDeA Programs

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# Wyoming

- \* 100,00 sq miles
- \* #1 in Net Energy Production in the US
- \* 50% Federal Ownership
- \* 560,000 in 2010 Census (smallest population)
- \* \$53,000 Median Family Income
- \* 7 Community Colleges
- \* No Accredited Tribal College
- \* 1 Public Baccalaureate-Granting Institution
- \* UW
  - \* 10,000 on campus, 13,000 statewide
  - \* 700 faculty
  - \* 25 PhD granting programs
  - \* \$86 million in competitive external awards
  - \* No Medical or Vet School

# Each EPSCoR State is Different

State	Size in Square Miles	% Federal Ownership	Population 2010 Census	Population Density/mi <sup>2</sup>	# of Institutions of Granting Graduate Degrees <sup>1</sup>
Alaska	6,663,267	67.0%	721,523	0.1	3
Delaware	2,489	2.5%	900,877	362	4
Hawai'i	10,931	18.4%	1,366,862	125	4
Montana	147,042	31.9%	994,416	6.8	7
Nevada	110,560	87.6%	2,709,432	25	4
Rhode Island	1,545	3.9%	1,055,247	683	9
Tennessee	42,144	7.6%	6,375,431	151	31
West Virginia	23,230	13.6%	1,859,815	80	15
Wyoming	97,813	49.7%	568,300	5.8	1

<sup>1</sup>Data from <http://www.utexas.edu/world/university/state/>; does not include institutions granting advanced divinity or theology degrees. In some cases medical schools are included with a central university and in others they are separate.



# EPSCoR STATES AND ENERGY

COAL		NAT GAS		CRUDE OIL		TOTAL		NET BTU	
State	Quad BTU	State	Quad BTU	State	Quad BTU	State	Quad BTU	State	Quad BTU
WY	7.68	TX	7.37	LA	3.07	TX	10.71	WY	9.80
KY	3.22	LA	3.37	TX	2.40	WY	10.32	OK	3.51
OK	2.77	WY	2.36	AK	1.24	LA	6.52	LA	3.15
WV	2.14	OK	1.88	CA	1.20	OK	5.0	WV	1.67
TX	0.95	CO	1.52	ND	0.42	KY	3.23	NM	1.43
IL	0.75	NM	1.40	OK	0.35	NM	2.34	KY	1.36
MT	0.70	UT	0.45	NM	0.32	CO	2.19	AK	1.05
CO	0.67	AL	0.42	WY	0.27	WV	2.15	CO	0.74
NM	0.62	AK	0.40	KS	0.21	AK	1.68	MT	0.53
AL	0.53	KS	0.36	MT	0.15	AL	0.99	ND	0.45

With Permission from Nick Jones UW Enhanced Oil Recovery Institute 2012

# Wyoming EPSCoR at a Glance

- \* **State Committee**

- \* Nine members
- \* Appointed by the UW President
- \* Represents Governor, State Agencies, Industry, Community Colleges, University



## S&T Plan Guides EPSCoR

- Energy
- Computational Science
- Water
- Developing Human Capital

# Impact of an NSF EPSCoR RII – Ecological Topology: Faculty

## Faculty Results

- \* 4 Tenure Track Faculty Were Hired all are State Funded
  - \* 7 Directly Supported Start-up
- \* 35 Faculty From 9 Depts. with EPSCoR Other Support
- \* 43 PiE Ph.D. Students
- \* 152 Publications to Date
- \* \$27 million in Funded Research
- \* Collaborations with Other EPSCoR States Montana, Utah, Vermont, NE, Louisiana



# Impact of an NSF RII: Ecological Topology Students

## Student Results

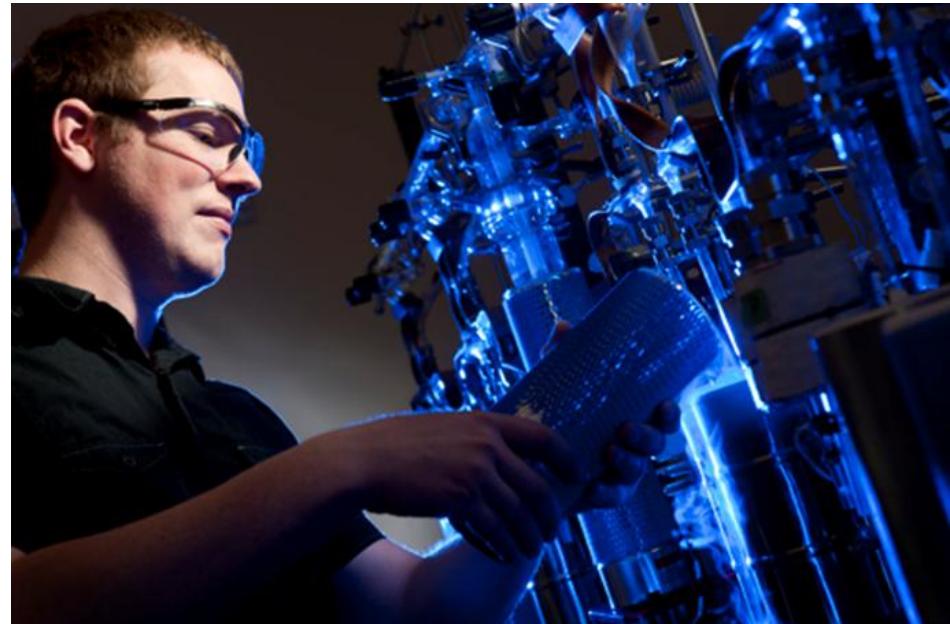
- \* 43 PiE Ph.D. Students
- \* 78 Publications to Date
  - \* All Graduates are Employed
  - \* Post docs or Assistant Profs
    - \* U Wisconsin, U. Uppsala, Yale
- \* 152 CC Students 87 EPSCoR Grants for Research



