



Leading *the* Charge



WYOMING'S ACTION PLAN FOR ENERGY, ENVIRONMENT AND ECONOMY

Governor Matthew H. Mead • 2013

GOVERNOR MATTHEW H. MEAD

200 West 24th Street

Cheyenne, WY 82002

(307) 777-7434

Table of Contents

| | |
|---|-----------|
| A Message from Governor Matthew H. Mead | 5 |
| Introduction | 7 |
| Overviews | 13 |
| Energy Overview | 15 |
| Environment Overview | 21 |
| Economic Overview | 27 |
| Strategic Themes | 33 |
| Strategic Initiatives | 39 |
| Economic Competitiveness, Expansion and Diversification | 41 |
| Efficient, Effective Regulation | 43 |
| Natural Resource Conservation, Reclamation and Mitigation | 49 |
| Education, Innovation and New Technologies | 53 |
| Conclusion | 59 |
| Appendix | 63 |
| MAPS AND FIGURES | |
| Top 10 Energy Producing States: 2010 | 11 |
| Wyoming Compared to Top Energy Producing Countries: 2010 | 11 |
| Wyoming Energy Resources Map | 18 |
| Wyoming Natural Resources Map | 24 |
| Employment by Industry for Wyoming: 2011 | 30 |
| Gross Domestic Product by Industry for Wyoming: 2011 | 31 |



A Message From

GOVERNOR MATTHEW H. MEAD

Energy is Wyoming's top industry. Our energy resources are vitally needed. They are important to our state, our country and the world. Likewise, our treasures of nature are important to all who live, visit or find inspiration here. To be good stewards of all this bounty, we cannot sit back and hope for the best. We need a strategy we can use now, and in the future, that strikes the right balance between energy development and environmental conservation.

Over the past two years, Wyoming's efforts to manage our energy and environmental resources have been successful. We have fought for balance in Bureau of Land Management Resource Management Plans, as well as national forest plans. We have insisted that these plans include protections for water, air and wildlife while maintaining agricultural, recreational and industrial opportunity - all of which are important to Wyoming. We have increased funding to the Wyoming Wildlife and Natural Resources Trust. In partnership with other states, we are increasing the supply of natural gas vehicles. The Energy, Engineering and STEM Integration Task Force is charting a path to lead the University of Wyoming toward becoming a tier one engineering college. We have made strides in workplace safety.

These are concrete accomplishments. We achieved them by rolling up our sleeves and working with many people from a broad spectrum of interests. With a collective focus and resolve, we can do even more.

A Wyoming energy strategy is one of my highest priorities. The strategy I envision requires an open process with public input. Many groups and individuals - energy companies, conservation groups, local governments, agriculture groups, educators, interested citizens and others - participated in developing this initial strategy. It is comprehensive, balances development and conservation, and provides the flexibility to change with time. It is the beginning of a continuum.

My office staff committed time and talent, giving all I asked of them. They will work with people across the state as we continue forward. My thanks to everyone involved.

It is great now to see the energy strategy published in the pages that follow. I give a glimpse of it here and encourage its use. The strategy itself is roughly triangular. It has five tiers, with broader concepts at the top and increasingly more specific ones at each successive level. At the apex, appropriately, is the overall vision statement: "Wyoming will achieve excellence in energy development, production, and stewardship of its natural resources for the highest benefit of its citizens." The rest of the strategy - guiding principles, strategic themes, objectives and initiatives - grows from this vision.



By working through the tiers of the strategy from the top down, reasonable proposals will emerge. A number of initiatives for the first year have already been identified. These are concrete activities, specific enough for state government to be accountable in executing the strategy.

This plan and its framework offer a logical approach to energy exploration, development and production, and balance these practices with the environment. It is designed to be regularly revised, updated and integrated into the state's planning and budgeting processes. Year after year, we will build on the successes of past years while we establish plans for the future.

My office looks forward to reporting to the Legislature and the public on the strategy, annual results, and new initiatives.

Sincerely,

Matthew H. Mead
Governor

*States' rights are without force unless they
are coupled with state responsibility.*

GOVERNOR CLIFF HANSEN
JANUARY 13, 1965 • STATE OF THE STATE ADDRESS



Introduction



Introduction



The challenge facing us can be simply stated:

“What role are the citizens of this State going to play in determining the conditions under which growth and development take place?”

Will our human and natural resources be utilized on our terms or will we be overwhelmed by the larger economic political forces that surround us?”

GOVERNOR ED HERSCHLER
JANUARY 16, 1975 • STATE OF THE STATE ADDRESS

Our collective charge is to power and fuel the economic well-being of our state and supply energy to the nation while protecting our environment. There are few things as important or challenging as accomplishing this mission.

Government’s role in this effort is to create an efficient problem-solving mindset, increase the coordination and efficiencies within and between agencies, and create policies that allow markets to operate efficiently and soundly. This framework must balance the needs and interests of energy, the environment, and the economy. Government should not dictate energy production levels by favoring one type of energy production over another or by influencing private, market-based actions.

Unfortunately, there is not a framework in place at the federal level. At least seven White House entities, a dozen or more federal agencies, and 16 congressional committees have jurisdiction over some aspect of energy policy. Federal efforts to coordinate energy regulation, land management, and planning are sometimes unwieldy and at cross-purposes to one another. Our economy, employment and natural resource management suffer with the adoption of unnecessary or unachievable regulations, thwarting energy security, fuel diversity, conservation, power reliability, price stability, infrastructure, and technology investments.

A cohesive, well-understood plan for energy and the environment is vital to America’s economic competitiveness and expansion. In the absence of a federal plan, it is all the more important that states develop their own strategies. In Wyoming, the Legislature and no fewer than 17 executive branch agencies have a role in managing the efforts to strengthen and improve the interconnections between Wyoming’s energy, environment and economy. This makes a Wyoming Action Plan all the more important in leading the charge toward a cohesive energy strategy.

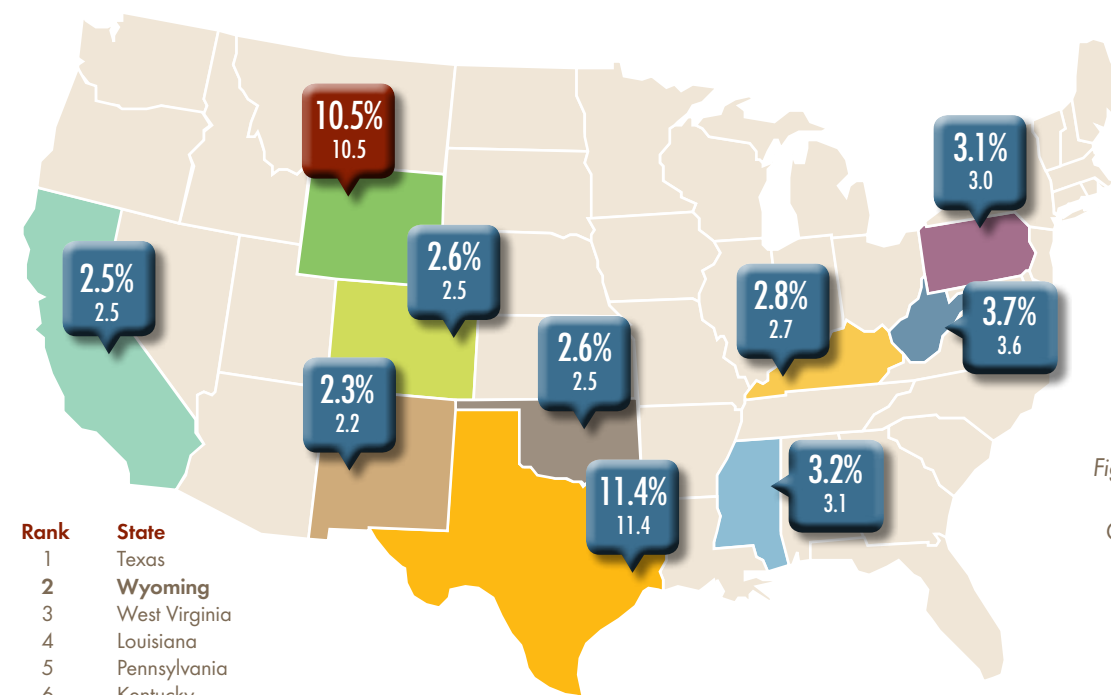
**REPUBLICAN GOVERNORS
PUBLIC POLICY COMMITTEE**

In 2012, the Energy and Environment Subcommittee of the Republican Governors Public Policy Committee (RGPPC), chaired by Governor Matthew H. Mead, released a blueprint for energy and the environment. The introduction to the blueprint, signed by 32 governors, states: "We are committed to protecting the environment while providing reliable and affordable energy. Our nation's energy policy must reflect these goals, and the states are better positioned than the federal government to lead the drive toward these objectives because they are closely connected to the needs of their states' citizens as well as the unique circumstances impacting their environment."

**GUIDING PRINCIPLES OF THE
2012 RGPPC BLUEPRINT**

- Energy security that ensures a stable and reliable supply for our citizens, manufacturing, power generation, transportation and industrial bases.
- Environmental cooperation that protects the state-federal partnership, provides for sustainable environmental protection, acknowledges the environmental gains supported by economic progress, and ensures that state governments play the primary role in regulation.
- Energy affordability that allows all Americans to take advantage of our country's robust energy resources to power communities and create jobs.
- Energy as an economic driver that powers modern civilization.

