



Socioeconomic Assessment of Wyoming

Prepared by: Economically Needed Diversity Options for Wyoming (ENDOW) Executive Council



August 30, 2017

Submitted to:

Honorable Matt Mead, Governor of Wyoming
Joint Minerals, Business, and Economic Development Interim Committee

August 30, 2017

Dear Governor Mead and Members of the Joint Minerals, Business and Economic Development Interim Committee,

Senate Enrolled Act No. 64 (2017 General Session) requires the Economically Needed Diversity Options for Wyoming (ENDOW) Executive Council (Council) to submit an exhaustive assessment of socioeconomic data. This report provides baseline information for preliminary recommendations to be provided later this year and for Wyoming's 20-year economic diversification strategy. This report is a sector-by-sector analysis of Wyoming's industries. These analyses, originally prepared for the Council, have been evaluated and enhanced by business representatives and include national trends, peer state comparisons, workforce data, barriers, enablers and opportunities. Honing into key sectors and specific industries, with the input of the private sector, will help us better understand how to position our workforce, infrastructure, marketing and innovation efforts.

We are steadfastly optimistic. We have heard inspiring stories of Wyoming natives who left to pursue education or careers, only to return home later for fulfilling jobs or to establish and expand businesses while enjoying Wyoming's lifestyle. In addition to pharmaceutical production and groundbreaking biomedical research, Council members have visited large manufacturing facilities as well as small batch, niche manufacturers adding value to our resource base. We have seen the value when high school robotics programs connect with computer machining and firms manufacturing high-tech instruments. The intersection of technology, creativity, engineering and education at makers' spaces is inspiring. Whether it is virtual reality, unmanned aircraft, high-tech fabrics, or the production of industrial equipment for a global economy — there is existing sector diversity and foundational successes upon which Wyoming can build a viable and diverse economic future.

Our work to date has identified areas where more can be done as part of a successful 20-year economic diversification strategy. They include:

- We need to do more to promote and celebrate our successes. There are many uniquely Wyoming stories to tell — ones that will attract other innovative and forward-thinking individuals and inspire Wyoming's future generations. We need to trumpet these success stories far and wide.
- Wyoming has great accolades in terms of the number of business startups. Wyoming's past economic development planning, however, has not focused enough on innovation and entrepreneurship. We are near the bottom in terms of attracting venture capital and need to turn that around. Accessing federal research and development funding and transferring technologies from the University to commercialization activity need improvement. The Council is looking at how to attract, grow and inspire entrepreneurs and provide them the space, capital, support, expertise and mentorship they need to solve the world's problems.
- The Council needs to better understand the role each sector plays in Wyoming's economy. This includes non-profit organizations, which generate a significant amount of economic and community activity.
- Wonderful Wyoming towns invite visitors offering scenic byways and good amenities. These communities need more development to foster long-term growth. We must focus on people and take to heart what a Sheridan business leader told us, "Our job is not about recruiting businesses, it is about recruiting people." Housing, community amenities and jobs for spouses are critical to attracting and retaining talent. For a world-class base of workers and entrepreneurs, we must have vibrant and

healthy communities. Key areas include access to health care, housing, attractive downtowns, air service and high-speed internet connectivity. The Council has created subgroups focused on barriers to advancement.

- Workforce is the single greatest inhibitor – and opportunity – for growth and stability. We must accept that encouraging reasonable population growth is necessary and can be achieved in a way that does not compromise our customs, culture or quality of life. The University of Wyoming and Wyoming’s seven community colleges are tremendous assets. They will be integral to providing our workforce better access to cutting-edge training opportunities to respond to a changing economy. Employers tell us we can do more to educate our youth about life skills such as teamwork, leadership and financial literacy. The Council is evaluating workforce solutions using apprenticeship, internship and mentorship as well as specific certification and licensing programs.
- Wyoming currently ranks among the top ten states in annual K-12 per-pupil spending (currently about \$17,000 per student), increasing 62 percent from 2005 to 2015. More than 92% of Wyomingites 25 and older have earned at least a high school diploma. On a percentage basis, we graduate fewer students with bachelor’s degrees and Wyoming’s service-producing industries contribute less to our economy than our peer states or the nation. Educational readiness (pre-kindergarten through post-secondary) and educational achievement need improvement.
- The Aeronautics Division of the Wyoming Department of Transportation has assembled a workgroup, which includes representation by Council members, to address commercial air service. Commercial air service is a significant limiting factor in expanding and diversifying Wyoming’s economy. Without it, we will be unable to effectively recruit or retain entrepreneurs and businesses that need quick access to markets and customers. An ENDOW Advisory Board member refers to it as “the billion-dollar problem” affecting all rural America. There appears to be no nationwide fix and states will be competing for a limited number of opportunities to solve this problem. Wyoming must be more aggressive in finding solutions to air service.
- Wyoming has invested in the Unified Network. This is a 100-gigabit, redundant, statewide network. Additionally, Wyoming ranks first in the nation in classroom broadband connectivity. We can do more. Internet accessibility has emerged as a barrier to economic advancement and diversification and has been highlighted in community testimonials and the attached socioeconomic report. It is a complex topic and the Council is in the process of evaluating many issues, including: access, speeds, regulatory barriers, and innovative solutions.
- The Wyoming Business Council, Department of Workforce Services, local economic developers, the University of Wyoming and our community colleges have achieved positive results. We can better align the multitude of well-intentioned economic development efforts across and within agencies to produce greater impact and focus. We are learning about agencies’ operations, funding, and how we can coordinate efforts to reduce duplication and integrate programs.

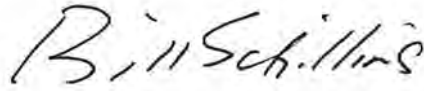
To achieve our goals, Wyoming must be prepared to address current economic circumstances – low growth, lack of diversification, and troubling population trends (e.g., outmigration and aging), while preparing for future challenges presented by a changing global economy and technological advancements. Further, our approach must be different than in the past. Joe Schaffer, Ed.D, President of Laramie County Community College states it well, “Doing the same things over and over with the same results has not served Wyoming well.” The Council is aware and sensitive to past efforts to revitalize Wyoming’s economy. The Council is keen to create benchmarks by which we can measure our outcomes.

By focusing on outcomes, we believe we will be able to develop a strategy that fosters a diversified and sustainable state economy. If we have the political and cultural will to think differently and make the proper investments, we can increase Wyoming's prosperity and economic diversification.

Sincerely,

A handwritten signature in dark ink, appearing to read "G. Hill", with a stylized, cursive script.

Greg Hill, Chair

A handwritten signature in dark ink, appearing to read "Bill Schilling", with a stylized, cursive script.

Bill Schilling, Vice Chair

ENDOW Executive Council Members

- Greg Hill of Wilson – President and Chief Operating Officer of Hess Corporation, Governor’s Designee and Co-Chair of ENDOW
- Bill Schilling of Casper – Executive Director of Leadership Wyoming. Vice-Chair of ENDOW
- Jesus Rios of Sheridan – CEO of Ptolemy Data Systems
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- Jerad Stack of Casper - Entrepreneur and Founding Member of Breakthrough 307
- Wally Wolski of Yoder - Goshen County Economic Development Corporation and Goshen County Commissioner
- Matt Kaufman of Cheyenne – Co-founder and Chairman of the Board of the Array School of Technology and Design and Co-founder of Wyoming Entrepreneurs
- Ray Fleming Dinneen of Cheyenne – Founder and Executive Director of CLIMB Wyoming
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- John Temte of Laramie – Founder and Managing General Partner of Temte Capital
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- Bret Pizzato of Rock Springs – Plant Manager for J.R. Simplot
- Steve Russell of Evanston – Former CEO of Carbon Fiber Technology
- Senator Eli Bebout of Riverton – President of the Wyoming Senate
- Representative Steve Harshman of Casper – Speaker of the Wyoming House of Representatives
- Senator Michael Von Flatern of Gillette – Vice President of the Senate and Chairman of the Senate Minerals, Business and Economic Development Committee
- Representative Mike Greear of Worland – Chairman of the House Minerals, Business and Economic Development Committee

Acknowledgements

Great appreciation is given to the staff members of the Wyoming Business Council, Governor’s Policy Office, Economic Analysis Division, Wyoming Department of Workforce Services, University of Wyoming, and Wyoming Community College Commission whose leadership, dedication and extensive contributions have made this report possible.

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Socioeconomic Assessment of Wyoming

SOCIOECONOMIC ASSESSMENT OF WYOMING

Introduction

The socioeconomic assessment is the keystone foundational report of the Economically Needed Diversity Options for Wyoming (ENDOW) Executive Council to foster discussion, understanding, evaluation and development of a comprehensive economic diversification policy and strategy outlined in Wyoming Statutes, (W.S.), 9-12-1401 through 9-12-1404.

This report is submitted to fulfill the statutory requirement identified in W.S. 9-12-1402 (a)(ii):

“By August 30, 2017, prepare and submit to the Governor and Legislature through the joint minerals, business and economic development interim committee, an exhaustive assessment of socioeconomic data, which shall include an examination of state and local fiscal sustainability, existing, new and emerging economic sectors and subsectors of the economy, identification of potential business development and innovation zones, an inventory of existing workforce strengths and deficiencies, economic trends and key enablers for economic growth in the state and that translates to viable business development.”

This report is presented in a high-level overview summary, followed by detailed assessments of Wyoming’s demographic trends, fiscal sustainability and industry sectors. The review of industry sectors (Page 4 and Appendix 1), utilizing the North America Industrial Code Schedule, (NAICS), will call out state and national trends of new and emerging sectors and subsectors, descriptions of how Wyoming compares to surrounding states, Alaska and the US, a description of businesses contained in each sector, workforce characteristics, strengths and deficiencies, export market activity, asset maps describing industry characteristics geographically, enablers, incentives and challenges to the industry and industry expert input and comments.

Looking ahead, the ENDOW Executive Council will submit by December 31, 2017 their preliminary findings and recommendations in the development of a comprehensive economic diversification strategy to the Governor and Legislature per details outlined in W.S. 9-12-1402 (a)(iii) and their final recommendations report will be submitted to the Governor for his approval by August 1, 2018 as outlined in W.S. 9-12-1402(a)(iv).

Summary of Socioeconomic Data

This section presents high-level summaries of demographic trends, fiscal sustainability, and industrial sector assessments. Please see following sections and Appendix 1 for more detailed analyses.

Demographic Trends in Wyoming

1. Nationwide, as low fertility rates continue to persist and baby boomers age, the growth of both population and labor force is expected to be slow for the next 14 years. The average year-over-year growth rate for the state is expected to be about 0.5 percent during the period, comparing to 1.1 percent experienced so far since 2010.
2. Both the U.S. and Wyoming are experiencing considerable growth in older populations. Wyoming's total population declined about 1,000, or 0.2 percent between July 2015 and July 2016, but the population 65 and over grew 3.8 percent or 3,140 during the same period, and is now nearly 88,000. The average annual growth rate for this older population is projected to be 3.3 percent from 2016 to 2030. The total number of residents 65 and over will reach 139,500 by 2030 when all baby boomers will be in this cohort, accounting for 22.0 percent of total population in Wyoming. The rapid growth of elderly population will present challenges to policy makers and programs such as Social Security, Medicare and Medicaid. It will also affect families, businesses, and health care providers.
3. Both the nation and Wyoming's population continue to grow in diversity. Wyoming's total minority population reached 93,256 in July 2016. Minority is defined as any group other than single-race, Non-Hispanic White. The growth of minorities since 2010 was 14,090 persons, or 17.8 percent growth increase, compared with 3.9 percent increase for the state's 2016 total population. Nearly two-thirds of the state's population growth from 2010 to 2016 was attributed to the minority population. Future population increases for the U.S. will be from racial and ethnic groups rather than the Non-Hispanic White.
4. Traditionally a rapid drop in a state's unemployment rate is attributed to economic expansion including strong employment growth. However, that is not the case in Wyoming since 2016. In fact, the unemployment rate in the state has been steadily dropping since May 2016, and the 3.9% in June 2017 was the lowest value since November of 2009, pre-Great Recession. However, the employment for June 2017 was still about 1% below employments levels one year ago. Wyoming's labor force continues to drop, and is estimated to be thousands less compared to last year. Possible explanations for these phenomena are: 1) some baby boomers (age 53 to 71 in 2017) left the labor force by retiring in the state or out of the state, and 2) younger people continue to move to other states because of the robust nationwide labor market, particularly in Wyoming's neighboring states. Additionally, Texas, Arizona, Oregon, and Washington are all experiencing strong job growth. For example, Wyoming's number one competitor (in terms of labor force), Colorado, had the lowest unemployment rate (2.3%) while Utah had the fastest employment growth (3.0%) in the country for June 2017. If the U.S. economic expansion (already one of the longest in history) continues, Wyoming's labor market will remain tight.

