



Leading *the* Charge

WYOMING'S ACTION PLAN FOR ENERGY, ENVIRONMENT AND ECONOMY



Governor Matthew H. Mead

2016

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A Message From

GOVERNOR MATTHEW H. MEAD



In 2010, I pledged to create an energy policy for Wyoming. It was important for Wyoming, as a leading energy state, to lead on energy policy. In this state, we have long recognized that we can act on opportunities and maintain our unparalleled natural resources. With this balanced approach in mind, I reached out to the public gaining ideas and perspective. Something more than a simple policy document was needed, rather, a comprehensive strategy was necessary – one that changed the way energy and environmental policy is developed, coordinated, implemented and reported.

The result was the 2013 Energy Strategy, *Leading the Charge: Wyoming's Action Plan for Energy, Environment and Economy*. The strategy used a private sector business model, aligning operations within state government to work towards common goals. The goals were guided by a vision that "Wyoming will achieve excellence in energy development, production and stewardship of its natural resources." The goals would be accomplished through action initiatives. State agencies were brought together to find the best means to complete the initiatives. The strategy has been a successful one, and we have been able to track the progress made.

It was always intended that the strategy would be continually updated. We would go back, revisit, and renew efforts where needed. Over time, we would work through initiatives and new priorities would present themselves. With most of the original initiatives completed or nearly completed, now is the time to update and issue a second edition of the Energy Strategy with new initiatives.

The initiatives in the 2016 Energy Strategy encompass an important segment of the energy and environmental work going on in the state. The initiatives represent consensus energy and environmental policies, identified through a public process. This process should continue. It is through periodic revision and renewal that we will secure our energy future in Wyoming.

Sincerely,

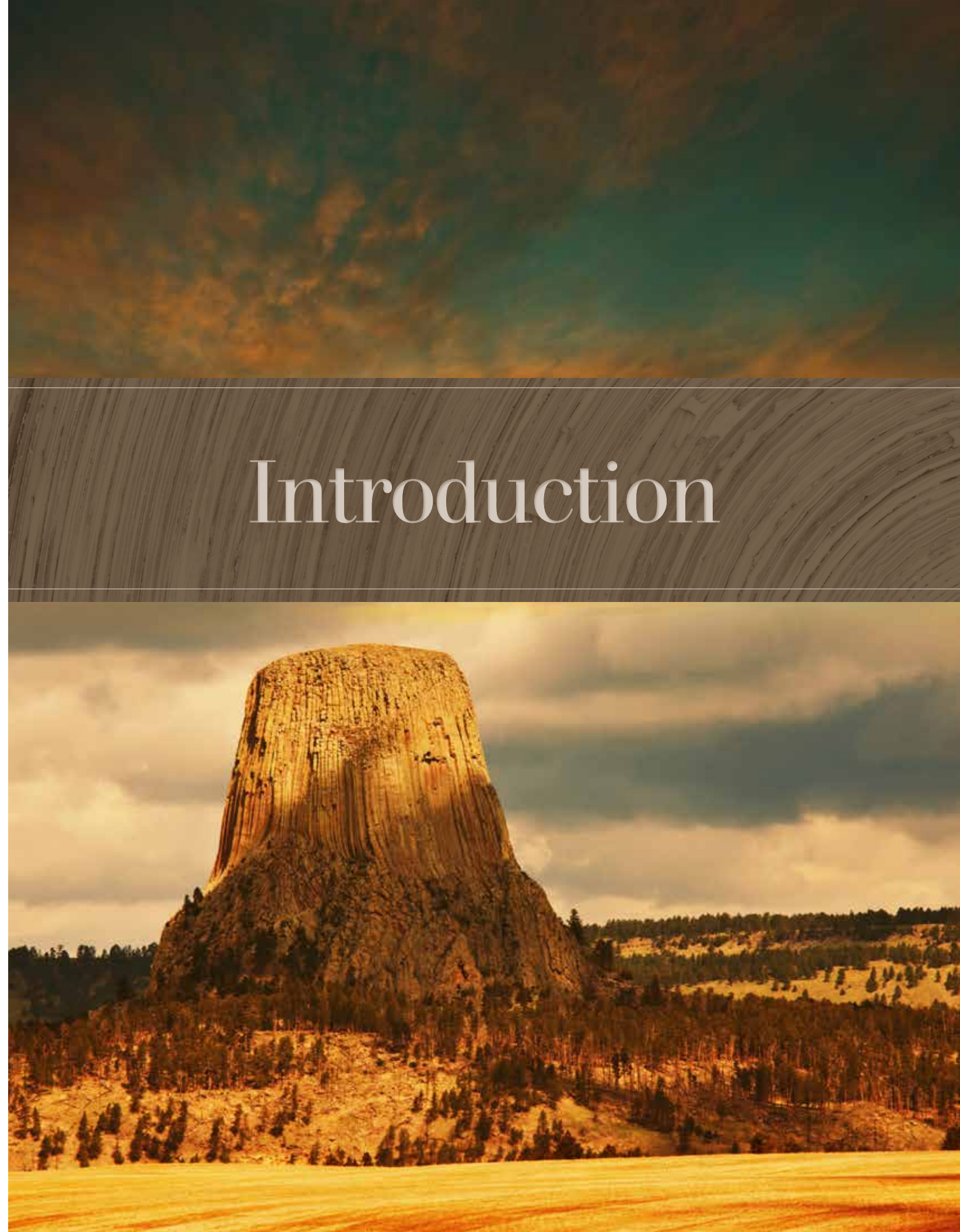
A handwritten signature in black ink, appearing to read 'M. Mead'.

Matthew H. Mead
Governor

“The development of Wyoming’s mineral resources supports the workforce, promotes economic well-being, and provides the raw materials for products that Americans use every day. Just as development is important, so is our commitment to stewardship, reclamation and a clean environment. We ensure responsible production and reclamation. A sustainable natural ecosystem is always the goal, and the industry always strives to leave the land in a better state once the work is done. Our employees don’t just work here, they live here. Being good neighbors and stewards of the land is a core value of the Wyoming mining industry.”

WYOMING MINING ASSOCIATION

Introduction





Introduction



The 2013 Energy Strategy was developed through a collaborative effort. The effort was led by the Governor to address complex energy, environment, and economic relationships and challenges in the absence of federal leadership. It is more important than ever that states lead in developing solutions to move the nation forward.

Opportunities in advancing technologies make our energy resources more environmentally secure while adding value to those resources. Strengthening the state’s position as a leader in the energy economy ensures that we chart our own course into the future. Conservation of our environment, air, land, water, wildlife and way of life continue to be crucial. Wyoming has demonstrated time and again that balancing can be done and balance is the way forward. To that end, this second edition of *Leading the Charge, Wyoming’s Action Plan for Energy, Environment, and the Economy* has been developed.

New initiatives advance the work begun, setting goals that will work for Wyoming. The initiatives will build on the strong foundation laid in the 2013 Energy Strategy.

Since the introduction of the 2013 Energy Strategy, we have further refined the process of identifying, setting and accomplishing goals. The process will continue to evolve over time. In the pages that follow, priorities for the upcoming years are set forth. Wyoming will continue to lead, positioning our state well for the future.

