FOUNDATIONS
for a better
ENERGY FUTURE

2020

Energy Successes Realized Under
Governor Gary R. Herbert's
Administration

UTAH GOVERNOR'S OFFICE OF
ENERGY DEVELOPMENT

FOUNDATIONS *for a better* ENERGY FUTURE

Energy Successes Realized Under
Governor Gary R. Herbert's
Administration

UTAH GOVERNOR'S OFFICE OF
ENERGY DEVELOPMENT

STATE OF UTAH

GARY R. HERBERT
GOVERNOR

OFFICE OF THE GOVERNOR
SALT LAKE CITY, UTAH
84114-2220

SPENCER J. COX
LIEUTENANT GOVERNOR

October 2020

Dear Reader,

Utah is the best state in the nation to live, work and raise a family. Our great state features a high quality of life and a booming economy. As we reflect on the past 10 years and look forward to the next 10 and many more beyond, energy development has been and will continue to be an essential element of Utah's success.

Utah is an energy-rich state — home to significant reserves of petroleum, natural gas and coal, as well as renewable resources, including solar, wind, hydropower and geothermal.

As a result of our abundance of resources, I felt that it was essential to create a strategic 10-year energy plan and form the Governor's Office of Energy Development. With the right pieces in place, Utah has the capability of solving some of the world's most pressing energy challenges.

I am grateful to the many individuals who played a part in the tremendous energy accomplishments of the past 10 years. Your work has made a positive impact for millions of people across the state. And with the energy foundation that's now in place, I'm looking forward to an even better energy future for Utah in the years to come.

Sincerely,

Gary R. Herbert
Governor

Introduction

From the beginning of his administration, Governor Herbert recognized the importance of energy in driving economic opportunity and a high quality of life. Throughout his 10 years in office, Utah has had one of the nation's top-performing economies. Forbes has consistently ranked Utah at or near the top of its "Best States for Business" list thanks to the state's business-friendly environment and below-average energy costs.[1]

Affordable, reliable and cleaner energy options have played a crucial role in Governor Herbert's successful formula for providing smart, market-based economic growth while also protecting Utah's environment and high quality of life. More recently, the resilience of Utah's economy has been shown in its recovery from the many challenges presented by the pandemic, including currently having one of the nation's lowest unemployment rates.[2]

1 Forbes Best States for Business - Utah
2 Utah Department of Workforce Services

Governor Herbert recognized early on the importance of making strategic investments in Utah's energy infrastructure, technology and education. Through thoughtful and consistent investment in these three areas, he established one of the nation's most diverse and dynamic energy economies and positioned Utah for even greater energy opportunities in the future. The strategic planning that laid the foundation for this energy vision began on day one of Governor Herbert's administration.

10-Year Energy Plan

In his 2010 State of the State address, Governor Herbert announced his intent to create the 10-Year Strategic Energy Plan. His goal was to pair Utah's rich abundance of diverse natural resources with its innovative and entrepreneurial spirit to ensure that the state could provide the leadership needed to help solve the world's most pressing energy challenges.

Summary of Recommendations from the 10-Year Strategic Energy Plan

- Meet projected energy growth demands in a balanced and responsible manner
- Develop new, cutting-edge technologies
- Update the regulatory environment to support today's business needs
- Facilitate the expansion of responsible development of Utah's energy resources
- Enhance partnerships among industry, universities, local communities and government
- Ensure Utah's continued economic development through access to our clean and low-cost energy resources
- Create new and support existing energy-related manufacturing opportunities
- Promote energy efficiency, conservation and peak consumption reductions
- Pursue opportunities for Utah to export fuels, electricity and technologies
- Collaborate with other western states to present a strong, unified voice to federal agencies

Governor Herbert organized a task force to develop the plan. Over the next 12 months, energy experts convened, created subcommittees to focus on individual aspects of Utah's diverse energy ecosystem and worked with stakeholders across all of Utah's 29 counties.

In 2011, the pioneering 10-Year Strategic Energy Plan was released and the Governor's Office of Energy Development (OED) was created to help deliver on Utah's forward-looking energy policy. The plan recognized the value of local, regional and national leadership on energy and minerals matters to improve responsible energy development, infrastructure investment, technological advancements and workforce development. Ten fundamental recommendations for advancing Utah's energy economy over the coming decade were outlined.

The plan was updated in 2014 and included the Utah Energy Efficiency and Conservation Plan (EECP). Building on the 10-Year Strategic Energy Plan, the EECP defined 26 recommendations for energy efficiency and conservation improvements in transportation, the industrial sector and buildings. Additionally, the EECP identified key strategies for policy and energy education. OED, in partnership and coordination with agencies, sectors, the Legislature and many other stakeholders, has delivered on all 26 recommendations from the EECP.

Energy Action Plan

OED has delivered significant results while also responding to ongoing market, technical and policy changes across the energy space. To help accelerate the ongoing work of implementing the Governor's 10-Year Strategic Energy Plan and State Energy Policy, the Energy Advisory Committee convened to develop the Energy Action Plan through 2020, which was released in May 2018.

Governor Herbert's 10-Year Strategic Energy Plan, Energy Efficiency and Conservation Plan and Energy Action Plan through 2020 established a comprehensive framework for energy policy considerations in a rapidly-evolving energy economy. They have propelled Utah to global recognition and enabled a number of critical successes.