Fiscal Sustainability

At the May 11, 2017 meeting, the ENDOW Executive Council adopted as a working definition for fiscal sustainability the following: “a government’s ability and willingness to generate inflows of resources necessary to honor current service commitments and to meet financial obligations as they come due, without transferring financial obligations to future periods that do not result in commensurate benefits.”

Historically, 70 percent of revenue collected by the state of Wyoming comes from the energy mineral industry and therefore the condition of state coffers depends directly on the market value of energy commodities that are traded on a national and international basis

Looking forward to the FY 2019-2020 biennium, including the reductions made in the FY 2017-2018 biennium, the expected standard budget for the operations of state government exceeds projected traditional revenue by an estimated \$100 million. However, the most compelling concern for the state of Wyoming moving forward is how to fund K-12 education. Wyoming’s K-12 system is facing a budget shortfall of an estimated \$250 million per year, or \$500 million for the 2019-2020 biennium.

County, municipal and other local government entities were not assessed for fiscal sustainability due time and staff limitations, but it is presumed local governments are experiencing fiscal crisis in the same manner. Local governments’ tax base dependence on energy commodity revenues deeply and directly affect assessed valuation for local levies and state shared revenue.

Industrial Sectors

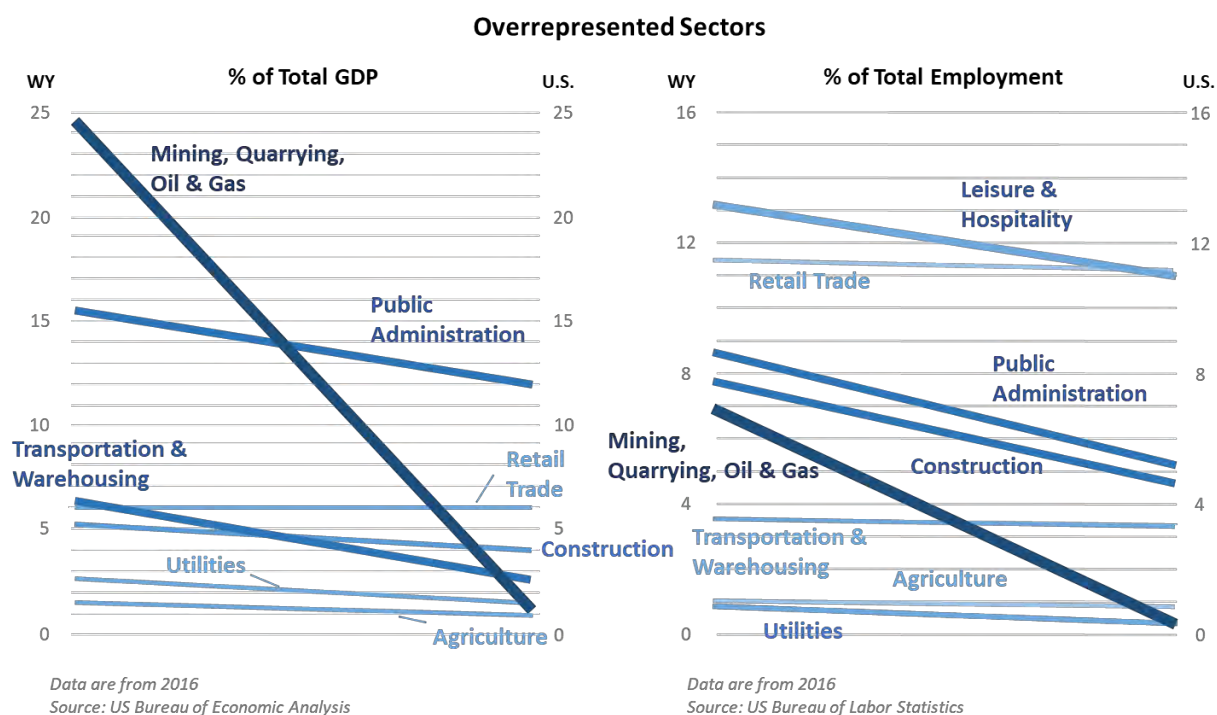
The following section integrates and summarizes Wyoming's 15 primary industrial sectors. See Appendix 1 for more detailed analyses.

Synthesis of Sector Data

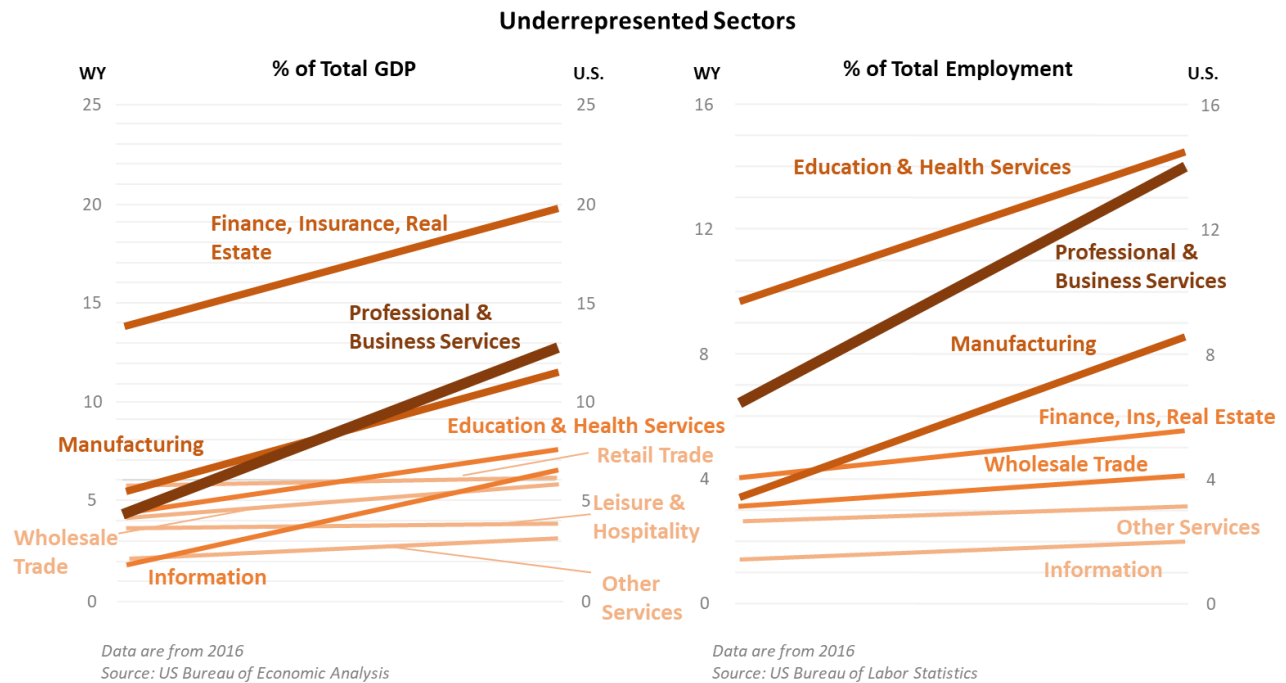
Gross Domestic Product and Employment

Gross Domestic Product (GDP) and employment data show a predominance in Wyoming of the mining, quarrying, and oil and gas extraction sector compared to the U.S.

The following graphs show Wyoming percent of total GDP and employment compared to the nation for sectors that have greater percent contributions in Wyoming than in the U.S. More negatively sloping, darker lines denote sectors that are more overrepresented in Wyoming compared to the U.S. The mining, quarrying, and oil and gas extraction sector is the most significantly overrepresented sector compared to the U.S. in both GDP and employment. The leisure and hospitality, public administration, transportation and warehousing, and construction sectors also contribute significantly to Wyoming's GDP and employment.



The following graphs show sectors that represent a lower percent of total GDP or employment in Wyoming than they do in the U.S. The professional and business services sector is the most underrepresented in Wyoming compared to the nation. The finance, insurance and real estate; manufacturing; and education and healthcare services sectors also comprise significantly smaller shares of Wyoming's economy compared to the U.S. These sectors may emerge as potential growth opportunities for Wyoming.



Enablers and Barriers

The Executive Council has inventoried a primary list of economic enablers and barriers of businesses and the diversification of Wyoming's economy:

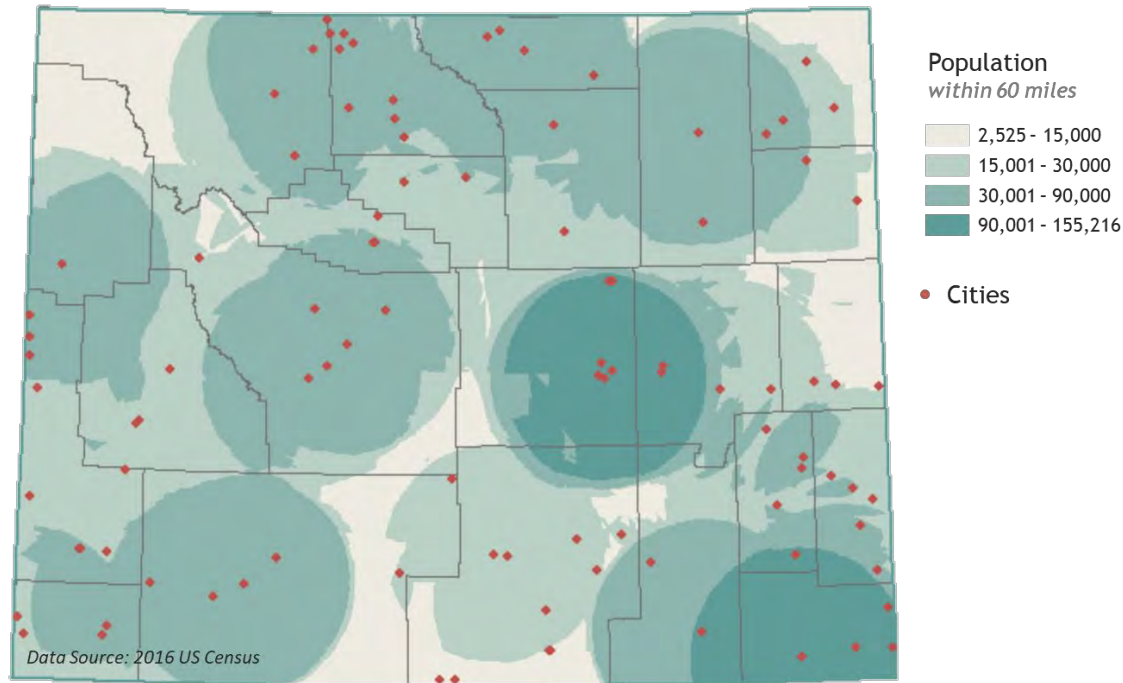
- ✓ Enablers for successful businesses include: low taxes, livability of communities, interstate highway system, low level of regulatory 'red tape', internet connectivity, regional collaborations, natural resources, community colleges system, many business organizations.
- ✓ Barriers to business success include: limited workforce in numbers and skills, limited commercial air transportation, lack of high speed internet in rural areas, proximity to markets, access to capital, limited health care services, and affordable health insurance.

Assets

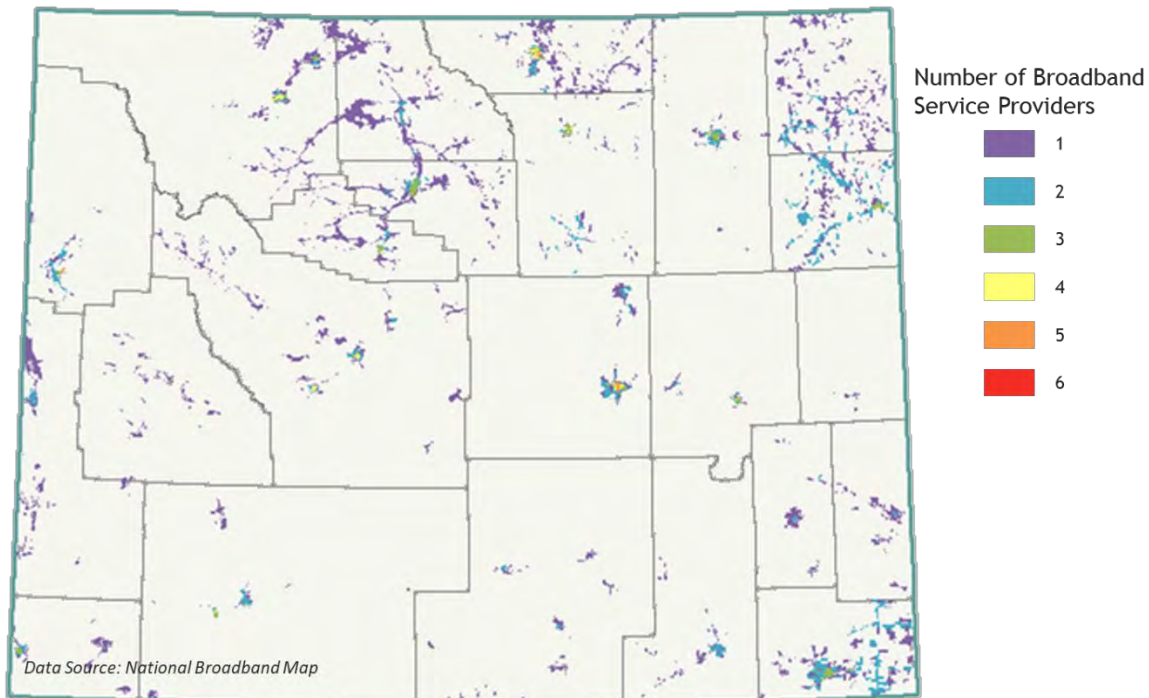
The following maps depict assets that are limiting geographic factors for more than one analyzed sector.

