

Arizona Energy Efficiency Programs and Efforts

Where we are and where we are going



Sandy Bahr

Chapter Director

Sierra Club – Grand Canyon Chapter
602-253-8633, sandy.bahr@sierraclub.org





What is energy efficiency?

- Using energy “more wisely.”
- Using technologies and systems that use less energy to do the same amount of work & provide the same level of service.
- Opportunities in energy end uses: lighting, heating and cooling, motors and drives, industrial processes.
- Generally includes energy conservation.





Benefits of Energy Efficiency

- Saves consumers and businesses money.
- Creates jobs in the housing and construction sectors



Benefits of Energy Efficiency

- Increases the reliability of energy supply systems
- Reduces dependence on oil and natural gas imports



Benefits of Energy Efficiency

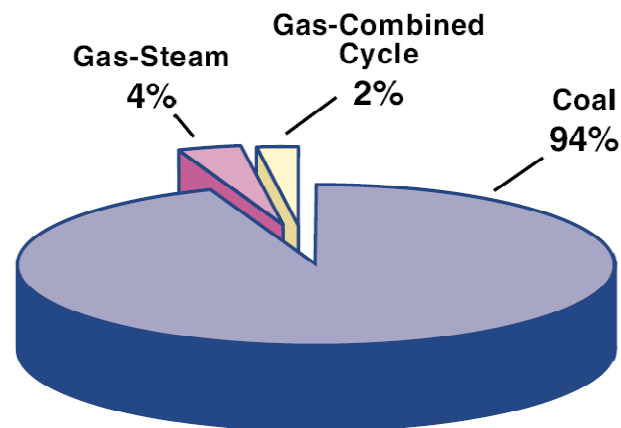
- Reduces water use

Thermoelectric power (nuclear, coal, natural gas plants) use 48% of all water used in the U.S.

- 51% of surface water.
- 12 million gallons/hour at average coal plant.

Figure 4 –

Daily freshwater consumption by fossil plants in region in 2000



MYHRE, 2002 AND
EIA, FORM 767

Sources: *The Last Straw: Water Use by Power Plants in the West*,

Western Resource Advocates



Benefits of Energy Efficiency

- Reduces need for additional transmission





Benefits of Energy Efficiency

- Reduces the need for costly and controversial new power plants.
- Reduces emissions of air pollutants that are harming public health.
- Reduces emissions of pollutants that are causing global warming.





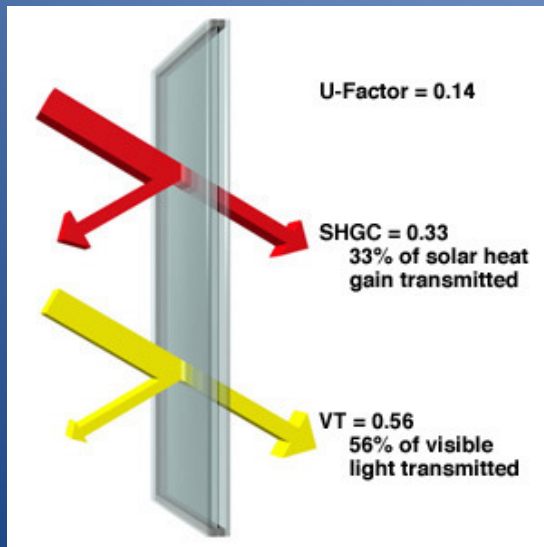
Energy efficiency...

- Is the lowest cost energy resource – only 2 to 3 cents per kWh saved.



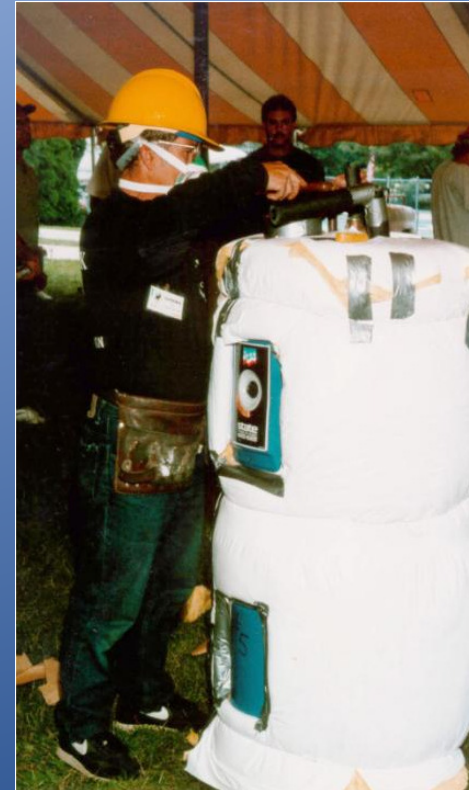
Energy efficiency...