Summary of Recommendations from the Energy Action Plan through 2020

- Target rural business development
- Expand education initiatives
- Continued improvement in Utah energy efficiency investments
- Engage in policy and regulatory matters
- Increase energy communications
- Support energy research, demonstration and development initiatives
- Continue to organize energy and minerals events
- Infrastructure development for alternative fuels
- Expand regional engagement
- Advance the air-energy nexus

2010-2020 Key successes

Utah's strategic investments in energy infrastructure, technology and workforce development built a lasting foundation for affordable, reliable and cleaner energy options and created direct economic opportunities in energy – especially in rural Utah.

INFRASTRUCTURE

Enhancing Utah's and the nation's infrastructure has been a critical component of Utah's economic growth over the past decade. OED administers several post-performance energy and infrastructure incentives. These incentives are especially important for many rural communities where energy and infrastructure are the foundation for their local economy.

High Cost Infrastructure Tax Credit

The High Cost Infrastructure Tax Credit (HCITC) program, administered by OED, was created in 2016 to incentivize significant private investment in infrastructure to expand or create new industrial, mining, manufacturing or agriculture activity in Utah. The Utah Energy Infrastructure Authority Board has since authorized 14 infrastructure projects for the High Cost Infrastructure Tax Credit, including 3 refinery upgrades for the production of Tier 3 fuel. Total private investment associated with HCITC projects is $2.73 billion, with $1.69 billion occurring in rural Utah.

Production Tax Credit

From 2014 to 2016, Utah experienced a large increase in utility-scale renewable energy projects, including 27 solar PV projects and one wind project. Assisted by the Production Tax Credit administered by OED, the estimated investment for the additional 850 MW of solar and 62 MW of wind was $1.8 billion. Renewable energy projects are eligible for a tax credit based on the amount of electricity they produce for the first 48 months of operation. During 2019 and 2020, four new solar PV projects entered commercial operations with an additional three projects under construction.

Renewable Energy Systems Tax Credit

Utah offers a tax credit for renewable energy generating systems for residential and commercial installations. Solar PV has accounted for almost all the tax credits issued by OED and continues to be popular. In the last decade, Utah experienced large growth in residential system installation. Since 2015, more than 25,000 residential tax credits for solar PV systems have been issued, and it is projected that an additional 3,500 installations will be completed in 2020.

In addition to administering incentives aimed at infrastructure development, OED also helps enhance infrastructure planning. In 2018, with our partners at Utah Geological Survey and Utah State University, OED led a two-year U.S. Department of Defense study on joint land use for renewable energy development siting compatible with Utah's military operations.

2010-2020 Infrastructure Highlights

The HCITC provides critical support to develop technical and complex infrastructure systems that leverage new and existing resource investment potential.

HCITC PROJECTS INCLUDE:

- A facility in Carbon County for short-term storage of Uinta Basin waxy crude awaiting rail transport to refineries
- Expansion of critical road, water and power infrastructure to support the expansion of two agriculture projects in Millard County
- Replacement or expansion of electrical transmission, road, sewer and water for a data center in Utah County
- New infrastructure including roads, natural gas pipeline, electrical transmission and a substation to support two mining projects in Millard and Juab counties
- Expansion of rail infrastructure in Salt Lake County facilitating first/last mile transport

TECHNOLOGY

Utah's State Energy Policy and Governor Herbert's forward-looking energy vision have helped drive the development of new technologies and solutions by Utah universities and businesses for deployment in Utah, the nation and the world.

Utah has also attracted significant U.S. Department of Energy (U.S. DOE) investments, including a new geothermal research laboratory in rural Utah and State Energy Program funding. Additionally, multiple U.S. Secretaries of Energy have provided keynote remarks at the Utah Governor's Energy Summit – the largest event of its kind in the West.

2010-2020 Technology Highlights

U.S. DEPARTMENT OF ENERGY NATIONAL LABORATORY BROUGHT TO UTAH

In 2018, the U.S. DOE selected the University of Utah to receive up to $140 million in continued funding over the next five years for cutting-edge geothermal research and development. After

Wasatch Resource Recovery, a public-private partnership between ALPRO Energy & Water and the South Davis Sewer District, utilized the HCITC to build Utah's first anaerobic digester for creating natural gas from food waste.

three years of planning, site characterization and competition, the proposed site outside of Milford, Utah, was selected as the location of the Frontier Observatory for Research in Geothermal Energy (FORGE) field laboratory. This FORGE site is dedicated to research on enhanced geothermal systems (EGS) or man-made geothermal reservoirs. EGS can help diversify the U.S. domestic energy portfolio, enhance energy access and increase energy security. The FORGE site is expected to create 23 new jobs in rural Utah, with an average full-time wage of $94,000 per year. FORGE-related capital investment in Utah is expected to exceed $100 million.

IMPROVING AIR QUALITY WITH TIER 3 FUEL

Transportation accounts for the majority of emissions along the Wasatch Front, and Tier 3 fuels dramatically reduce emissions, which in turn significantly improves air quality. When Tier 3 fuels are used in a newer vehicle (model year 2017 and newer) tailpipe emissions are reduced by up to 80 percent. Even for older vehicles, Tier 3 fuels help reduce emissions.