Workforce

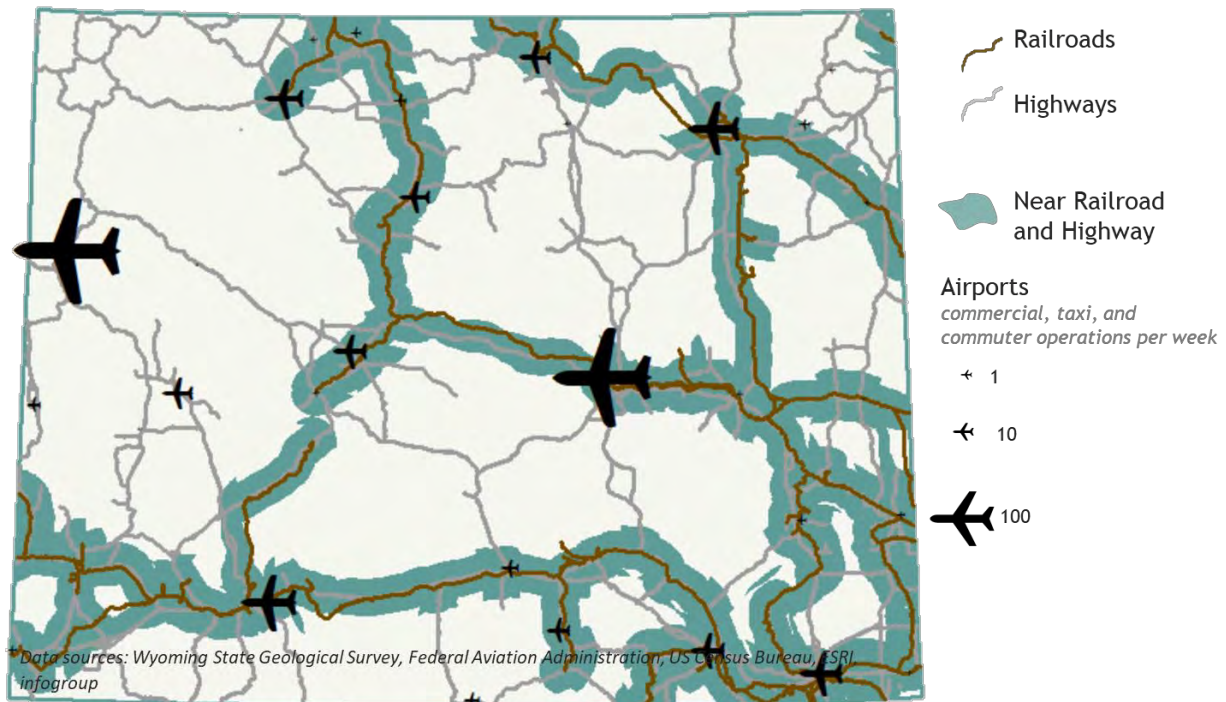
The map below depicts population within 60 miles. This is used as a proxy for workforce in several sectors, in accordance with site selector rules of thumb. According to these rules of thumb, employees are willing to drive a maximum of ~60 miles to work, and one new employee can be drawn from every ~300 people in a population.



Broadband



Transportation



Individual Sector Summaries

Agriculture, Forestry, Fishing and Hunting (NAICS 11)

Description of Sector: production of crops and animals, forestry, logging, commercial fishing, hunting, trapping, support activities for agriculture and forestry. Please see Appendix 3 for a comprehensive list of NAICS of this sector.

Comparison to U.S. and Other States: Wyoming ranks above the U.S. but behind comparator states of and Alaska, Colorado, Idaho, Montana, New Mexico, South Dakota and Utah. This sector contributed 1.5% of Wyoming GDP (gross domestic product) in 2016 compared to 1% for the U.S.GDP.

Workforce Observations: Wages with this sector pay below the mean but above the median for all occupations. Wyoming's wages are on the low end compared to surrounding states.

Enablers: robust hunting and fishing industry, strong tourism market, outdoor lifestyle and livability, world class recreation attractions, outdoor recreation taskforce, outdoor recreation is a targeted industry of the Wyoming Business Council.

Incentives: Taxing of agricultural land, Premium Heifer Program, Wyoming Verified Program, Wyoming Grown Program, Wyoming Value-added Loan

Challenges: Unskilled entry level workforce, Uncertain future Federal land-use and access.

Opportunities: Value added agriculture, agriculture technology

Emerging Trends: transfer of assets to younger generation, data analysis will become increasingly important in farming and ranching operations, U.S.meat consumption continues to

drop, Chinese meat consumption continues to rise, Genetically Modified Organism (GMO) foods and livestock treatment are public concern issues, lumber industry will continue to be largely controlled by housing demand and trade with Canada, biomass conversion to energy is a viable form of alternative energy which uses the waste of logging operations.

Mining, Quarrying and Oil and Gas Extraction (NAICS 21)

Description of Sector: companies that extract oil, gas, coal, metals, gravel, other minerals and support activities for mining and oil and gas extraction. Please see Appendix 3 for a comprehensive list of NAICS of this sector.

Comparison to U.S. and Other States: This sector represents 30.1% of Wyoming's GDP compared to 1.5% for U.S.GDP.

Workforce Observations: Wages with this sector pay above the mean and median for all occupations. Wyoming's wages are near the average of comparator states.

Enablers: comparative advantage of natural resources, existing infrastructure built over decades, Wyoming Infrastructure Authority, Wyomingites and public officials favor natural resource development.

Incentives: Business Committed Grants (BCG), Large Loan Fund, Challenge Loan

Challenges: Proximity to markets, volatility of natural resource commodity prices, boom-bust culture, boom-bust tax revenues, cost to produce renewables will become on par with fossil fuels, advanced carbon technologies early in life cycle, speed of industrial siting process, inefficient permitting.

Opportunities: Growing and leveraging Wyoming's robust natural resource base to drive growth in research and development, tech companies, manufacturing, and other underrepresented sectors, CO2 capture and use for enhanced oil recovery, and exploration of advances in technology.

Emerging Trends: Safety is a perennial priority for well-regarded companies in this sector, and safety metrics are important in evaluating shareholder value. Innovations in horizontal drilling have bolstered U.S. oil and gas production in the last decade, and have drawn some producers' focus to onshore plays, including those in Wyoming. In recent years, low coal, oil, gas, and renewable prices have led to greater competition in the electricity generation market, decreased production of traditional resources, reduced shareholder value, and significant reductions in employed workforce. These effects can be seen in Wyoming and globally. The downturn has also driven innovation to reduce costs and increase efficiency, and focused U.S. producers' attention on plays that can break even at low prices (such as the Permian Basin in west Texas).

Utilities (NAICS 22)

Description of Sector: Electric power generation/transmission/distribution, natural gas distribution, water supply and sewage treatment. Please see Appendix 3 for a comprehensive list of NAICS of this sector.

Comparison to U.S. and Other States: Wyoming exceeds the national average for this sector's contribution by .9%. and contributed 2.6% to Wyoming's GDP in 2016 compared to 1.7% for the US. Above average contribution amounts to \$309 million added to Wyoming's GDP

Workforce Observations: Wages within this sector pay above the annual mean and median for all occupations. Compared to surrounding states; North Dakota, Utah and Colorado have a higher annual average wage for this sector.

Enablers: Low regulation, low tax climate

Incentives: Wyoming Infrastructure Authority

Challenges: Large barriers to entry, lack of transmission capacity.

Opportunities: Increasing efficiency of existing plants, natural gas energy generation, CO2 Capture and use from gas power plants, wind energy, nuclear energy, solar energy.

Emerging Trends: Electricity generation by coal and petroleum power plants is decreasing, nuclear has held steady and renewables and natural gas have increased. As changing technology and regulatory uncertainty continues to plague energy generation markets, infrastructure is aging and needs to be updated or replaced. Energy companies are very risk averse and can be reluctant to make large capital investments as they make decisions on long term factors, with the life of an asset lasting 50 or more years. Renewable energy sources are becoming more viable because of decreased cost, increased efficiency and increased ability to store energy for future use.

Construction (NAICS 23)

Description of Sector: Residential building construction, building equipment contractors, specialty trade contractors, affordable housing, ag infrastructure upgrades, construction machinery. Please see Appendix 3 for a comprehensive list of NAICS of this sector.

Comparison to U.S. and Other States: Wyoming is significantly ahead of the U.S. average and on par with many surrounding states in this industry. Activities in this sector contributed 5.1% to Wyoming's GDP in 2016 compared to 4.0% for the US. Wyoming is .8 percentage points ahead of South Dakota and about a half a percentage point or less behind surrounding states Colorado, Idaho and Montana. Utah leads the northern Rocky Mountain region at 6.0%. In 2016, Wyoming ranked 8th nationally for construction as a percentage of gross state product

Workforce Observations: Wyoming wages within this sector pay better than the mean and median for all occupations. In Wyoming, however, wages are less than the U.S. average, but pay more than surrounding states Colorado, Idaho, Montana, New Mexico and South Dakota.

Enablers: No corporate and personal income taxes, low sales tax, community college training programs

Incentives: Business Committee Grants, Community Enhancement Grants, Community Readiness Grants, Challenge Loan, Workforce Training Grants

Challenges: Lack of skilled workforce (in-state subs, etc.), availability of workforce, significant out-of-state competition, lack of reliable job base in sufficient numbers for building more homes for first-time home buyers, lack of appraisers in some of the smaller rural areas, and there is a problem with replacing them, increased government regulation, as mid-size companies find it challenging to manage the costs of compliance.

Opportunities: Encourage politicians to eliminate overlapping government regulations, outdated regulations, and discourage the implementation of new regulations. Increase high school recruiting efforts at national level, and provide funding to bring back industrial arts program

Emerging Trends: Collaborative approaches for projects. Labor shortages. Offsite/modular construction. Sustainable construction. Rising construction costs. Increased legal action and prosecution for safety violations and incidents amid a building boom. Technology – use of augmented reality and virtual reality.

Manufacturing (NAICS 31-33)

Description of Sector: The manufacturing sector comprises companies who make products from materials, substances, and components. These companies include food manufacturing, beverage and tobacco manufacturing, textile mills, wood product manufacturing, petroleum and coal products manufacturing, and many others. Please see Appendix 3 for a comprehensive list of NAICS of this sector.

Comparison to U.S. and Other States: As a percentage of GDP, Wyoming's manufacturing industry ranks 43rd in the nation. Manufacturing activities contributed 5.5% to Wyoming's GDP in 2016 compared to 11.7% for the US. If Wyoming can close that gap the 6% difference would add \$2 billion to the state's GDP.

Workforce Observations: Wyoming's manufacturing workforce is much smaller than that of comparator states and has seen a decline between 2005 and 2016. The largest portion of Wyoming's workforce, 47.2%, is employed in businesses related to petroleum and coal products manufacturing, chemical manufacturing, plastics and rubber products manufacturing, and nonmetallic mineral product manufacturing. Nationwide, only 16.5% of manufacturing jobs fall within these business categories. Wages within this sector pay less than the national average but more than most surrounding states, including: Idaho, Montana, New Mexico, North Dakota, South Dakota, and Utah

Enablers: No corporate income tax, no inventory tax, low electric and utility costs, low property and sale taxes, lower than average workers compensation and unemployment insurance taxes, less red tape and better government transparency, Manufacturing Works, Market Research Center, Small Business Innovation Research Center BIR Phase 0 (SBIR), Wyoming Technology Transfer Center.

Incentives: Sales tax exemption on equipment used in manufacturing, sales tax exemption on electricity used in manufacturing processes, BRC – build/lease/purchase option, large loan fund, challenge/bridge loan fund, workforce training funds.

