Idaho Climate-Economy Impacts Assessment

Snapshot: Energy

Energy, Climate, and Idaho's Economy

Idaho's energy supply comes from three primary sources: renewable, natural gas, and petroleum. Electricity in Idaho is derived mostly from renewable resources, such as hydropower, wind, and solar. Nuclear energy does not currently contribute significantly to Idaho's energy resources; however, Idaho National Laboratory (INL) is a leader in nuclear energy research and development, including the location for small modular nuclear and microreactors. As changes in climate increase, and Idaho transitions to more clean energy use, it is important to prepare for the likely impacts to energy sources.

In 2019, renewables provided a larger share of electricity generation (76%) in Idaho than any other state except Maine and Vermont.

In 2020, INL was Idaho's 7th largest private employer, and accounted for $2.88 billion to Idaho's economy.

Changes in climate

- Increasing temperatures
- Increasing spring precipitation
- Earlier peak runoff
- Decreasing summer precipitation
- Decreasing snowpack
- Decreasing summer streamflow

Increasing hazards

- Avalanches
- Floods
- Landslides/mudslides
- Drought
- Wildfires

Economic risks

- Increasing demand
- Decreasing hydropower during low streamflow
- Increasing cost associated with wildfire damage
- Increasing cost to transition to lower emission energy infrastructure

Idaho's Clean Energy Transition

16% of use

Commercial

The commercial sector's reliance on natural gas remains a challenge for cities and businesses with clean energy goals. For example, the City of Boise has pledged to achieve 100% clean energy by 2035, but has an extended timeline for implementing clean heating, cooling, and transportation, which rely heavily on fossil fuels. The use of geothermal energy may increase as a way to decrease carbon-emitting sources.

31% of use

Industrial

The industrial sector is largely dependent on fossil fuel energy. Transitioning to clean energy that many Idaho utilities are striving towards will be difficult to achieve without a transformation in industrial energy use.

23% of use

Residential

Large swings in seasonal temperatures contribute to uncertainty in the demand for heating and cooling, and the amount of natural gas and electricity sources to meet residential needs. As Idaho transitions to low-carbon energy sources, additional clean energy supply and infrastructure will be needed to replace natural gas furnaces and stoves.

29% of use

Transportation

As zero-emission vehicles become more widely used in the transportation sector, electric utilities will likely see increasing demand for even more clean energy options.

Preparing Idaho for Impacts to Energy

Greater power demands

Summer demand: The ability to adapt to greater power demands during the warmer and drier portions of the summer will become increasingly important with growing irrigation water demand, decreasing streamflow, and increasing air conditioning demand.

Population growth: Idaho has one of the highest rates of population growth in the U.S. High population growth is expected to continue with a changing climate. The number of climate refugees, people relocating from states with more severe climate impacts, will increase in Idaho. This will impact energy demand in the residential and transportation sectors.

Irrigation energy: Warmer air temperatures increase power demand for irrigated agriculture at the same time as air conditioning demand in residential and commercial sectors. This timing also coincides with lower summer streamflow, and negatively impacts the ability to generate hydropower, a primary source of electricity in Idaho.

Energy Infrastructure

Climate change increases the likelihood of energy infrastructure being impacted by extreme weather events, such as:

- Avalanches
- Drought
- Floods
- Mudslides/ landslides
- Wildfires

Additionally, higher temperatures are expected to increase deterioration in overhead transmission lines.

Hydropower accounts for more than 60% of Idaho's energy generation.

Uncertainty in prices

Energy demand: Growing energy demand may increase prices across Idaho's energy sectors. Increasing cost to energy producers are passed on to commercial, industrial, and residential consumers.

Clean energy: As energy providers look to alternative clean energy sources for long-term competitive, cost-saving, and cost-effective measures, market prices will respond.

Opportunity for Adaptation: Microgrids

A microgrid is a local energy grid with control capability, which means it can disconnect from the traditional grid and operate independently. Microgrids can include a variety of clean energy resources, such as solar, wind, nuclear, batteries, and building efficiency, and they allow a community to be both consumers and producers of energy. Microgrids enhance local resilience to increasing extreme weather events, and protect critical community electricity infrastructure.

Interested in learning more about economic impacts and Idaho's energy?

For further information, resources, tools, references, and additional reports, please visit **www.uidaho.edu/iceia**

University of Idaho
McClure Center for Public Policy Research

VIEW MORE SNAPSHOTS:

Agriculture	Infrastructure
Climate	Rangelands
Energy	Recreation & Tourism
Forests	Smoke
Human Health	Water