- Can reduce customers' energy bills by 10% to 50%.



Energy efficiency...

- Can help create over 12,000 new jobs in Arizona by 2025.





Energy efficiency...

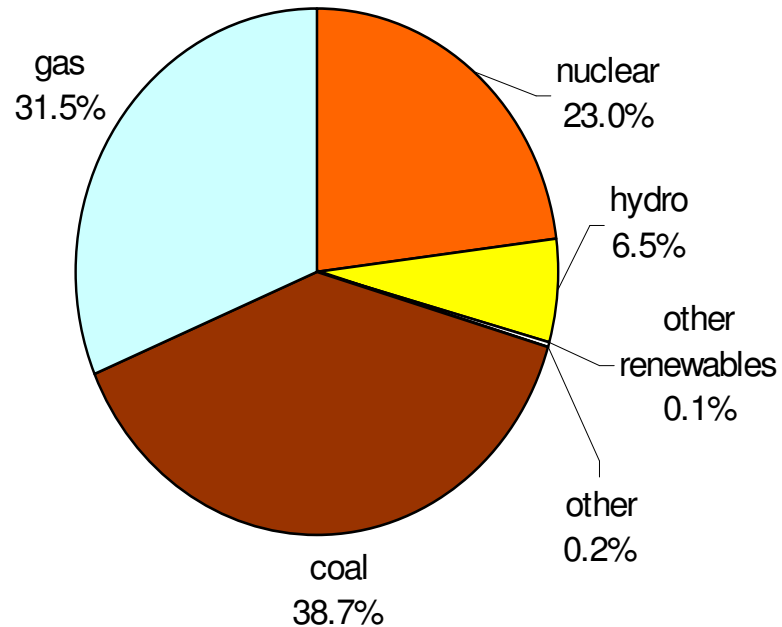
- Helps keep more of the energy economy in Arizona (currently, \$6 billion of the \$10 billion that Arizona businesses and consumers spend on energy leaves the state each year.)



Arizona's Current Energy Mix

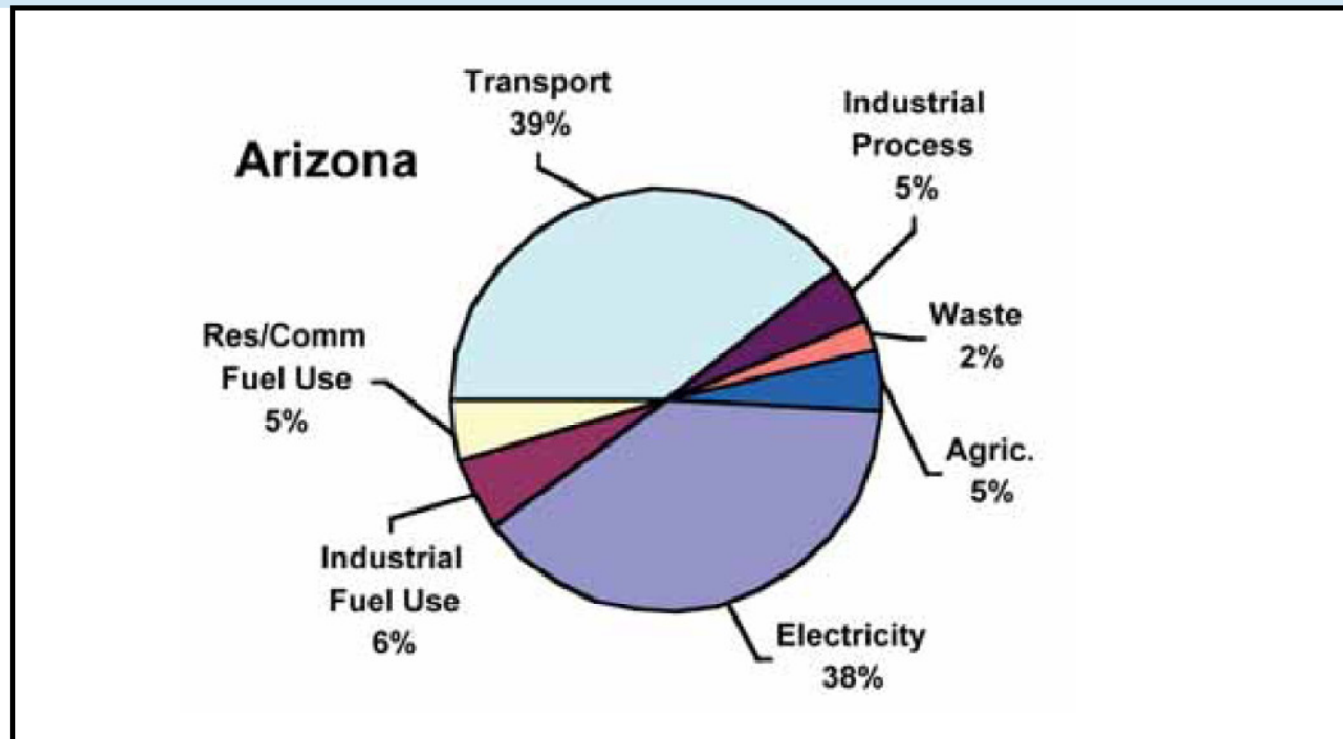
Arizona's electricity is primarily generated with fossil fuels and nuclear power