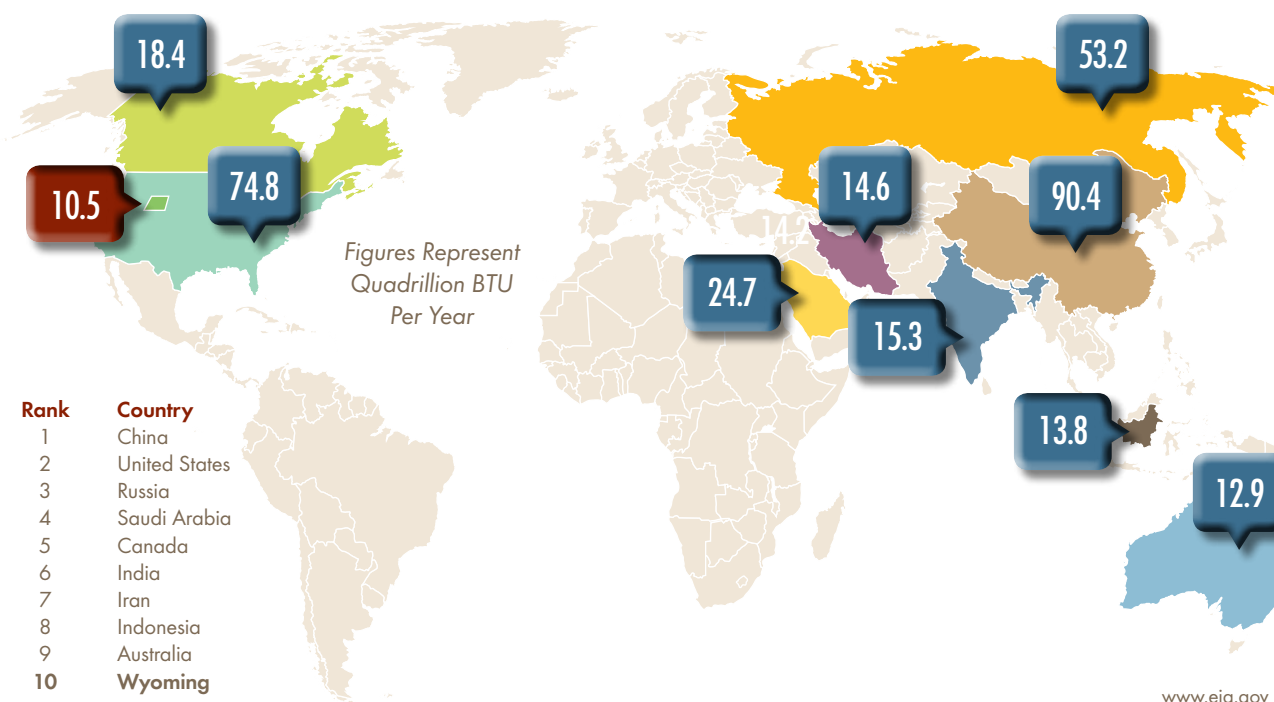
TOP 10 ENERGY PRODUCING STATES: 2010



Figures Represent U.S. Share and Quadrillion BTU Per Year

<http://www.eia.gov/beta/state/data.cfm?sid=WY>

WYOMING COMPARED TO TOP ENERGY PRODUCING COUNTRIES: 2010



Figures Represent Quadrillion BTU Per Year

www.eia.gov

I seek great tolerance between elements which can jeopardize Wyoming's future. And by that I mean there is a certain amount of worth in what the environmentalists and the ecologists are doing and a certain amount of merit to adequate and decent mining of our minerals.

I wish these two elements, instead of warring, would get together and come to some compromise that would augur well for the future of our state.

GOVERNOR MILWARD SIMPSON
FROM A 1977 INTERVIEW WITH JOHN HINCKLEY



Overviews

TABLE OF CONTENTS

| | |
|----------------------|----|
| Energy Overview | 15 |
| Environment Overview | 21 |
| Economic Overview | 27 |



Energy Overview



I believe that America's great experiment in liberty includes the economic freedom for the private sector to work with government. More pragmatically, I believe that we must weld the self-interest of commerce with the self-interest of Wyoming's government and its people if we are to assume our rightful place in this country's economic dream.

GOVERNOR MIKE SULLIVAN
JANUARY 5, 1987 • INAUGURAL ADDRESS

Wyoming's legacy as an energy state began hundreds of millions of years ago. Ancient seas that covered Wyoming gave way to massive forests and swamps, where hundreds of feet of organic materials accumulated. Under ideal temperature and pressure, immense amounts of coal, oil and natural gas deposits formed. Today, these resources are converted to low cost electricity and fuel for millions of people nationwide—and increasingly, around the world.

Beyond fossil fuels, Wyoming's diverse energy portfolio is made possible by our unique geologic and geographic characteristics. From coal, oil, gas, uranium and wind—Wyoming is the leading exporter of British Thermal Units (BTUs) to the rest of the country. In 2010, we produced 10.5 quadrillion BTUs but consumed only .5 quadrillion BTUs within the state's borders. In a global context, if Wyoming were a country, we would rank 10th in overall energy production.

COAL

Every day, more than 80 trains, each a mile long, roll out from the nation's top coal producing state to power plants in 37 states. These trains hauled more than 397 million tons of the 401 million tons of coal produced in 2012. There are sufficient coal reserves in Wyoming to keep producing at our current rate for the next 140 years. Coal is a significant source of power for the country, accounting for nearly 42 percent of the nation's electricity. The Energy Information Agency of the U.S. Department of Energy estimates that U.S. electricity generation will increase by .9 percent each year through 2040. Coal is projected to make up

WHAT IS A BTU, AND HOW MUCH IS 10.5 QUADRILLION BTUs?

- A BTU, short for British Thermal Unit, is a standard energy measurement. It is the amount of energy needed to heat one pound of water one degree Fahrenheit. BTUs measure energy for both electricity and transportation fuels.
- 10.5 quadrillion BTUs is:
 - The number of BTUs Wyoming produced in 2010
 - Greater than the energy consumed by all 114 million U.S. households in a single year
 - 14% of energy produced in the U.S.
 - 10% of all energy consumed in the U.S.



Wyoming coal “ranks with the best coals in the world. ... It staggers the human mind to comprehend the power lying hidden and dormant in these boundless and endless mountain depositories.”

Cheyenne Daily Leader, November 24, 1869

the largest share of fuel for electricity production, although it will decline from its current level to 35 percent in 2040. This projected decrease is based on federal environmental regulations and low-priced, abundant natural gas. China is the largest coal user in the world today, followed by the U.S. By 2020, however, India is expected to be the largest net importer of coal.



OIL AND GAS

Wyoming is the 3rd leading producer of natural gas, with 2.143 trillion cubic feet produced in 2011. Wyoming supplies natural gas to homes and businesses in 34 states. We have over 35 trillion cubic feet of natural gas in reserves, which is 12 percent of the U.S. total. Wyoming is the 8th largest oil producer in the U.S. In 2011, sales of Wyoming crude oil production totaled 54.7 million barrels. At the beginning of 2011, Wyoming ranked 10th in the nation in proven reserves of crude oil.

Advancements in hydraulic fracturing and horizontal drilling are significantly changing the domestic production of oil and gas. Domestic oil production is expected to rise from its 2011 level of 5.7 million barrels per day to 7.5 million barrels per day by 2019. It is projected that, during the 2020's, the U.S. will be the largest oil-producing nation, overtaking Saudi Arabia. North America will be a net oil exporter by 2030.

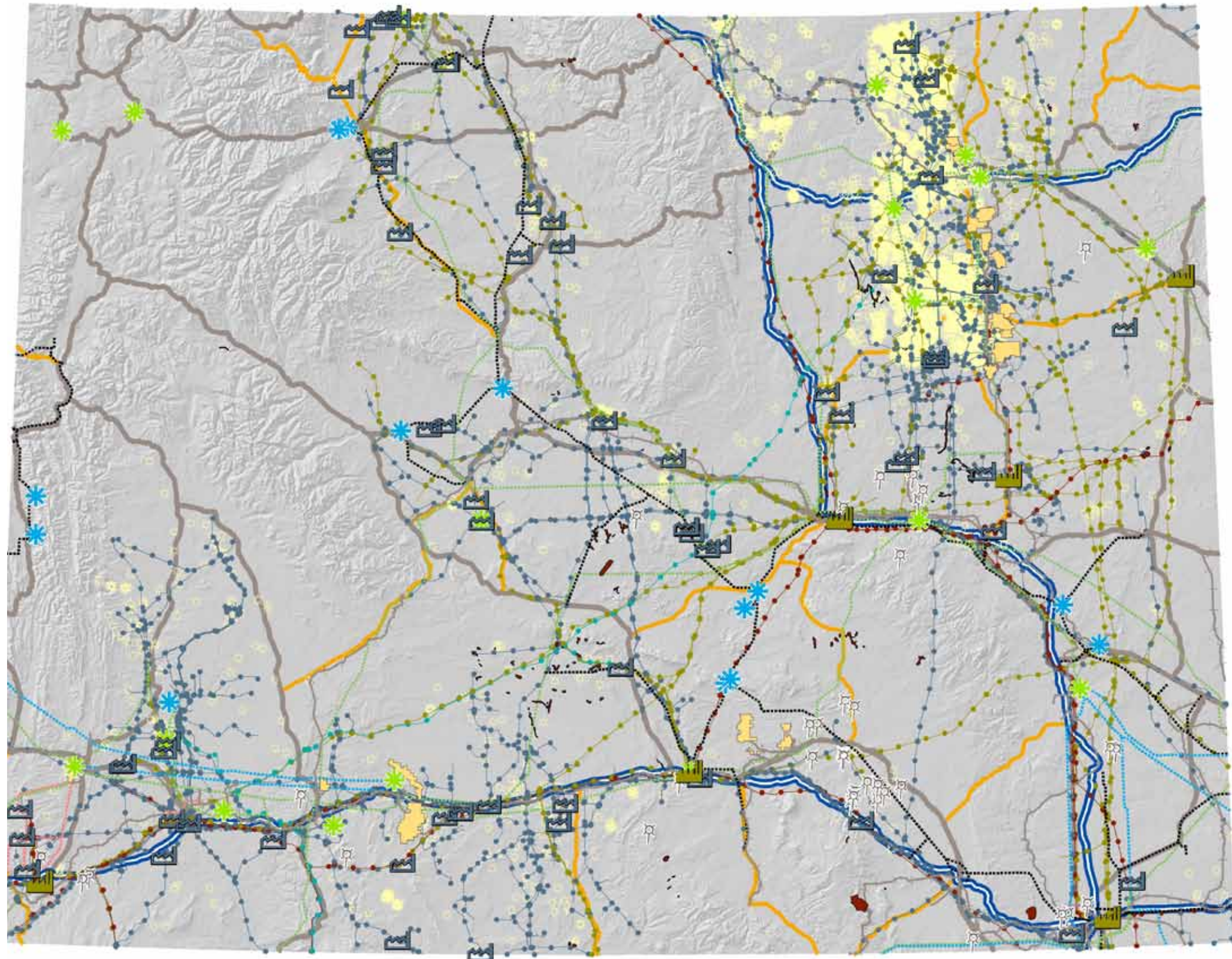
The U.S. is expected to see increased demand from manufacturing, increased electricity generation, and increased usage of natural gas as a transportation fuel. It is anticipated that the U.S. will export 1.6 trillion cubic feet of liquefied natural gas by 2025.

