

2024

WYOMING'S ECONOMIC OUTLOOK





Introduction

The University of Wyoming Center for Business and Economic Analysis (UW CBEA) is proud to present our inaugural Wyoming Economic Forecast, the first annual of what we hope will become a tradition in the Cowboy State. We believe this information will prove useful in your business and policy decision-making process as you plan for the year ahead.

The sections that follow provide a summary of the economic situation in 2023 to date, a forecast for both the United States and Wyoming economies in 2024, and industry-specific data analysis and insight into the key factors influencing each sector.

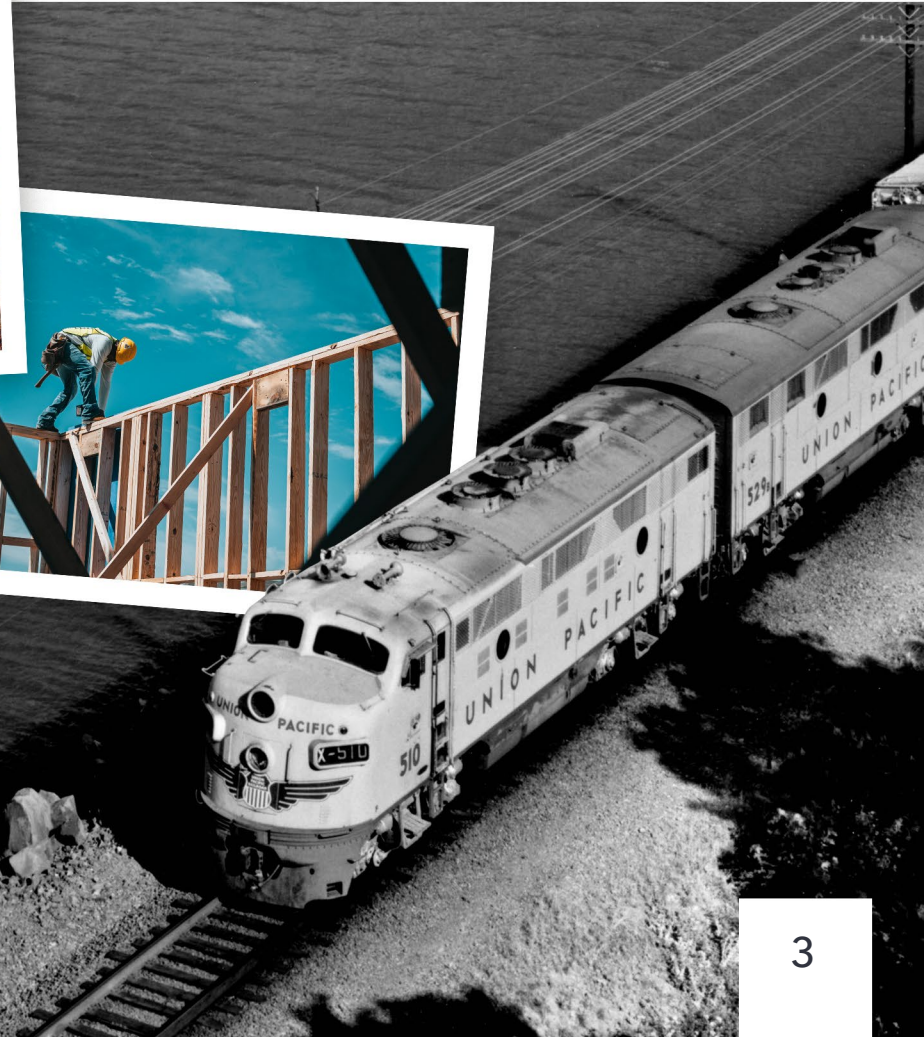
Methodology

For our forecasts, we use a large-scale structural economic forecasting model, Moody's Analytics, which models the large-scale economic interactions of both the U.S. and Wyoming economies. The forecasts also include various scenarios which may play out in the economy, including a "most likely" baseline scenario along with several other scenarios which have varying degrees of upside and downside risks. Current data from a variety of state and federal sources are also included in the report to show the current state of the economy and the economic health of the state. We also interviewed several Wyoming and regional business leaders from a variety of industries to understand what they expect to see as challenges and opportunities for 2024. These interviews informed our forecasts and helped us choose appropriate scenarios based on on-the-ground intelligence.



Timeline of Wyoming Economic Milestones

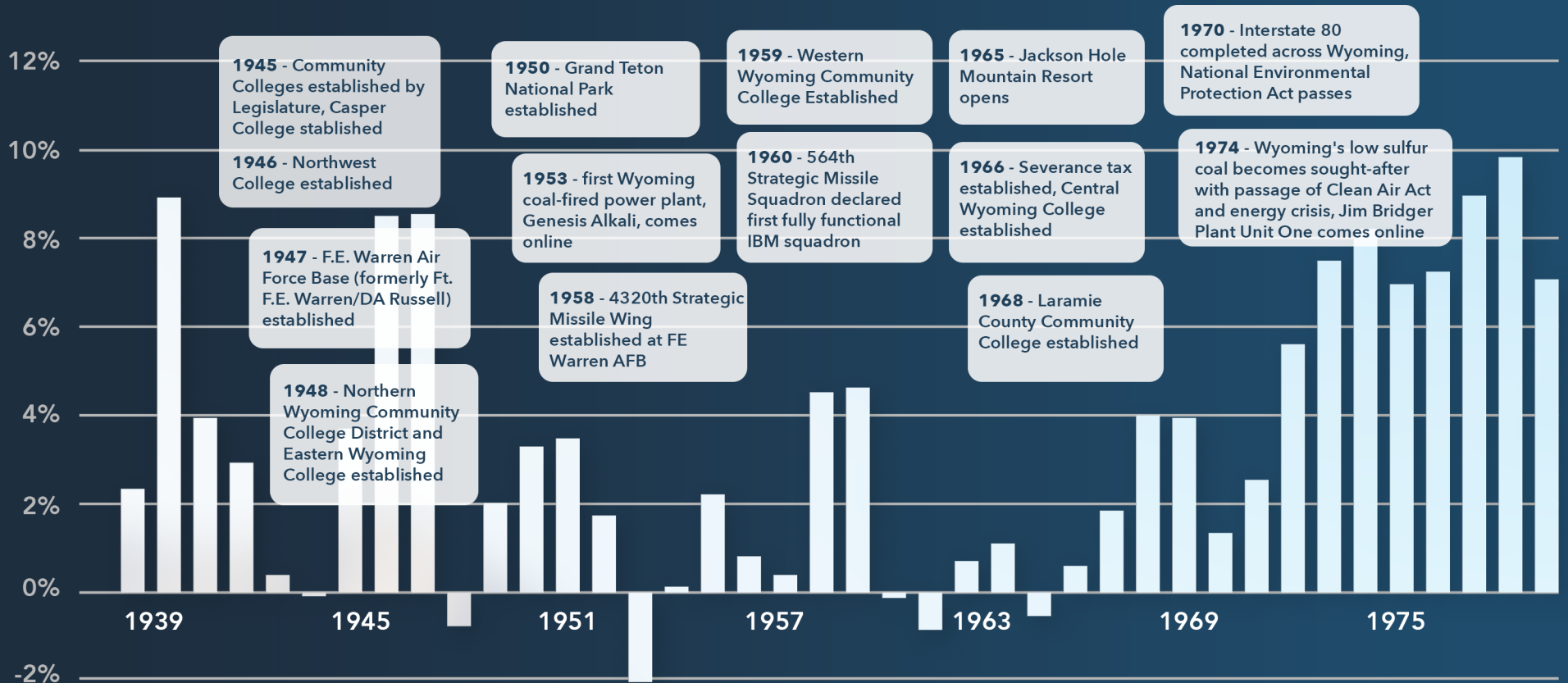
The timeline below provides a glimpse into Wyoming's past, showing major economic milestones in Wyoming's economic history mapped, post-1939, to the annual change in nonfarm employment. Over the past eight and a half decades, Wyoming has experienced numerous booms and busts - the railroad's use of coal-fired steam engines waxed and waned, ranchers and farmers have weathered good times and bad times, natural resources have been ebbed and flowed, and population has come and gone. In 1960, there were a little over 120,000 people employed in Wyoming, and per capita personal income was around \$2,300. In 2023, around 290,000 people (about half the population of Wyoming) are employed with a per capita income close to \$59,000. The economic basis of Wyoming has changed, too - from primarily a railroad and ranching economy to a state with robust tourism, construction, manufacturing, and services sectors along with our strongholds of natural resources. We hope this timeline puts into perspective the unrelenting changes experienced by Wyoming over nearly a century.