Under the leadership of Governor Herbert, the Utah Legislature worked with OED and key petroleum stakeholders to accelerate refinery upgrades for the production of Tier 3 Fuels in Utah. Fuel Standard Compliance projects were added to the HCITC, providing a non-refundable, post-performance tax incentive. Chevron, Marathon and Silver Eagle are now producing Tier 3 fuels. Holly Frontier has committed to producing Tier 3 fuels by the end of 2020.

STORAGE INNOVATION

At the 2019 Utah Governor's Energy Summit, Governor Herbert announced the Advanced Clean Energy Storage project, a partnership with Mitsubishi Power Americas and Magnum Development, for developing 1,000 MW clean energy storage combining underground and above ground renewable energy storage technologies in central Utah.

Bryce Canyon solar project


Kennecott mine

COAL TO CARBON FIBER

A multimillion-dollar research program underway at the University of Utah is working to develop cost-effective, carbon-friendly methods of turning coal-derived pitch into carbon fiber composite material. Combining Utah's vast coal resources with advanced research and state-of-the-art manufacturing is expected to create groundbreaking products from coal — including carbon fiber for vehicles and airplanes, carbon-based building materials, medical technology devices and more.

HELIUM

Chemically inert and a liquid at temperatures near absolute zero, helium is a valuable resource found in Utah. Most commonly a natural gas byproduct, helium extraction typically occurs in the east-central part of the state. Helium has uses beyond balloons and blimps that include cooling in medical MRI scanners, production of computer chips, inflation of automotive airbags and manufacture of fiber optic cables. In 2019, the Lisbon Valley Natural Gas Plant in San Juan County resumed separating and purifying helium from natural gas produced from nearby fields.

NUCLEAR ENERGY POTENTIAL

In the report, *Nuclear Energy Overview: A Utah Perspective*, the Idaho National Laboratory assessed the viability of a nuclear power option in the state. Utah's state energy policy supports the development of reliable, affordable and cleaner energy resources. Under this policy, the state is directed to promote the development of nuclear power generation technologies certified for use by the United States Nuclear Regulatory Commission including molten salt reactors producing medical isotopes.

WOODY BIOMASS

Certain types of woody biomass, such as Pinyon and Juniper trees, have overgrown many rangelands in the western U.S. A goal of state and federal forestry programs is to emphasize invasive forest and woodland biomass utilization. Several Utah-led projects have explored ways to use this resource to create jobs and to help reduce the cost of forest management and help reduce wildfire risk. At the University of Utah, scientists have investigated co-firing of pulverized coal with Pinyon and Juniper for power production. Utah

State University researchers have studied the potential to produce biochar, a soil amendment, from Pinyon and Juniper biomass.

WORKFORCE DEVELOPMENT

Energy not only provides well-paying jobs, but it is also a key source of funding for Utah's schools. When Utah became a state in 1896, congress granted parcels of land to the State, with revenue from the sale or lease of the land being placed into endowments for certain public institutions, including the public education system. Today, Utah has 3.4 million acres of trust land, and energy and mineral leases, rent and royalties continue to be an important source of revenue for Utah's schools. Under the leadership of the State of Utah School and Institutional Trust Lands Administration (SITLA), $1.96 billion in revenue has been generated since 1994, growing permanent funds to $2.5 billion.[3]