URANIUM

In 2011, Wyoming mines produced an estimated 1.6 million pounds of uranium, making Wyoming the number one producer in the nation. The U.S. only produces about 5.5 million pounds, less than 5 percent of the world's supply. The 104 U.S. reactors consume 55 million pounds of yellowcake each year. Over 95 percent of that yellowcake is imported from countries including Russia, Canada, Kazakhstan and Australia.



WYOMING ENERGY RESOURCES MAP



LEGEND

- Oil and Gas Wells (2002-2012)
- Coal Mines
- Uranium
- Gas Plant
- Refinery
- Conventional Generation (Coal, Gas, Diesel)
- Hydro Power Generation
- Existing and Proposed Wind Farms

TRANSMISSION LINES (in kilovolts)

- 115
- 138
- 230
- 345

PIPELINES

- CO2
- Gas
- Oil
- Product

- Interstates
- US Highways
- WY Roads
- Railroads

Generation from nuclear power plants is expected to grow from 790 billion kilowatt-hours in 2011 to 903 billion kilowatt-hours in 2040. Nuclear power currently represents 19 percent of total generation. About one pound of uranium can produce the same amount of power as 20,000 pounds of coal.



RENEWABLES

Wyoming ranks 11th in the nation for installed renewable generation. As of 2011, Wyoming has 1,412 megawatts of renewable generation installed. There are 14 wind power projects in Wyoming that are broken into 29 phases of construction or producing units. Research shows that Wyoming has some of the nation's greatest high-class wind resources. Renewable generation is expected to grow to 16 percent of total electric generation in the U.S. by 2040. Wyoming has a long history of hydroelectric dams, dating back to the early 1900s. There are 15 hydropower plants on 10 reservoirs, with a capacity of 300 megawatts. The state may have other opportunities for geothermal and solar power by taking advantage of our thermal wonders and sunny climate.

OPPORTUNITIES

Assuming the U.S. economy strengthens and other nations develop their economies, energy use will grow. World energy consumption is expected to grow by 53 percent from 2008 to 2035. The national and international markets will create new opportunities—and challenges for domestic energy to meet this demand. New technologies and markets continue to evolve, and the competitive landscape is changing with new products, synthetic fuels, and gases and liquids being developed from raw energy sources. Most of Wyoming's energy resources are sold into commodity markets. We must continuously strive to add value to our energy resources.

OUR CHARGE

In order to meet the challenges ahead, Wyoming must:

- Lead in development, production, generation and exports
- Create affordable, abundant, reliable power and fuel production
- Maintain and grow energy market share
- Innovate by adding value to resources

Environment Overview



Wyoming is rich in natural resources and Western heritage. Its history is etched on rock walls by story-telling Native Americans and across the rolling plains by wagon wheel ruts. The landscape is as varied as its energy resources. Windswept prairies and flat croplands yield to large expanses of sagebrush steppe and majestic mountains. Our abundant natural resources, world-class destinations and open spaces are enjoyed by residents and visitors alike.

A STATE OF FIRSTS

Early on, Yellowstone National Park, Devils Tower National Monument, and the Shoshone National Forest were recognized by the U.S. Congress for unique attributes worthy of preservation. They were made the nation's first national park, national monument, and national forest, respectively.

Today, Wyoming continues to be a state of firsts. Our efforts to maintain balance have led to Wyoming becoming the first state to require disclosure of the chemicals used in hydraulic fracturing, implementation of model sage-grouse conservation efforts, and air quality strategies for oil and gas development, to name a few. Rather than waiting for the federal government to identify a problem and offer one-size-fits-all regulations, we look to our own state and our local values to find the right solutions.

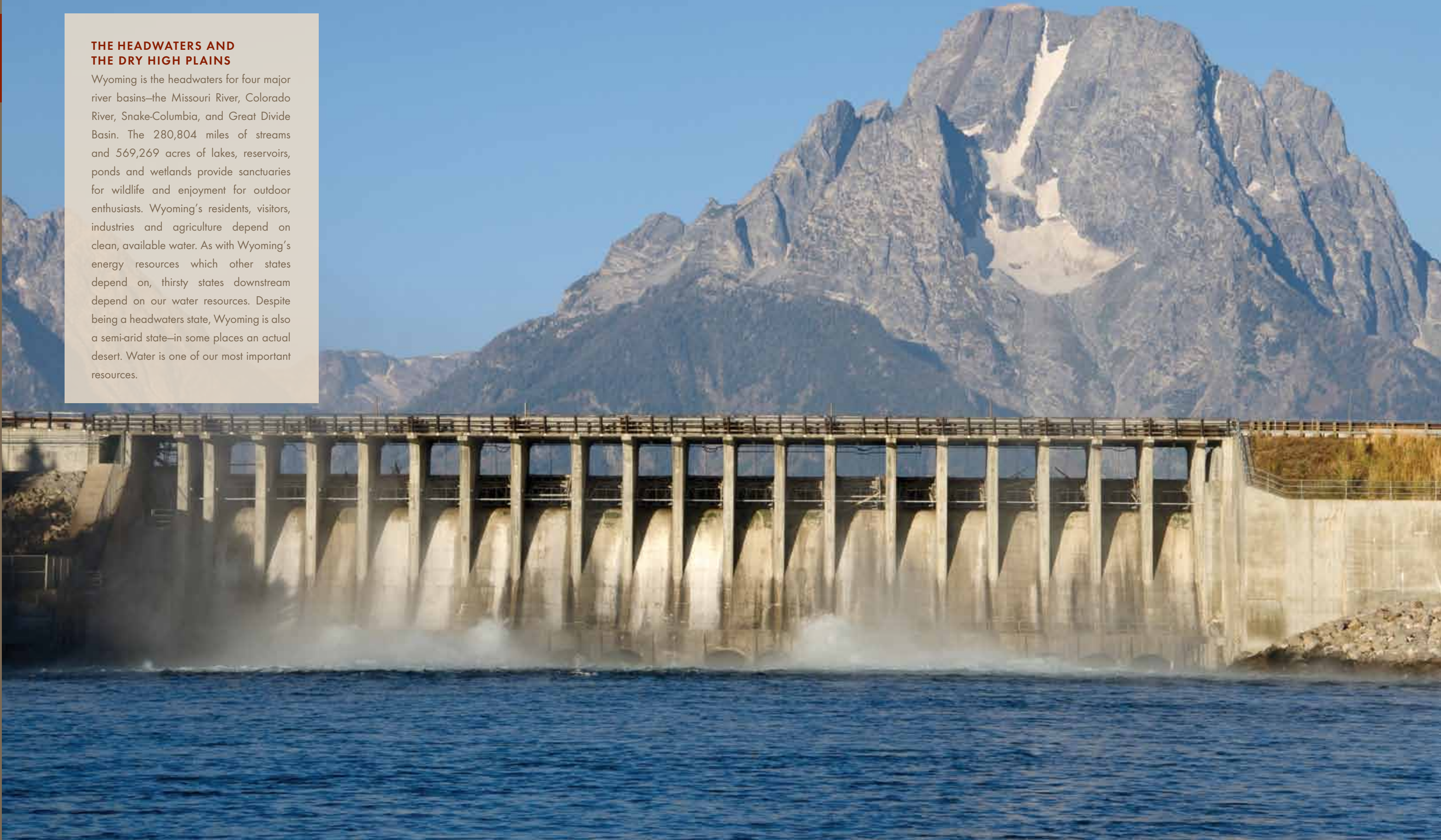
Wyoming recognizes that our energy, environment and economy are inextricably linked. A healthy energy industry and environment are critical to a vibrant state economy. When energy development and production falters, our economy suffers. When environmental concerns develop, the energy industry faces restrictions.