2006 Generation Mix of Power Plants Located in Arizona



Arizona Greenhouse Gas Emissions

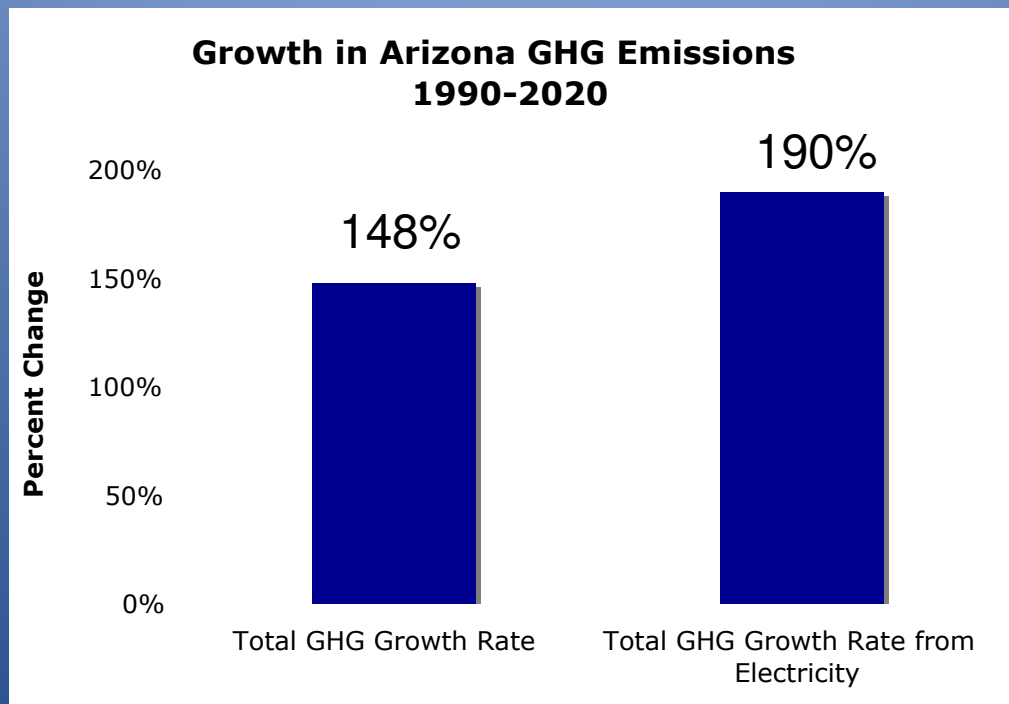
Arizona Greenhouse Gas (GHG) Emissions in 2000



Source: AZ CCAG Climate Change Action Plan, Final Report, August 2006



Electricity GHG Emissions Growing Faster than Total Emissions

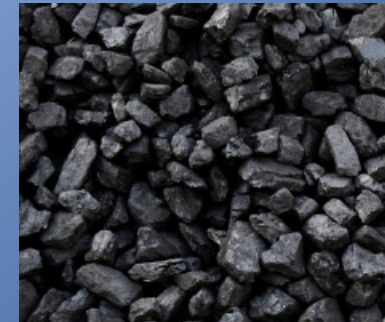


Source: AZ CCAG Climate Change Action Plan, Final Report, August 2006



Choices at the Crossroads

- How will the energy needs be met?
- Which energy resources will be chosen?
- Who will pay the billions? How?
- How will Arizona choose to grow?