# Impact of an NSF RII: Ecological Topology Core Facilities

## Core Facilities

- \* 3 Core Facilities All State Supported
  - \* Stable Isotope, Genomics, GIS
- \* Directors and Chief Techs are State Employees - Sustainability
- \* All Perform Local, State, Regional and National Contracting
  - \* Stable Isotope Facility – Premier Facility in the Intermountain West



# Summer Research Apprentice Program – SRAP

## EPSCoR Changes Lives!

### Participants

- \* HS students 1<sup>st</sup> Gen and Underrepresented Students
- \* Direct Mentoring
- \* Students Gain self Confidence
- \* 289 Participants in Years
- \* State Emphasizes Hands on Research



### Outcomes From Recent Survey

#### 48 Returns (37.5% response rate)

- \* 93.75% SRAP Enter College
- \* Of the Graduates 73.3% in STEM Disciplines
- \* 37.7 % Plan to Enter Ph.D. Programs – Several Have
- \* Social Media Really Helps

# Changing Lives Getting Personal



- \* First Generation College Student
- \* EPSCoR Undergraduate Apprentice Program Participant
- \* Cum Laude Molecular Biology
- \* NSF Pre-Doctoral Recipient
- \* Harvard University
  - \* Merit Fellowship
  - \* Distinction in Teaching
  - \* Pierce Fellowship for Promising Graduate Students

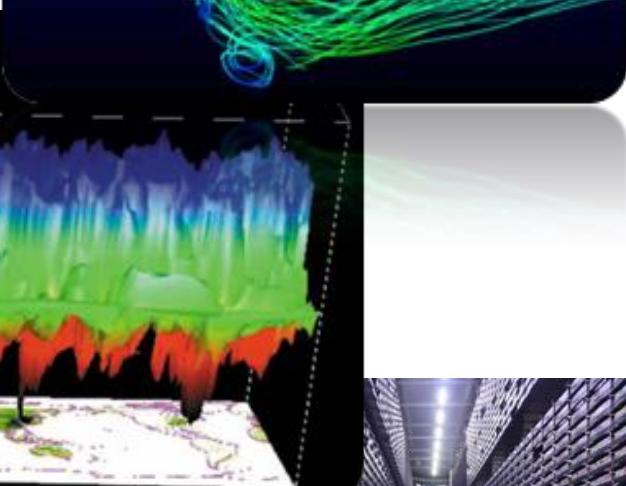
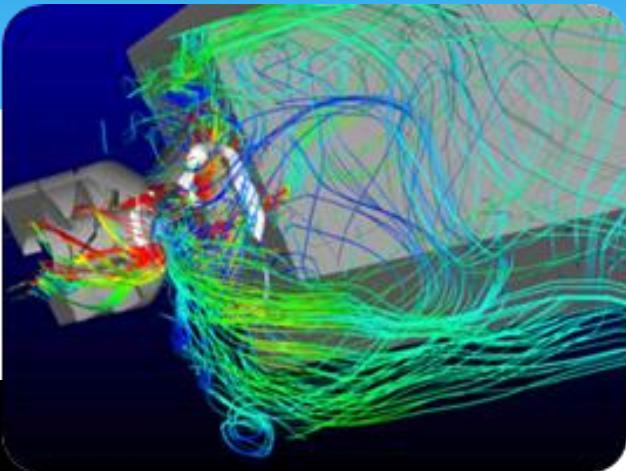
# Preparing for NCAR-Wyoming Supercomputing Center

## A Game Changer in Wyoming

- \* The National Center for Atmospheric Research (NSF FFRDC) has used Supercomputing for 5 Decades
- \* 1.6 petaFLOP (72,000 Processors IBM)
- \* 12 petabyte Storage System
- \* Total Cost ~\$105 million
- \* NWSC was the Beachhead, Microsoft is Locating a Major Data Center Next Door



# NWSC - Wyoming Steps Up



- \* Wyoming Placed \$40 million into NWSC
  - \* \$20 million for construction
  - \* \$1 million per year for 20 years for future computer purchases
- \* Also UW Installed a 10 gigabit Direct Connect Between UW and NWSC
- \* For this UW Receives a 20% Allocation of the Computer Resource with Peer Review
- \* UW is Prepared
  - \* 33+ computational faculty members
  - \* Great connectivity
  - \* Campus research computer

# Thank You!

