Shaping the Research Enterprise of the Odegard School

Strategies for Success

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Objective

- Review current state of the research enterprise.
- Discuss strategies to be more successful.



CapeEx19 Field Project Group Photo on August 4, 2019

Societal Significance Drives Research

Largest Issues 1.) Energy 2.) Water

Richard Smalle: Our Energy Challenge

#	Company	Source
1	Great River Energy	Coal Creek Station
2	Basin Electric Power Cooperative	Leland Olds Station
3	American Crystal Sugar Company	Hillsboro Plant
4	American Crystal Sugar Company	Drayton Plant
5	Montana Dakota Utilities Company	RM Heskett Station
6	Great River Energy	Stanton Station
7	Basin Electric Power Cooperative	Antelope Valley Station
8	Minnkota Power Cooperative, Inc.	Milton R. Yong Station
9	Otter Tail Power Company	Coyote Station
10	Dakota Gasification Company	Great Plains Synfuels Facility
11	Red Trail Energy, L.L.C.	Richardton Ethanol Plant
12	Tesoro Refining and Marketing Company	Mandan Refinery

Approximately 77 percent of North Dakota water use is for power generation. (ND Water - A Reference Guide)



North Dakota Ambient Monitoring Network Plan 2012, Table 9, page 25.

North Dakota State 2003 Water Use (acre-feet)



Research framework and tools for the project linking physical science research to public policy research. New capabilities that will be developed are shown in bold.

Impact of Measurements on Research Progress

The scientific method consists of **the collection of data through observation** and experimentation, and the formulation and testing of hypotheses - *Merriam-Webster Dictionary*.

"The returns [of science] are so large that it is hardly necessary to justify or evaluate the investment" National Science Foundation. 1957, Basic Research: A National Resource, page 61 "A \$3.8 billion investment drove \$796 billion in economic impact, create 310,000 jobs and launched the genomic revolution." Economic Impact of the Human Genome Project.

National Academies (US) Committee on Measuring Economic and Other Returns on Federal Research Investments. Measuring the Impacts of Federal Investments in Research: A Workshop Summary. Washington (DC): National Academies Press (US); 2011. 8, Emerging Metrics and Models.



Odegard School Proposals (FY2015-FY2019)



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Strategies for Success: People

- Utilize Resources (People) Fully
 - Increase the number of awards per investigator.
 - Match people and facilities.



Strategies for Success: Execution

- •Resources (Time) are finite; hence, need to work wisely.
 - Focus on Strengths
 - -Strategic Planning
 - Be Efficient
 - -Unnecessary Effort
 - Work Together
 - -Across Campus and Around the World



Strategies for Success: Growth

- •Growth requires continue excellence and new focus.
 - Continue to what is working.
 - Expand into areas.
 - -Unmanned Aircraft Systems
 - -<u>Big Data</u>
 - -Rocket Flights
 - -Biology



Conclusion

- The Odegard School has many strengths.
 - A focus on innovation and commercialization.
 - Well known and respected.
 - Potential for growth.
 - Dedicated people.
 - Great place to work.