Challenges: Lack of skilled workforce, availability of workforce, workforce housing, proximity to markets, permitting process, lack of critical mass of employment sector.

Opportunities: Opportunities in this sector include value-added agriculture, value-added minerals, and manufacturing machines and components. Workforce training funds, sales tax exemptions on equipment and electricity used in manufacturing process, build/lease/purchase option, large loan fund, challenge/bridge loan fund are important enablers to this sector in Wyoming.

Emerging Trends: U.S. manufacturing production has increased while U.S. manufacturing jobs have declined steadily for the past 30-40 years, owing to automation, trade, or other influences. Despite the long-term trend in employment, manufacturing jobs have been increasing slightly since 2010, and some are optimistic about the future of U.S. manufacturing, citing innovation, and an emergence of consumers globally.

Wholesale Trade (NAICS 42)

Description of Sector: This sector comprises establishments engaged in wholesaling merchandise, generally without transformation, and rendering services incidental to the sale of merchandise. The merchandise described in this sector includes the outputs of agriculture, mining, manufacturing, and certain information industries, such as publishing. Agriculture implements; coffee wholesaling; commercial compost; fabrics; farm product raw material merchant wholesalers; food and beverage equipment and supplies; food hub; food products; grocers; machinery, equipment and supplies merchant wholesalers; meat products. Please see Appendix 3 for a comprehensive list of NAICS of this sector.

Comparison to U.S. and Other States: Wyoming lags the U.S. average and surrounding states in this industry. Activities in this sector contributed 4.3% to Wyoming's GDP in 2016 compared to 6.1% for the US. Surrounding states Colorado, Idaho, Montana, South Dakota and Utah ranged from 5.1% to 7.5%. In 2016, Wyoming ranked 44th nationally for wholesale trade; it would rank 21st nationally if we grow our GDP to 6.1%.

Workforce Observations: Wyoming wages within this sector pay better than the mean and median for all occupations. In Wyoming, however, wages are less than the U.S. average, but pay more than some surrounding states including Idaho, Montana, New Mexico and South Dakota.

Enablers: Low sales tax, Market Research Center, Small Business Development Centers, lower than average workers compensation and unemployment insurance, less red tape and barriers to entry (licensing, permitting, etc.)

Incentives: Challenge/Bridge Loan Program, Tradeshow Incentive Grants

Challenges: lack of market due to low population, extremely small rural trade areas, significant leakage to out-of-state centers, Walmart effect (big-box retail squeezing out other retail), Amazon effect (online sales eroding traditional retail), significant competition (tradition and web presence), unskilled entry level workforce.

Opportunities: *No response from industry*

Emerging Trends: ·Rise in implementation and use of connected robotics allows companies to gain efficiency and cut costs on the customer's factory floor, in the warehouse, and elsewhere. Wholesale distribution companies historically spent less time and effort in developing brand awareness to let customers know why they should choose their company; that is changing in favor of increased brand awareness efforts. Blockchain technology is allowing companies to make and verify transactions on networks in near real time without a central point of control. E-commerce is morphing into digital commerce, which is not only a transaction, but a way of doing business. This includes branding, image, customer service and transactions. The amount of data produced today is increasing exponentially, allowing companies to analyze it and garner new insights about customers and themselves. Distributors have a twofold opportunity to capitalize on the internet of things. This includes sensors within the business, such as

warehousing, transportation and equipment monitoring to improve operations. To reduce warehouse space, goods can be produced inside a mobile hub near the end customer, speeding delivery and always being in stock. While still in the early stages, drones and driverless vehicles will allow companies to address driver shortages, increase safety, lower shipping costs, and more. Drone technology has potential in many trades, but those focused on construction and similar markets can use drones to provide aerial imagery, coupled with data analytics and 3D modeling algorithms, can provide accurate measurements and material requirements.

Retail Trade (NAICS 44-45)

Description of Sector: Motor Vehicles, Furniture, Electronics, Building Materials, Food and Beverage, Health and Personal Care, Clothing, Gasoline, General Merchandise. Please see Appendix 3 for a comprehensive list of NAICS of this sector.

Comparison to U.S. and Other States: Wyoming retail (5.8 percent of state GDP) trails U.S. by just .3 percent. Closing the gap could add \$103M in revenue. Wyoming trails all neighbors (aside from Colorado, at 5.6 percent) slightly. Outliers Utah, S. Dakota and Idaho rely much more heavily on retail for revenue. Wyoming is ahead of the U.S. in many sectors of the Retail Industry, however finds itself notably behind in Food and Beverage (8 percent vs. 14 percent) Health and Personal Care (5.4 percent vs 10.5 percent) and Clothing (8.8 percent vs. 12.2 percent)

Workforce Observations: Wyoming lags the U.S. in annual wages in many retail sectors, significantly in electronics and appliances (31.7K vs 45.4K), in the industry, Wyoming finds itself in the middle of the pack amongst its neighbors, with Colorado as an outlier on the high end of annual wages.

Enablers: Low sales tax, Market Research Center, Small Business Development Center, lower than average workers compensation and unemployment insurance, less red tape and barriers to entry (licensing, permitting, etc.), strong tourism market brings new money into economy.

Incentives: Main Street Program, Main Street Loan Program, Challenge/Bridge Loan Program

Challenges: lack of market due to low population, extremely small rural trade areas, significant leakage to out-of-state centers, Walmart effect (big-box retail squeezing out other retail), Amazon effect (online sales eroding traditional retail), retail industry has very low margins to begin (1%-2%), lack of consolidated information for entrepreneurs, significant competition (tradition and web presence), unskilled entry level workforce.

Opportunities: Retail support technology, augmented reality – try before you buy clothes, games and more, AI – chat bots, virtual agents offer customer service and support interactions o Robotic process automation for repetitive, rules-based, high-volume tasks, food and beverage, health and personal care and clothing sectors of retail Industry.

Emerging Trends: ·Growth will primarily come from emerging global markets. Diminishing importance of stand-alone brick and mortar stores represents both barrier and opportunity to small retailers, Subscription-based services – groceries, prescriptions, etc. Customers now seek personalized brand interactions and engagements – think geotagged coupons, social media-tailored ads, etc.

Transportation and Warehousing (NAICS 48-49)

Description of Sector: 1,200 firms averaging 9-12 years depending and employing 9,500 people primarily in truck transportation (39 percent) but also warehousing and storage (29 percent). See Appendix 3 for a complete list of NAICS in this sector.

Comparison to U.S. and Other States: Transportation occupies more than twice the share of Wyoming's GDP as it does on a national level (6.2% v. 2.8%), and 150% to 300% more than regional neighbors. The percentage of total employment, however is more in line with regional neighbors and nearly identical to the U.S. share.

Workforce Observations: Wages in this sector generally lag national averages, but the difference is particularly stark in air (\$36K vs \$84K) and pipeline (\$94K vs \$122K) transportation.

Enablers: Interstate 80, Interstate 90, Interstate 25, Wyoming highway quality and performance consistently leads nation, less government red tape and more government transparency, gas tax competitive with surrounding states, previous success with Sierra Trading Post, Lowes's, and Walmart distribution centers, wages on par with entry level manufacturing jobs.

Incentives: BRC – Infrastructure Grants, WYDOT – minimum revenue guarantee grants, workforce training grants.

Challenges: ongoing infrastructure maintenance costs, trucking and shipping costs higher in rural areas, lack of rail served sites in some areas of Wyoming, lack of long term comprehensive air service solution, lack of proximity to markets, generally favors Casper and Cheyenne, natural resource jobs compete for workers, CapEx can be a barrier to entry. Consolidation has yielded fewer and larger airlines, which often leaves rural airports behind. Low-cost and Ultra Low-Cost carriers continue to nibble away at market share from the established carriers, shrinking the difference between the three models. On the ground, Uber is expected to reach \$42 billion in revenue by 2025 through both geographical expansion and other markets that involve moving something from A to B. Amazon has trained consumers to expect goods in hours, not days. Automation.

Opportunities: Logistics as a service – companies able to provide software and analytics at various points along the supply chain can improve customer service and maximize efficiency for distributors. The consumer trend toward transparent order status means the industry is investing in new tech and partnerships. As consumers purchase products through ever more varied channels, new technology will be required to meet fulfillment and shipping challenges

Emerging Trends: Automation, Uber disruption, airline consolidation

Information (NAICS 51)

Description of Sector: The Information sector comprises companies that produce and distribute information and cultural products, provide the means to distribute these products or other data or communications, and process data. They include publishing industries, motion picture and sound recording industries, broadcasting, telecommunications, and data processing, hosting, and related services. See Appendix 3 for a complete list of NAICS in this sector.

Comparison to U.S. and Other States: This sector contributes less to Wyoming's economy than it does to comparator states' and the US, representing 30.1% of Wyoming's GDP, and 1.5% of

U.S. GDP. Wyoming can grow the economy by \$1.3 billion over the next 20 years, by increasing the 1.8% Wyoming GDP contribution to the 5.6% GDP contribution of the US.

Workforce Observations: Wages within this sector Wyoming wages in this sector are about half of the wages in the sector for the US.

Enablers: No income taxes, Wyoming's outdoor lifestyle and livability, reputation for data centers (Microsoft, EchoStar, Ptolemy, Green House), low electricity rates, cool climate reduces cooling costs, Breakthrough 307, Wyoming Technology Business Center.

Incentives: BRC- Managed Cost Data Center Grants, tradeshow incentive grants, challenge loan, SBIC, workforce training grants

Challenges: lack of amenities to attract millennial talent, lack of skilled workforce, availability of workforce, cost of housing in some areas of the state (Jackson, Laramie), broadband may be a challenge in some parts of Wyoming, lack of long-term comprehensive air service solution, proximity to markets, transmission capacity.

Opportunities: Opportunities for growth in this sector include data centers and telecommunications. Data centers have been identified as an important opportunity and are a large focus in this report. Assets from industries within this sector are enablers for other sectors, and are also represented there. Expanding the footprint of this industry in Wyoming, especially broadband, will enable growth in other sectors.

Emerging Trends: The prevalence of technology and digitization is driving innovation in the publishing industry. The telecommunications industry is expected to grow, consolidate through mergers and acquisitions, and continue to innovate. While data center square footage is predicted to rise, the number of data centers is also expected to peak in 2017.

Finance, Insurance and Real Estate (NAICS 52-53)

Description of Sector: Leasing; monetary authorities – central bank; credit intermediation; securities, commodity contracts, investments; insurance carriers and related activities; funds, trusts and other financial vehicles; real estate; rental and leasing services and lessors of nonfinancial intangible assets. See Appendix 3 for a complete list of NAICS in this sector.

Comparison to U.S. and Other States: Wyoming general ranks behind the U.S. and other surrounding states in this industry. Financial activities contributed 13.9% to Wyoming's GDP in 2016 compared to 19.8% for the US. If Wyoming can close that gap the 6% difference would add \$2 billion to the State's GDP.

Workforce Observations: Wages within this sector general pay above the mean and median for all occupations. In Wyoming, however, wages are on the lower end as compared to surrounding states.

Enablers: No corporate or personal income tax, law are favorable for trust industry.

Incentives: Challenge Loan Program, USDA, SBA loan programs

Challenges: Significant barriers to entry (legal, regulatory, etc.) for startups, real estate development costs are higher in rural areas, heavily focused in two areas of the state (Jackson and Cheyenne).

Opportunities: Industry consolidation, family trusts

Emerging Trends: · Deregulation will allow financial institutions to invest more in customers and less on risk mitigation, asset management, technology will change the fundamentals of the traditional jobs in this industry, most ventures will require larger partners.

Professional and Business Services (NAICS 54-56)

Description of Sector: The Professional and Business Services Sector (sometimes called the knowledge sector) comprises companies that perform professional, technical, scientific, administrative, and managerial services for other businesses or entities. These often require a high degree of expertise and training. Companies in this sector perform services such as engineering, research and development, accounting, architecture, legal services, design, computer systems design, advertising, management of companies or enterprises, and administrative and support services. See Appendix 1 for a comprehensive list of NAICS codes in this sector. See Appendix 3 for a complete list of NAICS in this sector.

Comparison to U.S. and Other States: There is tremendous opportunity for growth in this sector, as it contributes significantly less to Wyoming's economy than it does to other states and the US. It makes up 4.5% of Wyoming's GDP. Over the next 20 years, Wyoming can grow its economy by \$2.7 billion by increasing the Professional and Business Services 4.5% contribution to the Wyoming GDP to the U.S. contribution of 12.8%.

Workforce Observations: Wages within this sector pay above the mean and median for all occupations. However, Wyoming wages in this sector are low compared to most comparator states.

Enablers: No income taxes, Wyoming's outdoor lifestyle and livability, Breakthrough 307, Wyoming Technology Business Center

Incentives: Main Street Technical Assistance Grants, BRC – Business Committed Grants, BRC-Community Enhancement Grants, Challenge Loan, Workforce Training Grants.