3 State of Utah School and Institutional Trust Lands Administration

2010-2020 Workforce Development Highlights

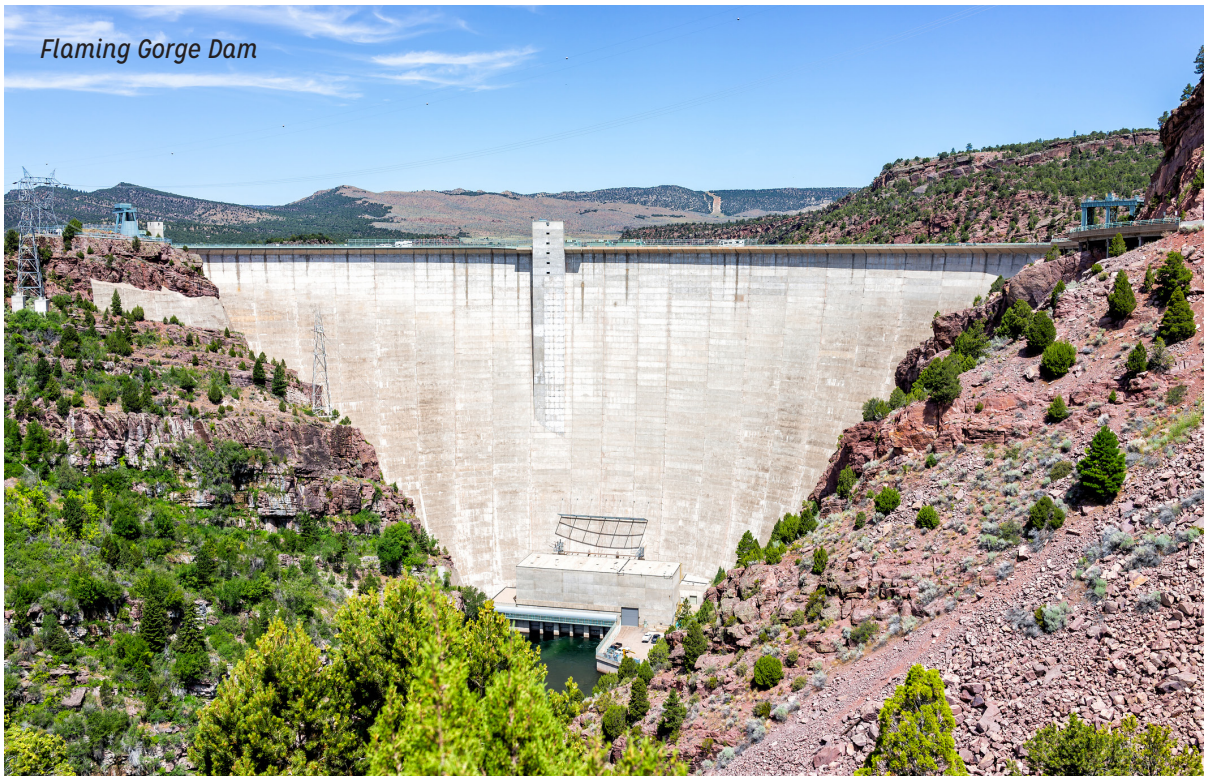
UTAH ENERGY EDUCATION INITIATIVE

A highly skilled energy workforce is vital to the state's continued economic prosperity, energy independence and reliable, affordable and cleaner energy supply.

To continue to build Utah's energy workforce, OED partnered with SITLA; the Utah Geological Survey; the Division of Oil, Gas and Mining; the Utah STEM Action Center and private-sector partners to launch the Utah Energy Education Initiative, aimed at providing resources for educators, parents and students. Key elements of the initiative include the following:

- 30 K-12 energy lesson plans, created in partnership with the Utah Science Teachers Association, available free of charge at energy.utah.gov

Photo by: Michael Vanden Berg, UGS


Flaming Gorge Dam

- Accessible, energy-focused professional development events that also provide teachers with continuing education credits
- The Energy and Minerals Career Expo, in partnership with the University of Utah, brings together more than a dozen companies and 150 students annually
- The Energy and Minerals corner at the annual Utah STEM Fest event
- The Utah Energy Workforce Scholarship – with the generous support of Chevron, more than $92,000 in scholarships have been awarded to Utah students since 2016

IMPROVING PUBLIC SCHOOL BUILDINGS

Through its revolving loan program, OED funded nearly $5 million in new energy efficiency and renewable energy projects across Utah's public schools and other publicly-owned buildings. Energy upgrades to public school buildings provide a more comfortable learning environment, promote energy savings and can reduce energy expenses, which in turn, can help extend schools' budgets for supplies, teacher salaries and other needs.

BUILDING ENERGY CODE TRAINING

In partnership with Rocky Mountain Power and Dominion Energy, OED launched an accredited statewide training program on residential and commercial building energy codes. The events have provided thousands of participants with hands-on training from regional and national experts and an online repository of state-specific technical resources.

NEW ENERGY PROGRAMS AT UTAH INSTITUTIONS

The University of Utah created its masters of petroleum engineering program and Salt Lake Community College launched its associate of applied science in energy management.

Trends

This section identifies major factors and trends in the energy sector. Identifying and understanding these trends informs this document's recommendations for supporting and advancing Utah's energy future. The trends observed in the energy sector are being impacted by the pandemic and are likely to continue to shift over time as the pandemic evolves.

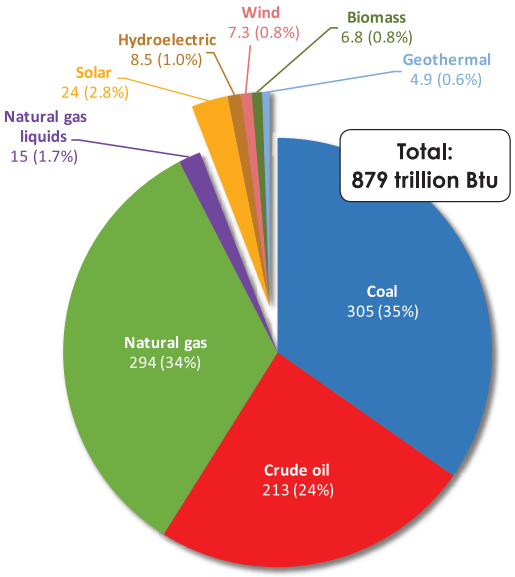
Overview of Utah's Resources

Located in the heart of the Western Energy Corridor, Utah has a rich abundance of diverse energy resources, including traditional, renewable and alternative. The responsible development of these energy resources, including petroleum, natural gas, coal, uranium, geothermal, solar, wind and hydropower, has positioned Utah as a net-exporter of energy.[4] As Utah continues to invest in strategic energy infrastructure and technology, Utah will be able to further expand its energy leadership and ability to supply diverse, affordable and cleaner energy options to Utah's households and businesses while also growing the state's energy exports.