AGRICULTURE

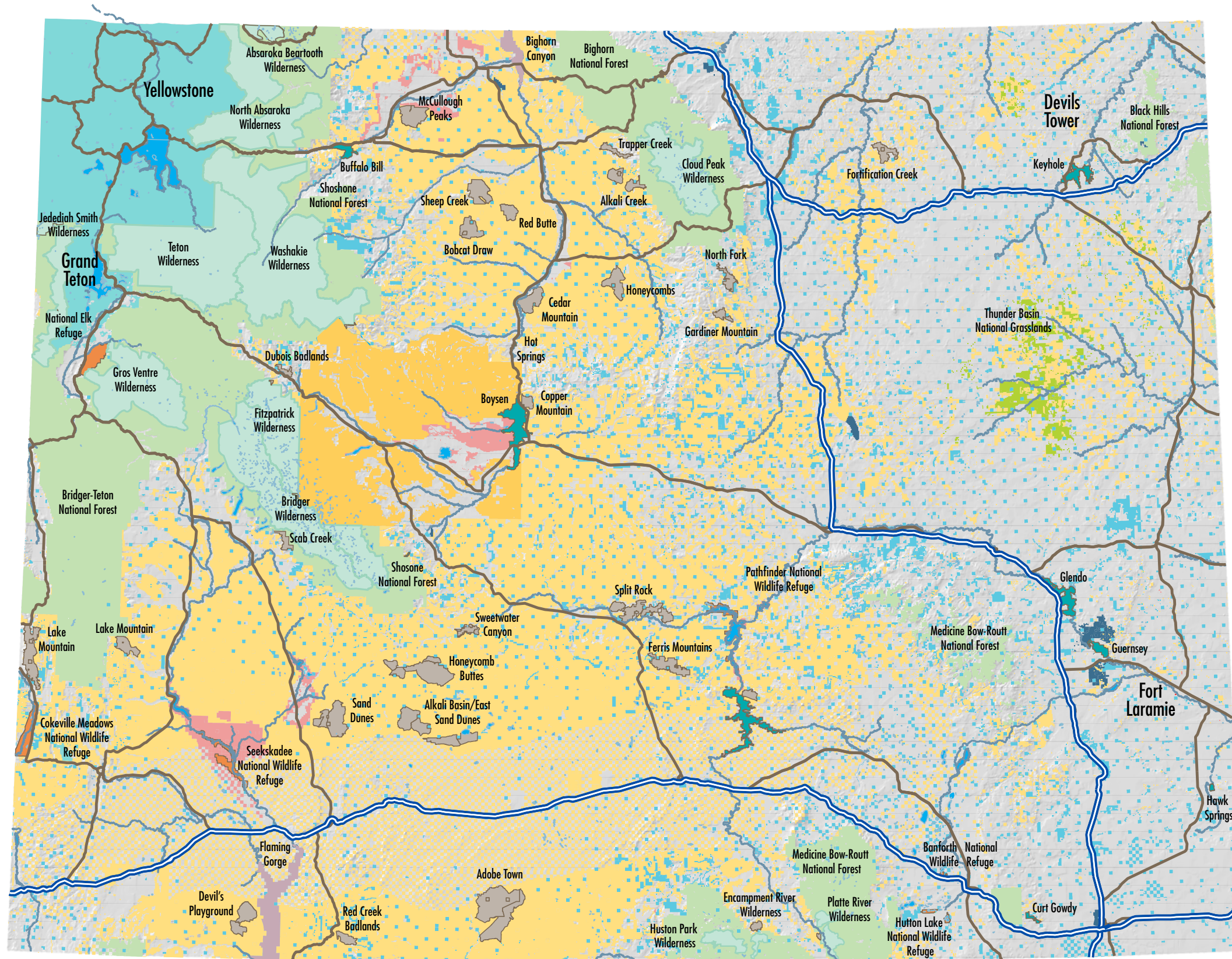
Besides producing food and offering economic stability, Wyoming's agriculture creates open space, provides wildlife habitat, and is the heritage visitors expect from a western state. Wyoming ranks first nationally in the average size of agricultural operations and eleventh in total land area committed to farming and ranching. There are 11,000 farms and ranches covering 30.2 million acres with an estimated 1.3 million head of cattle and 365,000 head of sheep. The most important crops are hay, sugar beets, dry beans, corn and wheat.

THE HEADWATERS AND THE DRY HIGH PLAINS

Wyoming is the headwaters for four major river basins—the Missouri River, Colorado River, Snake-Columbia, and Great Divide Basin. The 280,804 miles of streams and 569,269 acres of lakes, reservoirs, ponds and wetlands provide sanctuaries for wildlife and enjoyment for outdoor enthusiasts. Wyoming's residents, visitors, industries and agriculture depend on clean, available water. As with Wyoming's energy resources which other states depend on, thirsty states downstream depend on our water resources. Despite being a headwaters state, Wyoming is also a semi-arid state—in some places an actual desert. Water is one of our most important resources.



WYOMING NATURAL RESOURCES MAP



LEGEND

- Interstates
- US Highways
- National Recreation Areas
- State Parks
- Wyoming Rivers
- Wyoming Lakes and Ponds
- BLM Wilderness Study Areas
- USFS Wilderness Areas
- National Wildlife Refuges

OWNERSHIP REPRESENTATION

- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Reclamation
- Corps of Engineers
- Department of Defense
- Fish & Wildlife
- Forest Service
- National Grasslands
- National Park Service
- Private
- State

Economic Overview



WILDLIFE

Internationally known for abundant and diverse wildlife, Wyoming is home to over 800 species. Over 525,000 pronghorn antelope; 427,000 mule deer; 103,000 elk; 60,000 white-tailed deer; 7,400 moose, and 5,400 bighorn sheep live here. There are 77 species of fish found in Wyoming waters, including 12 species of game fish. For people living in the midst of such abundance, wildlife has become a central part of Wyoming's identity, culture, and economy. Wyoming residents have among the highest participation rates for wildlife-related activities in the nation. About 18 percent of Wyoming residents hunt, 27 percent fish, and 38 percent view wildlife.

OPPORTUNITIES

There are over 12,500 square miles of national forest in Wyoming and 4,500 square miles of designated wilderness. In total, the federal government, primarily the Bureau of Land Management, manages more than 46,000 square miles of land in Wyoming. Nearly two-thirds of the mineral estate in Wyoming is managed the federal government. Often, public lands and mineral estates are intermixed with private lands, creating a checkerboard effect that causes administrative and regulatory challenges. The sheer size of our agricultural operations, the many natural features and wonders, and the abundance of wildlife necessitate that energy development be done responsibly. Besides, the people here would not have it any other way. Maintaining our commitments to preserving our heritage, conserving our natural resources, and protecting our air, land and water are the highest responsibilities of the state.

OUR CHARGE

- Be the standard bearer in responsible development
- Conserve our natural resources and heritage



SCHOOLS AND EDUCATION

Wyoming has one of the best funded school systems in the country. Since 2002, 66 new schools have been built, adding 4.3 million square feet of modern education space. Thirty-two schools have been remodeled. The Hathaway Scholarship Program has enabled students to afford higher education. College tuition rates in Wyoming are lower than nearly anywhere else in the country.

Wyoming is developing a solid educational foundation that meets the expressed needs of employers and state agencies by integrating science, technology, engineering and math (STEM) in our K-12 school system, and extending this approach through Wyoming's community colleges and the University of Wyoming (UW). The creation of UW's School of Energy Resources, Energy Innovation Center, Michael B. Enzi STEM Facility, and Engineering Research Facility and the planning for the new College of Engineering and Applied Sciences facility demonstrate Wyoming's commitment to science, technology, engineering and mathematics education. Wyoming is building more and more bridges between academics and industry.

TECHNOLOGY AND DIVERSIFICATION

The economy is growing in new directions. A technology sector is evolving from the expansion of broadband connectivity. Access to high speed Internet is attracting data centers and start-up technology companies. Between 2010 and 2011 high speed Internet increased from 54 percent to 85 percent. Over two-thirds of Wyoming students now have access to high speed Internet. This is, in part, thanks to investments from the private sector and state funding that was made possible from revenue provided by the energy industry. Affordable power is another draw. The average price of electricity in Wyoming is the lowest in the U.S. at 6.2 cents per kilowatt-hour.