Where We Have Been —

COMPLETED INITIATIVES OF THE 2013 ENERGY STRATEGY

Of the 45 initiatives present in the 2013 Energy Strategy, 28 are 100% complete based on identified milestones. This work is ongoing. These initiatives address opportunities for Wyoming, develop strong protections for our environment and create collaboration across disciplines to move our economy forward. As they were numbered in the 2013 Energy Strategy, the completed initiatives are:

KEY:

THEME 1:
ECONOMIC COMPETITIVENESS, EXPANSION AND DIVERSIFICATION

THEME 2:
EFFICIENT, EFFECTIVE REGULATION

THEME 3:
NATURAL RESOURCE CONSERVATION, RECLAMATION AND MITIGATION

THEME 4:
EDUCATION, INNOVATION AND NEW TECHNOLOGIES

COMPLETED INITIATIVES

1A Development: New and Expanded Marketing Opportunities	2A Energy Atlas Decision Support Tool	3A Liquefied Natural Gas	3B Increasing Supply and Demand for Compressed Natural Gas
3C Utilizing Forest Waste to Produce Energy and Products	4B Federal Agency Cooperation and Coordination with the State of Wyoming and Local Governments in the NEPA Process	4E Exerting State Influence on Endangered Species Issues	4G Multi-State Cooperation
4H Agreement Status to Give Wyoming Regulatory Authority over Radioactive Materials	5A State Historic Preservation Office Programmatic Agreement	5D Uranium Reporting Guidelines	6A Baseline Pre-development Water Quality Testing
6B Surface Water Resource Analysis	7A Mineral and Mineral Related Taxation	8A Mediation Program	8B Rapid Response Protocols for Emergency Situations
9A Compilation of Statewide Soil Survey and Ecological Site Description Map	9B Sage-Grouse Data Reporting	9D Wyoming State Water Strategy	10B Develop a State of Wyoming Reclamation Standard
13A Energy Literacy Program	13B STEM Task Force	14A Centers of Energy Excellence	14B Annual Workplace Safety Report
14C Workplace Safety Training Programs	14D Career Readiness Initiative	14E Refinery Safety Program	16A Hybrid Energy Systems

Where We Are —

ONGOING INITIATIVES OF THE 2013 ENERGY STRATEGY

Thirteen of the 2013 initiatives are not yet completed and will continue. Their final milestones are noted here:

KEY:

THEME 1:
ECONOMIC COMPETITIVENESS, EXPANSION AND DIVERSIFICATION

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INITIATIVES IN PROGRESS

2B

Statewide CO₂ Pipeline Network Corridors: This initiative will create contiguous corridors across federal lands that will be used for pipelines to transport CO₂ and other products. Wyoming is working on streamlined environmental analysis and permitting for more efficient and more environmentally sound development.

4A

Inventory of State and Federal Cooperative Agreements: Over a century, many agreements have been struck to formalize state and federal responsibilities. These agreements need to be reviewed and updated. Each state regulatory agency is reviewing key MOUs and MOAs on a given schedule and on an ongoing basis.

4C

Review of State Oil and Gas Environmental Regulation: This initiative directed a review of multiple oil and gas standards looking for improvements. Those reviews which are completed have strengthened protocols for industry to better serve citizens and the environment. Additional reviews are required to complete this initiative and are ongoing.

4D

Air Quality Management Strategy: Wyoming has clean air across the state. However, Wyoming continues to work to identify, monitor and bring a couple exceptions into compliance.

4F

Regulatory Review and Recommendations for Flaring of Natural Gas: A necessary process in oil and gas development is flaring, where a small portion of natural gas is burned during extraction. Wyoming is in the process of reviewing standards for flaring, finding a balance between economic development and preserving state and private interests. The full review will be complete in the near term.

5B

Wyoming Agency Permitting Process and Timeliness Mapping Project: A function of state government is ensuring development occurs in a responsible manner. Agencies grant permits that allow for development within specified parameters. To improve efficiency of permit issuance, agencies will map out the permitting process, making it easier for individuals to navigate.

5C

Certified Oil and Gas Operator Initiative: The oil and gas industry contributes to a strong Wyoming economy. Companies that routinely do good work should be rewarded. This initiative will find ways to reward those that do well.

6C

Unified Groundwater Database: To ensure effective environmental protection, the state collects data on air, land and water. Making this more easily available and less duplicative is important. The Department of Environmental Quality is developing a database to share groundwater information across the agency, making its processes more efficient.

7B

Wind Tax: Wyoming has great resources for creating electricity from wind. To encourage economic activity, reviewing state requirements is good to do. At the encouragement of interested companies, Wyoming will review its tax policies for wind development. All industries must pay their fair share, while still finding motivation to expand.

11A

Off-site Mitigation Framework: There are many opportunities to mitigate or offset the impacts that inherently come with development. One effective tool is off-site mitigation, projects that offset negative impacts to natural resources. Developing protocols to ensure that this type of mitigation is meeting its intended purpose will complete this initiative.

11B

Incentives for Development in Non-core Sage-Grouse Habitat: Wyoming has implemented many measures for conservation of the Greater sage-grouse. For example, we continue to work, finding ways to incentivize development outside of this species’ core habitat.

13B

Engineering Task Force: Career fields in science, technology, engineering and math are growing in demand. This initiative sets the stage for Wyoming to play a role in preparing the future workforce. The opening of the High Bay Research facility at the University of Wyoming, expected in August 2016, will complete this initiative.

15A

State Agency Energy Audit Program: The state continually looks for opportunities for saving money through energy efficiency. Improving buildings represent a key part of this effort. Additional renovation and efficiency findings will complete the defined milestones, though the work is always ongoing.

KEY:

- THEME 1:
ECONOMIC COMPETITIVENESS,
EXPANSION AND DIVERSIFICATION
- THEME 2:
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- THEME 3:
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- THEME 4:
EDUCATION, INNOVATION AND
NEW TECHNOLOGIES

OUTSTANDING INITIATIVES

Four initiatives, not done, may be revisited at a future time.

- 9C Innovative Water Treatment and Management Incentives
- 10A Prioritizing Reclamation
- 12A State Bonding Review
- 15B Study Barriers to Energy Efficiency in School Facilities

Overviews

Forty-one of the 2013 Energy Strategy initiatives will be fully achieved.
Of the goals set, over 80% have been accomplished to date.



POWERING AMERICA

In the Americas, the Aztecs from the 14th through 16th centuries used coal for heat. In 1843, Lt. John C. Frémont, guided by Kit Carson, noted coal in Wyoming's hills. Years later, that same location would become the Cumberland coal camp in Lincoln County.

The Reynolds Expedition of 1859, including future director of the U.S. Geological Survey Geologist Ferdinand V. Hayden, recorded coal in the Powder River Basin — the most productive coal fields in the world. In 2014, over 150 years after the discovery, Wyoming mined its 10 billionth ton of coal.

Aggregating the production and export of all fossil-based minerals, Wyoming is the number one exporter of energy to the nation. In 2013, Wyoming produced 9,236 trillion British Thermal Units of energy, equating to 12% of the energy our nation consumes. It is enough energy to power more than 102 million U.S. households for an entire year. Power is critical in our nation's efforts to be energy independent — and critical to reliable supply.

Energy



In 1803, the United States purchased a vast section of land from France in what is known as the Louisiana Purchase. Part of this land would become a portion of Wyoming. Wyoming was formed from territories of Washington, Oregon, Idaho, Nebraska, Dakota and Utah. As states joined the Union, borders continued to be added to and changed. On July 10, 1890, Wyoming as we know it was admitted to the Union as the 44th state.

Wyoming's boundaries were fortuitous. Within these boundaries are some of the greatest fossil fuel reserves in the world. These abundant resources were only partially known in the late 1800s. In 1884, the first oil well was drilled in Wyoming. The Union Pacific Railroad was sited along the southern border of Wyoming precisely because of available coal resources needed to fuel locomotives. Later the enormity of the coal reserves in the Powder River Basin were identified.



After more than a century of energy production, Wyoming tops the nation as an energy exporter. In 2014, Wyoming was the largest producer of coal, mining 388 million tons. That same year, Wyoming ranked 5th in natural gas production and 8th in oil production. A leader in traditional energy fuels, Wyoming also has other natural resource wealth. The state ranks 1st in uranium production; 1st in trona; 1st in bentonite; and 2nd in helium. In terms of renewable energy, Wyoming has the most Class 5-7 wind energy resources in the continental United States.