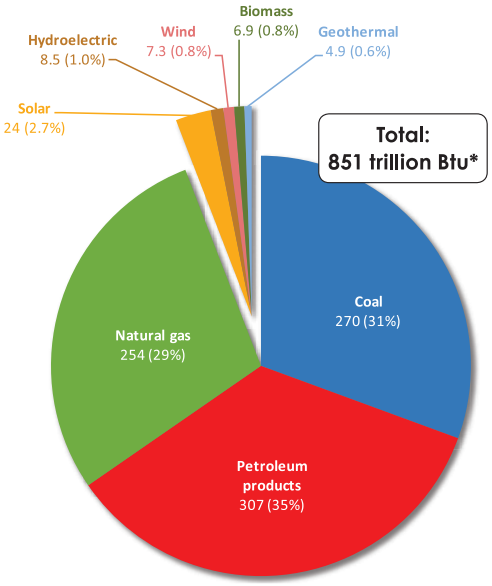
Production and Consumption

Utah's energy production totaled 879 trillion British thermal units (Btu) in 2018, with traditional resources making up 94% of Utah's total energy production, while renewable resources accounted for 6% of the state's total production portfolio. Traditional resources made up 94% of Utah's total energy consumption in 2018, while renewable sources accounted for 6% of Utah's consumption. Utah exported 32 trillion Btu of electricity (including losses) in 2018, resulting in a net total consumption of 851 trillion Btu.

2018 Energy Production in Utah by Source[5]



2018 Energy Consumption in Utah by Source[6]



4 https://ugspub.nr.utah.gov/publications/circular/c-121.pdf
5 https://geology.utah.gov/circular-127-utahs-energy-landscape-5th-edition/
6 https://ugspub.nr.utah.gov/publications/circular/c-127.pdf

Figure 2, below, illustrates Utah's energy consumption and production sources from 2007 to 2018, highlighting some of the trends in Utah's energy production and consumption. Over this timeframe, there has been an upward trend in renewable energy consumption and production in Utah; this pattern holds true in overall U.S. data.

Natural gas production peaked in Utah in 2012 and has since trended downward. Natural gas consumption in the state has remained relatively stable over this period. Crude oil consumption has also remained relatively stable from 2007 to 2018, although production has increased modestly over this time. U.S. trends over the last ten years, and projections through 2050,[7] show the production of natural gas and crude oil continuing to increase.[8] Utah coal production rebounded to 14.3 tons in 2019 as the foreign export market continued to grow, which offset lower demand at regional power plants and industrial facilities.[9]

According to the International Energy Outlook 2040 Reference Case, there is sustained long-term global demand for oil, natural gas and coal. Consumption of natural gas worldwide is projected to increase from 120 trillion cubic feet (Tcf) in 2012 to 203 Tcf by 2040.[10] As a result of growing global demand, the U.S. has seen an expansion of domestic port capacity for energy exports to global markets, especially Asian markets. To help meet growing global demand for energy, OED has led efforts to increase market access for Utah's commodities through MOUs with Mexico, tribal nations and other western states.

The anticipated changes in Utah's consumption and production demonstrate diversification of the energy portfolio occurring throughout the United States. Utilization of renewable resources is forecasted to increase as costs continue to decline and energy storage technology and new transmission options become available.[12] A recent report prepared for the Western Interstate Energy Board evaluated a potential electrical resource mix to meet state energy goals in the western region, which according to the model resulted in a substantial increase in wind and solar over the coming years.[13]

7 EIA Office of Energy Analysis, Annual Energy Outlook. January 2020. Accessed August 2020. Available here: https://www.eia.gov/outlooks/aeo/
8 EIA Monthly Energy Review, Table 1.2 Primary Energy Production by Source. Accessed September 2020. Available here: https://www.eia.gov/totalenergy/data/monthly/pdf/mer.pdf
9 https://ugspub.nr.utah.gov/publications/circular/c-127.pdf
10 EIA, The International Energy Outlook, 2040 Reference case. May 2016. By energy source, natural gas accounts for the largest increase in world primary energy consumption. Available here: https://www.eia.gov/outlooks/ieo/pdf/nat_gas.pdf (also see https://www.iea.org/topics/naturalgas/)
11 EIA State Energy Data System ("SEDS"). Accessed: September 2020. Available here: https://www.eia.gov/state/data.php?sid=UT
12 https://www.eia.gov/outlooks/aeo/
13 Prepared by Energy Strategies (under Agreement with the Western Interstate Energy Board), Western Flexibility Study: Investigating the West's Changing Resource Mix and Implications for System Flexibility. December 2019. Available here: https://westernenergyboard.org/wp-content/uploads/2019/12/12-10-19-ES-WIEB-Western-Flexibility-Assessment-Final-Report.pdf.

Figure 2: Utah Energy Consumption and Production 2007-2018[11]

