

FACTS UTAH

A M E R I C A N S E C U R I T Y P R O J E C T

Pay Now, Pay Later: Utah

In 2006, fishing, hunting, and other outdoor activities contributed \$1.2 billion to Utah's economy;¹ rising global temperatures threaten to undermine the state's tourism sector, potentially putting over 113,000 jobs at risk.²

Surface sources provide 78.6% of Utah's water;³ as rising temperatures dry out streams and rivers, Utah's citizens will be hard-pressed to find alternative water sources.⁴

Utah has incredible solar energy potential. Devoting one square mile to solar panels would provide enough energy to power around 1,500 households each year.⁵

According to a new study, a failure to mitigate the effects of climate change could begin to cause serious gross domestic product and job losses within the next several decades. Between 2010 and 2050, it could cost Utah \$10.5 billion in GDP and over 72,000 jobs.*

**GDP numbers are based on a 0% discount rate. Job losses are measured in labor years, or entire years of fulltime employment. Backus, George et al., "Assessing the Near-Term Risk of Climate Uncertainty: Interdependencies among the U.S. States," Sandia Report (Sandia National Laboratories, May 2010), 141. https://cfwebprod.sandia.gov/cfdocs/CCIM/docs/Climate_Risk_Assessment.pdf (accessed March 23, 2011).*

Admittedly, the effects of climate change, a complex and intricate phenomenon, are difficult to predict with precision. Informed scientific and economic projections, as we have used in our research, however, allow us to see that Utah faces significant losses in industries crucial to its economy if no action is taken.

Moreover, data shows Utah is poised to benefit from the research, development, and distribution of renewable energy technologies. With few conventional energy resources such as oil and coal, Utah can wean itself off of non-renewable energy sources without affecting its energy sector. Since it also receives so little of its energy from

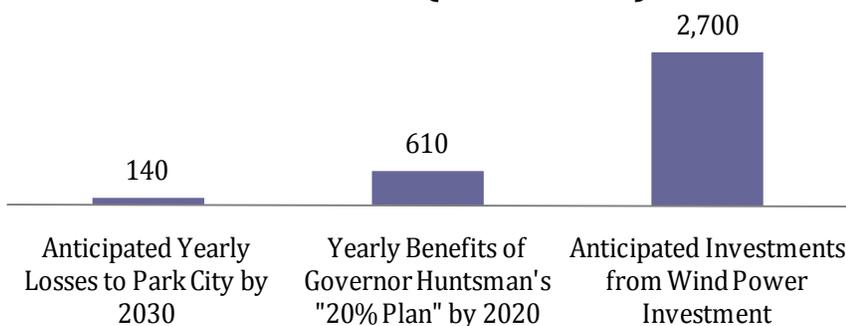
renewable sources, Utah is poised to gain substantially from developing its green energy industry. Should we fail to take action against climate change, Utah has much to lose.

Pay Later: The Cost of Inaction

During the past decade, Utah's "average temperature... was higher than observed during any comparable period of the past century and roughly 2°F higher than the 100 year average."⁶ In the future, Utah is projected to warm more than the average projection for the rest of the globe.⁷ The state's tourism and agricultural sectors, which together contribute over \$20 billion directly and indirectly to the state economy, are especially vulnerable to rising global temperatures.⁸ Furthermore, each state resident's health and access to vital natural resources will be threatened.

Indications from Utah suggest that the state is not taking the threats of climate change seriously. In February 2010, Utah's House of Representatives passed a measure that condemned "climate alarmists" and disputed the science behind climate change. Failure to prepare for the adverse effects of climate change in one of the nation's fastest-growing states will surely lead to disastrous consequences.

Estimated Costs to Park City by 2030 v. Benefits of Green Economy Investments (Millions \$)



Sources: Utah Clean Energy; Stratus Consulting

A Struggle for Utah's Farmers

In 2008, Utah's agricultural production and processing sectors directly and indirectly contributed more than \$15 billion to the state's economy and sustained nearly 66,500 jobs; its employees took home \$2.4 billion. Between half and three-quarters of the agriculture sector's profits are derived from livestock and livestock products.⁹ Although the effects of climate change on Utah's livestock have yet to be modeled, there is ample evidence that rising temperatures will depress yields from this sector. Rising temperatures will increase the incidence of livestock disease spread by ticks and flies whose development stages are highly dependent on temperature. Energy costs associated with cooling the animals' environment will increase as well. Higher temperatures will also cause a decline in dairy production, reduce animal weight gain, and decrease reproduction rates.¹⁰

Furthermore, nearly 80% of Utah's water supply comes from surface sources such as streams and rivers. Utah, however, is extremely vulnerable to drought, a severe weather event expected to increase with climate change. Faster rates of evaporation and smaller snowpack susceptible to earlier melting will not only decrease the amount of water available for irrigation but also help spread diseases and pests, such as grasshoppers. Between 1998 and 2002, for example, water scarcity and pests contributed to farm and ranch losses of roughly \$400 million.¹¹ Surface water sources are expected to dry due to rising temperatures, straining farmers' water supplies.¹²

Threat of a Snowless Winter

In 2008, Utah's tourism and recre

ation sectors were responsible for approximately 6.5% of gross state product (GSP) and supported over 113,000 jobs.¹³ The state is home to five national parks¹⁴ and its ski resorts are constantly ranked as the best in the nation.¹⁵ However, rising temperatures threaten the state's attractiveness as a tourist destination.