The energy Wyoming produces is indispensable to the nation. Coal from Wyoming is shipped to over 30 states, providing low-cost, reliable electricity for families and businesses. Wyoming gets 90% of its electricity from coal, consistently providing some of the cheapest electricity in the country.



Affordable energy is the backbone of a strong economy. Low electric bills mean more money in family pockets. It makes a difference in quality of life from heat to groceries, from the light switch to the refrigerator. It is integral to our daily life.

The oil and natural gas produced in Wyoming moves across the country, heating homes and running vehicles. Wyoming energy is domestic energy — created in America, used in America. It employs Americans in energy, manufacturing, retail and technology. Wyoming resources support our national strength and security in a fundamental way.

Global events and national policies have challenged the energy industry. Coal, in particular, has been a target of federal administrative actions. Oil and natural gas prices are low. These circumstances create hurdles for industries and decision makers. Wyoming has not rested in the face of these obstacles. The state and its industries continue their work to remain on the leading edge, keeping these important resources a key part of future national prosperity.

WHERE YOU FIND ONE BLADE OF GRASS, LEAVE TWO

Former Governor Cliff Hansen passed on to his family, as it had been passed to him, that as people who work with the land, they had an obligation to leave it better than they found it. In his words “where you find one blade of grass, leave two.” This type of thinking has shaped Wyoming’s leadership in reclamation.

Reclamation is the act of restoring natural resources. Wyoming is proud to be a place to see that science at work and working. Visitors to Wyoming enjoy our natural resources — the nation’s first national park, first national monument, first national forest, our wilderness and our wildlife. They may not even realize they are passing through a state that is a juggernaut of energy production. Productive mines become productive prairies. Antelope and mule deer graze the land of reclaimed coal mines.

The University of Wyoming plays an important role in developing and implementing the best reclamation science. Partnering with companies like British Petroleum, Chesapeake Energy, and Shell Oil, the Wyoming Reclamation and Restoration Center in the College of Agriculture and Natural Resources has established a top regional center to teach restoration, reclamation and rehabilitation of disturbed ecosystems based on sound ecological, agricultural and economical practices.

Like other successes in the state, this one is built on collaboration. Private interests, consulting firms, the Wyoming Association of Conservation Districts, Department of Environmental Quality, Game & Fish Department, State Engineer’s Office, State Forestry Division, Water Development Commission, Department of Agriculture, Weed and Pest Council, the U.S. Bureau of Land Management, National Park Service, USDA Forest Service, U.S. Fish & Wildlife Service, Natural Resources Conservation Service and U.S. Geological Survey are all partners in reclamation efforts.

Conservation in Wyoming is everyone’s responsibility, and Wyoming is committed to it.

Environment



Wyoming is the least populated state in the nation with about 584,000 inhabitants. Wyoming covers over 62 million acres making it the 10th largest in area. The state has an average of 6 inhabitants per square mile. Half of Wyoming is public land managed for multiple uses. Our access to open spaces and the everyday interactions with nature shape the way Wyomingites see and treat the natural world.

It is easy to see why Wyoming’s citizens and visitors take advantage of the outdoors. Wyoming is a world-class destination with good public access. Opportunities to “venture off” abound: for example, camping in the Wyoming range; hiking the Medicine Bow Peak; or fishing the Tongue River. Options are plentiful. Conservation and access go hand in hand with enjoyment of the great outdoors.



Wyoming’s citizens make the most of their outdoor opportunities. Accolades and analytics verify the great majority of Wyomingites hike, camp, and enjoy outdoor recreation on a regular basis. Wyoming ranks as the fifth highest state in well-being. (Gallup-Healthways Well-Being Index, 2015). In wildlife based recreation, activities like hunting and fishing, nearly 1 million residents and non-residents spend over \$1 billion dollars each year.

Wyoming is recognized for its leadership in conserving not only the great landscapes of the West but its wildlife as well. The United States Department of the Interior and Fish and Wildlife Service recently recognized the leadership of Wyoming in conservation efforts of species like the Greater sage-grouse. Wyoming has also been recognized for its efforts on black-footed ferrets, grizzly bears and wolves. State successes with challenged species should not overshadow the work Wyoming has done managing elk, mule deer, trout, antelope, black bears, cougars and countless other species.



Wyoming farms and ranches conserve more than 30 million acres of habitat statewide. Agriculture is the state's 3rd largest industry and benefits the ecology of the state as much as it does the economy. While agriculture keeps Wyoming's customs and culture intact, it also allows for open landscapes — protecting migration routes and habitat critical to Wyoming wildlife.

Part of Wyoming's culture is a willingness to share our experiences. In 2015, Wyoming hosted over 10.5 million visitors. They came to relax, see wildlife, take pictures and build memories. Protecting our natural assets is a first priority — so future generations can share in the experience that is uniquely Wyoming.



BREAKIN' THROUGH

A PLACE FOR BUSINESS, AN ENVIRONMENT FOR PEOPLE

Wyoming is recognized for its pro-business environment and high quality of life. The Tax Foundation ranked Wyoming as having the most business friendly tax climate in 2014, 2015 and 2016. The Kauffman Foundation ranked Wyoming second for new business startup activity in 2015. In 2015, MoneyRates.com ranked Wyoming the Third Best State to Make a Living. Actions taken to create opportunity for businesses to flourish continue to solidify these rankings.

Wyoming's allure includes our commitment to conserving the natural features that make it a sheer joy to live here. The creation of the Wyoming Wildlife & Natural Resource Trust exemplifies our commitment to wide open spaces, wildlife and conservation. In 2005, the state established this dedicated fund to maintain Wyoming's unique natural heritage.

Since its inception, the Wildlife & Natural Resource Trust has funded 538 projects, investing \$343 million across Wyoming. These projects conserve and enhance wildlife habitat and natural resources.

We love the outdoors and value our mineral wealth. We strike the right balance, making Wyoming a great place to live and work.

Economy



In 2014, Wyoming's gross domestic product (the cost of all goods and services purchased) was \$44 billion. The top three industries are energy, tourism and agriculture.

Wyoming's energy industry is the largest contributor to the state's economy. In 2014, this sector generated almost \$16 billion dollars in total revenues. That same year, the oil and gas industries employed about 25,000 people and the mining industry another 6,500. The effects of these industries are felt across the state, directly and indirectly. Schools are built from revenues generated by coal production. Water pipelines, business parks and community centers are built from funds generated by the energy industry. These are but a few examples of energy's benefits.



While the energy industry is the largest contributor to Wyoming's economy, it has recently faced difficult times due to both market and non-market factors. National and global economics have played a role as have onerous federal regulations. Some factors will correct themselves through time. Others require action and Wyoming continues to work on solutions.

Tourism plays a large role in our economy. It is our second largest industry. In 2014, Wyoming saw the largest year-over-year increase in visitors since data collection began. Over 10 million overnight travelers visited, an 11 percent increase from the prior year. In 2015, tourism increased again to 10.5 million visitors — up 4.2% from the prior record-setting year. Direct spending from visitors in 2015 contributed \$3.4 billion to the state. Tourism generated \$175 million in state and local tax revenues.