OPPORTUNITIES

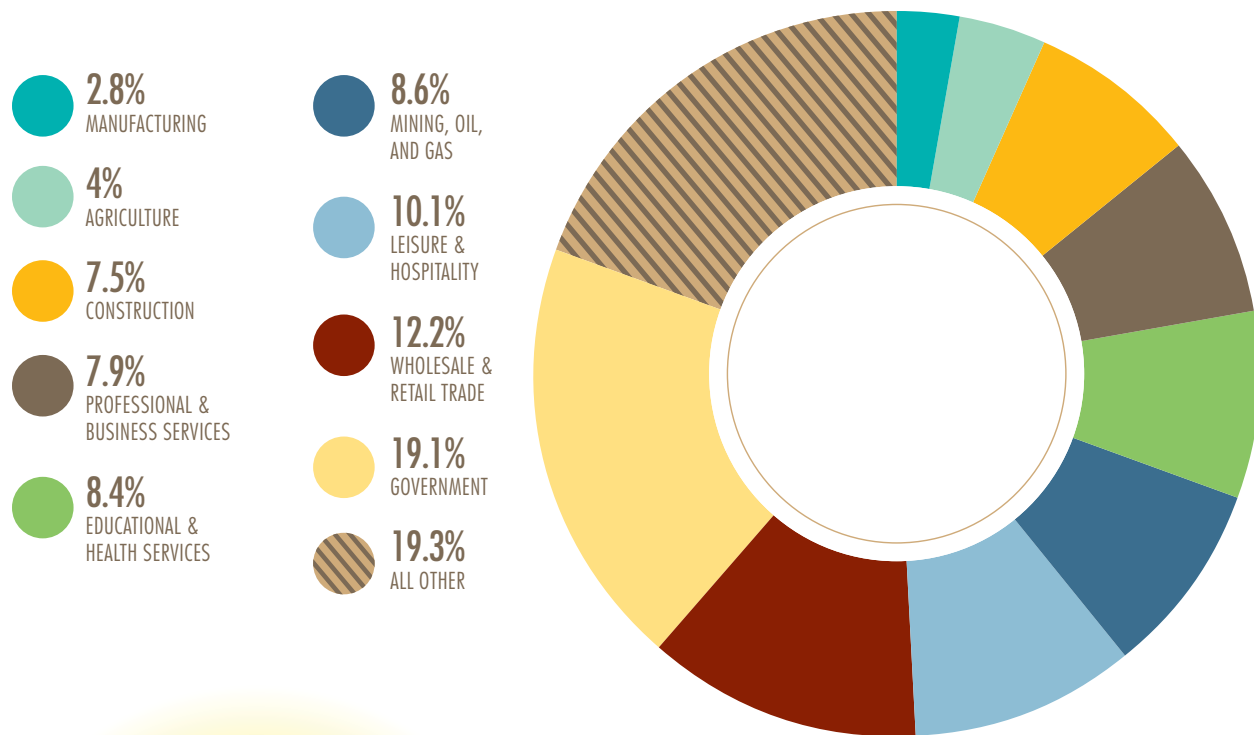
Wyoming’s energy and natural resources create our economic prosperity. We know that the two are intrinsically tied to our economy and, together, they are how and why we live here. The U.S. is poised to become energy independent, while still helping the global economy meet its growing energy demands. Yet, the national debate seems stuck in the rhetorical question: “Do we want development or do we want to preserve the environment?” The fact is that we want both, and we need both. As we look at Wyoming, as we look at our nation, and as we look at the energy demands of today and future energy demands, we know that when it comes to energy, we have to maintain our commitment to having both.

OUR CHARGE

- Wyoming will achieve excellence in energy development, production, and stewardship of its natural resources for the highest benefit of its citizens.



EMPLOYMENT BY INDUSTRY FOR WYOMING: 2011

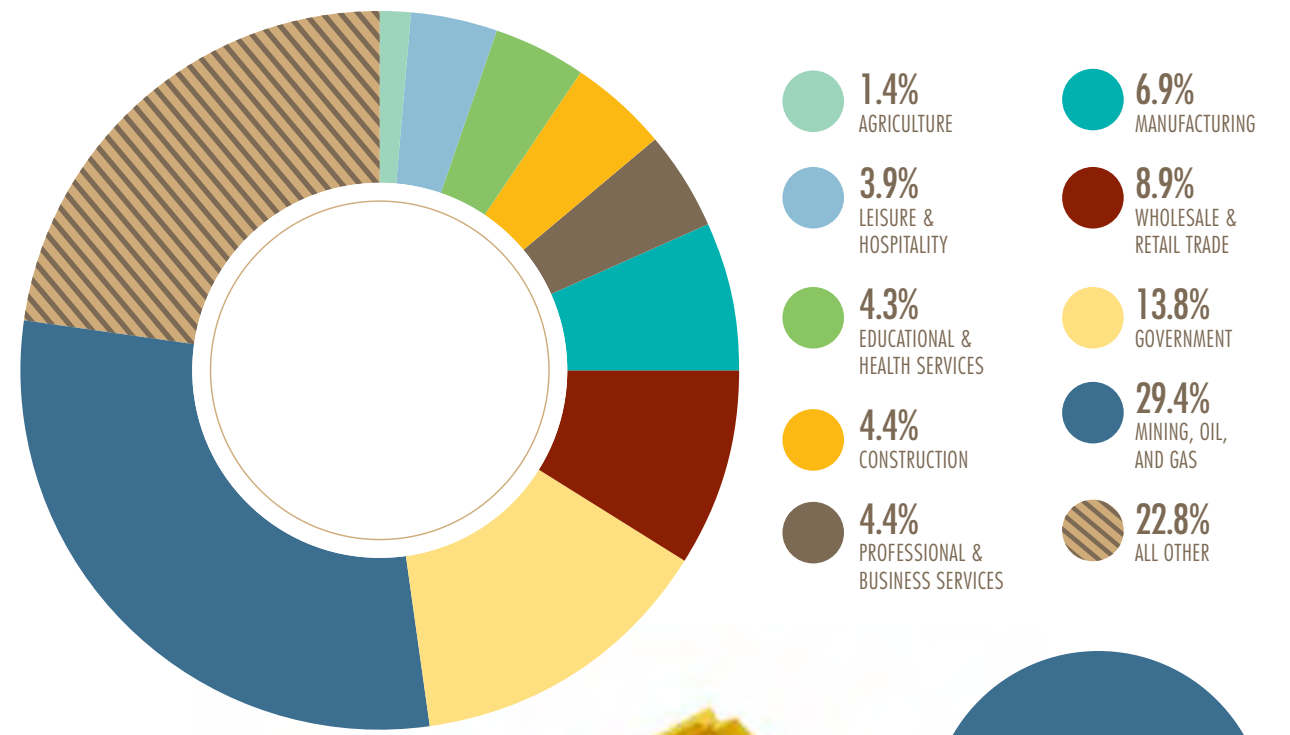


18.9%
ENERGY & RELATED
INDUSTRIES

"The energy extraction industry plays a pivotal role in Wyoming's economy. It directly provides over 33,000 high-paying jobs, but overall income and employment growth in the state are inexorably tied to the energy sector. Energy is closely associated with the construction, manufacturing, and transportation sectors."

Wenlin Liu - Senior Economist
Wyoming Economic Analysis Division

GROSS DOMESTIC PRODUCT BY INDUSTRY FOR WYOMING: 2011



29.4%
MINING, OIL,
AND GAS

Source: Wyoming Economic Analysis Division

We must continue to develop Wyoming's mineral resources without deteriorating the environment, because these mineral resources are important – not only to the welfare of Wyoming – but to the welfare of the nation.

Because we have these great resources, and because we are yet untouched by many of the problems that plague the more populous states of this nation, we have a magnificent opportunity to guide our own destiny. To plan for a quality life, not just for this generation, but for generations to come.

GOVERNOR STAN HATHAWAY
JANUARY 4, 1971 • INAUGURAL ADDRESS



Strategic Themes



Strategic Themes



THEMES

The other thing we should not forget is that the same national energy economy that fills our coffers could inadvertently turn our state into a water and wildlife wasteland. This is no time to reduce our efforts to protect our environment, our water and our wildlife. Do we want future generations to conclude that those of us in this hall traded the Wyoming heritage for a few years of high government revenues and low personal taxes? I think not.

GOVERNOR DAVE FREUDENTHAL
FEBRUARY 9, 2004 • STATE OF THE STATE ADDRESS

Wyoming is a leading energy producer. Wyoming sets the national standard for environmental issues—clean air, clean water and open space. Therefore, Wyoming should be a leader both in energy development and environmental stewardship. Energy, and how it is developed, directly impacts wealth, competitiveness and quality of life. Reliable and affordable power and fuels are necessary for business and industrial stability, growth, retention and recruitment. Global demand for energy will continue to increase and all forms of energy will be required. Energy development is directly related to economic and workforce development. The air we breathe, the water we drink, and our ability to enjoy pursuits—whether we fish, hunt, photograph or recreate—directly influence the quality of our lives. In the absence of a federal energy policy, states must lead the way.



Wyoming has unique values that should be reflected in an energy strategy. Wyoming is proud of its strong outdoor ethic and close connection to the land. We are an innovative, industrious and independent state. Our small towns are vibrant and special places. We are essentially all neighbors and we must work together cooperatively.

The following four strategic themes help sort issues and opportunities for realizing our vision of achieving excellence for the highest benefit of Wyoming.

THEME 1:

ECONOMIC COMPETITIVENESS, EXPANSION AND DIVERSIFICATION

Maintaining our position as a world-class energy producer entails competitively producing, adding value to, selling, and transporting our energy resources. Infrastructure maintenance and expansion are required if we are to maintain current production levels and move our resources to market. The same infrastructure that was built for our existing energy industry has the potential to draw new businesses and create new opportunities.

THEME 2:

EFFICIENT, EFFECTIVE REGULATION

Clarifying rules and expectations for industry, protecting the state’s resources, and providing security to the public are hallmarks of efficient and effective regulation. Efficient regulation also avoids duplication by multiple levels of government or agencies. Identifying which government entity has regulatory responsibility enhances timely, defensible decisions and enforcement. Stated simply, questions of who is responsible for what – and when – should be readily apparent to the public and responsible agencies.

THEME 3:

NATURAL RESOURCE CONSERVATION, RECLAMATION AND MITIGATION

Achieving excellence in the protection of natural resources, reclaiming impacted land and water, and improving existing habitats require more than maintaining the status quo. Through inventorying resources, planning and management, we can both use and improve natural resources. Establishing baselines and measuring trends will help to establish reclamation goals and set expectations for mitigation measures to offset effects. In the long term, development can become a net benefit when mitigation efforts protect and improve additional areas, and when reclamation returns disturbed lands to their previous condition or better. When government sets reasonable expectations, individuals and companies have the flexibility to innovate and find solutions in a fair, market-driven process.