Utah's snow season may only last two or three months by 2100, with snow falling only at the highest altitudes. In Park City alone, the effects of climate change will be devastating: by 2030, the city will forgo \$120 million in lost output, \$20.4 million in earnings, and 1,137 jobs. By 2050, the losses could be as high as \$392.3 million in output, \$66.6 million in earnings, and 3,717 jobs.¹⁶ The effects of decreased snowfall will extend beyond the tourism and recreation sectors: in 2006, over \$2 billion worth of real estate was sold in Park City.¹⁷ These homes and lodges may lose their value if skiers no longer flock to this resort town.



Sources: Department of Applied Economics, Utah State University; Institute for Outdoor Recreation and Tourism, Utah State University; Bureau of Economic Analysis¹⁸

When the weather is warmer, tourists visit Utah's national parks. Parks like Zion are perfect for camping, hiking, fishing, and other outdoor activities. Rising temperatures will lengthen the camping season, but also increase these areas' susceptibility to drought—drying up the streams and rivers, making Utah uncomfortably hot, and causing the local wildlife to seek more suitable climates.¹⁹

Pressures at Home

Higher temperatures, water pollution, flooding, and increased runoff will damage residents' health—especially people living in urban areas, as nearly 90% of Utahns do.²⁰ Increased temperatures cause elevated ozone levels, which are positively correlated with the increased occurrence and severity of asthma and other respiratory diseases.²¹

Water shortages will also make life difficult for Utahns unless they implement several readjustment measures. The nearby Southern Nevada Water Authority found that dealing with declining water supplies could, in a worst-case scenario, cost the state nearly \$200 billion over 14 years.²² Climate change will also directly affect those employed in the construction, real estate, tourism, and agriculture industries.

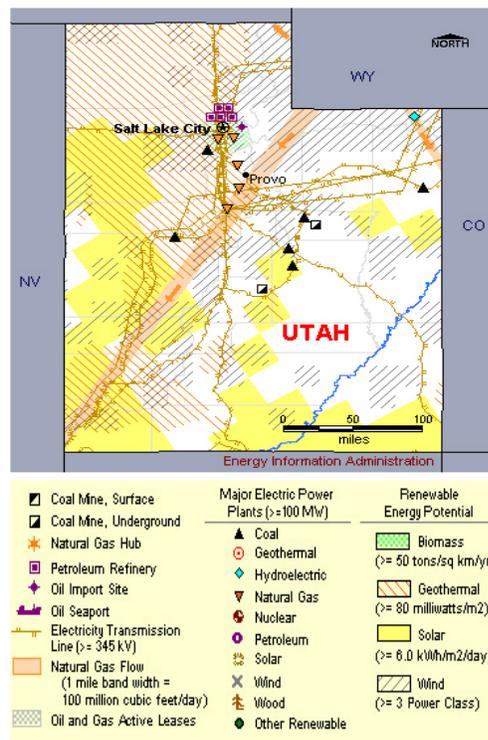
Pay Now: The Benefits of Taking Action

Utah currently generates 90% of its energy from coal-burning plants,²³ and only 2% from renewable energy sources.²⁴ The state can make great strides in reducing its carbon footprint simply by opting for renewable energy when its coal plants are no

longer cost efficient. The demand for Utah's coal plants seems to be in decline: in 2009, plans to construct a new power plant in Utah were canceled after Los Angeles—the plant's largest power purchaser—decided to be 'coal free' by 2020.²⁵

Renewable energy sources can satisfy the bulk of Utah's future energy needs, and, moreover, investments in a renewable energy infrastructure will yield tremendous economic growth. In 2006, Utah's then-governor Jon Huntsman called for a 20% increase in energy efficiency by 2015, and Utah's 2008 Energy Resource and Carbon Emission Reduction Initiative calls for 20% of state electricity sales by 2025 to be derived from renewable energy sources. If the 2015 goal is achieved, and if by 2020 20% of Utah's energy sales are from renewable sources, it will create over 7,000 new jobs, contribute \$310 million in new earnings each year (\$150 per resident),²⁶ and increase the annual GSP by \$300 million by 2020.²⁷

Utah has tremendous solar and wind energy potential. Concentrated solar power can generate over 1.5 million gigawatt-hours per year—enough energy to power 150 million average Utah homes.²⁸ Furthermore, even excluding natural parks, sensitive lands, and areas unfit for wind development, Utah has enough wind resources to power approximately 660,000 homes each year. Such a transition to wind energy would create 1,100 long-term jobs and produce over \$2.7 billion in net economic benefits.²⁹ In addition, Utah has the potential to generate nearly 1 million megawatt-hours every year using its geothermal resources.³⁰



Conclusion

Utah must consider action on climate change not just in terms of cost, but also in terms of opportunities. If we give Utah's population, businesses, and investors clear and consistent signals by properly offering initiatives and cultivating demand, investment and innovation in renewable technologies will follow.

Utahns will have to pay for the effects of climate change. The only remaining question is whether they will pay now, or pay later and run the risk of paying significantly more.

(Endnotes)

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