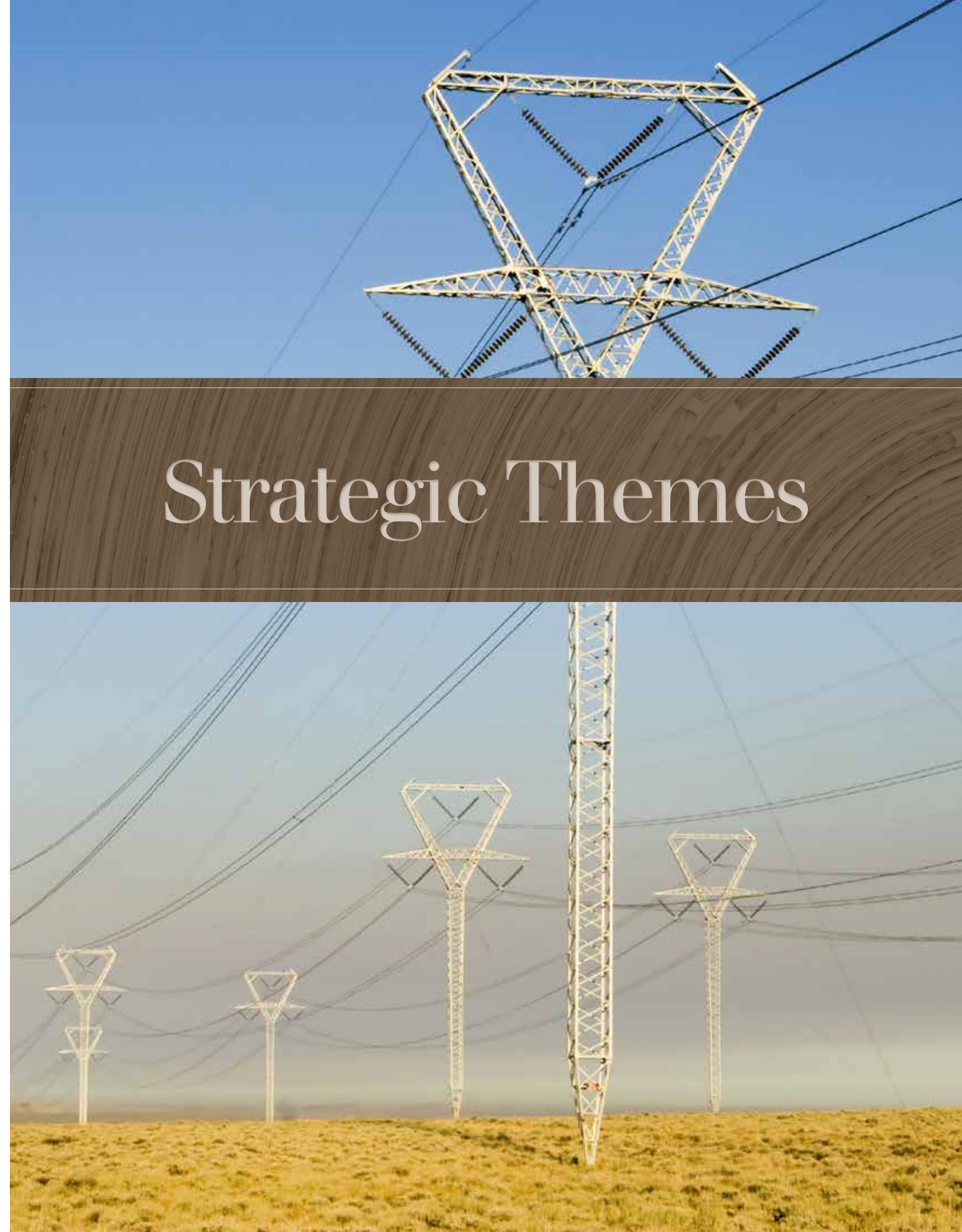
Agriculture, Wyoming’s 3rd largest industry, is vital to the economy, bound to our heritage and a foundation that other industries build upon. Large ranches and farms keep wide open spaces available. In fact, Wyoming ranks 1st in the country in the average size of its farms and ranches. In terms of dollar value, agricultural commodities sold in 2014 accounted for \$1.4 billion in revenues.

New industries are emerging as well. The state is seeing diversification within traditional energy and agriculture sectors, where private enterprises are developing and deploying new tools that add value to our products. Outside of energy, tourism, and ag, the technology sector is gaining ground. Wyoming, with its high quality of life and low cost of living, is becoming more attractive for technology and other businesses seeking to expand. And, with the addition of the Unified Network, people and companies have more and better access to technology than ever before.

“Our members believe that there is a middle ground when it comes to Wyoming energy development. This middle ground allows our economy to thrive and provides reliable jobs for our residents. It also fulfills our nation’s energy demands with sustainable energy sources and ensures that future generations will be able to enjoy the same clean and safe natural environment that we do today.”