Challenges: lack of amenities to attract millennial talent, lack of skilled workforce, availability of workforce, cost of housing in some areas of the state (Jackson, Laramie), broadband may be a challenge in some parts of Wyoming, lack of long-term comprehensive air service solution.

Opportunities: Opportunities in this sector include growing Professional and Business services that are traditionally performed out of state, and leveraging Wyoming's robust natural resource base (e.g. minerals, oil and gas, agriculture) to drive growth in research and development, tech companies, and other professional and business services entities.

Emerging Trends: Automation, continued innovation in models (e.g. "Uberization"), and increased funding for research and development are some emerging trends within this sector.

Education and Health Care Services (NAICS 62)

Description of Sector: The Education and Health Services sector comprises companies and entities that provide healthcare, social assistance, instruction, or training. This includes physicians' offices, hospitals, dentists, home health services, residential care facilities, public and private schools, universities and colleges, day cares, and other entities. See Appendix 3 for a comprehensive list of NAICS in this sector.

Comparison to US and other states: This sector contributes less to Wyoming's economy than it does to comparator states' and the US. Wyoming can grow their economy by \$1.37 billion over the next 20 years, by increasing the 4.5% Wyoming GDP contribution to the 8.5% U.S. GDP contribution.

Workforce Observations: Wyoming wages in this sector are near the average of comparator states

Enablers: No corporate and personal income taxes, Wyoming's outdoor lifestyle and livability, Community College training programs.

Incentives: BRC – Business Committed Grants, Community Enhancement Grants, Community Readiness Grants, Challenge Loan, Workforce Training Grants.

Challenges: challenged funding environment for UW and Wyoming schools due to recent drop in commodity production, lack of fast, cost-competitive broadband, and challenged recruitment and retention of workforce, especially physicians. This recruitment and retention is enabled by livability and amenities.

Opportunities: Opportunities in this sector include healthcare, especially telehealth.

Emerging Trends: For-profit higher education institutes are focused on areas where there are skills gaps, including middle skills jobs. Healthcare is innovating in many areas, including business and financial models, care delivery, and predictive analytics.

Leisure and Hospitality NAICS (71-72)

Description of Sector: Restaurants, tourism, coffee shops, bed and breakfasts, hunting/fishing, accommodation/food services, arts/entertainment/recreation, bakeries, outfitting, outdoor recreation, candy shops, visual arts, performing arts, music, gaming, roasteries, wineries, distilleries, craft brewing and agro-tourism.

Comparison to U.S. and Other States: Wyoming is on par with the U.S. average for this industry. This is comparable with many surrounding states, but lags Colorado, New Mexico and Utah. Activities from this sector contributed 3.7% to Wyoming's GDP in 2016 compared to 3.9% for the US. If Wyoming were at the U.S. average, it would add \$69 million to the state's GDP.

Workforce Observations: Wages within this sector pay below the mean and median for all occupations. In Wyoming, however, wages are less than the U.S. average, but pay more than some surrounding states including Idaho, Montana, New Mexico, North Dakota, South Dakota and Utah.

Enablers: Low sales tax, Wyoming Arts Council, Wyoming Humanities Council, Strong tourism market, outdoor lifestyle and livability, recreation attractions, Wyoming Women's Business Center, Wyoming Restaurant and Lodging Association.

Incentives: BRC – Community Enhancement Grants, Challenge Loan, Wyoming Women's Business Center -Microloan Program, Wyoming Arts Council grants, Wyoming Humanities Council Grants, Main Street Program, Main Street Technical Assistance grants.

Challenges: Stable and consistent access to big game hunting licenses, lack of available and sustainable air service, lack of available workforce, uncertain future of land use and access at federal level.

Opportunities: Tourism; art; new potential wolf and grizzly hunting markets; take advantage of Wyoming resources including lots of animals, open spaces and quality outfitting industry; ensure a system of stable licensing.

Emerging Trends: Incoming young workforce in need of opportunities, Gaming industry attempts to broaden and enter new markets, expanding on E-Casinos, sports gaming and underutilized opportunities, Many aspects of the outdoor recreation industry are growing because of changing technology and an increased desire for personalized experience, Because of regular exposure to brands such as amazon and Starbucks, consumers have expectations of instant, responsive, mobile and seamless travel experiences, Health, safety, social impact, experience and transparency have become new drivers of the food service industry.

Other Services (NAICS 81)

Description of Sector: The Other Services sector comprises establishments engaged in providing services not specifically provided for elsewhere in the classification system. Establishments in this sector are primarily engaged in activities, such as equipment and machinery repairing, promoting or administering religious activities, grantmaking, advocacy, and providing dry cleaning and laundry services, personal care services, death care services, pet care services, photofinishing services, temporary parking services, and dating services.

Private households that engage in employing workers on or about the premises in activities primarily concerned with the operation of the household are included in this sector.

Comparison to U.S. and Other States: Wyoming is on par with the U.S. average for this industry. This is comparable with many surrounding states and the US. Activities from this sector contributed 1.5% to Wyoming's GDP in 2016 compared to 2.1% for the US.

Workforce Observations: In Wyoming wages are less than the U.S. average, but pay more than some surrounding states including Idaho, Montana, New Mexico, North Dakota, South Dakota and Utah. In 2016, it is estimated that 7,288 worked in this sector earning an average annual wage of \$34,505.

Emerging Trends: Of the 2,952 registered charitable nonprofits in Wyoming, 2,336 (79%) are comprised of small, community-based organizations, for example: adult and youth sports organizations, community theatres, small museums, 4-H clubs and library foundations. All have budgets under \$100,000 and most of them rely heavily on volunteers. Many start-up nonprofits fall into this category as well. Note: 1,878 of the public charities are non-reporting and therefore have been included in this 79% due to their annual receipts being less than \$50,000.

The remaining 616 charitable nonprofits address more complex community needs. There are 465 nonprofits (16%) with budgets between \$100,000 and \$999,000. Examples of organizations in this budget range include food pantries, animal rescues, rural-based senior centers, and child advocacy organizations. There are 151 nonprofits (5%) with budgets over \$1 million. Examples in this group include hospitals, mental health centers, youth and recreation centers, child development centers and community foundations.

Public Administration (NAICS 92)

Description of Sector: The Public Administration sector consists of establishments of federal, state, and local government agencies that administer, oversee, and manage public programs

and have executive, legislative, or judicial authority over other institutions within a given area. These agencies also set policy, create laws, adjudicate civil and criminal legal cases, provide for public safety and for national defense. In general, government establishments in the Public Administration sector oversee governmental programs and activities that are not performed by private establishments. In addition to state, county, local governments, the K-12 public school systems/districts, community colleges, university are in this category along with federal agencies and military entities.

Comparison to U.S. and Other States: Wyoming's sparse and rural population and multiple counties, cities, towns and school districts coupled with state executive, justice and legislative systems, federal agencies, and military bases and camps, provides a high sector share to the state's GDP make-up. Only Alaska and New Mexico of the comparator states exceed Wyoming's GDP percentage. Activities from this sector contributed 15.6% to Wyoming's GDP in 2016 compared to 12% for the US.

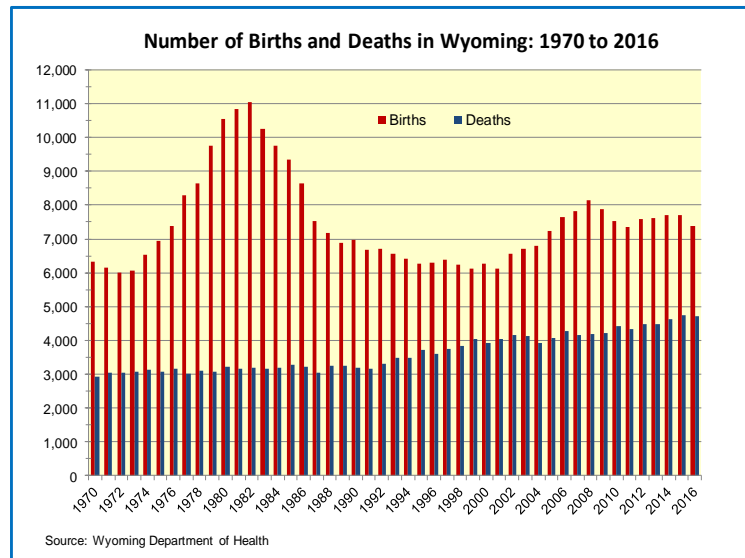
Workforce Observations: In Wyoming, wages are less than the U.S. average, but pay more than some surrounding states including Idaho, Montana, New Mexico, North Dakota, South Dakota and Utah.

Emerging Trends: Declining local and state revenues have consequently reduced employment and service levels throughout the state.

Assessment of Demographic Trends in Wyoming

Introduction

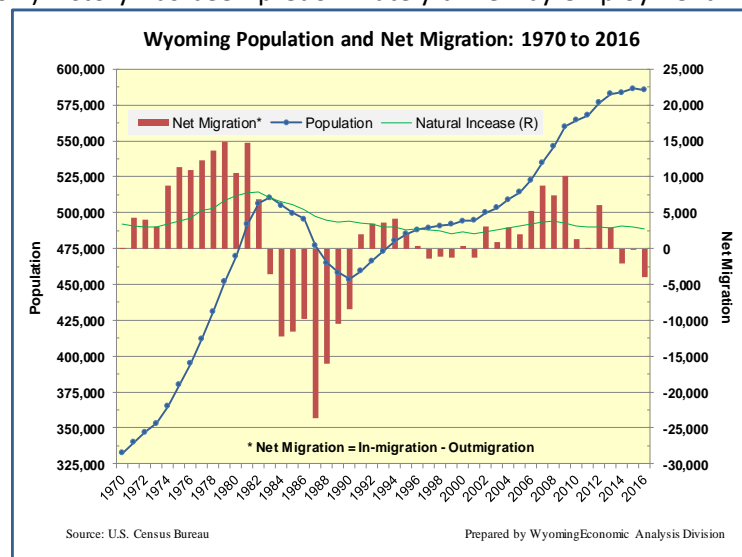
Population change is a function of three processes: births, deaths, and migration either, into (in-migration) or out of a population (out-migration), collectively referred to as the demographic process. It is of vital importance to study the sources of population change because the determinants of the processes of natural increase (combined effects of births and deaths) and migration are quite different. Both births and deaths are physiological and biological processes. Migration, however, is a behavior involving people moving from one area to another often because of employment, income, and other socioeconomic changes.



Although births and deaths influence a state's population by increasing or decreasing its size, their effects on other non-demographic and socioeconomic factors are considerably more long-term. Migration, on the other hand, has an immediate impact on an area because it is likely to involve young adults in their family formation ages. Migration results in a near simultaneous change in demand for goods and services.

Migration Trends

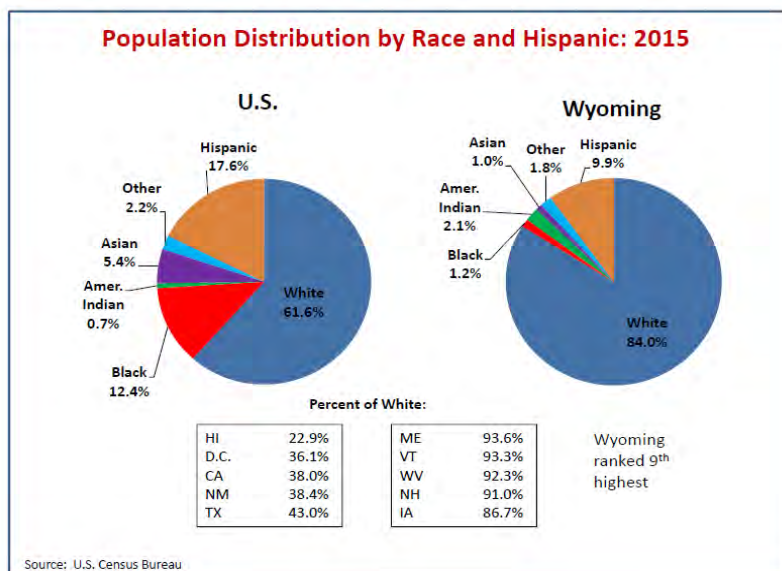
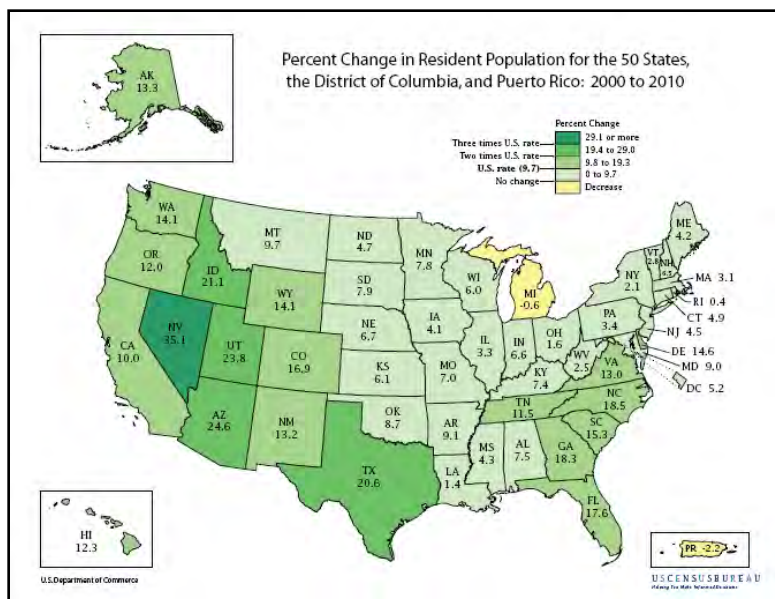
Wyoming's migration (either inflow or outflow) history has been predominately driven by employment opportunities in the state and economic conditions in the rest of the country. Wyoming's total population experienced a dramatic increase of nearly 180,000 (or 54%) from 1970 to 1983 as oil production was booming. This rapid growth was immediately followed by a decline of 57,700 people (or 11%) during the last seven years in 1980s, as oil prices dropped by 70 percent in constant dollars. The first few years of the 1990s brought steady growth as the national economy, particularly California, contracted, however, strong national expansion in the rest of the 1990s played a major role for the negative net migration flow, more people left than moved into Wyoming. By the end of the decade Wyoming experienced 8.9 percent growth compared to the U.S. average of 13.2 percent. The booming natural gas exploration during the first decade of the new century drew many younger workers into the state, particularly between 2006 and 2009. Total population in Wyoming grew 14.1 percent from 2000 to 2010, faster than the U.S. average of 9.7 percent. However, since 2013 the state has experienced three