THEME 4:

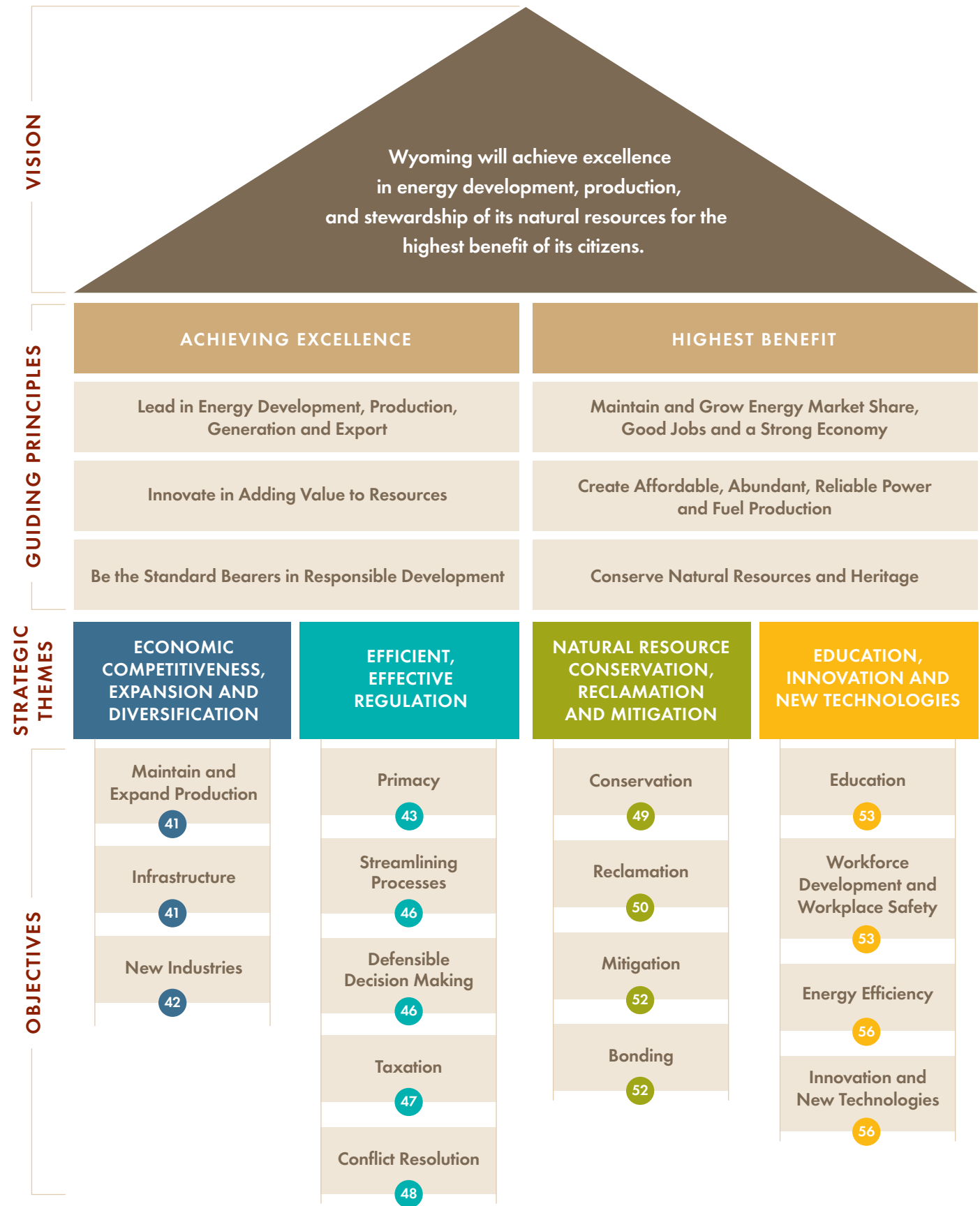
EDUCATION, INNOVATION AND NEW TECHNOLOGIES

Wyoming’s people are our most important resource, and a brighter tomorrow will come from developing ideas, initiatives and workforce today. Students are our future workers, developers and leaders. They will benefit from knowledge about the state’s primary industry, its contribution to the state, and potential career opportunities. Professional development of the existing workforce will enhance job performance and lead to increases in productivity and safety. Investing in people and technologies today will pay future dividends.

THE STRATEGY DEVELOPMENT

Governor Mead recognizes the need for a state energy strategy that balances energy development and a clean environment. His vision is that Wyoming will achieve excellence in energy development, production, and stewardship of its natural resources for the highest benefit of its citizens. He enlisted advice for ideas to make it action oriented. Various industries, conservation groups and trusts, farmers and ranchers, state agency directors and staff, local governments, associations and private citizens participated. They offered their viewpoints during meetings, events and public webinars, through letters, emails, telephone calls or surveys.

Public input into Governor Mead’s vision established guiding principles that shaped the development of four strategic themes and objectives. The initiatives, or action items, beginning on page 41 support the objectives. They will be updated frequently and incorporated into state planning, evaluations and budgets.



*No ideas are too bold to be considered for Wyoming.
We are a state of great people with unlimited energy
and great ideas. We will build creative partnerships
involving business, education, and government.
We don't tell you what to do, we just help you succeed.
Let me state clearly – Wyoming is open for business!*

GOVERNOR JIM GERINGER
JANUARY 2, 1995 • INAUGURAL ADDRESS



Strategic Initiatives

TABLE OF CONTENTS

| | |
|---|----|
| Economic Competitiveness, Expansion and Diversification | 41 |
| Efficient, Effective Regulation | 43 |
| Natural Resource Conservation, Reclamation and Mitigation | 49 |
| Education, Innovation and New Technologies | 53 |



Economic Competitiveness, Expansion and Diversification



INITIATIVES ARE ACTION ITEMS

The initiatives in the following section, which were proposed by many different people and organizations, were evaluated by all who chose to participate.

Initiatives are action items that will help Wyoming fulfill its vision to achieve excellence in energy development, production, and stewardship of its natural resources for the highest benefit of its citizens.

Action items, and the process leading to their formulation will be reviewed, revised and reconsidered annually. They will be integrated into ongoing state planning, evaluation and budgeting processes.

OBJECTIVE 1 - MAINTAIN AND EXPAND PRODUCTION

1A. Development: New and Expanded Marketing Opportunities

Wyoming will study domestic and international marketing opportunities and aggressively reach out to those markets. Analysis will include identifying our strengths, weaknesses, opportunities, challenges, and competition. Wyoming will promote its resources, responsible development, regulatory certainty, and research and development investments. This process will lead to the identification of business opportunities and recommendations for long-term success.

OBJECTIVE 2 - INFRASTRUCTURE

2A. Energy Atlas GIS Decision Support Tool

A widely accessible, web-based, geographic information system (GIS) with a data viewer and query tool will be developed to facilitate planning, siting and analyses for energy development and natural resource management. The tool's extensive functionality will include a GIS map engine, links to data, query and reporting tools, forums, and a mechanism to distribute information. Landowners, industries, agencies and the public will have access to data, including socioeconomic information, pipelines, transmission, cultural resources, energy resources, agricultural resources, water resources, wildlife, soils, infrastructure, and vegetation.

2B. State-wide CO2 Pipeline Network Corridors

This initiative will result in permitting a state-wide CO2 pipeline network of corridors across federal lands. Companies choosing to take advantage of these permitted federal corridors will likely save substantial time and money when they develop their particular CO2 pipeline project which will expedite oil recovery. Additionally, the project will demonstrate to the federal government and industry Wyoming's commitment to enhanced oil recovery. This initiative will trigger a National Environmental Policy Act (NEPA) process. A NEPA analysis will precede permitting.

OBJECTIVE 3 - NEW INDUSTRIES**3A. Liquefied Natural Gas (LNG)**

Liquefied natural gas, an alternative to diesel fuel, can be used in a number of high horsepower applications including mine haul trucks, railroads, long haul trucking operations, oil and gas drilling operations and other heavy duty engines. LNG has growth potential in Wyoming. Increased LNG production and utilization offers a way to add value to one of the state's abundant energy resources. This collaborative initiative will result in the development of policy recommendations that government, industry and the public can use to identify opportunities and impediments to the expansion of LNG production and utilization in Wyoming.

3B. Increasing Supply and Demand for Compressed Natural Gas (CNG)

Promoting natural gas as a transportation fuel serves the environment, Wyoming citizens, governments, and the gas industry. Increased demand from government fleets, industries and the private sector requires access to CNG stations and favorable regulations. This initiative will support ongoing efforts to encourage building fueling stations and increase the supply and demand for CNG.

3C. Utilizing Forest Waste to Produce Energy and Products

Removing dead trees from forests in Wyoming will improve forest conditions. Converting trees to fuel or salable products could provide an economic benefit to local communities. Recommendations will be proposed for using beetle-killed timber in energy production and in other ways.

THEME 2

Efficient, Effective Regulation**OBJECTIVE 4 - PRIMACY****4A. Inventory of State and Federal Cooperative Agreements**

A statewide inventory of existing Memorandums of Understanding or Agreements between the State of Wyoming and federal agencies will catalogue cooperative relationships and shared responsibilities. A thorough understanding of these agreements will help the state identify opportunities to protect state primacy.

4B. Federal Agency Cooperation and Coordination with the State of Wyoming and Local Governments in the NEPA Process

Federal agencies are required to cooperate and coordinate with states and local governments in the National Environmental Protection Act (NEPA) process. Assisting and improving local planning efforts with data and best practices will allow communities to plan their futures and incorporate their plans into federal land use actions. Wyoming's interests in NEPA extend to multiple use, sustained yield, land use planning, guidelines, regulations, instructional memoranda and documents proposed or promulgated for the administration of lands and natural resources by federal agencies.