A combination of energy efficiency, changing how much and how we grow, and renewable energy can meet the future energy needs of Arizona consumers and businesses, while providing significant benefits to utility customers, the energy system, the economy, and the environment.





Policy forums in Arizona

- Arizona Corporation Commission (ACC) – utility regulators
- Salt River Project (SRP) - board/managers
- State legislature
- Governor's office and state administration
- Cities and counties
- Congressional delegation





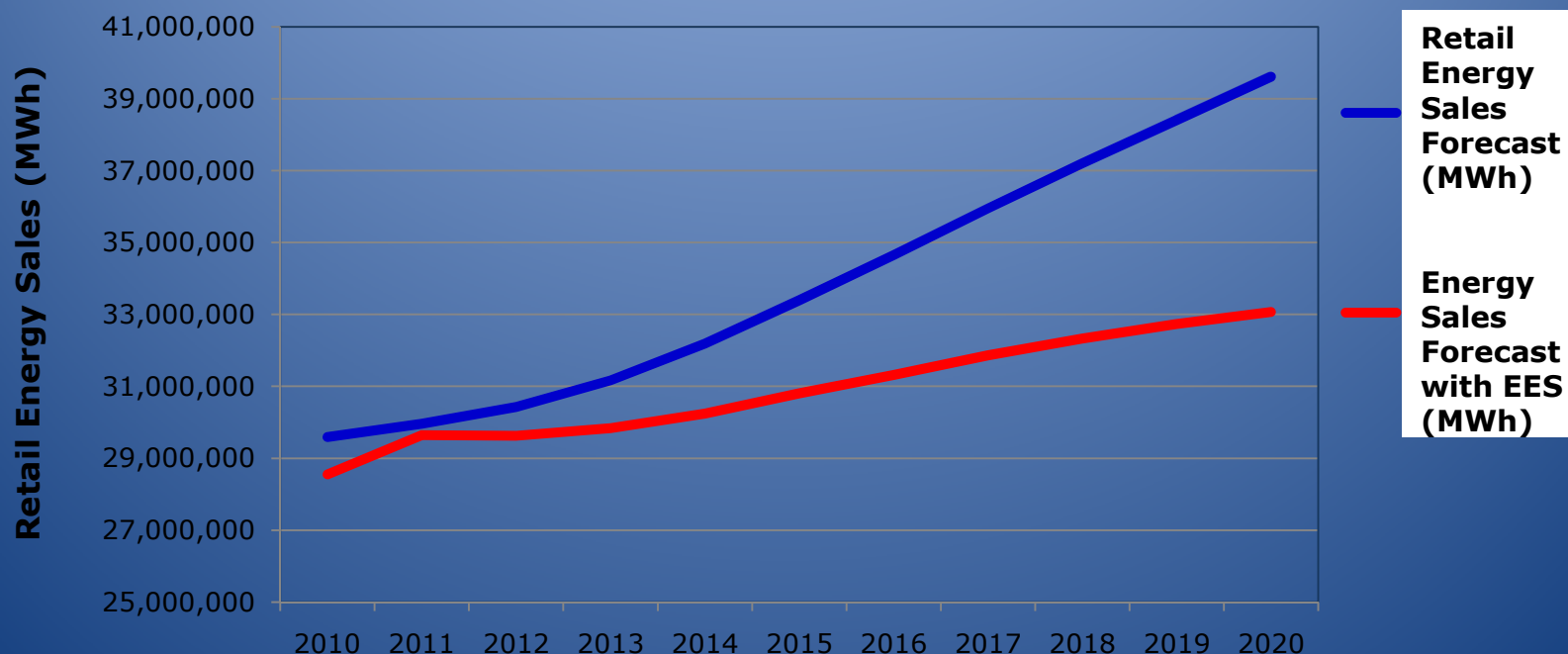
Energy Efficiency at the Arizona Corporation Commission