"THEN AND NOW" Timeline of major economic milestones in Wyoming, total employment changes

Union Pacific Railroad crosses Wyoming (1869) - Yellowstone National Park established (1872) - Wyoming achieves statehood (1890) - University of Wyoming founded (1886) - Nation's first National Forest, Yellowstone Park Timber Land Reserve, established in Wyoming (1891) - First oil refinery, Pennsylvania Refinery, built in Casper (1895) - Cheyenne Frontier Days starts (1897) - Salt Creek oil field (1889) - Devil's Tower National Monument established (1906) - Teapot Dome scandal (1921) - Trona discovered near Rock Springs (1938)

Percent Change, Wyoming Nonfarm Employment, 1939-1979



1945 - Community Colleges established by Legislature, Casper College established
1946 - Northwest College established

1947 - F.E. Warren Air Force Base (formerly Ft. F.E. Warren/DA Russell) established

1948 - Northern Wyoming Community College District and Eastern Wyoming College established

1950 - Grand Teton National Park established

1953 - first Wyoming coal-fired power plant, Genesis Alkali, comes online

1958 - 4320th Strategic Missile Wing established at FE Warren AFB

1959 - Western Wyoming Community College Established

1960 - 564th Strategic Missile Squadron declared first fully functional IBM squadron

1965 - Jackson Hole Mountain Resort opens

1966 - Severance tax established, Central Wyoming College established

1968 - Laramie County Community College established

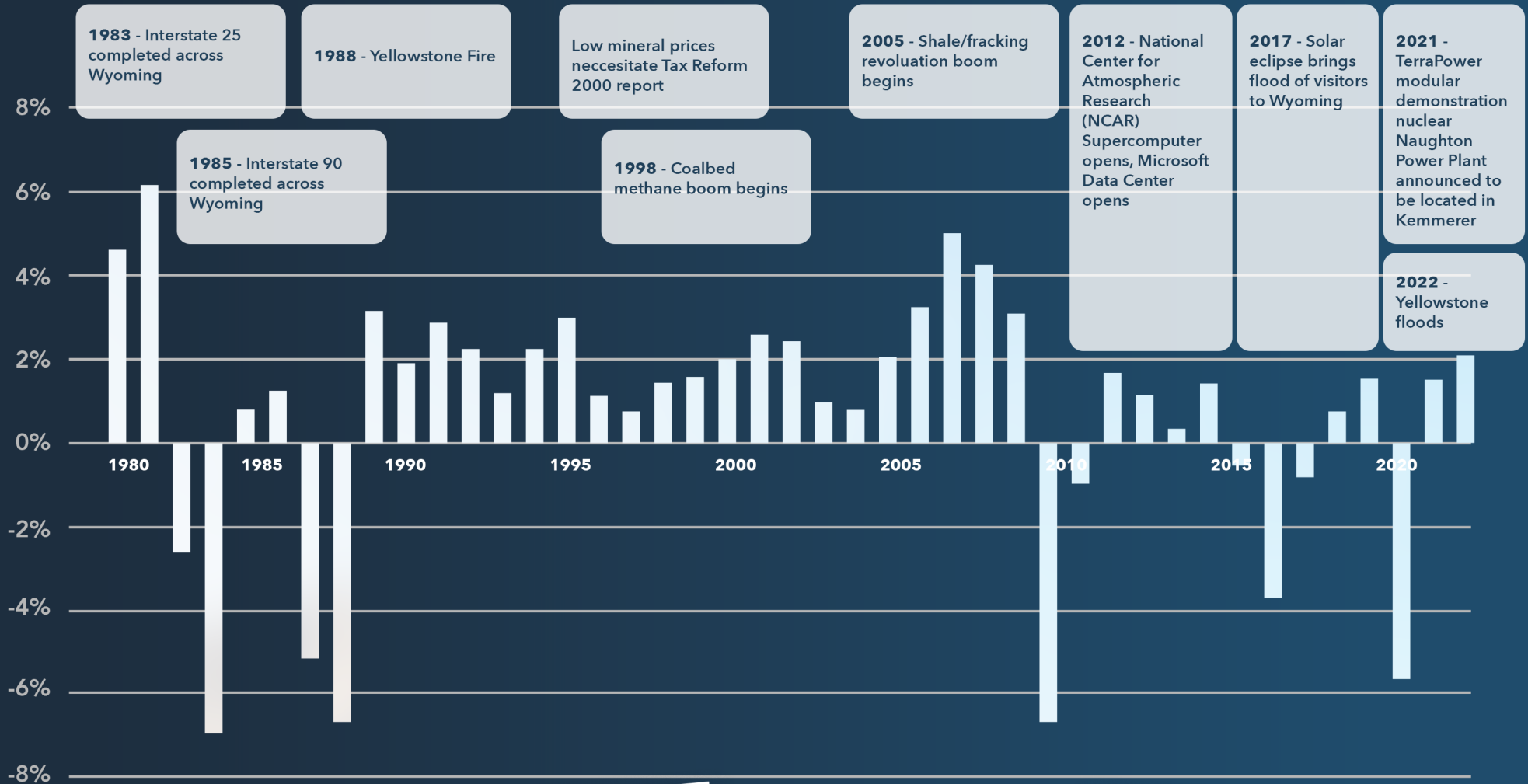
1970 - Interstate 80 completed across Wyoming, National Environmental Protection Act passes