WYOMING OUTDOOR COUNCIL
SEPTEMBER 1, 2015

Strategic Themes





Where We Are Going—

THE NEW INITIATIVES FOR THE 2016 ENERGY STRATEGY

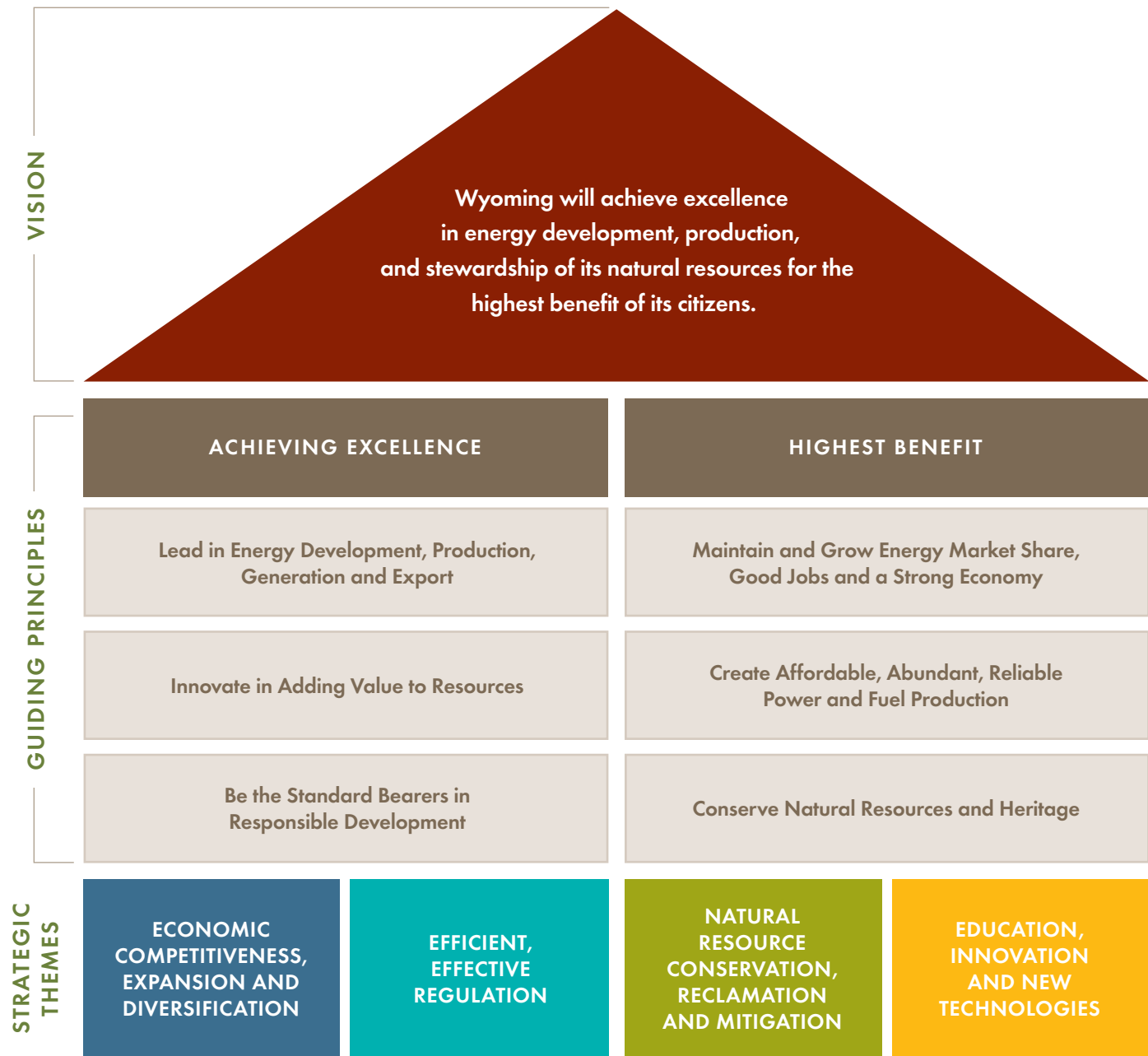


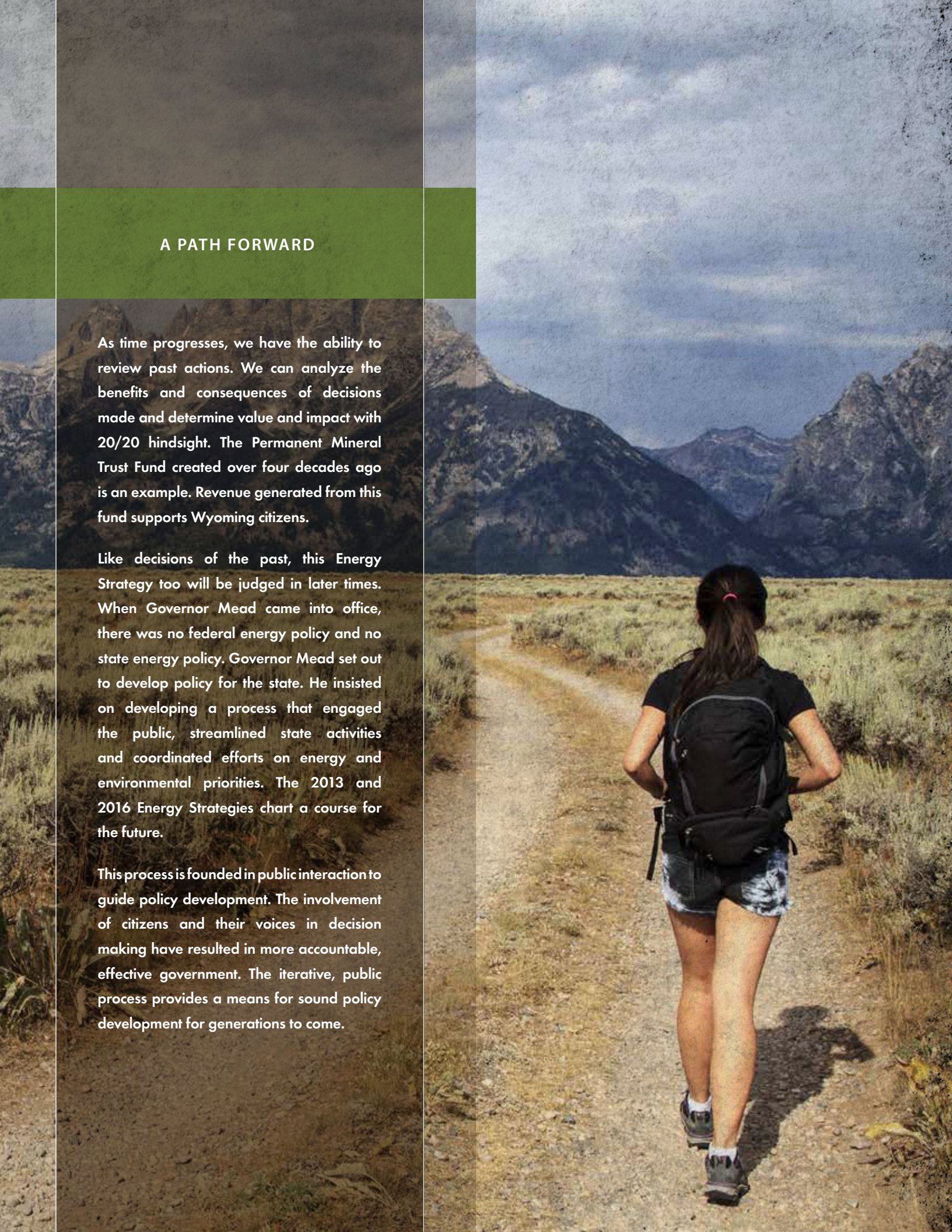
THEMES

THE STRATEGIC FRAMEWORK

The diagram on the following page represents the strategic framework for the Energy Strategy. This model allows state efforts to have a direct link towards the ultimate goal. The vision statement sits atop, representing the goal for balancing energy and environmental policies. The principles of achieving excellence and highest benefit guide our work. Four themes below the guiding principles broadly represent common policy areas. Initiatives comprise the base foundation under the themes. The initiatives feed up the ladder, working towards the vision.

Descriptions of the four themes are in the pages that follow, as are the initiatives. Together, they move Wyoming forward.





A PATH FORWARD

As time progresses, we have the ability to review past actions. We can analyze the benefits and consequences of decisions made and determine value and impact with 20/20 hindsight. The Permanent Mineral Trust Fund created over four decades ago is an example. Revenue generated from this fund supports Wyoming citizens.

Like decisions of the past, this Energy Strategy too will be judged in later times. When Governor Mead came into office, there was no federal energy policy and no state energy policy. Governor Mead set out to develop policy for the state. He insisted on developing a process that engaged the public, streamlined state activities and coordinated efforts on energy and environmental priorities. The 2013 and 2016 Energy Strategies chart a course for the future.

This process is founded in public interaction to guide policy development. The involvement of citizens and their voices in decision making have resulted in more accountable, effective government. The iterative, public process provides a means for sound policy development for generations to come.

THEME 1

Economic Competitiveness, Expansion and Diversification



Initiatives within this strategic theme are intended to facilitate growth, broaden opportunities and add value to Wyoming's resources. The actions under this theme cover a wide range of possibilities. They are intended to expand the foundation for businesses in the state focusing on challenges within the state, at a national level, or even internationally.

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 must occur in order to sustain production levels and move our resources to market. The infrastructure that supports our existing energy industry has the potential to draw new businesses and create new opportunities.

State government can help align private industries and interests in different sectors – resulting in opportunities for a diversified energy economy. But it is important for government to know its role. The state should play a role of streamlining and leveraging for greater opportunity – so that diverse interests can succeed or fail on their own merits. It should not be in the position of choosing winners and losers.

The following pages outline the initiatives suggested by the public for this theme.



1

BACKDROP

Wyoming prioritizes infrastructure and resources for responsible energy development. Strong communities support Wyoming’s energy industries. From 2012 to 2015, the state allocated \$338 million to local communities for infrastructure and operating needs. The Wyoming Business Council awards grants and loans across the state for business parks, natural gas fueling stations, fuel cell technology and the list goes on. Funding available through the Office of State Lands and Investments supports water systems, natural gas distribution systems, safety equipment, hospital improvements and more. These infrastructure components attract technical energy service companies, businesses like data centers and medical equipment providers, industrial machining and more. Local government’s ability to provide basic services for businesses and individuals rests on funding and strong economic growth.

INFRASTRUCTURE INVESTMENT INITIATIVE

Communities are the backbone of a strong energy economy and require good infrastructure to provide services. Wyoming needs to anticipate growth and continue investment in community infrastructure — preparing for the future. Communities must have good roads, bridges, hospitals and more to support a vibrant energy economy. They must also have the ability to integrate energy infrastructure that supports local economies, such as natural gas distribution systems, biomass generation, energy efficiency and others. Knowing what infrastructure is needed, as well as available financing options, is necessary. This initiative will explore an infrastructure priority list, analyzing basic needs and energy utilization options. Financing opportunities that facilitate development of sound infrastructure will be incorporated.