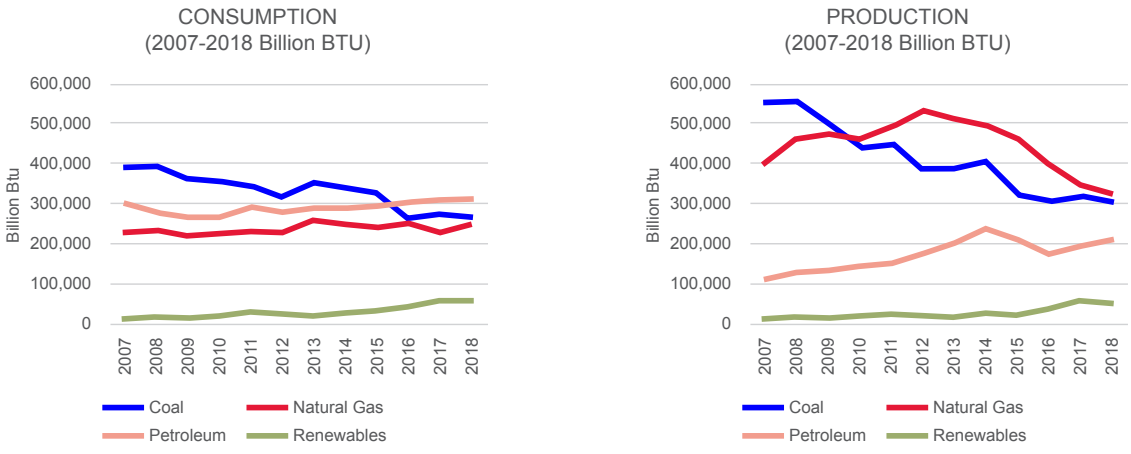
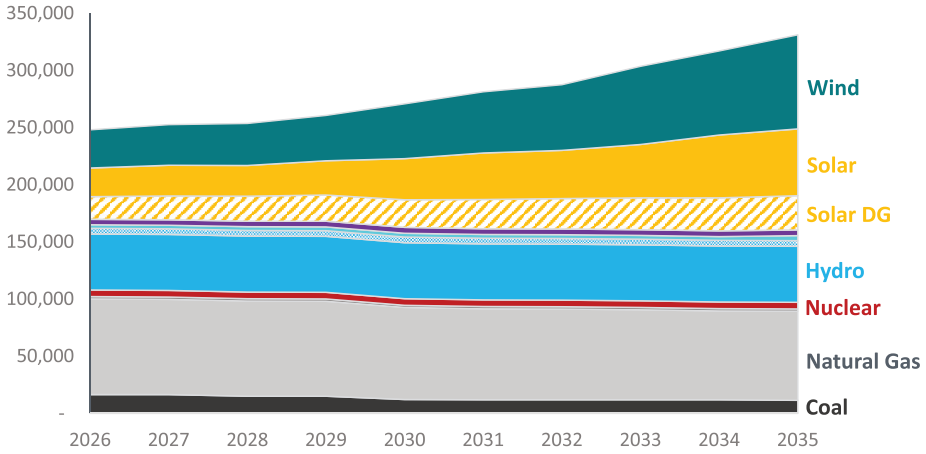


Figure 3: Western States' Cumulative Projected Generation Capacity 2026-2035 (MW)[14]



A June 2019 report by the National Renewable Energy Laboratory estimates that four-hour battery costs could be reduced up to 67% by 2030 and up to 80% by 2050.[15] With energy storage already growing on the Western grid,[16]additional energy storage is expected to be added to the system as certain regions experience the need for electricity generation and capacity resources during times when solar energy output is reduced or unavailable.

As policy discussions are underway across the region, OED continues to play a key role in the analysis of regional proposals in order to advance Utah's interests in affordable, reliable and cleaner energy systems. Access to broader electricity markets may offer Utah the potential for lower customer costs and expanded markets for generation, but must be implemented in a way that protects Utah's self-determination, economy and employment.

Currently, the COVID-19 pandemic is expected to decrease energy consumption and production in 2020.[17] A recent McKinsey & Company analysis illustrates that crises, such as the pandemic, tend to follow four phases in terms of commodity pricing and the dynamic between supply and demand: (1) price shock, (2) demand shock, (3) new demand/supply equilibrium, and (4) demand recovery and price rebound;[18] as of July 2020, the energy and mining economy is experiencing phases 2 and 3. The trajectory of the current crisis will determine how and when the energy and mining sectors are able to move to phase 4 and how robust the demand recovery and price rebounds will be.

Emissions Reductions

Over the past decade, Utah has taken a number of steps to substantially reduce air emission and improve air quality. OED has been directly involved in supporting significant investment by Utah's refineries in cleaner Tier 3 fuels. New Tier 3 fuel production by Utah's refineries is significantly reducing emissions from mobile sources (the largest source of emissions). OED has also led DOE-funded efforts to improve industrial, residential and commercial energy efficiency in Utah. According to EIA historical data, Utah's total energy-related emissions from carbon dioxide has trended downward since 2013 in spite of population growth. As shown in

14 Id. Figure 18: Western States Cumulative Generation Capacity (MW), Baseline Case.
15 National Renewable Energy Laboratory. Cost Projections for Utility-Scale Battery Storage. June 2019. Available here: https://www.nrel.gov/docs/fy19osti/73222.pdf
16 California Energy Storage Alliance website. Accessed September 2020. Available here: https://www.storagealliance.org/
17 EIA. Short Term Energy Outlook. August 2020. Accessed August 2020. Available here: https://www.eia.gov/outlooks/steo/archives/aug20.pdf
18 McKinsey & Company. Lessons from the past: Informing the mining industry's trajectory to the next normal. July 2020. Available here: https://www.mckinsey.com/industries/metals-and-mining/our-insights/lessons-from-the-past-informing-the-mining-industrys-trajectory-to-the-next-normal#

Figure 4: Utah Historical Energy Related CO2 Emissions by Sector 1990-2017[19]