consecutive years of net out-migration directly coinciding with a dramatic downturn in employment opportunities in natural resource extraction industry. As a matter of fact, about 3,800 more residents left Wyoming than moved into the state between July 2015 and July 2016, resulting in a total population decline of 0.2 percent, the first total population decrease since 1990.

Nationwide, both population and labor force growth rates are expected to be slow as many baby boomers retire, coupled with an historically low fertility rate and limited international immigration. As the contribution from natural increase continues to recede, the U.S. population is expected to grow about 7.5 percent between 2010 and 2020, and 6.4 percent between 2020 and 2030. Without another economic boom, the growth rate in Wyoming is projected to be 5.8 and 6.1 percent, respectively, for these two decades.

Across the country, people continue to leave the Northeast and Midwest, and move to either the West (including Texas) or the Southeast. This migration pattern has been going on for the past 40 years. Neighboring states and large states such as California, Texas, Arizona, and Florida always have the most population exchange with Wyoming, but Colorado alone accounts for about 15 percent of total migrants, either in or out of the state. Even though Wyoming attracts many people from California, the state experiences more people moving out of Wyoming to Texas, Arizona, Colorado, and Montana than moved to Wyoming, in recent years.



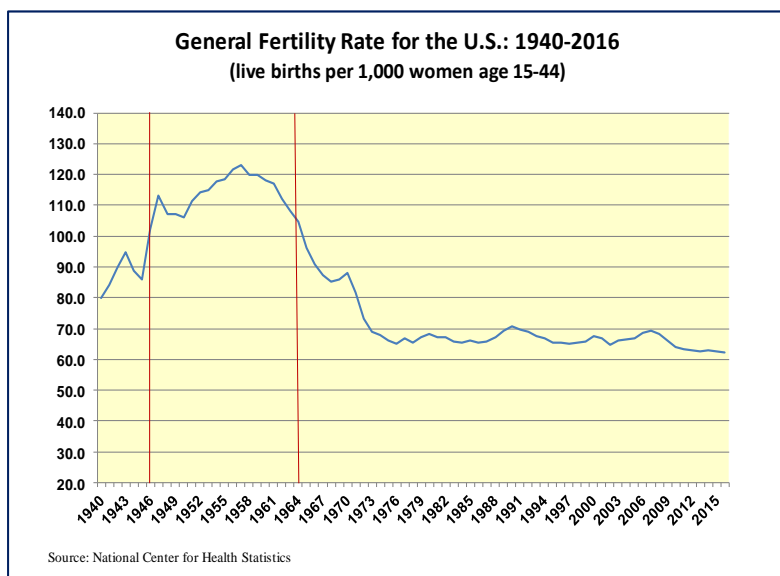
Race and Ethnicity

Both the nation and Wyoming's population continue to grow in diversity. Wyoming's total minority population reached 93,256 in July 2016. Minority is defined as any group other than single-race, Non-Hispanic White. The growth of minorities since 2010 was 14,090 persons, or 17.8 percent, compared with 3.9 percent increase for the State's total population. Nearly two-thirds of the state's population growth from 2010 to 2016 was attributed to addition in the minority population. Hispanic was the largest minority group with 58,413 in July 2016, and it increased 16.3 percent during the six-year span. The Black or African-American population grew 53.0 percent during the period to 6,717. Other minority races, such

as Asian and Pacific Islanders, and two-or-more races also recorded 23.6 percent or higher growth rate, while the majority, Non-Hispanic White, increased only 1.6 percent. With 15.9 percent of the State's total population, the proportion of minorities in Wyoming was still ranked the 9th lowest in the nation, while 38.7 percent of U.S. residents are minorities. 2017 is expected to be the first year that the total white population in the nation shows a decline, while the proportion of non-white in the U.S. is now expected to reach 50 percent in less than 30 years.

Aging Population

The age composition of a population affects many other characteristics, from fertility rates to the nature of the goods and services demanded. The size and structure of the older population is important to public and private interests, both socially and economically, and is used to calculate the dependency ratio. The aging of population means that the proportion of the population in the older ages increases. The whole globe is undergoing a major demographic transformation. Over the next several decades, the combined effects of increased life



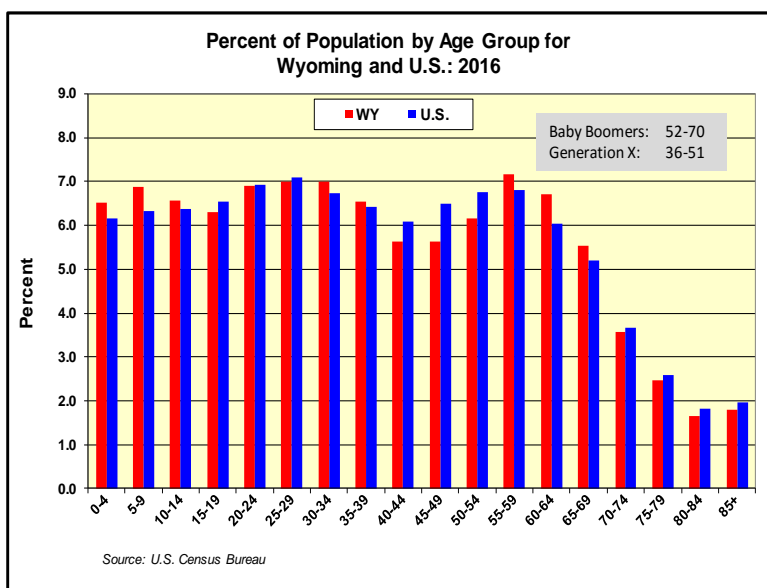
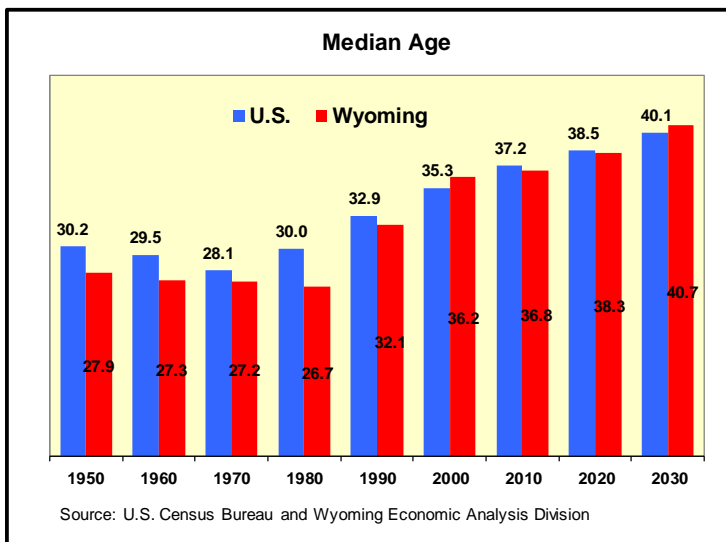
expectancy and lower fertility rates are leading to slower population growth and significant population aging across the world. Many developed countries, such as Japan and some European countries, are already far along in this transition. They are experiencing more rapid population aging than the U.S. The percentage of population 65 years and over is already over 20 percent in those countries, while it may take just over 10 more years to get there for U.S. The main factor is the international immigration resulting from evolving economic conditions in the country because immigrants are much younger than the native population. The fertility rate in United States increased dramatically after World War II and maintained a high level between 1946 and 1964. The cohort born during that period is commonly referred as baby boom generation. The fertility rate fell quickly right after that and into the early 1970s. After maintaining at a relatively stable pace for over 30 years, it has dropped level since the Great Recession.

During the period from 1990 to 2000, the median age in Wyoming increased so rapidly that the value of 36.2 in 2000 was nearly one year older than the U.S. median age of 35.3. However, for the following decade, the state's median age grew much slower because of the in-migration of many younger workers, and it was smaller than the national median age by 2010. Movers tend to be much younger than non-movers, and this is particularly true for Wyoming. Whenever the state experiences overall positive net migration (more people moved into Wyoming than residents moving out), the population aging will be

slower. Otherwise, the aging process is always faster, such as during the period from July 2015 to July 2016 when Wyoming's median age increased 0.3 years, one of the fastest in the country. Wyoming's pace in population aging is expected to continue to accelerate for the next 20 years.

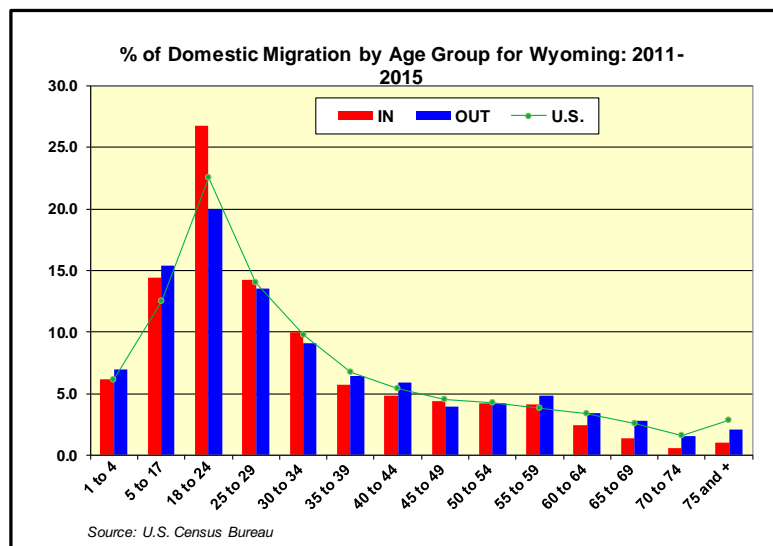
There are a few factors contributing to the state's rapid aging. First, Wyoming has one of the highest proportions of early baby boomer population in the nation. During oil boom time in the late 1970s and early 1980s, tens of thousands of young workers migrated into the state. Though some moved out when the bust happened in mid 1980s, many of them remained. This group of baby boomers were between 52 and 70 years old in 2016. On the other hand, the percentage of population age 36 to 51 (so called generation X) in Wyoming is very low because a significant number of them left the state in late 1980s and 1990s when they were young adults. Therefore, much of this aging is due to the baby boom generation moving into the ranks of the 65 years and over population since 2011. Unlike Florida or Arizona, the overall net migration to Wyoming has been negative (more left than moved into the state) for the retirement population. Only a few places such as Cody, Sheridan, Buffalo, and Evanston consistently attract limited number of retired individuals.

A second reason for Wyoming's fast aging population is that the proportion of immigrants and minority population (total population less non-Hispanic white) is one of the smallest in the U.S. Most immigrants (largely Latinos and Asians) entered this country originally as workers or students. Many of them stayed and may have formed their own families, but left their parents and grandparents back in their home countries. Therefore, minority populations tend to have a much younger population than whites. The median age for both Latinos and American Indians in 2010 was over 10 years younger than non-Hispanic whites in the state.