1974 - Wyoming's low sulfur coal becomes sought-after with passage of Clean Air Act and energy crisis, Jim Bridger Plant Unit One comes online



"THEN AND NOW" Timeline of major economic milestones in Wyoming, total employment changes

Percent Change, Wyoming Nonfarm Employment, 1980-2022





US Economic Outlook in 2024

There are several complex and challenging emerging indicators that temper our enthusiasm for the U.S. economy's growth in 2024. While we expect a "soft landing" of the economy as the Federal Reserve continues its efforts to fight inflation, there are also potential headwinds we see emerging in the last quarter of 2023; there is also the distinct possibility that the Federal Reserve will "overshoot" its target in bringing the economy into a soft landing and push the U.S. economy into recession. There is evidence of deterioration in some pockets of consumer credit, along with overreliance on credit to sustain high levels of leisure travel. Retail spending trends, red hot for much of the past three years, may be showing signs of slowing, or at least being financed using a higher proportion of credit to savings. Consumer confidence, while higher year-on-year (as measured by both the Conference Board and the University of Michigan Index of Consumer Sentiment), has declined in recent months. Consumer savings levels have dropped, and high interest rate levels are making firms' capital expansion decisions much more challenging and complex. Commercial real estate loans have also become more expensive as banks tighten lending requirements. The U.S. stock market, as well as other stock markets around the world, has experienced a great deal of volatility, particularly as financial markets try to read the tea leaves of Federal Reserve actions and as bond markets and treasury yields rise.

Supply chain issues are resolving, so many producers are finally able to fill orders from previous months, and in some cases, years. However, supply chains will remain fragile in the near term, as nearshoring (moving production closer to the final consumer) and reshoring (returning production back to the country in which a company was first established) efforts take many years to take effect.

The inflation rate has fallen and stabilized somewhat, but recently rising oil prices are driving higher prices of gasoline and diesel. This will impact prices of all goods and may cause a slowdown in consumer spending.

Labor markets seem to be loosening, but union actions and the tighter-than-average labor market continue to result in wages growing at rates most businesses would not have foreseen in making their 2023 plans. There will likely be a push back among businesses in 2024 to moderate wage growth, and retaining and recruiting pressures may ease. Unemployment rates have remained exceptionally low even as wages have risen, and the labor force participation rate has remained lower than pre-pandemic levels; however, there is evidence that this trend may be reversing slightly and we expect that this will continue into 2024. The number of unemployed persons per job opening, seasonally adjusted, has remained historically low since the pandemic-induced recession, but this trend is also likely to turn around in 2024 as the labor market loosens and growth weakens.

The continuing volatility in the national political and international geopolitical environment will likely present a significant challenge to the economy in 2023, which potentially may have spillover effects and increase recessionary pressures in 2024.

Housing supply, housing prices, and mortgage rates will continue to be a headwind to the economy. Housing supply continues to be outstripped by demand as homeowners hold on to their properties in expectation of having to take on a higher-rate mortgage if they sell. Current buyers are locking in those higher rates with the expectation that, in 2024 or 2025, they can refinance at lower rates. House prices have begun to moderate from 2022, but mortgage rates even on the best-qualified borrowers are as large a barrier to homeownership as house prices. Rental prices continue to be higher-than-expected, and there is evidence of increasing numbers of renters being unable to afford their current housing. The hurdles to homeownership and affordable rentals represent a broader challenge to U.S. growth as the workforce necessary for new and expanding businesses struggles to find a sufficient supply of affordable housing.

International trade and the international environment are red flags in 2024's forecast. The trade deficit is lower than the first half of 2021 and 2022, mainly because of lower trade activity in exports and imports of goods and services. The war in Ukraine, continued tensions between the U.S. and China, the slowdown in China's economy, and volatile political situations across many parts of the world will contribute to a reduced outlook for economic growth in the U.S. in 2024.

Overall, we expect that growth will slow in the U.S. in 2024, but that the economy will not fall into a deep technical recession.





Summary of Wyoming Outlook for 2024 and Analysis of Barriers to Growth

Wyoming's challenges, including housing stock and affordability, lack of agglomeration economies due to low population numbers, challenges in connectivity (air, road, and internet), among others, will persist into 2024. There are, though, several important positive opportunities for Wyoming in 2024, especially in technology, R&D, and business formation. Wyoming is ranked #8 nationally in business-performed R&D as a percentage of private industry output, a significant improvement from 2018, when Wyoming ranked 50th. Wyoming also ranks highly in science and engineering degrees (biological and agricultural sciences, engineering, physical sciences, social sciences, computer sciences, mathematics and statistics, and psychology) as a percentage of higher education degrees conferred, at 39% compared to the U.S. average of 31.7%. Patents awarded, 15.15 per 1,000 individuals in science and engineering occupations, have significantly increased. Venture capital disbursed per \$1 million in gross state product (\$2,960.69) and millions of venture capital dollars disbursed per venture capital deal (\$2.87) have also increased significantly since 2019.¹

However, Wyoming also experiences around 70% outmigration of recent UW graduates² and only 45% of native Wyomingites still lived in Wyoming in 2021³. Wyoming also has an exceptionally large overall outmigration rate, with the number of people leaving per 1,000 residents at 60. This makes solving the issue of a critical mass of population to yield agglomeration economies more challenging. Coupled with a 50% college going rate, this barrier to growth will persist.

Annualized rental vacancy rates in Wyoming since 2020 have ranged from 7-9%⁴. Trends for 2023 indicate a vacancy rate closer to 4%, with forecasts for future years between 6-7%. The Housing Affordability Index⁵ indicates that housing affordability in Wyoming turned negative in 2022 - that is, on average, housing became relatively unaffordable for the median-income household in Wyoming. Similarly, the Home Ownership Affordability Monitor⁶ shows that starting in mid-2022 home ownership became more unaffordable in the Casper metropolitan area, while in the Cheyenne MSA the same occurred in mid-2021.

¹ National Science Foundation Science and Engineering State Indicators

² Lightcast

³ U.S. Census Bureau

⁴ U.S. Bureau of Census, Moody's Analytics

⁵ National Association of Realtors; U.S. Census Bureau; U.S. Bureau of Economic Analysis; Moody's Analytics

⁶ Federal Reserve Bank of Atlanta

According to data from the Natrona County Residential MLS, courtesy of Lisa Burrige & Associates Real Estate, the average closing price of residential housing in 2023 rose 4.7% year-on-year for the year to date and 8.7% between 2021 and 2022. The number of listings in 2021 and 2022 was well below previous numbers going back to 2013. Listings are also related to economic conditions in Natrona County and the state, explaining some of that decline - the Natrona County economy was quite strong in both 2021 and 2022, with economic strength continuing in 2023. However, interest rates and availability of housing have no doubt influenced this as well.

