



FACTS IDAHO

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: Idaho

By the 2040s, elevated temperatures are expected to decrease snowpack in the Cascade Mountains by up to 40%, leading to seasonal water shortages and droughts.¹

Potato yields could drop by 18%—an annual loss of over \$141 million to the gross state product (GSP).²

If Idaho dedicated just one square mile to solar power, enough energy would be created to power 1,300 households for an entire year.³

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 as early as 2010 through 2050. Idaho is expected to make small gains as an adequate water supply attracts migrants from other states, translating to an increase in economic activity. Idaho could gain \$4 billion in GDP and over 33,000 jobs.*

**The study's calculations do not include snowfall and icepack melt, which could lead to droughts and water shortages, possibly eclipsing the positive projections. 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), 21, 137, 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 Idaho faces significant losses in industries crucial to its economy if no action is taken.

Moreover, data shows Idaho is poised to benefit from the research, development, and distribution of renewable energy technologies. Idaho is ranked 13th in wind power potential, but only 21st in wind energy capacity. Idahoans can save \$20,000 in tax dollars over four years by installing renewable energy systems at home.⁴ Should we fail to take action against climate change, Idahoans have much to lose.

Pay Later: The Cost of Inaction

Idaho's economic security is threatened by climate change and its related effects. The agricultural, forestry, and tourism industries, which comprise nearly 9% of the economy,⁵ stand to lose thousands of jobs and millions of dollars in revenue if the effects of climate change are not mitigated. Furthermore, life in Idaho will become increasingly uncomfortable as water shortages and uncontained wildfires become more prevalent.

Costs to Snowpack

Average fall and winter temperatures have risen 2.5°F in the past 40-70 years, causing more rain than snow.

Snowpack has declined during this period—by approximately 25% in the Cascade Mountains.⁶ The South Cascade Glacier shrank by half between 1928 and 2000.⁷ More rainfall has also led to increased flooding. **The winter floods of 1996-1997 resulted in over \$13 million in damages, clean up, and restoration costs. More frequent and more severe floods will cause escalating damages.**⁸

The agricultural, forestry, and tourism industries, which comprise nearly 9% of the economy, stand to lose thousands of jobs and millions of dollars in revenue if the effects of climate change are not mitigated.

Since declining snowpack lessens the amount of water stored for consumption during the warm season, water shortages are likely to become more common.⁹ Increased temperatures will also lead to earlier melts, levels of evaporation, and altered stream flows. **In warm areas of the Cascade Mountains, reductions in warm season runoff of 30% or greater are estimated for mid-century.** Summer droughts will only exacerbate water shortages throughout the state.¹⁰

Moreover, aquifers throughout the region are starting to dry up. The Eastern Snake River Plane Aquifer has decreased in size over the past decade. Between 2001 and 2002, some areas in the aquifer dropped by five feet, and other areas have fallen by up to 60 feet over a 20-year period.¹¹ **Although the state has legislated funds to help pay for the \$100 million replenishment of this aquifer, 70% of the costs will be paid by water users.**¹²

Hydroelectric Power

Idaho currently generates about four-fifths of its electricity from hydroelectric plants throughout the state.¹³ However, falling summer stream levels will cause a drop in hydroelectric power supply, leading to power shortages. **Every 1% drop in stream flow can result in a 3% drop in power generation.**¹⁴ **Idahoans currently spend nearly \$3 billion on imported energy sources,¹⁵ with costs expected to rise as stream levels fall.**

Idahoan Labor Force Projected to be Directly Affected



Source: Bureau of Economic Analysis¹⁶

Idaho Potatoes and Cattle

Idaho is home to over 25,000 farms and ranches, with a combined output of just under \$6.5 billion. The state's

top commodities are cattle, dairy products, and potatoes. Potatoes alone brought in nearly \$785 million in 2009, producing over 23% of this commodity's value for the country.¹⁷

Unfortunately for fans of Idaho potatoes, temperatures could increase 6.75°F by 2100; a concomitant 18% reduction in potato yields could lead to a loss of over \$141 million annually.¹⁸ Furthermore, potatoes are an irrigated crop, so as competition for water and the number of summer droughts increases, production costs will rise.¹⁹

Cattle and dairy products brought in almost \$2.5 billion in 2009. But cattle begin to suffer from heat stress at approximately 85°F, and become more uncomfortable as the heat and humidity increases.²⁰ Under heat stress, the animals are not able to produce as much milk, gain weight, or reproduce as well.²¹ If temperatures continue to rise, this multi-billion dollar industry could see significant losses.

Forest Fires

In 2007, Idaho was home to the 6th largest U.S. wildfire since 1960.²² That year the state had 349 fires (which burned six times the average acreage). The 10 largest fires cost the state over \$15 million—not including the cost to repair private property.²³ The drier conditions present throughout the state from decreases in summer rainfall create fires that burn longer and burn larger areas. In 1991, the forest service spent 13% of its budget on fighting fires. Just 15 years later, this figure jumped to 45%.²⁴

Tourism

Tourism generates \$3.4 billion for Idaho each year.²⁵ Wildlife viewing and other outdoor activities alone generate about \$2.2 billion each year, over 5% of the GSP, and support 37,000 jobs across the state. If the natural habitats, including national forests, that tourists come to see are destroyed, then this multi-billion dollar industry, the families it employs, and the families it services will also suffer.²⁶

Pay Now: The Benefits of Taking Action

Impressively, jobs in Idaho's clean energy industry grew by 126% between 1998 and 2007, the highest annual growth rate in the nation. And the industry attracted almost \$28 million in venture capital investment during this period.²⁷

The Sustainable Forest Initiative

The forestry industry, which generated \$490 million in 2007,²⁸ has developed regulations to ensure the sustainability of their practices. The Sustainable Forest Initiative works to ensure long-term forest productivity through soil preservation, prompt reforestation after harvest, afforestation, and protection of waterways and wildlife.²⁹ By tapping into its biomass, Idaho has begun to wean itself off of imported energy sources;³⁰ by tapping into other renewables it can create economic opportunities at home.

Wind

Idaho currently ranks 13th in wind power potential,³¹ with more than

800,000 acres of windy land.³² Its largest wind power project—11 wind farms worth nearly \$500 million—is currently under development.³³ Another Idaho wind farm has the potential to power 37,000 homes.³⁴ Furthermore, many wind power companies are offering rural landowners in windy areas the opportunity to install wind turbines and receive royalties, increasing the economic benefits of wind-generated energy throughout Idaho.³⁵

Solar

Idaho has almost year-round sunny skies; harnessing some of that energy to power the state seems only natural. If Idaho devoted just one square mile to solar power, it could provide enough electricity for 1,300 households annually.³⁶ The state has passed a 40% income tax break for Idahoans who use solar panels.³⁷ Solar panel manufacturing is becoming a significant industry in Boise and elsewhere in the state.³⁸

Geothermal

In 1892, Idaho became home to the first modern geothermal heating system.³⁹ But unfortunately, over a century later, this source of renewable energy remains largely untapped in the southern half of the state,⁴⁰ where high temperature well sites are located.⁴¹ This high temperature geothermal energy can be used to generate electricity, while low temperature well sites scattered throughout the state provide heat for homes, swimming pools, and greenhouses.⁴² In 2006, Idaho was ranked 3rd amongst 12 western states in terms of potential for new geothermal power production by 2015. Geothermal is proving to be an economically viable option: in 2007, several federal leases in the state were sold for \$5.7 million. Furthermore, geothermal companies from Iceland, Colorado, and Nevada have expressed interest in developing Idaho's geothermal industry.⁴³

Conclusion

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

Idahoans 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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