- Electric Utility Energy Efficiency Standard
- Gas Utility Energy Efficiency Standard
- Energy efficiency requirements in rate cases
- Energy efficiency in resource plans
- Utility implementation programs



ACC - Energy Efficiency Standard

Energy Efficiency Standard (EES): 22% by 2020 APS Example



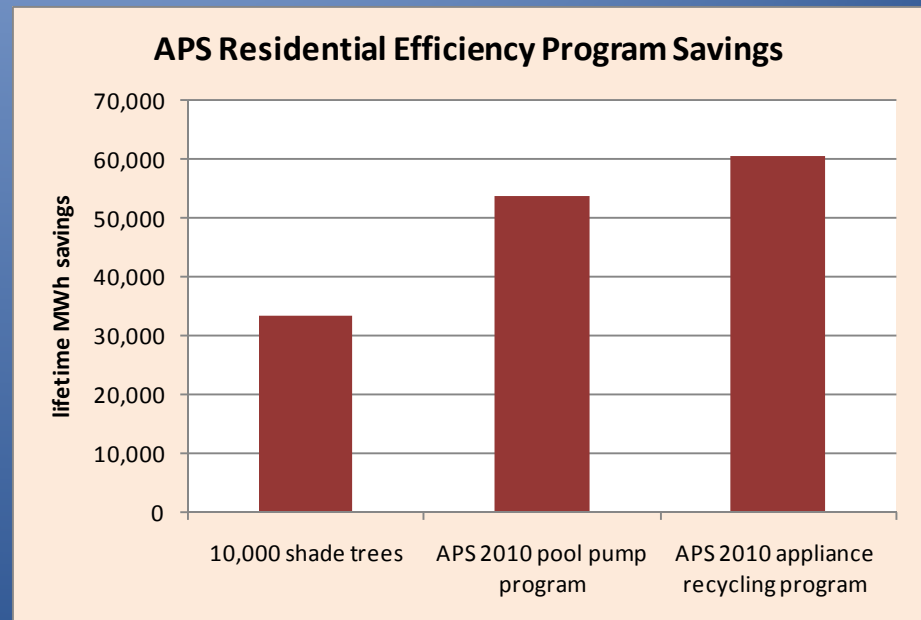


Gas Utility Energy Efficiency Standard

- Achieves a 6 percent energy savings in 2020
- Three-fourths through energy efficiency programs
- Credit for more efficient building codes and appliance standards (must demonstrate they have supported and advocated for them)

<u>CALENDAR</u> <u>YEAR</u>	<u>ENERGY EFFICIENCY STANDARD</u> <i>(Cumulative Annual Energy Savings By the End of Each Calendar Year as a Percentage of the Retail Energy Sales in the Prior Calendar Year,</i>
<u>2011</u>	<i>0.50%</i>
<u>2012</u>	<i>1.20%</i>
<u>2013</u>	<i>1.80%</i>
<u>2014</u>	<i>2.40%</i>
<u>2015</u>	<i>3.00%</i>
<u>2016</u>	<i>3.60%</i>
<u>2017</u>	<i>4.20%</i>
<u>2018</u>	<i>4.80%</i>
<u>2019</u>	<i>5.40%</i>
<u>2020</u>	<i>6.00%</i>

Implementation - APS Shade Tree Pilot Program





Energy Efficiency at Salt River Project



- Increase in energy efficiency investments from about \$10 million in FY2008 to \$51 million in FY2012
 - Cool Cash Rebate lowers the cost of a new AC by up to \$400.
 - Cover up to 75% cost of duct testing (up to \$75) and of the cost of qualified duct repairs (up to \$175)
 - Free fridge or freezer pick-up, recycle it (about 95% of each unit) and a check for the customer for \$30.



Energy Efficiency – State Government

- Established Appliance Standards not covered by federal standards
- Required state agencies and universities to achieve a 10% reduction in energy use per unit of floor area by 2008, and a 15% reduction by 2011. (Have tried to ramp up.)
- Allowed schools to establish an energy and water savings account to fund energy or water saving projects in school facilities.