Based on statewide averages, Wyoming residential property tax rates are still among the lowest in the nation. Based on property taxes paid as a percentage of owner-occupied housing value, Wyoming ranked #47 in 2021, the most recent year for which data was available⁷. However, the rapid rise in housing values in many Wyoming counties since 2020 has led to higher assessed valuations and higher residential property tax bills in the past year. The resulting strain on long-time residents is one more challenge facing the Wyoming housing situation.

Road closures contribute to challenging connectivity in Wyoming. During over 10% of the month of January 2023, I-80 was closed to passenger vehicles during commuter hours, and during over 14% of the month it was closed to commercial vehicles during commuter hours. I-25, similarly, was closed over 5% of the month to passenger vehicles and over 6.5% of the month to commercial vehicles during that month. In the winter season months, the Wyoming Department of Transportation reported that for the 5 winter seasons between 2017 and 2022, I-80 was closed on average 50 times, I-25 was closed 15 times, and I-90 was closed 10 times. Airline reductions in service, while seemingly beginning to reverse from their pandemic lows, and reliability of service also contribute to the lack of mobility for business travelers. Finally, while there are shining examples of cities and towns in Wyoming with good, reliable internet connectivity, according to the Wyoming Broadband Availability Map, 18.5% of Wyoming locations are unserved by any broadband provider at this time. While there is little we can do about weather closures on Wyoming's roads, generating policy solutions address air and internet connectivity issues should continue to be a priority if we want more businesses, workers, and entrepreneurs to locate to Wyoming.

⁷ National Science Foundation Science and Engineering State Indicators



Detailed Wyoming Outlook

The year ahead for Wyoming holds many opportunities and challenges, including finding solutions to current binding constraints for growth - housing affordability for workers, challenging transportation and connectivity resulting in constrained access to markets, a thin and complex labor market, the brain drain in our higher-education graduates and the resulting loss of many Wyoming-educated new graduates, among others.

Wyoming’s private sector employment composition has changed slightly over the past few years due to the structural decline of mining. Our predicted private sector composition for 2024 is shown in Chart 1 below. Natural Resources and Mining employment is expected to rebound above pre-pandemic levels; however, employment in this sector has contracted by almost one-third in the past decade. Employment in the construction, wholesale trade, transportation and utilities sectors has remained steady, while manufacturing, retail trade, financial services, professional and business services, education and health services, leisure and hospitality, and other services have experienced a steady increase.

Chart 1A
Private Nonfarm Employment by Sector, Estimated 2024
Average Weekly Wage, \$/week, not seasonally adjusted

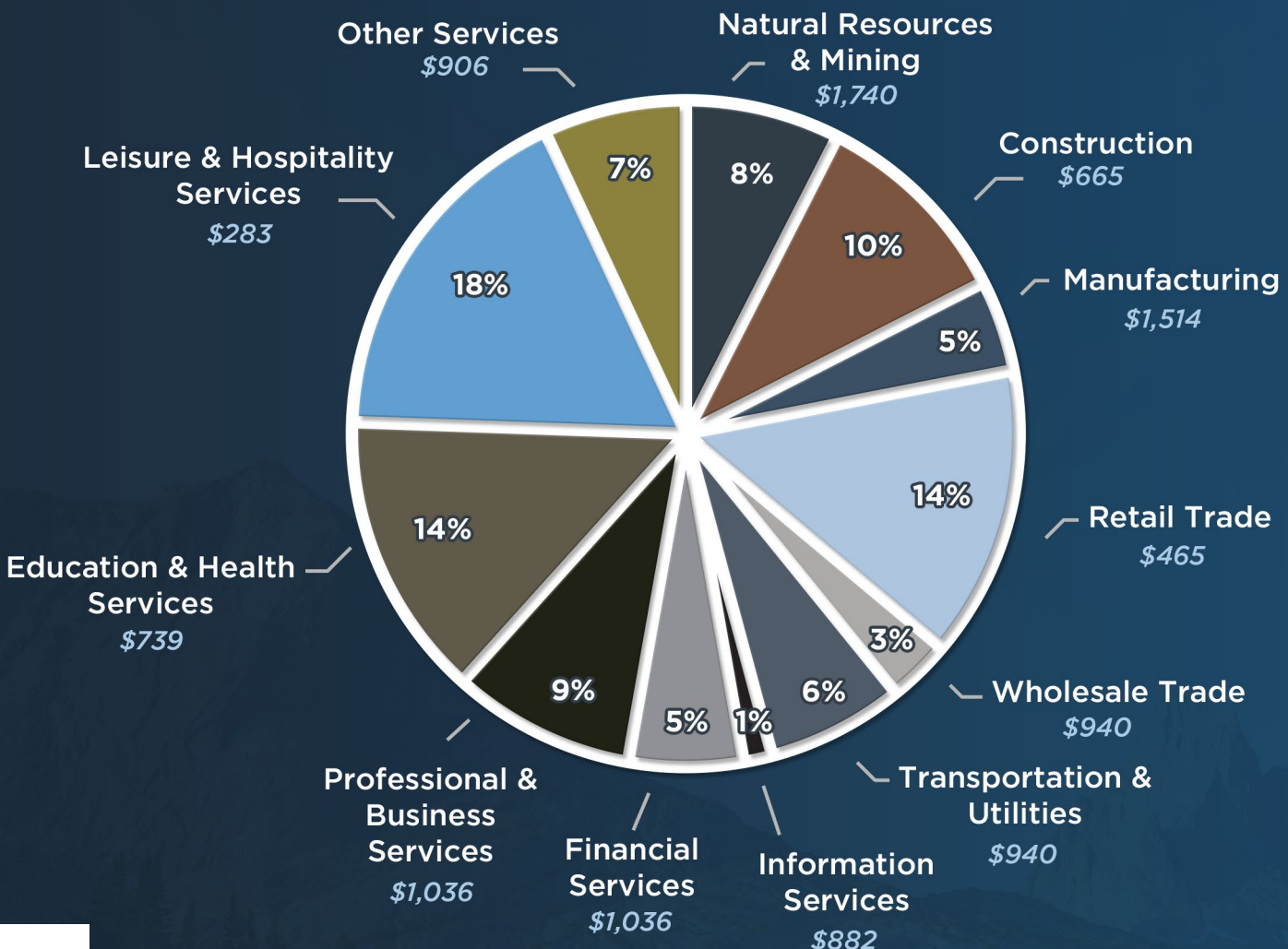
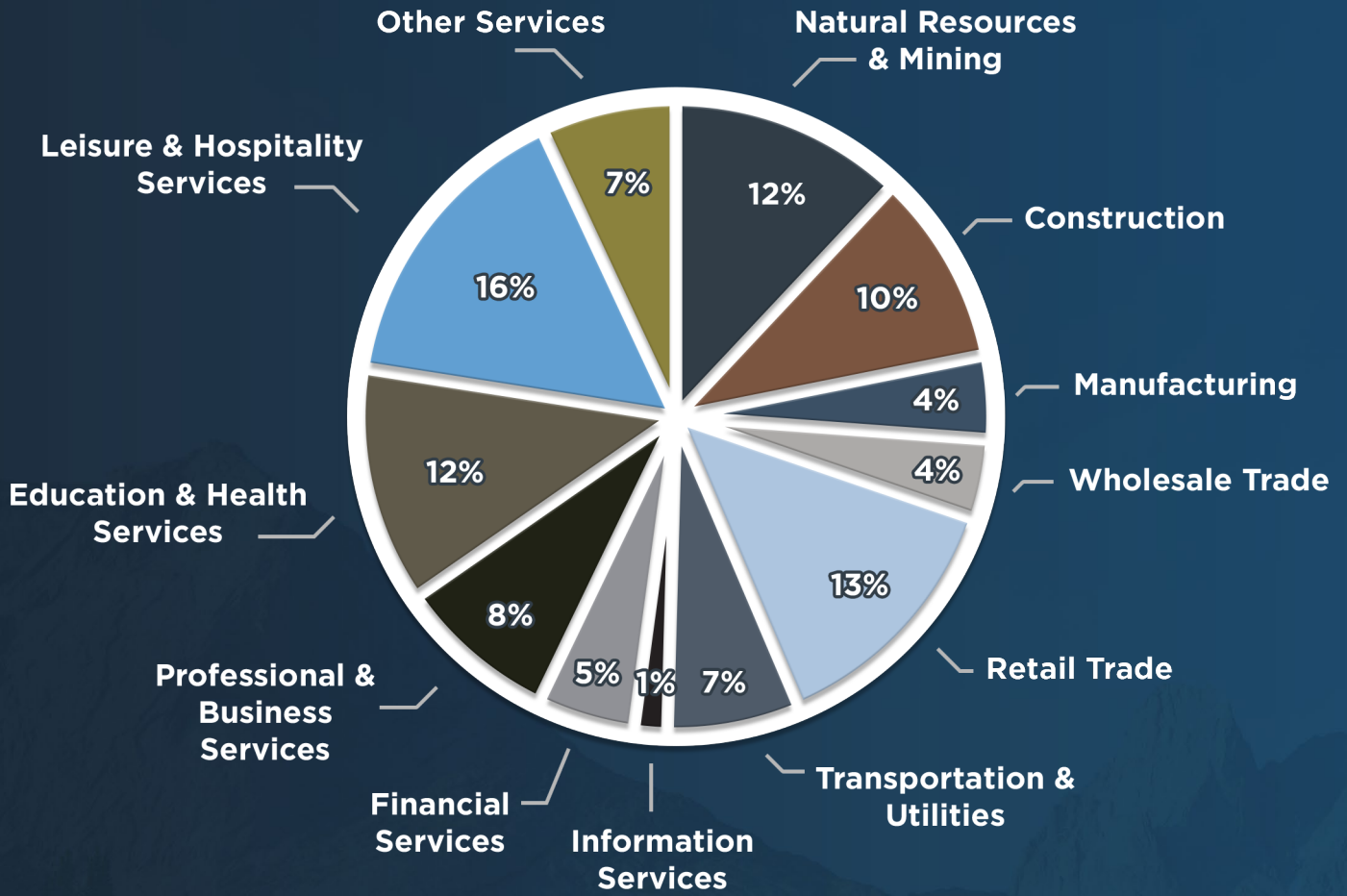