4C. Review of State Oil and Natural Gas Environmental Regulations

A comprehensive review of the State of Wyoming's environmental regulations pertaining to oil and natural gas exploration, development and production is timely. A collaborative process endorsed by the Interstate Oil and Gas Compact Commission, U.S. Department of Energy and U.S. Environmental Protection Agency will help improve regulations and processes while bolstering Wyoming's regulatory primacy. Participating stakeholders will be from the oil and gas industry, state environmental regulatory programs, environmental stakeholders and public interest groups.

4D. Air Quality Management Strategy

Wyoming will maintain National Ambient Air Quality Standards using a combination of measures: issuing federally enforceable air permits, incorporating a Best Available Control Technology evaluation for air emissions and other controls, developing and implementing effective compliance and inspection programs, and seeking input from industry and citizen advisory boards.

**4E. Exerting State Influence on Endangered Species Act Issues**

Based on provisions defined in an MOU between the State of Wyoming and the U.S. Fish and Wildlife Service (USFWS) regarding endangered species, the state will influence and implement management strategies for those species having the greatest potential to affect energy development, conservation, economic health and historical use. Wyoming's leadership will develop and implement sound species management strategies utilizing scientific data, species monitoring, and consultation with USFWS and other species experts.

**4F. Regulatory Review and Recommendations for Flaring**

Wyoming will review its flaring rules and regulations to ensure that air emissions rules and monitoring/reporting processes are streamlined and coordinated. Opportunities for using excess gas for power generation, or in other ways, will be explored.

4G. Multi-State Cooperation

This initiative will result in greater collaboration between Western and energy producing states in a coordinated approach to responsible energy development and infrastructure siting. Particular emphasis will be placed on coordinating with the Western Governors' Association and the Council of State Governments.

4H. Agreement Status to Give Wyoming Regulatory Authority over Radioactive Materials

Under this initiative the State of Wyoming will explore becoming an Agreement State under the Atomic Energy Act for licensing of source materials and their recovery. Agreement State status would allow the State of Wyoming regulatory authority over radioactive materials and could eliminate dual jurisdiction with the Nuclear Regulatory Commission.

OBJECTIVE 5 – STREAMLINING PROCESSES**5A. State Historic Preservation Office Programmatic Agreement**

This initiative will result in the update and continuation of the programmatic agreement outlining the protocols that the Bureau of Land Management will follow within Wyoming. The protocols pertain to resource preservation, priorities, and a conservation and mitigation plan.

5B. Wyoming Agency Permitting Processes and Timeliness Mapping Project

State agencies will map their permitting processes within, and between, state agencies. The time it takes to process permits, and their anticipated delivery dates, will be noted. Agencies will find ways to coordinate and streamline permits and eliminate regulatory overlap.

**5C. Certified Oil and Gas Operators' Initiative**

A state program that tracks operators' activities—including their performance related to regulatory requirements and base bonding—will be developed. The program will include an initiative that rewards operators who consistently meet state requirements, and it will offer incentives for good performance.

5D. Uranium Reporting Guidelines

The extensive reporting requirements for uranium development will be streamlined and duplicative reporting will be eliminated. The reporting process will require a high level of monitoring and oversight.

OBJECTIVE 6 - DEFENSIBLE DECISION MAKING**6A. Baseline Pre-Development Water Quality Testing**

This initiative seeks to establish minimum baseline water quality testing requirements and standards for oil and gas operators prior to development.

6B. Surface Water Resource Analysis

A collaborative approach among federal and state agencies, industries, and stakeholders will be used to identify the state's water resources available

for industrial uses. This process will include data collection, analysis, recommendations, and identification of pre-siting locations where projects can be developed near available water. Other considerations will include protections for private property owners, utilization constraints, and the nature of interstate water agreements, rights, and use.

6C. Unified Groundwater Database

Wyoming's DEQ will develop a centralized data system that will share groundwater data that has been collected by water quality, land quality, and solid and hazardous waste divisions within the agency. This system will lead to eliminating redundant data collection, reducing data collection needs, reducing costs, and will enable more informed decision making.

**OBJECTIVE 7 - TAXATION****7A. Mineral and Mineral Related Taxation issues**

This initiative will address issues related to mineral audit timelines, schedules and communication. Improvements will be identified that benefit local governments and companies.

7B. Wind Tax

Solutions will be found to provide upfront assistance to local governments, provide a steady source of revenue to state and local jurisdictions, reduce developers' upfront financing costs, and create a competitive tax environment.

OBJECTIVE 8 - CONFLICT RESOLUTION**8A. Mediation Program**

Expanding the role of Wyoming's Department of Agriculture Mediation Program will help landowners address their issues and concerns related to energy development. Analysis of the program's capacity, outreach, and recommendations for the future of the mediation program will be considered.

8B. Rapid Response Protocols for Emergency Situations

Rapid response protocols for emergency situations will be adopted based on an Incident Command System model that creates a single point of contact for the public, delegates responsibilities, and creates coordination among state agencies.

8C. Annual Inspection Reports

Energy and natural resources agencies will produce annual inspection reports documenting relevant statistics on inspections, violations, penalties, enforcement actions and complaints.

8D. Eminent Domain

Wyoming is a top energy producing state within the United States with the potential to site additional electric generation facilities. Exercising the right of eminent domain is a last option. This initiative will lead to the development of new regulations for eminent domain and landowner compensation in areas currently lacking authority or clarity.



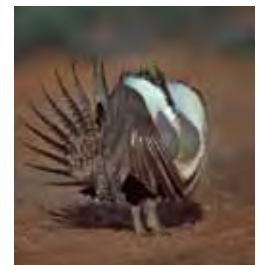
Natural Resource Conservation, Reclamation and Mitigation

**OBJECTIVE 9 - CONSERVATION****9A. Compilation of a Statewide Soil Survey and Ecological Site Description Map**

State agencies will cooperate with federal partners to develop a seamless, statewide digital map that identifies probable soils and Ecological Site Descriptions for areas in the state. Built on the best and most current data available, these maps will provide critical conservation planning tools.

9B. Sage-Grouse Studies

This initiative will result in the compilation and creation of the best available science on the effects of variables on sage-grouse. Wind energy development, the effects of tall structures, predation and efficacy of reclamation efforts will be considered. Results of these studies will be used to develop continuing recommendations for sage-grouse conservation and mitigation.

**9C. Innovative Water Treatment and Management Incentives**

Wyoming will develop strategies for the treatment and use of water produced by industrial and agricultural operations. Improved regulatory standards for reuse, investment in reuse technology, incentives for third-party investment, and development of industrial uses for produced water will be addressed. The development of advanced water treatment facilities for recovery and reuse will be considered.

9D. Wyoming State Water Strategy and Management Plan

A strategic planning framework for water management in the State of Wyoming will be developed.

OBJECTIVE 10 - RECLAMATION

10A. Prioritizing Reclamation

This initiative will result in assessing and prioritizing unreclaimed and disturbed lands in the state, including sage-grouse core areas. State agencies and industries will be charged with identifying priority areas for reclamation.





10B. Develop a State of Wyoming Reclamation Standard

A statewide standard for reclaiming disturbed land surfaces will be developed and adopted on a site-specific basis. This standard will be based on site reviews and by assessing the best available Ecological Site Description. Successful reclamation will require disturbed land to be reclaimed to an equal or more productive ecological state and exhibit a positive transitional trend.

OBJECTIVE 11 - MITIGATION

11A. Develop a State of Wyoming Off-site Mitigation Framework

A statewide mitigation framework will be developed and managed to reclaim or maintain key habitat and natural resources. This program's focus will be on the reclamation, rehabilitation and conservation efforts in the places that are most likely to be adversely impacted by development.

11B. Incentives for Development in Non-Core Sage-Grouse Habitat

Additional incentives will be identified and developed to encourage energy development outside of areas that have been designated as core sage-grouse habitat.

OBJECTIVE 12 - BONDING

12A. State Bonding Review

This initiative will result in a multi-agency review of bonding processes to evaluate their acceptability and effectiveness. Bond status, changes in lease status, bond aggregation and other types of coordination activities will be considered.

Education, Innovation and New Technologies



OBJECTIVE 13 - EDUCATION

13A. Energy Literacy Program

Increased academic attention to Wyoming's balanced energy approach benefits students of all ages. This initiative includes a feasibility study for developing a statewide K-12 Energy and Natural Resources literacy program that meets common core standards and can be integrated within the existing curriculum.

13B. STEM Task Force

Recommendations will be developed for integrating Science, Technology, Engineering and Math into our school programs.

13C. Engineering Task Force

A strategy with specific recommendations will be developed by the Energy, Engineering, and STEM Integration Task Force to assist the University of Wyoming in its efforts to become a tier one engineering academic and research institution in subject areas appropriate for Wyoming. This strategy will address the enhancement of undergraduate degree programs and development of graduate programs in three to five areas of excellence.

OBJECTIVE 14 - WORKFORCE DEVELOPMENT AND WORKPLACE SAFETY

14A. Centers of Energy Excellence

The purpose of identifying community colleges' Centers of Energy Excellence is to formally recognize the college programs that support the state's energy industry, and to showcase each community college's focus on regional energy development.



14B. Annual Workplace Safety Report

An annual report that evaluates workplace safety initiatives and their effectiveness will be initiated. As part of this effort, Wyoming will report best practices to reduce workplace fatalities in the energy industry.