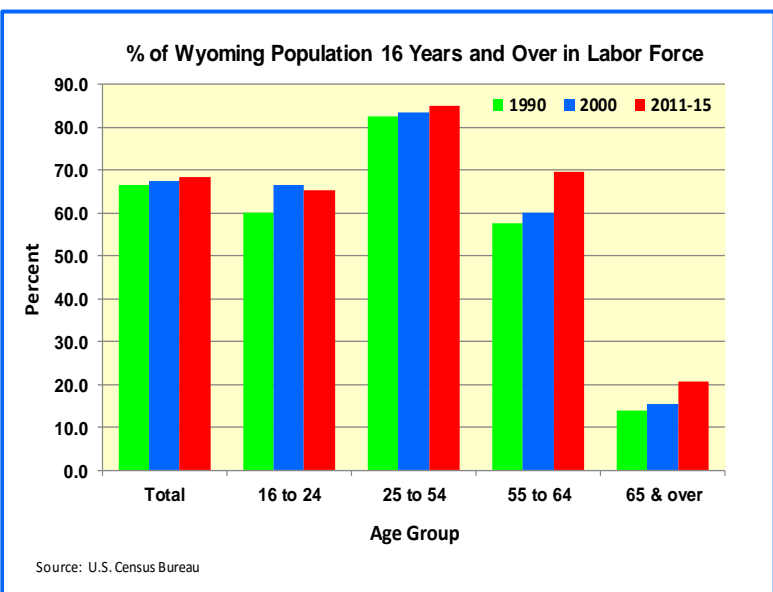
Third, Wyoming is the smallest state in terms of population size, in fact the entire state's population would only rank as the thirty-second largest city in the US. Only two cities, Cheyenne and Casper, have a population over 50,000 and barely qualify as Metropolitan Statistical Areas (MSA). Young adults (age 18 to 34) tend to be more mobile and constitute the largest percentage of migrants in Wyoming.

Employment opportunities and preferences for particular local amenities drive their migration choices. Within this age



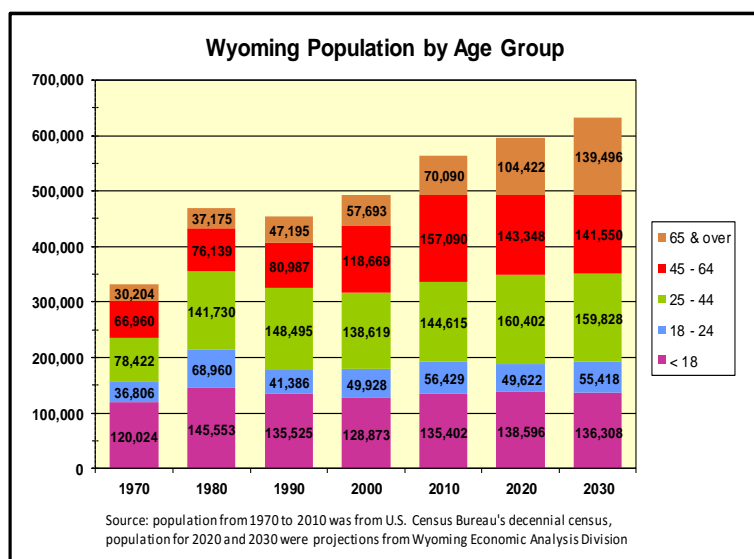
group, for work-related reasons, single and college-educated individuals represent a much larger share of in-migration into central cities than into suburbs (portions of metropolitan areas outside central cities) or nonmetropolitan territory. In contrast, married young adults with less than a college education made up a higher proportion of migration to nonmetropolitan areas than to central cities or suburbs. Married individuals are more motivated to move for quality of life reasons, such as housing, crime, and schools.

Change in the overall size of population and its age structure can affect the economy in many ways. The most important channel is through changes in the labor supply. Elderly dependency, the ratio of older adults to younger adults, is rising rapidly as the baby boomers reach retirement age and are replaced by fewer new workers. Particularly in Wyoming, there were 15,000 more residents age 55-64 than population 40-49 in 2016. Under current projections the labor force will increase slowly nationwide, or potentially decline over the next



20 years without increased immigration. Americans are not only living longer but also generally living healthier and therefore remain in the workforce longer. Rates of disability for older people have been declining. In addition, work is becoming less physically strenuous and more intellectually demanding. Indeed, Wyomingites have been retiring at older ages or return to work again after retirement. Nearly 70 percent of Wyoming's residents age 55 to 64, and 21percent of the elderly population (age 65 and over) were still in labor force during the period of 2011-2015, while their participation rates were 60 percent and 15 percent, respectively, in 2000. Shortage of retirement income, continuously escalating health costs, and a growing scarcity of experienced labor may be factors for their return to the workforce.

Though Wyoming's median age of 37.1 in 2016 was still younger than the U.S. level of 37.9, Wyoming is now aging faster than most other states. It is expected to surpass the U.S. median in just about five years because of the higher proportion of baby boomers and slower employment growth. The proportion of the state's elderly population (65 and over) was 15.0 percent in 2016, just slightly lower than the U.S. level of 15.2 percent, but this cohort grew faster than that of the U.S. Wyoming's population age 65 and older increased from 70,090 in 2010 to 87,812 in 2016, or 25.3 percent, compared to the U.S. growth rate of 22.3 percent during the same period.



The elderly population in Wyoming is projected to reach 104,400 in 2020, and 139,500, well over one-fifth of the state's total residents by 2030 when all baby boomers will be in this age group. Meanwhile, the cohort that is the main labor force, age 18-64, is expected to be smaller than the current level. The aging of the population is a long-term concern. The increase in the elderly population thereafter may have substantial impacts on goods and services. While the middle-aged householders are likely to be in their peak earning years, the older population will require increased health related products and social services, and will generally demand different forms and types of services than a middle-aged population. Other factors such as further reductions in the levels of mortality, particularly at older ages, persistent low rates of fertility, a continuation of international immigration, and a continuing diversity of household types will certainly impact life dimensions of residents as well, and thus will need to be recognized by policy makers.

Educational Attainment

In 2015, the vast majority (92.2 percent) of Wyoming residents 25 years and older (called adult population here) were at least high school graduates, compared to 87.1 percent for the U.S. The state's figure ranked the 6th highest in the country. However, just over one-fourth of adults (26.2 percent) reported they had a bachelor's degree or more education, and only 9.0 percent had an advanced degree, such as a master's, professional, or doctorate degree, compared to the U.S. averages of 30.6 percent and 11.6 percent respectively. In 2015 higher educational attainment for Wyoming's population ranked 40th in the nation. The proportion of workers employed in the mining (including oil and gas extraction) and construction industries was higher than any other states. Other economic sectors that are over represented in the state are farm, transportation, and leisure and hospitality. These above-mentioned industries often do not require a college education for employment. On the other hand, there are relatively limited job opportunities in professional and business, financial, educational, and health services in Wyoming which demand higher skill and educational attainment.

Other Facts on Wyoming's Population

(U.S. Census Bureau, 2015 American Community Survey)

	Wyoming	U.S.	Wyoming's Rank in the U.S.
Persons Per Square Mile	6.0	91.3	50
Percent of Native Population Born in State of Residence	42.1	67.7	49
Percent of People with a Disability	12.4	12.6	29
Percent of Civilian Population 18 Years and Over Who are Veterans	10.2	7.6	4
Percent of People Who Lived in a Different House in the Past Year	17.5	14.1	8
Percent of People Who Lived in a Different State in the Past Year	6.2	2.4	2
Percent of Household that are Married-Couple Families	51.2	48.0	5
Percent of People Without Health Insurance Coverage	11.5	9.4	10
Percent of Households That Receive Food Stamps/SNAP	4.7	12.8	51
Percent of People Below Poverty Level	11.1	14.7	42
Median Household Income	\$60,214	\$55,775	18
Median Earnings for Male Full Time, Year-Round Workers	\$55,965	\$49,938	8
Median Earnings for Female Full Time, Year-Round Workers	\$36,064	\$39,940	34
Median Housing Value of Owner-Occupied Units	\$212,500	\$194,500	20
Median Monthly Housing Costs for Renter-Occupied Units	\$815	\$959	29
Percent of People 16 to 64 Years Who are in the Labor Force	78.1	73.6	8
Mean Travel Time to Work of Workers Not Working at Home - min	19.0	26.4	45

Summary

1. Nationwide, as low fertility rates continue to persist and baby boomers age, the growth of both population and labor force is expected to be slow for the next 14 years. The average year-over-year growth rate for the state is expected to be about 0.5 percent during the period, comparing to 1.1 percent experienced so far since 2010.
2. Both the U.S. and Wyoming are experiencing considerable growth in older populations. Wyoming's total population declined about 1,000, or 0.2 percent between July 2015 and July 2016, but the population 65 and over grew 3.8 percent or 3,140 during the same period, and is now nearly 88,000. The average annual growth rate for this older population is projected to be 3.3 percent from 2016 to 2030. The total number of residents 65 and over will reach 139,500 by 2030 when all baby boomers will be in this cohort, accounting for 22.0 percent of total population in Wyoming. The rapid growth of elderly population will present challenges to policy makers and programs such as Social Security, Medicare and Medicaid. It will also affect families, businesses, and health care providers.

3. Both the nation and Wyoming's population continue to grow in diversity. Wyoming's total minority population reached 93,256 in July 2016. Minority is defined as any group other than single-race, Non-Hispanic White. The growth of minorities since 2010 was 14,090 persons, or 17.8 percent growth increase, compared with 3.9 percent increase for the state's 2016 total population. Nearly two-thirds of the state's population growth from 2010 to 2016 was attributed to the minority population. Future population increases for the U.S. will be from racial and ethnic groups rather than the Non-Hispanic White.
4. Traditionally a rapid drop in a state's unemployment rate is attributed to economic expansion including strong employment growth. However, that is not the case in Wyoming since 2016. In fact, the unemployment rate in the state has been steadily dropping since May 2016, and the 3.9% in June 2017 was the lowest value since November of 2009, pre-Great Recession. However, the employment for June 2017 was still about 1% below employments levels one year ago. Wyoming's labor force continues to drop, and is estimated to be thousands less compared to last year. Possible explanations for these phenomena are: 1) some baby boomers (age 53 to 71 in 2017) left the labor force by retiring in the state or out of the state, and 2) younger people continue to move to other states because of the robust nationwide labor market, particularly in Wyoming's neighboring states. Additionally, Texas, Arizona, Oregon, and Washington are all experiencing strong job growth. For example, Wyoming's number one competitor (in terms of labor force), Colorado, had the lowest unemployment rate (2.3%) while Utah had the fastest employment growth (3.0%) in the country for June 2017. If the U.S. economic expansion (already one of the longest in history) continues, Wyoming's labor market will remain tight.

Examination of State and Local Fiscal Sustainability

Historically, 70 percent of revenue collected by the state of Wyoming comes from the energy mineral industry and therefore the condition of state coffers depends directly on the market value of commodities that are traded on a national and international basis. As a result, Wyoming's main revenue streams generally move in the same direction and at the same velocity. When times are good in the minerals' industry, revenue across the board is up, but when times are bad, the opposite occurs.

This reality was never more evident than the flow of state revenue over the past twenty years. Improved drilling technology and gathering systems for natural gas extraction in western Wyoming brought significant capital investment to the state and seemingly overnight expansive natural gas fields were developed. At roughly the same time, coal bed methane in the Powder River Basin and coal production were increasing at a rapid clip. Energy development created tremendous wealth not just for the landowners and energy companies but for state and local governments as well. The state and local budgets grew as demands for public services expanded. At the state level, policy makers experienced multiple short-term drops in revenue between 2009 and 2016 reinforcing the reality that markets would eventually falter. When the crash came, starting in the fall of 2015 and continuing through the spring of 2016, revenue streams began drying up. In the end, Wyoming state coffers had experienced a 32% drop in revenue between state fiscal year (FY) 2015 and state FY 2016.

At the May 11, 2017 meeting, the ENDOW Executive Council adopted as a working definition for fiscal sustainability the following: "a government's ability and willingness to generate inflows of resources necessary to honor current service commitments and to meet financial obligations as they come due, without transferring financial obligations to future periods that do not result in commensurate benefits."

For state agencies, Wyoming uses a biennial standard/base budget (also referred to as an incremental budget) method, defines the "standard budget" as a budget enabling an entity to continue to furnish the same level of services during the ensuing biennium, and reflects the revenue or appropriation necessary to provide the services. The standard budget includes all personnel approved in the preceding biennial budget, a support services and the amount of revenue generated by the entity during the preceding biennium and estimated revenue for the ensuing biennium regardless of the fund to which the monies were deposited. The standard budget does not include any personnel other than those specifically authorized in the preceding biennial budget. The standard budget does not include requests for any equipment, any special projects and services nor any requests for special or nonrecurring funding. The limitations regarding authorized personnel and equipment requests does not apply to the University of Wyoming.