Energy Efficiency – Local Government

- Green Building Programs
- Beyondcode standards - Marana, Tucson, Buckeye, Pima County, Scottsdale, and Apache Junction.
- Exceed current energy efficiency requirements -- voluntary Green Building programs or other higher code development, such as Leadership in Energy and Environmental Design (LEED).
- Public Buildings – built to LEED or other efficient standards – Phoenix, Scottsdale, Tucson, Tempe, Prescott, NAU, etc.





Energy Efficiency – Federal Government

- **American Recovery and Reinvestment Act (ARRA) of 2009** Through the Energy Office at the Arizona Department of Commerce, Arizona is receiving \$129 million in ARRA funding.
- **Building Energy Codes Program** provides information on national model energy codes for homes and promotes stronger building energy codes.
- **Weatherization Assistance Program** enables low-income families to permanently reduce their energy bills by making their homes more energy efficient.





Energy Efficiency – Federal Government

- **Lighting and Appliance Standards and Rebates** establish standards for lighting and appliances , Energy Star program, tax credits.
- **Building Technologies Program** funds research and technology to reduce residential energy use.
- **BetterBuildings** partners with states, local governments, and organizations who received funding to ramp-up energy efficiency building retrofits .
- **Building America** residential research works to improve the quality and energy efficiency of homes. (Reduce average energy use by 40% to 100%.)
- **Builders Challenge** provides marketing and technical support to builders of energy-efficient homes.





Energy Efficiency – Where we are going?

- Certification of electric utility Energy Efficiency Standard
- Implementation of electric utility EE Standard
- Finalize and implement gas utility EE Standard
- Increased EE in utility Resource Plans
- Increased commitment to EE from SRP
- Community participation in the International Code Council's meeting – 30% solution.
- Require Energy Efficient Building Codes locally and statewide.





Location, location, location



Spring Mountain Ski Ranch
Buckeye, AZ

CUSTOM 1 ACRE LOTS AVAILABLE
800-461-5104

- A Private Gated Water Ski Community
- Panoramic Mountain Views - Serene Environment
- 4 Lakes with 11 Custom Lots On Each Lake
- Custom 1 Acre Lots with Personal Boat Dock
- Boat Launch with Service Dock
- Community Areas with 800 Sq Ft Cabanas
- Professional Slalom Course and Ski Jump

CUSTOM 1 ACRE LOTS AVAILABLE
Limited Quantity
800-461-5104
info@springmountainskiranch.com
SpringMountainSkiRanch.com
(Actual Photograph of Community)

Legend:
Boat Ramp (Blue line)
Boat Docks (Blue square)
Service Docks (Blue circle)
Rest Room Facility (Blue rectangle)
800 Sq Ft Cabana (Red square)
Paved Road (Black line)
Ski Jump (Yellow triangle)
PHASE I (Brown square)
PHASE II (Green square)
SOLD (X)

Map: Shows a lake with 11 custom lots (1-11) and 11 service docks (12-22). A legend indicates that lots 12-22 are sold (marked with X). A north arrow and a scale of 0-100 feet are also present.



Location, Design & Density





Resources

- Sierra Club – Grand Canyon (Arizona) Chapter <http://arizona.sierraclub.org>
- Southwest Energy Efficiency Project <http://www.swenergy.org>
- Western Resource Advocates <http://www.westernresourceadvocates.org/index.php>
- Arizona Public Interest Research Group <http://www.arizonapirg.org>
- Arizona Center for Law in the Public Interest <http://www.aclpi.org>
- Additional energy efficiency resources can be found at the following sites:
- Arizona Department of Commerce, State Energy Office
<http://www.azcommerce.com/Energy>
- Arizona Corporation Commission <http://www.cc.state.az.us>
- American Council for an Energy-Efficient Economy (ACEEE) <http://www.aceee.org>
- Alliance to Save Energy <http://www.ase.org>
- Consortium for Energy Efficiency <http://www.cee1.org>
- U.S. Dept. of Energy's Energy Efficiency and Renewable Energy Network
<http://www.eere.energy.gov>
- ENERGY STAR® Products <http://www.energystar.gov>

**When we contemplate the whole globe as one great dewdrop,
striped and dotted with continents and islands,
flying through space with other stars all singing and shining together as one,
the whole universe appears as an infinite storm of beauty.**



- [*Travels in Alaska*](#) by John Muir, 1915