Chart 1B

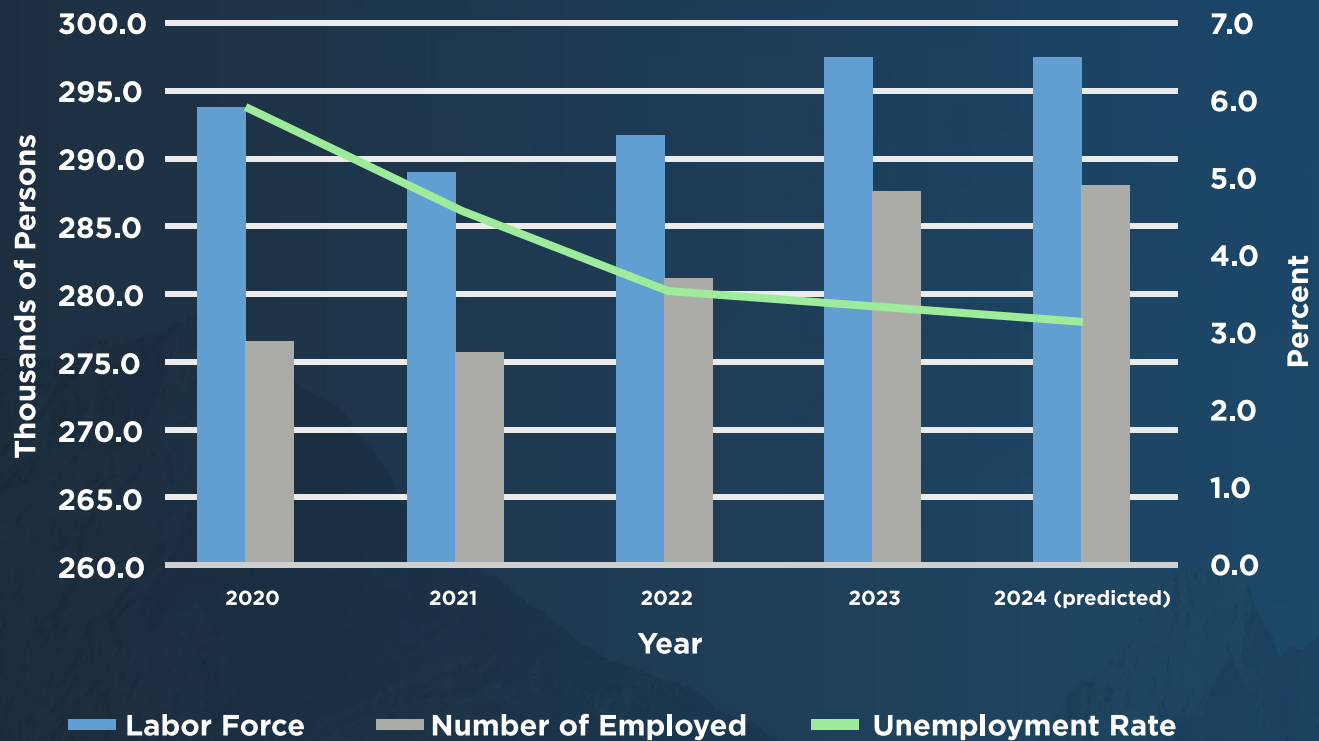
Private Nonfarm Employment by Sector 2013



The number of people in the Wyoming labor force is expected to remain steady in 2024, and the number of people employed is expected to tick up slightly. The unemployment rate is expected to be around 3.1% in 2024, a slight increase, and the number of people unemployed is expected to drop slightly.