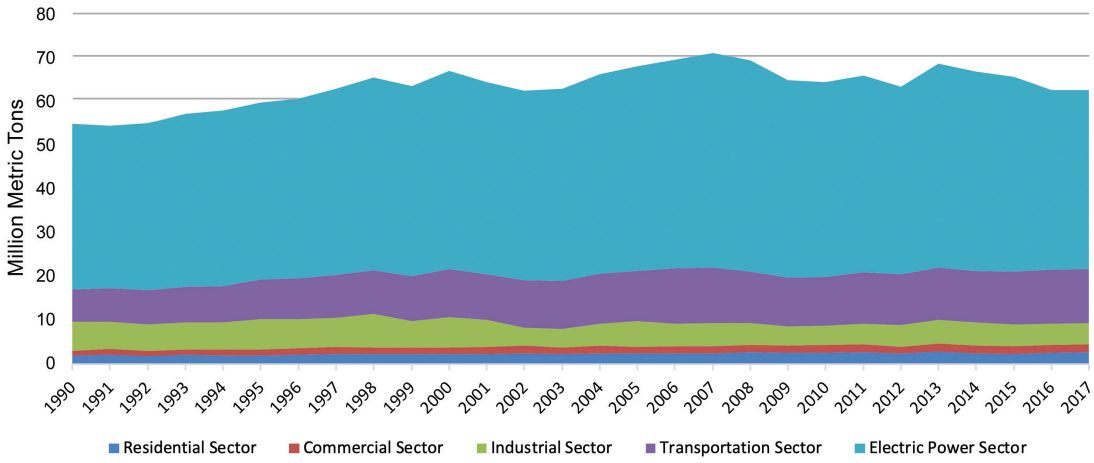


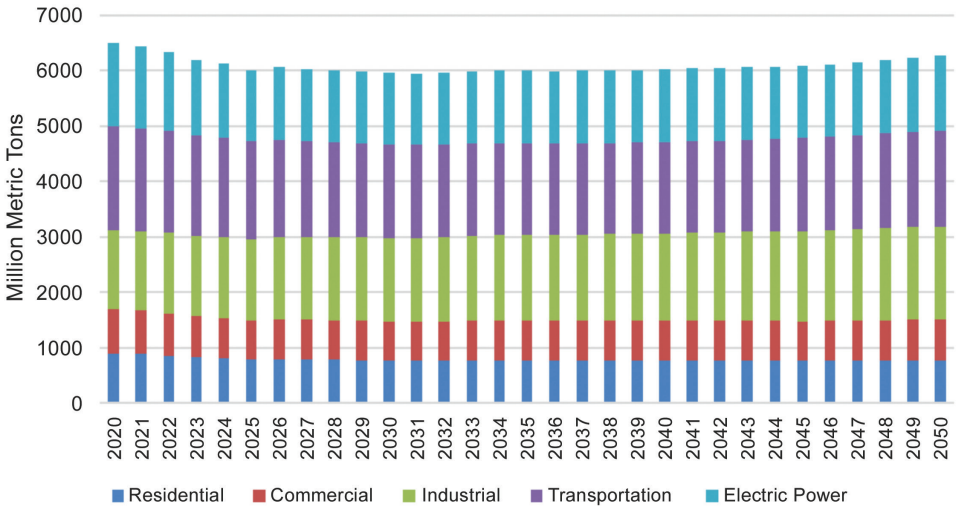
figure 4, historically the electric power sector makes up the largest share of CO_2 emissions followed by transportation, industrial, residential and commercial.

Overall, U.S. emissions are projected to decrease over the coming years (as shown in figure 5 below). This may be accelerated with reduced energy usage resulting from the pandemic, which is not factored into these EIA projections. According to the EIA's Annual Energy Outlook: "Total energy-related carbon dioxide emissions will resume modest growth in the 2030s, driven largely by increases in energy demand in the transportation and industrial sectors; however, by 2050, these emissions remain 4% lower than 2019 levels."[20]

On a state, national and global level, there are multiple policy initiatives aimed at addressing greenhouse gas emissions, including advancing technologies for reducing carbon emissions from traditional sources and improving storage options to support expanded renewable

19 EIA. Utah Carbon Dioxide Emissions from Fossil Fuel Consumption (1980-2017). Accessed September 2020. Available here: https://www.eia.gov/environment/emissions/state/
20 EIA Office of Energy Analysis, Annual Energy Outlook. January 2020. Accessed August 2020. Available here: https://www.eia.gov/outlooks/aeo/
21 EIA. Table 18: Energy-Related Carbon Dioxide Emissions by Sector and Source. Accessed September 2020. Available here: https://www.eia.gov/outlooks/aeo/data/browser/#/?id=17-AEO2020&cases=ref2020&sourcekey=0

Figure 5: U.S. Projected Energy Related CO_2 Emissions by Sector 2020-2050[21]



deployment; as well as encouraging innovative building design, industrial efficiencies and diversification of transportation fuels. Utah has a renewable energy standard goal for utilities to pursue renewable energy if it is cost effective – the goal is to achieve 20% adjusted retail electricity sales from solar, wind, geothermal, hydroelectric, hydrogen, municipal solid waste, landfill gas or farm animal manure by 2025.[22]