Uniting these two definitions the question becomes: "does the state have the resources in place to continue to fund the "standard budget"? At the state level, Wyoming prepared well for this downturn through permanent and intermediate savings; however, the abruptness of the collapse in mineral commodity prices and production had a dramatic and immediate impact on state services. In June 2016, the Governor identified that revenue collections were going to be insufficient to cover appropriations made by the Legislature for the upcoming biennium, July 1, 2016 through June 30, 2018, and implemented 8 percent budget reductions for most state agencies. In fact, this became the third consecutive biennium in which state agencies have had budgets reduced from the originally appropriated level. During the 2017 Legislative Session, the Legislature, with a few minor exceptions, accepted the Governor's reductions and made additional reductions on an agency-by-agency basis.

Looking forward to the FY 2019-2020 biennium, including the reductions made in the FY 2017-2018 biennium, the expected standard budget for the operations of state government exceeds projected traditional revenue by an estimated \$100 million. However, the most compelling concern for the state of Wyoming moving forward is how to fund K-12 education. Wyoming's K-12 system is facing a budget shortfall of an estimated \$250 million per year, or \$500 million for the 2019-2020 biennium.

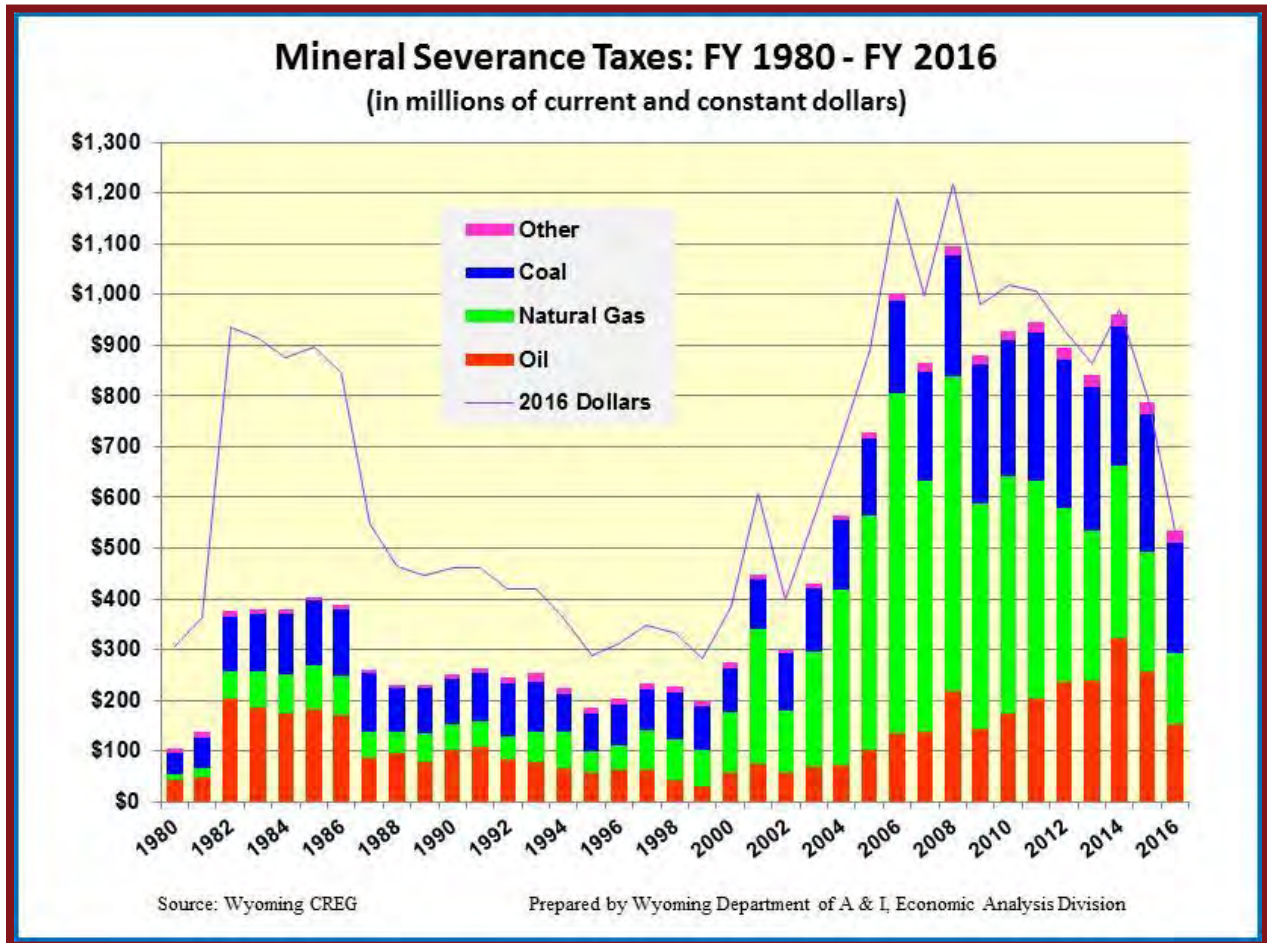


Figure 1

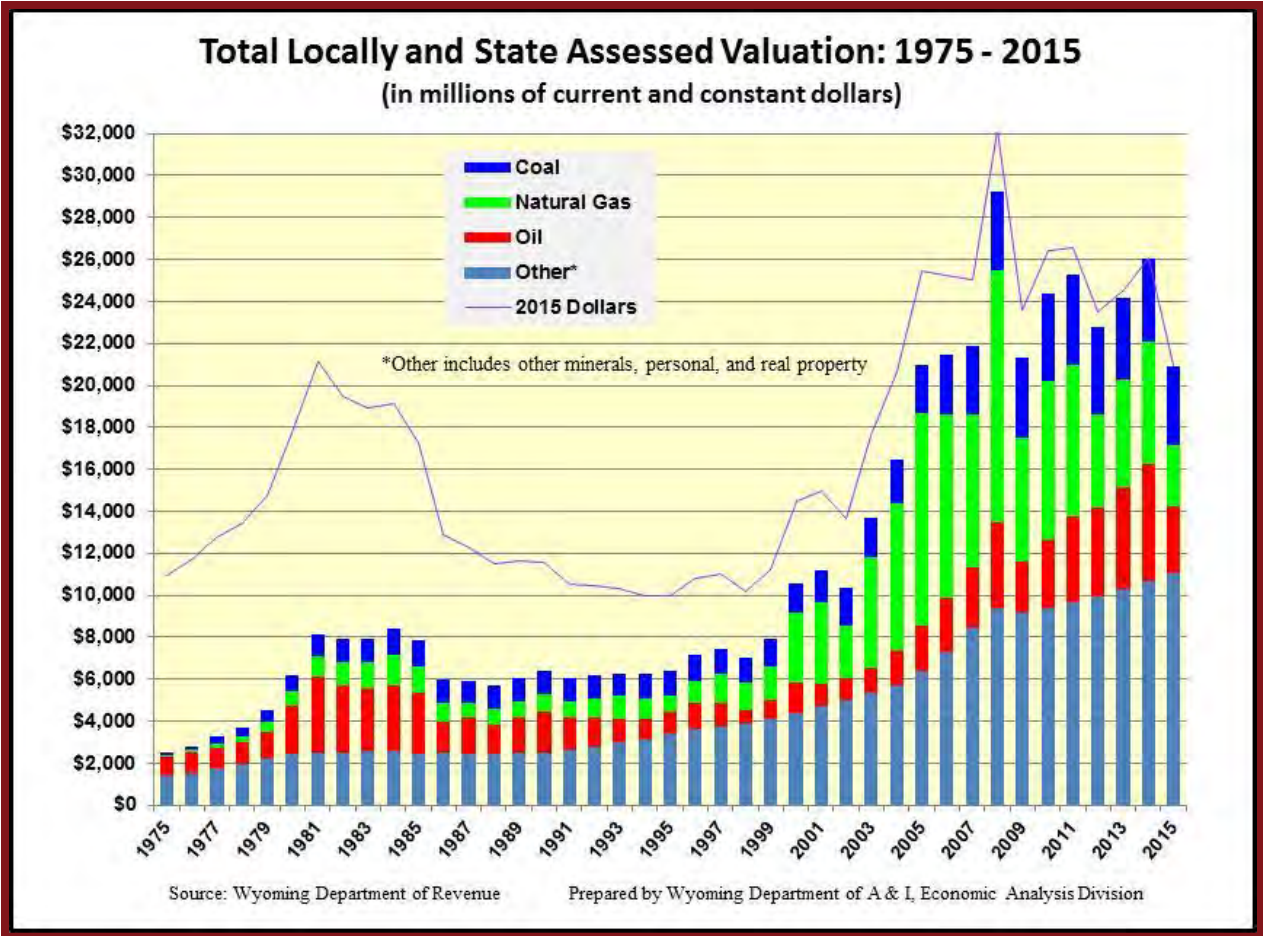


Figure 2

Traditional and Supplemental Revenue vs. Wyoming State Government Standard Budget

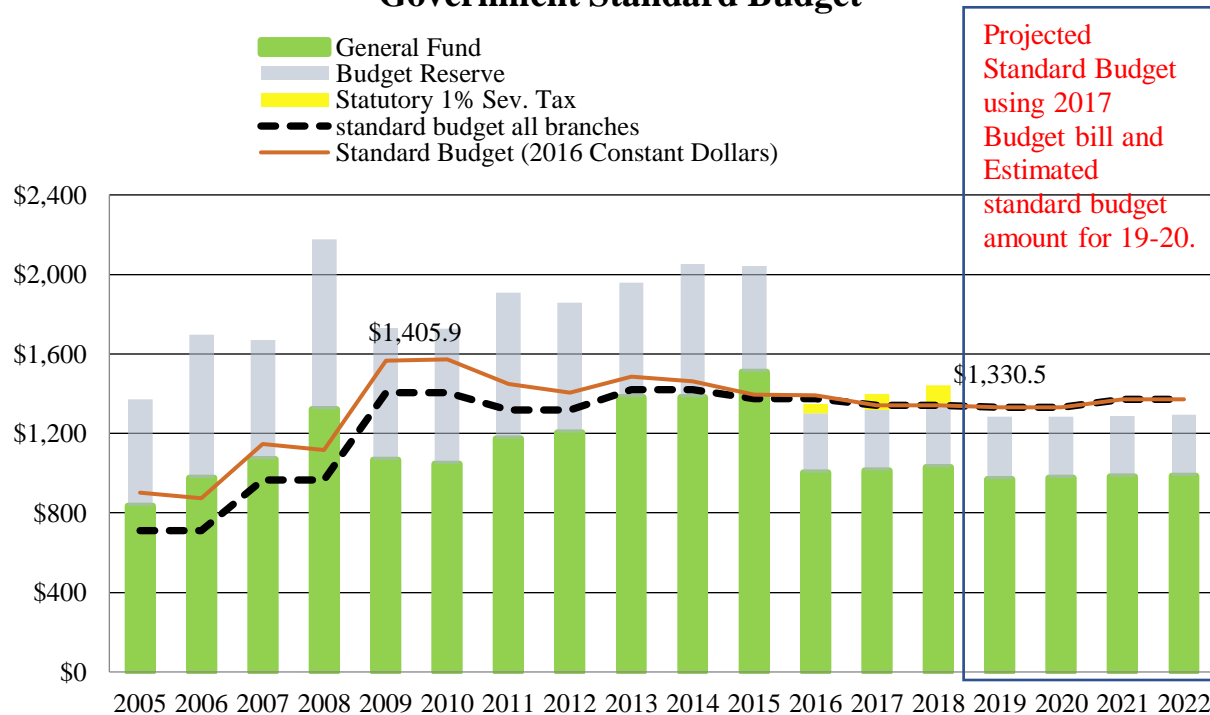


Figure 3

General Fund - to account for the ordinary operation of state government, and shall receive all revenues and account for all expenditures not otherwise provided for by law in any other fund.

Budget Reserve Account - a special revenue fund to account for the proceeds of specific revenue sources that are legally restricted to be expended for specified purposes. The state auditor is authorized to transfer to the general fund, from any funds within the budget reserve account other than funds appropriated or transferred to the legislative stabilization reserve account, amounts to maintain an unencumbered, unobligated and unappropriated general fund balance adequate for cash flow needs.

Figures 1-3 demonstrate the impact of the Wyoming revenue base volatility and state budget appropriations. County, municipal and other local government entities were not assessed for fiscal sustainability due time and staff limitations, but it is presumed local governments are experiencing fiscal crisis in the same manner. Local governments' tax base dependence on energy commodity revenues deeply and directly affect assessed valuation for local levies and state shared revenue.