2

BACKDROP

Pine Beetles are an epidemic, killing pine trees in forests across the West. Communities looked for opportunities to minimize beetles damage and revitalize forestry industries — industries in communities like Saratoga, Encampment, Hulett and elsewhere. More can be accomplished and a wider perspective is needed. Governor Mead created the Governor’s Task Force on Forests, which stemmed from an initiative in the 2013 Energy Strategy. The Task Force developed recommendations covering areas such as fire and other disturbance, resource management and economic opportunities. Innovations allow forest waste products to be part of the energy mix.

BIOMASS UTILIZATION INITIATIVE

Biomass industries have been identified as an area where Wyoming can do more. To further this initiative, a biomass symposium will be held in 2016. The symposium will focus on increasing development for an array of forest products and facilities and to make recommendations for ongoing progress. The state will work with private and federal partners to implement recommendations from this symposium.



3

BACKDROP

Wyoming’s business friendly environment and working culture cultivate business growth. A key to success is attracting industries that are complimentary to Wyoming resources and also help diversify the economy. Over the last four years, Wyoming has been building up its technology and manufacturing sectors. The state received a Top Five Award of Excellence for data center recruiting from *Expansion Solutions* in 2014. From December 2010 to December 2014, manufacturing jobs increased 11%. Firearms companies and other manufacturers are choosing Wyoming. The growth in these sectors and others occurs when opportunity is met by action and there is more room for growth. For example, interest in renewable energy is growing nationwide. Wyoming has some of the best wind resources in the nation, good transportation infrastructure, open space, affordable electricity and a dedicated workforce. These factors, in combination, provide Wyoming with great potential in manufacturing for wind and other industries.

**WIND ENERGY
MANUFACTURING INITIATIVE**

Building on success in attracting manufacturers, Wyoming will explore efforts to grow a strong renewable energy manufacturing sector. The Wyoming Business Council will lead the effort — meeting with government, community members, and businesses to analyze the existing opportunities, inventory current incentives and infrastructure and develop specific recommendations to grow this industry.

BE TOUGH, BUT FAIR

The Code of the West was officially adopted by Wyoming in 2010. The ten principles come from the book *Cowboy Ethics*, by James P. Owen. The fifth principle is “Be tough, but fair.” It demands equity as the outcome in situations where multiple interests are at play. It guides Wyoming’s agencies in interactions with citizens and businesses. Wyoming is committed to a system that keeps industries vibrant, while safeguarding our environment and western heritage.

Wyoming was the first state in the nation to establish standards for hydraulic fracturing. Wyoming developed nationally recognized best practices for baseline water quality testing in areas where oil and gas development occur.

The state also looks for opportunities to facilitate industry growth. For example, Wyoming is taking the lead on environmental analysis to lay the foundation for pipeline corridors. This process expedites construction under standard federal timeframes.

The ethics of “Being tough, but fair” keeps the balance of economic prosperity and environmental stewardship in line.

THEME 2

Efficient, Effective Regulation



In his first inaugural address, Thomas Jefferson outlined the role of good government, noting it should be “wise and frugal government, which shall restrain men from injuring one another, which shall leave them otherwise free to regulate their own pursuits of industry and improvement...” Government’s role is to protect the rights and interests of the citizens. Those interests include preserving natural environments and also a fair and stable business and legal environment – allowing individuals the rights to “life, liberty, and the pursuit of happiness.”

Good governmental regulation provides certainty, equitable opportunity and reasonable oversight. The right balance allows industries to be successful while protecting natural resources. The results benefit people of Wyoming – today and in the future. Initiatives in this theme are designed to maintain balance for our state.

In addition to keeping our own regulations clear, succinct, and fair, the state can influence or challenge federal actions where regulatory balance is lost. From the establishment of our nation, federal powers were only those expressly delegated.

“The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people.” U.S. Constitution, Article 10.

Federal agencies have certain authority to develop regulations for air, land and water quality. This authority is limited and defined. States have authority to develop laws and regulations for the protection of their natural resources and citizens. States have responsibilities to guard against federal overreach and challenge it when it occurs.

The State of Wyoming is the primary regulator of natural resources within its boundaries. The federal government is a landowner – nearly 50 percent of the state is owned by the United States and managed by a number of federal agencies. Almost two-thirds of the mineral estate is federal. Decisions by our federal partners have long-lasting implications for the state. Wyoming must continue to make sure that our state’s interests and rights are respected in decisions by federal land managers.



1

BACKDROP

Wyoming is a leader in developing sound environmental regulations. For example, Wyoming led in requiring disclosure of chemicals used in the hydraulic fracturing process. Wyoming led in efforts to regulate fracking, establish pre-development groundwater testing, conserve species and set reclamation practices and surface water protections. The 2013 Energy Strategy focused efforts in this area and on developing and implementing state solutions. Local governments are likewise proactive on natural resource issues. In areas of state primacy and elsewhere, the federal government sometimes intrudes — stepping in to try to regulate again or overreach. It is important to regulate effectively, but duplicative, burdensome or unreasonable regulations fail both industry and the environment. Wyoming has taken up the fight against arbitrary federal regulation. In February 2016, in a federal case that Wyoming has joined with other states, the United States Supreme Court decided to stay the implementation of the “Clean Power Plan”. In many instances, Wyoming and local entities can partner with federal agencies — working together to find solutions that maintain a strong economy and move our industries forward. The state and local governments must be able to participate fully in the process from planning, permitting, to any litigation and beyond.

PRIMACY INITIATIVE

There are a number of oil and gas projects working their way through federal permitting. Permitting for energy development on federal lands can be time-consuming and expensive. This delay negatively affects economic prosperity. Projects must be permitted and ready for development. Under this initiative, Wyoming will build a National Environmental Policy Act (NEPA) team. Individuals with special skills and expertise will be identified across agencies and charged to work with federal agencies to expedite the NEPA process — with the objective of completing at least three Environmental Impact Statements for large energy projects within the next three calendar years. To allow local governments to effectively participate in the expedited effort, augmented funding from the Legislature will be sought for the Federal Natural Resource Policy Account — which helps fund local government participation in the review process.



2

BACKDROP

States are “laboratories of democracy” because they have the flexibility to experiment. Issues and opportunities can be quickly identified and solutions developed. As a result of the 2013 Energy Strategy, Wyoming reviewed and updated its regulations on setbacks, bonding, flaring and groundwater testing. These updates allow economic opportunities to continue to be pursued while providing additional protections and assurances to our citizens. It is important to update rules to reflect current needs. It is equally important to review rules to ensure they are understandable and relevant. Governor Mead tasked Wyoming state agencies with reducing their rules by thirty percent — they have done a great job, some reducing even more. It has become a part of agency culture to continue looking for efficiencies. Agencies continue to look for greater effectiveness in their service to industries and the public.

RECLAMATION AND REGULATORY REVIEW INITIATIVE

Wyoming has high reclamation standards. Reclamation must be effective and equitable. Efficiencies can be created while protections are enforced. This initiative will result in a review of three key factors in reclamation. First, the state will examine the adequacy of formulas for determining reclamation costs and obligations. The second will be a review of reclamation goals and definitions. Finally, Wyoming will complete an analysis of the self-bonding program, at the state and federal level, and update regulations for the benefit of the state, its businesses and citizens.

Natural Resource Conservation, Reclamation and Mitigation

A CULTURE OF CONSERVATION

As one would expect from a state with an ethic of “talk less, say more”, Wyoming has embraced that leadership is not about talking, it is about doing. That “can-do” attitude shapes the way Wyoming deals with all challenges.