Chart 2

Wyoming Unemployment Rate Labor Force (thousands of persons), Number of Employed (thousands of persons)



Income, as measured by average nominal household income and per capita nominal disposable income, for the past decade and predicted for 2024 are shown below in Chart 3 and Chart 4.

Chart 3

Average Household Nominal Income for Wyoming, 2013-2024 (predicted)

Average Household Nominal Income for Mountain Region, 2013-2024 (predicted)

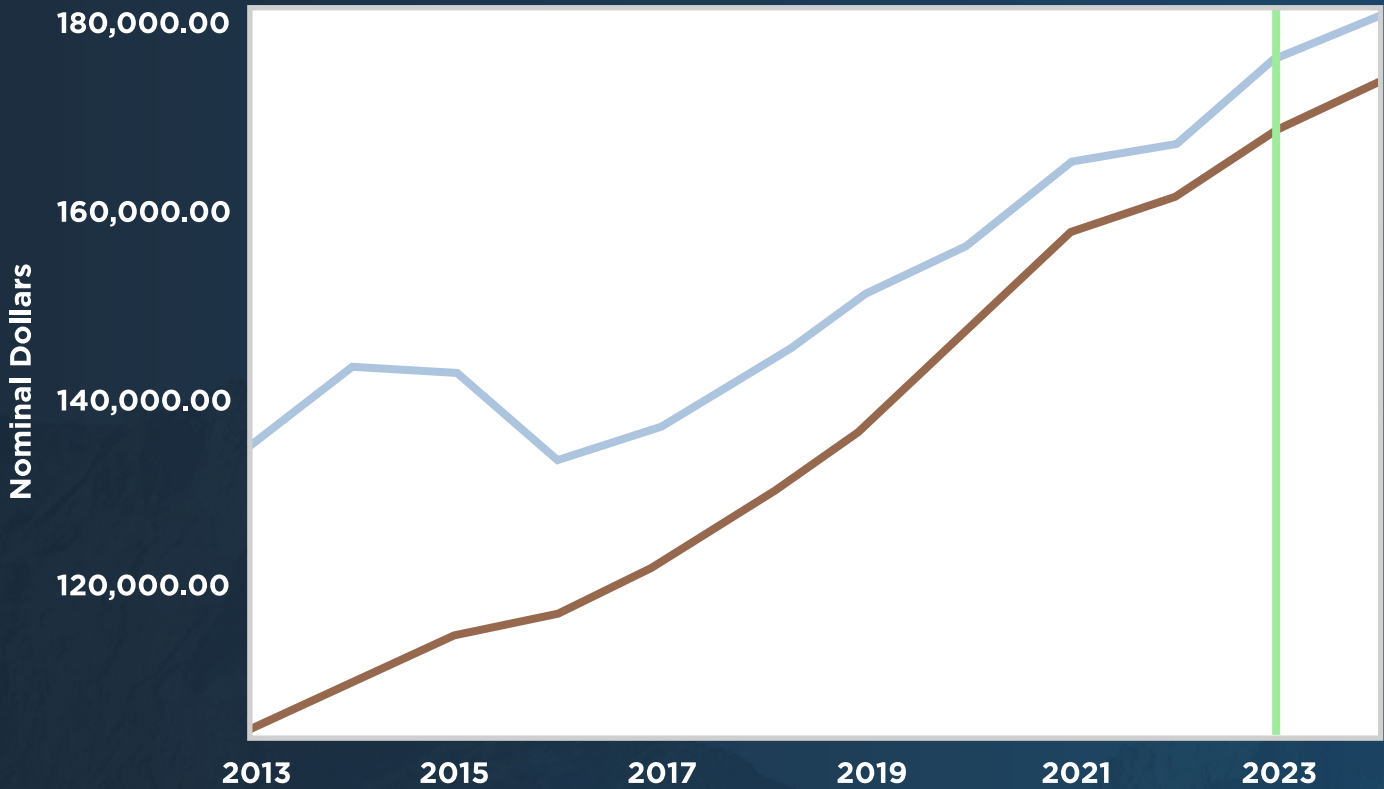
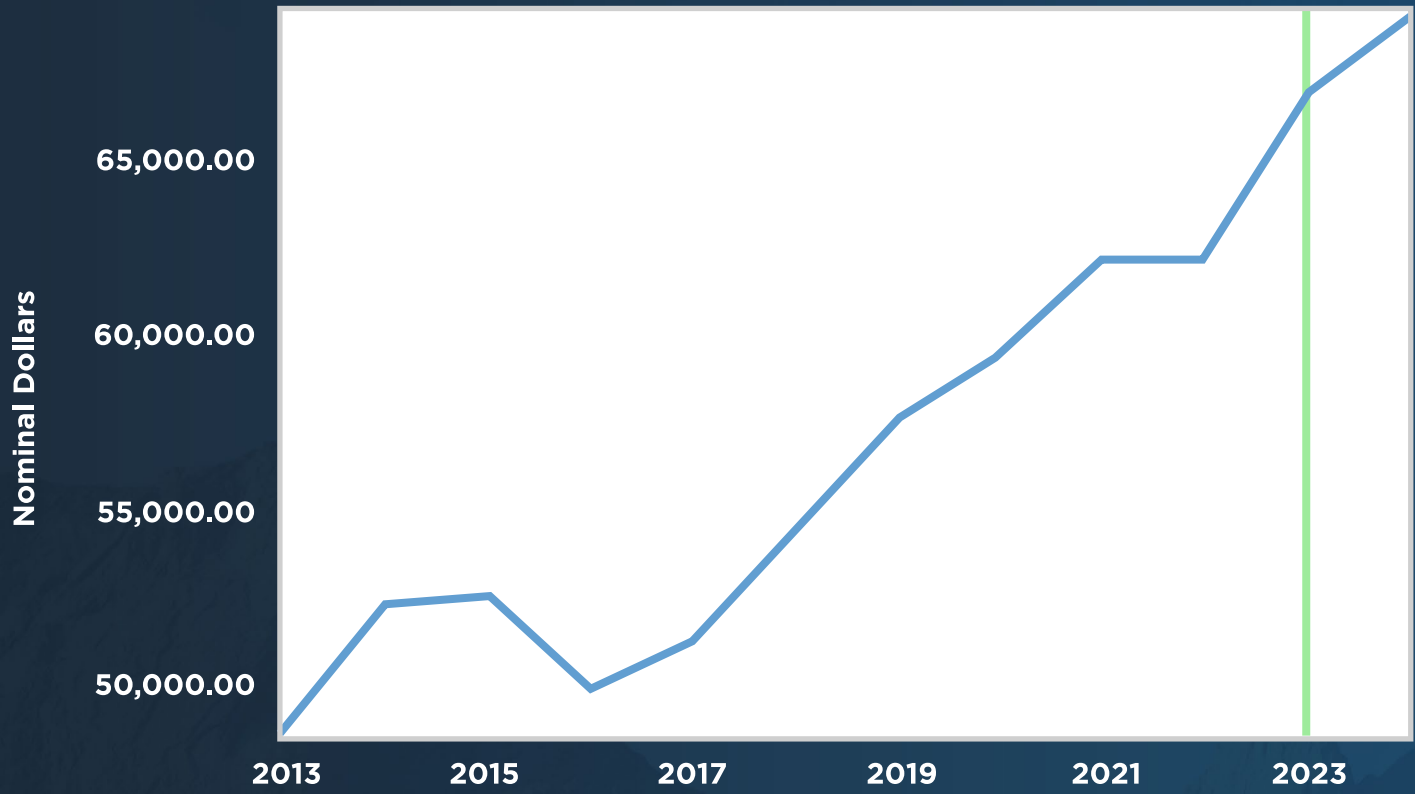