Utah's Energy Economy, Population and Tax Revenues

Utah's diverse portfolio of energy resources not only supports the overall economy by providing affordable energy, but it also makes up a significant share of the state's economy. Utah's retail energy prices are among the lowest in the nation,[23] which furthers Utah's current and future economic growth opportunities. Energy jobs in Utah have an average annual earnings of $89,300, which is nearly double the statewide average annual wage of $51,500. The total value of energy-related production in Utah totaled $4 billion in 2018.[24]

22 U.S Energy Information Administration, State Profiles and Energy Estimates. Accessed August 2020. Available here: https://www.eia.gov/state/analysis.php?sid=UT
23 https://www.eia.gov
24 https://ugspub.nr.utah.gov/publications/circular/c-127.pdf

Energy will continue to be an important contributor to state revenue, jobs and GDP as the economy expands and population increases. Real gross domestic product in Utah increased by 3.8% from 2018 to 2019, higher than the national level of 2.3%.[25] In terms of population, Utah is among the fastest-growing states in the nation. Utah's population reached three million people in 2015, and growth from 2010 to 2020 is estimated to be around 16%.[26] This growth in GDP and population is forecasted to drive increased energy demand into the foreseeable future.

Utah's abundant, diverse resources and wise approach to energy has underpinned its successful formula over the last decade. Continuing to effectively address energy trends with market-based solutions will advance the long-term success of Utah's energy and minerals economies, along with Utah's overall economy and quality of life.

25 U.S. Bureau of Labor Statistics, Gross Domestic Product by State: 4th Quarter and Annual 2019. Available here: https://www.bea.gov/news/2020/gross-domestic-product-state-4th-quarter-and-annual-2019
26 https://www.census.gov/

Blundell Geothermal facility

Looking Ahead: Opportunities

Because energy is essential to our modern economy and standard of living, solving energy and environmental challenges will be one of the defining issues in the coming years.

With the foundation put in place over the last decade, the state is well-positioned for a strong recovery, and Utah can realize a bright future through access to our diverse and abundant energy resources by strategically investing in:

- Technology
- Infrastructure
- Workforce development
- Smart growth economic recovery strategies
- An independent, technically-focused state energy office

Technology

Energy provides a unique opportunity to support significant technology research, development and demonstration in Utah. OED is working with university and industry partners to grow existing and establish new major technology hubs in rural Utah.

Initial target areas for innovation centers include:

- Carbon and Emery counties for advanced coal innovation and strategic minerals utilization
- Duchesne and Uintah counties for advanced oil and gas innovation
- Beaver and Millard counties for advanced renewable energy and storage opportunities

Infrastructure Investment

Strategic infrastructure investment is critical to driving future energy development opportunities, including access to global markets. Forward-looking infrastructure investment also provides opportunities for continued technological innovation in the energy sector. Wise infrastructure investment will be one of the most important drivers of competitive success in the coming years.

Utah's rural communities are central to building the energy and minerals economy of the future and supporting a diverse economic foundation for Utah's overall economy. Along with natural resource development, new infrastructure for

transporting rural Utah's abundant commodities to domestic and global markets will be key to Utah's future energy and economic success.

Additionally, opportunities for the development of new utility-scale power generation projects will be largely dependent on access to transmission. Today, there is limited available capacity to accommodate new resources on existing transmission systems. And much of the available capacity is already targeted for bringing on new energy developments like wind and solar. Strategic new transmission investment can support the export of energy produced from Utah's diverse resources to other demand (load) centers across the West and add to Utah's positive energy export profile.

Energy Education and Workforce Development

Education is key to upward mobility. Investment in workforce development can promote access to the state's high-performing economy for all Utahns and increase prosperity, especially in rural Utah.

In the coming years, it will be critical to prepare the incoming workforce and retrain displaced workers by delivering accessible energy education aligned with industry-identified needs. Effective deployment of education initiatives can bolster interest in lucrative energy careers and promote innovation.

As we look to the future, creating strategic rural energy centers, in partnership with

Utah universities, state and local government and industry, will drive deployment of new technologies, bridge innovative pathways, leverage existing resource development, improve community-driven engagement and strengthen economies in rural Utah.

Leverage Smart Strategies During the COVID-19 Recovery

The COVID-19 pandemic has challenged families, schools, businesses and communities. Economic recovery presents an opportunity to deploy tailored strategies to help bridge the divide between rural Utah and the Wasatch Front — creating new economic opportunities and a better quality of life.

Smart growth recovery strategies include designing and developing housing and transportation infrastructure in a deliberate and complementary manner and expanding telecommuting options. Telecommuting offers a variety of benefits, including an increased rural workforce, reduced strain on affordable housing, improved air quality and improved productivity and well-being for employees.

Independent, Technical Energy Office and Rural Satellite Centers

The formation of OED produced a centralized, high-level technical office to advance the Governor's energy vision. In implementing state energy policy, OED provides critical guidance on energy and minerals planning, resilience planning within the energy sector, energy education, critical infrastructure investment and timely policy solutions.

An organization with the ability to successfully navigate a complex and evolving energy landscape, OED serves as a model for other states and is vital to meeting Utah's future energy development and environmental goals.

UTAH GOVERNOR'S OFFICE OF
ENERGY DEVELOPMENT


THE GREAT SEAL OF THE STATE OF UTAH
INDUSTRY
UTAH
1847
1896