Most people have heard of the federal Endangered Species Act (ESA), but few understand how it really works, or if it really does work. The majority of ESA actions in the last 20 years have ended as legal arguments in courtrooms. Most listed species stay on the list — not recovered or not removed. Wyoming has set a strong example of how to do conservation better, for the benefit of species and the public.

Wyoming has led an unprecedented, landscape-scale effort to reduce threats to the Greater sage-grouse, enabling the U.S. Fish and Wildlife Service to conclude in September 2015 that the bird did not need to be listed as threatened or endangered. The collaborative, science-based strategy has been called “the largest conservation effort in U.S. history.”

Of the decision not to list the bird, Governor Mead said, “I am pleased that the U.S. Fish and Wildlife Service made the right decision. This is the result of Wyoming and other Western states taking a proactive approach to the Greater sage-grouse — working with industry, agriculture, conservation groups and the federal government.” Governor Mead continued, “Today’s decision recognizes Wyoming and other Western states were successful. We can continue to create jobs and share our natural resources with the rest of the nation while the Greater sage-grouse thrives.”



Stewardship of natural resources is a fundamental principle for the people of Wyoming. It is easy to see why — we treasure the outdoor opportunities available throughout the state. Those pursuits require clean air, water, and intact landscapes. Our economy and well-being are connected to the health of the land as well. Each of the three leading industries — energy, tourism and ag — is intricately tied to the land and relies on it.

This theme is founded on finding beneficial ways to conserve and improve Wyoming’s natural resources. Growth and development are integral parts of our economy — allowing access and development of coal, oil, natural gas, uranium, and community and business growth for a strong economy. This is balanced with a commitment for conservation, not just for today but for the future. Innovative and effective solutions for conservation are best developed and implemented by those close to what is happening on the ground. Wyoming’s people are best positioned to identify solutions that preserve our landscapes, wildlife and way of life.

This theme has wide application. In the 2013 Energy Strategy, it was represented by a variety of initiatives: for example, increasing state agencies data sharing; breaking down silos and providing better information for conservation efforts; developing reclamation standards tailored for specific needs across the state based on vegetation, geology, and climate; and encouraging mitigation of lost habitat for critical species.

The following pages highlight the initiatives identified through the public process conducted in 2015. These are priorities for Wyoming, suggested by citizens for conservation, reclamation and mitigation efforts that ensure our natural resources are maintained and improved.



1

BACKDROP

Wildlife have been managed and conserved by Wyoming for over a century. When Endangered Species Act (ESA) protections were given to wolves and grizzly bears, the state responded with actions that led to recovered populations of both species – though legal challenges have kept both from formal “delisting” to this point. When presented with a declining population of Greater sage-grouse and a possible ESA listing, Wyoming began an unparalleled effort to conserve the species. Through the work of interested groups and individuals, Wyoming developed strategies that improved habitat and prospects for the Greater sage-grouse. Wyoming’s solutions were so effective that in 2015, the U.S. Bureau of Land Management and U.S. Forest Service incorporated them into their Management Plans across the state. The actions protect the species and allow economic development to continue on private, state and federal lands. Wyoming’s proactive and innovative conservation efforts serve as a framework for species conservation going forward.

ENDANGERED SPECIES ACT INITIATIVE

The Endangered Species Act is broken. Over 2,300 species have been placed on the ESA list since its inception in 1973, but few – 1.4% – have been delisted due to recovery. Too often, ESA decisions end in the courts. We must do better. If improved, the ESA can be an effective tool to protect and recover species. Wyoming’s agencies will work to implement changes within the ESA. One component of this effort, Governor Mead’s Species Conservation and ESA Initiative through the Western Governors’ Association, will help identify pragmatic and innovative recommendations for the future of the ESA. The Governor will carry these recommendations forward through actions in Wyoming, collaboration with other states and work with federal agencies and Congress. This effort will benefit Wyoming’s wildlife and economy.



2

BACKDROP

Wyoming has a history of working with federal partners. It has, to the maximum extent possible under the law, led in natural resource management in land, water and air. There are numerous examples. Wyoming established a program to be the primary regulator of injected carbon dioxide. It manages programs under the Clean Water Act. Following direction from the 2013 Energy Strategy, it started the process to take over responsibility for uranium development. In many situations, state agencies can better manage resource issues – they are more nimble, more in touch and have access to local knowledge and tools that federal agencies may lack.

COLLABORATIVE STATE MANAGEMENT OF INVASIVE SPECIES ON FEDERAL LANDS

Wyoming is over fifty percent federal land. Decisions about the management of these public lands are important to Wyoming. Actions taken on federal land have implications larger than any one agency, level of government or single use. To demonstrate how a cooperative management approach benefits the land, this initiative will create a pilot project – Wyoming will enter into an agreement with a federal agency to manage an area for the control of invasive cheatgrass. The project will allow the Wyoming Department of Agriculture to work with federal partners while leveraging public-private partnerships and the flexible tools available. If the project is effective, as anticipated, this framework can be used for other collaborative efforts in the future.



3

BACKDROP

Federal land management agencies develop long-term plans for public land – allowing for multiple activities. During the last few years, many federal plans have gone through major revisions. State and local governments have played – and continue to play – an important role in the development of those plans. The collaborative planning process allows local expertise to shape actions that affect local industries, communities and areas for decades. State and local government involvement in federal land planning is critical. Wyoming has taken the responsibility seriously. Local governments receive support from the Federal Natural Resources Policy Account to increase their participation in the process. Many Wyomingites participate in planning processes on their “own dime” and own time. The state has an inherent interest in ensuring that the management of public lands remains reflective of Wyoming’s custom, culture and economy. The relationship with public land is important to everyone in the state.

PUBLIC LAND AND ACCESS INITIATIVE

A number of federal lands in Wyoming have been designated as Wilderness Study Areas (WSAs). WSAs were instituted so Congress could collect information and determine if multiple use should be barred from these lands. Sufficient information is now available for determinations to be made. A path forward should be developed. The state will work with local governments, federal agencies and Congress to reach final determination on the 45 WSAs within the state – releasing those areas that do not merit wilderness protections and recommending designations for the others. Recommendations will also be developed and made on other federal land designations, transfers and management actions that balance multiple uses and stewardship where needed.

Education, Innovation and New Technologies

A SCHOOL OF THOUGHT

Wyoming is a significant part of the history and future of American energy. Its place is apparent in its commitment to education and innovation. The University of Wyoming — School of Energy Resources exemplifies that commitment.

The School of Energy Resources (SER) promotes and develops the human resources and know-how required to solve critical energy challenges. The SER fosters talent and supports resources. It promotes interdisciplinary academic, research and outreach programs in engineering, science, economics and environmental policy. Through the SER, Wyoming leads locally, nationally and globally in building a secure and sustainable energy future.

The SER is working with unconventional reservoirs, creating consumer products such as fuels, petrochemicals and electricity by refining and developing wind and solar energy technologies.

The SER provides nationally competitive undergraduate and graduate instruction in energy-related disciplines, particularly those of importance to Wyoming. It provides state-of-the-art, energy-related science, technology and economics research. It supports scientific and engineering outreach to energy companies, community colleges and governmental agencies. It works with Wyoming energy companies and organizations to sustain and optimize the development of Wyoming's energy portfolio — both conventional and renewable. The SER's stature, influence and importance in the energy field will only continue to grow.

Wyoming places value on the importance of education. The state invests heavily in education through pre-school to graduate work. People prepared for the workforce are a key component of a strong economy. The theme, Education, Innovation and New Technologies focuses on workforce development and innovation for a better tomorrow.

This relies on the leadership and guidance of academia and the private sector. Demands for the workforce will be different in the future than they are today. It is important for educators and policymakers to recognize evolving needs and adapt to meet them.