Chart 4

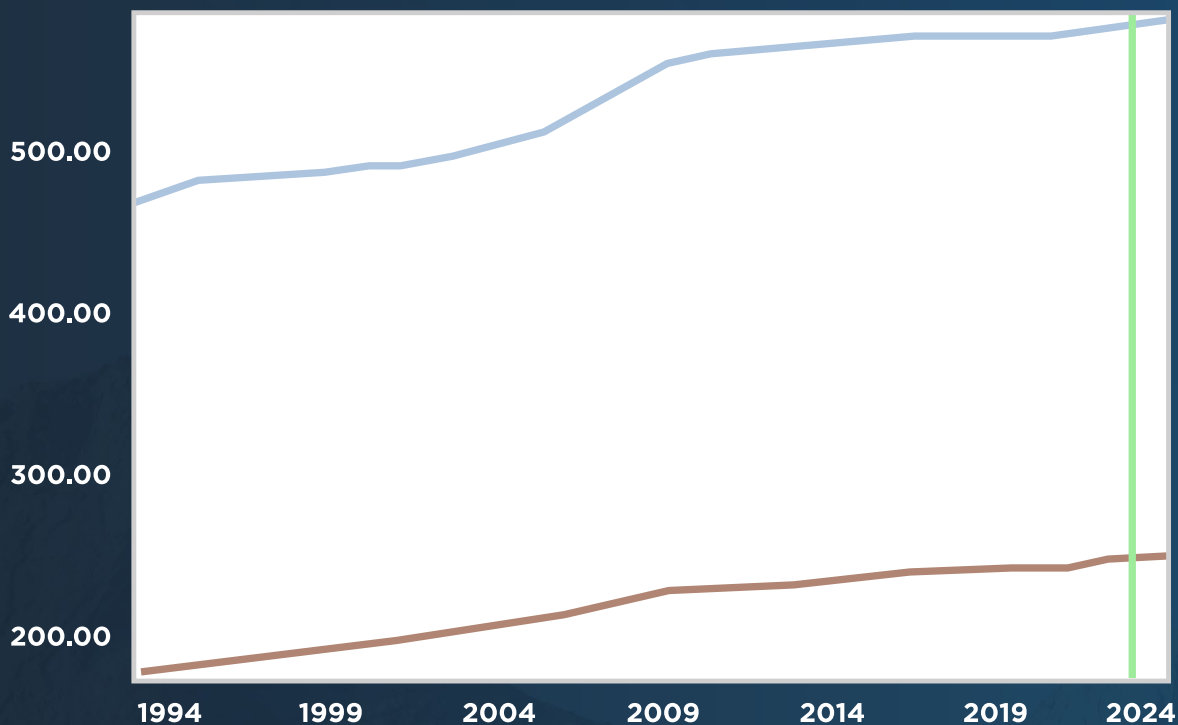
Nominal Per Capita Disposable for Wyoming, 2013-2024 (predicted)



Wyoming's population and the number of households from 1993 through 2024 (predicted), are shown in Chart 5 below.

Chart 5

Total Population (Thousands) for Wyoming, 1993-2024 (predicted)
Households (Thousands) for Wyoming, 1993-2024 (predicted)



According to the Wyoming Secretary of State's Office, FY 2023 business filings are up 27% year over year, with 590K filings to date as of September 2023; Wyoming also recently was ranked one of the most entrepreneurial states in the nation by The Digital Project Manager. This bodes well for new business startups and job creation in the entrepreneurial space.

As shown in **Table 3** below, the population of Wyoming is expected to slightly increase in 2024. The number of older Wyoming residents (65 years old and over) is expected to drive that growth, while the populations of residents 0-4, 5-19, 20-24, and 25-44, and 45-64 years old are expected to decline. The implications of our aging population are broad reaching. The K-12 school age student population will be impacted in both the near- and long-term; the workforce necessary for economic growth and the number of potential entrepreneurs and small business owners will decline. On the positive side, the birth rate of Wyomingites is expected to rise and the death rate to fall.

A selection of tables summarizing the Wyoming forecast for 2024 are below in **Tables 1-4**, built using Moody's Analytics. Additional forecast tables are in Annex 2.

Table 1 - Wyoming Output and Employment

Wyoming	Units	2020	2021	2022	2023	2024
Output						
Nominal gross state product	Bil. \$, Seasonally Adjusted Annual Rate	36.3	41.5	47.4	48.2	49.3
Real gross state product	Bil. Inflation Adjusted \$ Seasonally Adjusted Annual Rate	36.3	36.4	36.3	37.3	37.3
Employment						
Total Non-Agricultural	Thousands, Seasonally Adjusted	274	278.3	284.5	290.7	291.9
Natural Resources & Mining		16.4	14.8	16.3	17.1	17.7
Construction		21.2	21.0	21.2	22.2	22.1
Manufacturing		9.6	9.7	10.2	10.7	10.7
Retail Trade		28.7	29.7	30.4	30.2	29.9
Wholesale Trade		7.7	7.3	7.7	7.4	7.3
Transportation & Utilities		14.1	14.2	14.1	14.3	14.3
Information Services		3.0	3.0	3.1	3.1	3.2
Financial Services		10.9	11.2	11.5	11.5	11.4
Professional & Business Services		18.4	19.6	20.5	20.6	20.5
Education & Health Services		28.4	28.6	28.8	30.2	30.6
Leisure & Hospitality Services		32.3	35.8	37.6	38.7	39.2
Other Services		15.8	15.8	15.9	16.6	16.7
Government		67.6	67.5	67.3	68.1	68.3
Federal		7.8	7.7	7.5	7.8	7.8
State		14.7	14.3	14.1	14.1	14.1
Local		45.2	45.5	45.6	46.2	46.4