14C. Workplace Safety Training Programs

In cooperation with partners and industry, a program will be developed to provide specialized workforce training at community colleges. Wyoming will identify and replicate the best workplace safety practices and systems in an effort to reduce accidents, injuries, and fatalities in all industries.

14D. Department of Workforce Services Career Readiness Initiative

The Career Readiness Certificate is a credential showing that the holder possesses the fundamental skills required to achieve success in the workplace and to become a productive, valuable employee. Applicants who have a Career Readiness Certificate demonstrate that they possess relevant workplace skills and abilities. Wyoming's seven community colleges have partnered with the Wyoming Department of Workforce Services to provide testing for this initiative.

14E. Refinery Safety Program

As a means to improve safety practices and procedures, a refinery safety program will be developed, incorporating best practices and addressing the specific challenges found at individual refineries and within the industry.

OBJECTIVE 15 - ENERGY EFFICIENCY**15A. State Agency Energy Audit Program**

This initiative involves conducting energy audits of state buildings, analyzing their results, identifying opportunities to implement conservation measures, and applying retrofits to decrease long-term energy costs. Comparisons between the savings realized from renovating existing structures and installations during new construction will be analyzed to determine which is most cost-effective.

15B. Study Barriers to Energy Efficiency in School Facilities

This initiative will analyze the opportunities and barriers school districts face when installing energy efficient features in existing school buildings

OBJECTIVE 16 - INNOVATION AND NEW TECHNOLOGIES**16A. Hybrid Energy Systems**

Hybrid Energy Systems are characterized by combining a variety of inputs through clever engineering to produce a variety of outputs. In Wyoming this might mean combining coal, natural gas and wind in a large energy campus to produce liquid fuels, chemicals and power. In the long-term small modular nuclear plants could be part of this value added conversion process. A fully developed energy complex will take many years to complete but this initiative will create plausible scenarios leading to specific steps forward.



Associate Professor Scott Miller,
recording flow information from a
stream near Libby Creek.

In any dynamic society change is present and it is hoped that it will lead to improvement. The problem is not one of deciding whether or not there will be a change but rather how to bring about the right kind of change, the kind that will be beneficial to all the people of the state.

GOVERNOR JOHN JOSEPH HICKEY
JANUARY 5, 1959 • INAUGURAL ADDRESS



Conclusion



Conclusion



THIS IS OUR CHARGE:

Natural resource sub-cabinets must aggressively pursue efficiencies, coordinate efforts and implement the plan in a transparent fashion.

Individual agencies must incorporate this framework and these initiatives into their strategic plans, budgets and performance goals. Each agency should align itself such that every employee understands that his or her job is related to a vision of balanced energy production.

The Legislature must continue to partner with the executive branch, integrating this action plan into its work - for example, by identifying legislation, focusing on particular topics or advancing initiatives.

Educators must incorporate the importance of energy, the environment and the economy into their teaching of our future workforce, engineers, scientists, and mathematicians.

Industry and natural resource stakeholders must collectively focus on achieving excellence in energy development, production and stewardship. As markets evolve, technologies change - Wyoming must be on the cutting edge and be prepared through an ongoing commitment to this strategic framework.

The public must stay involved, share ideas and provide feedback.

Our collective charge is to power and fuel the nation in a responsible way. We all benefit from this, and we all have a role to play.

Wyoming has a solid tradition and track record of charting our destiny on our terms - for both energy and the environment. We cannot rest on our laurels, however. There is more we can do to attain the vision of achieving excellence in energy development and stewardship for the highest benefit of our citizens. This strategy provides the framework to that end.

The strategy is designed to be dynamic, not static. It is designed to provide continuing guidance for agencies, industry and others. It is designed to last - not to be here today, gone tomorrow. In future years, we will build on the successes of past years. We will mark our progress and make additional progress. We will continue to reach out to others for input.

The energy strategy will become a systematic part of the annual planning and budgeting process for Wyoming government. It will provide a way for Wyoming to approach energy exploration, development and production balanced with the environment for the benefit of the people of this state. A number of concrete, specific initiatives for the first year were listed. State agencies will fall in line with the strategy. We hope those outside government will use it, too.

Over the next several months, we will be hosting energy roundtables to generate feedback on the strategy. We will keep asking: "How do we continue to add value to opportunities for the highest benefit for Wyoming?"

Diverse groups and people weighed in on the development of this framework. To be successful, diverse groups need to help see it through. We all must contribute our best efforts to implement Wyoming's Action Plan for Energy, Environment and Economy.

Appendix

SOURCES For more information, visit:

ENERGY OVERVIEW

Wyoming Mining Association
 Wyoming Petroleum Association
 American Wind Energy Association
 International Energy Agency—World Energy Outlook
 U.S. Energy Information Administration, Statistics and Analysis

ENVIRONMENT OVERVIEW

Wyoming Department of Agriculture
 Wyoming Department of Environmental Quality
 Wyoming Department of Game and Fish
 Wyoming Economic Analysis Division
 Wyoming Travel and Tourism
 U.S. Department of Commerce, U.S. Census Bureau
 U.S. Department of the Interior, Fish and Wildlife Service

ECONOMIC OVERVIEW

Wyoming Economic Analysis Division
 Beacon Hill Institute State Competitiveness Report
 Business Facilities
 The Tax Foundation
 Wall Street Journal

PHOTO CREDITS

PAGE 1-2 (COVER):

Photo 1 (center left, Arch Jacobs Ranch): Wyoming Mining Association
Photo 2 (center right): Wyoming Stock Growers Land Trust
Photo 3 (far right, Pinedale): Tara Bolgiano, Blushing Crow Studio

PAGE 4:

Photo 4 (upper left, coal trains): Wyoming Mining Association
Photo 5 (upper right, Governor Mead and Donna Wichers): Uranium One
Photo 6 (bottom left, irrigation): Jeff Vanuga
Photo 7 (bottom right, mountainous setting): Jeff Vanuga

PAGE 7:

Photo 8 (upper left, mining site): Ellen Skinner
Photo 9 (upper center, site workers): Governor's Office
Photo 10 (large, trona mining): Wyoming Mining Association

PAGE 9:

Photo 11 (upper center, welding/sparks): UWSER
Photo 12 (upper right, eagle): Kevin H. Warren

PAGE 10:

Photo 13 (field/mountain backdrop): UWSER

PAGE 13:

Photo 14 (upper left, tractor): UWSER
Photo 15 (upper center, flower): Governor's Office
Photo 16 (large, Pinedale/Jonah): Ellen Skinner

PAGE 15:

Photo 17 (upper left, pipeline pieces): UWSER
Photo 18 (upper right, coal mining truck): Rebekah Fitzgerald

PAGE 17:

Photo 19 (small, left, oil platform): UWSER
Photo 20 (small, right, Governor Mead and Donna Wichers): Uranium One

PAGE 21:

Photo 21 (upper left, elk): Kevin H. Warren
Photo 22 (upper center, flowers/mountain): Governor's Office

PAGE 26:

Photo 23 (moose): Kevin Warren

PAGE 28:

Photo 24 (young woman near coal mining truck): Rebekah Fitzgerald

PAGE 29:

Photo 25 (left, welcome sign): City of Gillette
Photo 26 (top right, pool): LaCasse Photography
Photo 27 (bottom right, rock climber): LaCasse Photography

PAGE 33:

Photo 28 (upper left, Dry Fork Station): Governor's Office
Photo 29 (upper center, mountains): Ellen Skinner
Photo 30 (upper right, hands): Cara Eastwood Baldwin
Photo 31 (large, fishing): Governor's Office

PAGE 35:

Photo 32 (upper left, tractor): UWSER
Photo 33 (upper center, flowers): Cara Eastwood Baldwin
Photo 34 (small, rainbow): Basin Electric Power Cooperative – Dennis Thorfinnson

PAGE 39:

Photo 35 (upper left, mountain/lake): Ellen Skinner
Photo 36 (upper center, mountain/ram): Kevin H. Warren
Photo 37 (upper right, professor): UWSER
Photo 38 (large, computer/research): UWSER

PAGE 43:

Photo 39 (upper center, information analysis): UWSER

Photo 40 (upper right, oil pumpjack): Cara Eastwood Baldwin

PAGE 46:

Photo 41 (oil pumpjack): UWSER

PAGE 49:

Photo 42 (upper center, deer grazing): Kevin H. Warren
Photo 43 (upper right): Wyoming Mining Association
Photo 44 (small, sage-grouse): Jeff Vanuga

PAGE 50-51:

Photo 45 (two-page spread, Dry Fork Station): Dennis Thorfinnson

PAGE 52:

Photo 46 (biker): Governor's Office

PAGE 53:

Photo 47 (upper left, refinery): UWSER
Photo 48 (upper center, students in field): UWSER
Photo 49 (upper right, solar panels): UWSER

PAGE 57:

Photo 50 (two men conducting water measurements): Ted Brummond, UW Photo Service

PAGE 59:

Photo 51 (upper left, drilling rig): Jeff Vanuga
Photo 52 (upper center, Wyoming employment graph): Bureau of Labor Statistics
Photo 53 (upper right, children): Jeremiah Riemann
Photo 54 (large, Governor Mead): Wyoming Stock Growers Land Trust

PAGE 61:

Photo 55 (upper center, standing on rocks): Governor's Office
Photo 56 (upper right, Campbell County Recreation Center): LaCasse Photography



This document provides a general overview of Governor Matthew H. Mead's action plan and objectives regarding energy, the environment, and the economy. It does not create legally binding requirements, authorizations, benefits, or rights for any state agencies, local governments, companies, or individuals. This action plan is dynamic and may be revised at any time.