Industries are continually advancing, becoming more efficient through use of new technologies. Providing resources and avenues for collaboration to research, develop and deploy these new technologies is essential. Wyoming's size and the interconnections of our industries, educators, elected officials and institutions position us to move technologies forward and keep our industries vibrant into the future. The Integrated Test Center, announced in fall 2015, exemplifies this theme.

The following pages set forth the initiatives for Education, Innovation and New Technologies developed through the public process in 2015.



1

BACKDROP

Energy is our leading industry, with tourism and agriculture second and third. In recent years we have seen growth in the manufacturing sector and technology industry. Companies have moved to Wyoming for our favorable tax climate, resources and business environment. With the completion of the Unified Network, communities across the state are connected more now than ever. Entrepreneurs can start businesses in parts of the state where, just a few years ago, that prospect was slim. The state must continue to work to attract and train a workforce to fill the needs. In 2015, the “Wyoming Grown” program launched – to find individuals with prior ties to Wyoming and link them to employment opportunities available in-state. It attracts individuals like doctors, engineers, sales reps and others. Building on this program, we can continue bringing Wyoming people back home. The state has also successfully built refinery safety training programs and technical training programs for the energy sector. As Wyoming continues to grow, so must the workforce and programs like these.

CAREER READINESS INITIATIVE

Employment prospects for Wyoming citizens are increasingly diverse. As a result of the 2013 Energy Strategy, new efforts to match employees and career opportunities were developed. This initiative will build on the Wyoming Grown program. Working closely with the state’s institutions of higher education, the Department of Workforce Services will develop a gap analysis of current and future workforce trends; further efforts to address gaps through opportunity networks; and complete an assessment of priority career technical training needs for Wyoming – sharing that information with the state’s institutions of higher learning.



2

BACKDROP

Wyoming is the largest coal producer in the United States. The state also receives the majority, around 90%, of its electricity from the 6,800 megawatts of coal generation within its borders. The EPA has issued multiple regulations aimed at curtailing coal power. This objective hurts the nation, raising the cost and lowering the supply of electricity, jeopardizing our energy independence. Fossil fuels are key. Innovation, not regulation, is the best way to move forward. Wyoming is investing in fossil fuel research and encouraging others to get on board. The development of the Integrated Test Center is a prime example. Partnering with private businesses, this opportunity will advance technologies that capture carbon dioxide from power plants and create value added products. Additionally, nearly \$80 million dollars has been allocated to further fossil fuel technologies through the Advanced Conversion Task Force. FEI, a technical instrument manufacturer, recently announced a partnership with UW, infusing \$24 million of state and private funds to provide state-of-the-art equipment for cutting edge research that will benefit Wyoming’s oil and gas industry. Wyoming is taking action. Technologies and prospects for their advancement at the state and federal level must continue to broaden.

CARBON INNOVATION INITIATIVE

Wyoming supports an all-inclusive energy portfolio. Federal funding for energy research and development has been focused on renewable technologies, shorting conventional resources. As a counterweight, Wyoming has focused additional efforts on advancing carbon-based energy technology. The Integrated Test Center is a public/private partnership with the XPRIZE, building a laboratory onto an existing coal-fired power plant to test new technologies on a pilot scale. It challenges the world to reimagine what can be done with CO₂ emissions – incentivizing the development of technologies that convert carbon emissions into value added products. As they are developed, successful technologies must be transferred from research to production scale. This initiative will create planning and policies for Wyoming to lead in developing commercial scale technologies – building an industry around carbon. State agencies will identify regulatory impediments and solutions. Additional technologies in development at the University of Wyoming – School of Energy Resources will be integrated into planning.



3

BACKDROP

Affordable energy brings economic prosperity. It is a key factor for businesses and also key in the lives of individuals. It allows for more money to stay in people’s pockets. With low prices and high availability, many take electricity for granted. Through the 2013 Energy Strategy, Wyoming established a task force that looked at the best ways to integrate energy literacy into K-12 education programs. Additionally, Wyoming has made a concerted effort to have premier programs of study in energy-related fields at our University. Education is important, and it goes beyond the classroom. All energy consumers should know where their power comes from – including the benefits and challenges of different sources. Providing people the opportunity to arrive at informed conclusions in regards to energy will benefit Wyoming’s industries.

ENERGY INFORMATION INITIATIVE

An understanding of energy sources and their role in economy is needed. This initiative will showcase how energy resources are produced and used, as well as the reclamation that occurs in lockstep. Two efforts will be sought through this initiative. First, the creation of an interactive energy center at the University of Wyoming will be examined. This will be a place for individuals to come and get hands-on experience relative to energy. The other component will be a public outreach effort. Led by a diverse team from Wyoming, a series of tour agendas will be created. With assistance from private industries and others, tours will be laid out that examine different forms of energy development and generation, reclamation practices, wildlife observation and more. These tours can be tailored to meet diverse needs – for school classes, business interests, local, state and national policymakers or Wyoming citizens. This program positions Wyoming to educate and promote the energy industry, environmental stewardship and the balance between the two.

Our Collective Charge

BEGINNING AS IDEAS, ENDING IN ACTION

Every great undertaking or action begins with an idea. The process of sharing ideas, finding their commonality and moving them to action has driven the development of *Leading the Charge*. This strategy is based on a vision and a belief. The vision: Wyoming should lead in energy development and environmental stewardship. The belief: the best ideas for Wyoming and the ability to move them forward came from the citizens of Wyoming.

This 2016 Energy Strategy captures public input, and through feedback, puts forth initiatives for executive action. The public process is advisory, but through it, decision-makers in state government can implement top priorities.

The Energy Strategy initiatives are assigned to state agencies to build implementation plans that are Specific, Measurable, Attainable, Relevant, and Timely (SMART). If an initiative requires multiple agencies, all must collaborate to get it done.

The result: a process that is balanced, guided by public input, accountable to the people and drives responsible actions.



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 and environmental stewardship.

THE LEGISLATURE

and the Executive Branch must have a partnership, 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.

*“We speak in this country of the American dream.
But in the West we also speak of the frontier spirit.
It is that spirit that leaves us not trying to predict
our future, but instead building our future.”*

GOVERNOR MATTHEW H. MEAD
STATE OF THE WEST SYMPOSIUM, STANFORD UNIVERSITY
NOVEMBER 12, 2015

Conclusion





Conclusion



Wyoming is recognized as a leader that continues to achieve excellence in energy development, production and stewardship of natural resources for the highest benefit of its citizens. Our history and vision for the future guide Wyoming in planning for energy, the environment and the economy. A strong energy industry and conservation ethic are compatible. Wyoming has shown how the two balance for a strong economy and quality of life.

Wyoming’s energy industry faces challenges. My hope is this strategy and the process by which these initiatives are developed and implemented will become an integral part of state planning. I hope that future Governors’ letters will speak of vibrant industries and talk about how initiatives identified in the past have laid the path for a stronger energy and economic future. By listening to the public, state government is able to do its job – being active where necessary and showing restraint where appropriate.

I thank the many citizens, groups and organizations who contributed to the development of this strategy. This work sets a solid foundation. The public needs to stay engaged. Building and implementing initiatives starts now. The world does not stand still, and this process cannot sit still – it must continually build on the progress made. We must work together, focusing on solutions and actions that advance Wyoming as a leader in energy and the environment.

Appendix

SOURCES

Wyoming State Engineer’s Office, Wyoming Water Development Commission, Wyoming Department of Environmental Quality, Wyoming Game and Fish Department, United States Geological Survey, the Aldo Leopold Foundation, the Wyoming State Historical Society, the Library of Congress, the Wyoming State Archives

PHOTO CREDITS

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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 agency, local governments, companies, or individuals. This action plan is dynamic and may be revised at any time.