Table 2 - Wyoming Housing

Housing	Units	2020	2021	2022	2023	2024
Total Residential Permits	#, Seasonally Adjusted Annual Rate	2,128	2,706	3,004	1,603	2,006
Single-family	#, Seasonally Adjusted Annual Rate	1,768	2,158	1,924	1,393	1,653
Multifamily	#, Seasonally Adjusted Annual Rate	360	548	1,080	210	353
Total starts	#, Seasonally Adjusted Annual Rate	2,093	2,699	2,767	1,781	1,953
Single-family	#, Seasonally Adjusted Annual Rate	1,890	2,279	2,067	1,410	1,686
Multi-family	#, Seasonally Adjusted Annual Rate	203	420	699	372	267
Existing single-family sales	Thousands., Seasonally Adjusted Annual Rate	13.0	14.0	10.5	9.2	8.1
Med. exist. single-family price	\$, Seasonally Adjusted Annual Rate	323.7	370.5	412.6	427.5	420.1
FHFA home price	1995Q1=100, NSA	341.1	380.6	439.7	453.4	438.8
Affordability	Index	148.8	136.0	95.9	83.4	88.1



Table 3 - Wyoming Demographics

Demographics	Units	2020	2021	2022	2023	2024
Total population	Thousands	577.6	579.5	581.4	584.6	586.6
Population: 00-04	Thousands	33.4	32.3	31.4	31.2	31.0
Population: 05-19	Thousands	114.8	114.8	113.7	112.8	111.5
Population: 20-24	Thousands	37.4	37.7	37.7	37.5	37.3
Population: 25-44	Thousands	150.2	150.7	150.5	151.0	150.8
Population: 45-64	Thousands	141.4	140.0	138.4	137.9	137.6
Population: 65 and older	Thousands	100.3	104.0	109.8	114.2	118.4
Households	Thousands	242.0	243.9	247.8	249.0	250.1
Birth rate	%	10.8	10.6	10.7	11.0	11.2
Death rate	%	9.6	10.7	11.5	10.3	9.3
Net Migration	Thousands	-1.5	1.9	2.5	2.9	0.9

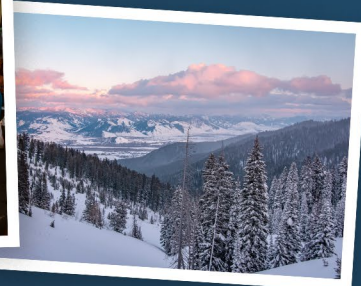


Table 4 - Wyoming Income

Income	Units	2020	2021	2022	2023	2024
Nominal personal Income	Mil. \$, Seasonally adjusted annual rate	37,974	40,323	41,517	43,904	45,241
Real personal Income	Mil. Inflation-adjusted \$, Seasonally adjusted annual rate	34,169	34,891	33,792	34,473	34,665
Wages & Salary	Mil. \$, Seasonally adjusted annual rate	14,591	15,426	16,918	17,920	18,624
Nonwage	Mil. \$, Seasonally adjusted annual rate	23,383	24,896	24,599	25,984	26,617
Residence Adjustment	Mil. \$, Seasonally adjusted annual rate	-279	-350	-381	-400	-413
Contrib. for Social Insurance	Mil. \$, Seasonally adjusted annual rate	2,740	2,870	3,140	3,328	3,461
Dividends, Interest & Rent	Mil. \$, Seasonally adjusted annual rate	11,393	12,168	12,789	13,483	13,929
Farm Proprietors	Mil. \$, Seasonally adjusted annual rate	87	96	13	123	149
Nonfarm Proprietors	Mil. \$, Seasonally adjusted annual rate	4,453	4,532	4,678	4,827	4,836
Wage/Salary Supplements	Mil. \$, Seasonally adjusted annual rate	3,963	4,219	4,502	4,731	4,873
Transfer Payments	Mil. \$, Seasonally adjusted annual rate	6,506	7,101	6,137	6,548	6,705
Nominal disposable. personal income	Mil. \$, Seasonally adjusted annual rate	34,345	36,030	36,177	39,105	40,507
Real disposable personal income	Mil. Inflation-adjusted \$ Seasonally adjusted annual rate	30,905	31,180	29,445	30,705	31,037
Average household income	\$, Seasonally adjusted	156,907	165,012	167,520	176,217	180,778
Median household income	\$, Seasonally adjusted annual rate	66,432	65,204	67,208	71,169	72,936
Nominal per capita personal income	\$, Seasonally adjusted annual rate	65,718	69,548	71,340	75,062	77,109
Real per capita person income	Inflation-adjusted \$, Seasonally adjusted annual rate	59,134	60,181	58,066	58,939	59,083

The national economy's likelihood of falling into a recession poses a downside risk for Wyoming's economic outlook. The continued decline in employment, wage and income contribution, and contribution to gross state product in the coal mining industry is offset somewhat by high oil and gas prices and a strong and growing outlook for trona. In addition, pockets of manufacturing clusters, notably in Sheridan and Casper, along with strong business startup numbers, point to potential positives for the state. Fin-tech and digital innovation are interesting but not likely to lead to an increase in domiciled businesses and enough employment to offset the structural decline of coal. The continued problems of lack quality, affordable housing; lack of agglomeration economies due to low population numbers; challenges in accessing childcare for workers; brain drain among our college graduate population and a decline in the prime-working age population; low college-going numbers; and connectivity challenges, including road, air, and internet connectivity, cloud Wyoming's mid- and long-term growth prospects.





The University of Wyoming College of Business offers an education and a student experience like no other. Housed in a multi-million-dollar facility, we combine state-of-the-art technology with world-class design and functionality. We aspire to be the premier provider of ethical business leaders in accounting, administration, environment, ethics, finance, management, marketing and beyond.

The College of Business is committed to equipping our students with a degree and knowledge in sustainable business practices to benefit the state of Wyoming and our nation. Our students leave prepared to pursue meaningful, impactful careers.

As an AACSB Accredited Business School - a standard of quality and excellence held by fewer than 5% of business schools worldwide - UW students are guaranteed an education that meets industry expectations and prepares you to make an immediate impact. Every business major will walk away with a toolbelt ready for any business endeavor.



The Center for Business and Economic Analysis (CBEA) supports the economic growth and diversification of Wyoming's economy through applied economic and business analytics for communities, industries, and entrepreneurs who desire a thriving and prosperous Wyoming. The center was established in 2019 as a unit within the College of Business at the University of Wyoming. CBEA is a member of the Association for University Business and Economic Research (AUBER).

Thank You's and Partners

The UW CBEA is indebted to our partners in this inaugural economic outlook for Wyoming.

- The Wyoming Business Council for commissioning this outlook.
- The Wyoming Business Alliance for providing us with a forum to present the summary findings.
- Interviewees including Florian Hermann of Hermann Global, Dallin Cooper of DallinCooper.com, Mike Peck of First Interstate Bank, Beth Worthen of the Natrona Collective Health Trust, Tori Campbell of Mizzen Energy Solutions, Lisa Burridge of Lisa Burridge & Associates Real Estate, Greg Dixson of Hilltop Bank, Dixie Johnson of the Sheridan County Chamber of Commerce, Stu McRae of the City of Sheridan, and others.