

PERFORMANCE AUDIT

Report Highlights



Office of the
Washington
State Auditor
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Ensuring Climate-Resilient Infrastructure to Meet Washington's Growing Energy Needs

Washington is already experiencing warmer temperatures and changing patterns of precipitation from the changing climate. As these effects worsen, so do the risks that result, such as increased droughts and wildfires, flooding and mudslides. The state has already undertaken steps to reduce greenhouse gas emissions, or mitigate climate effects, and is beginning to adapt to its changes. Changing climate conditions compromise the state's critical infrastructure sectors, such as energy, transportation and communications. Washington's electricity sector is unusually diverse, in part because it is the largest hydroelectric producer in the U.S. The audit examined how Washington can help adapt new electricity to expected risks that the changing climate will likely pose.

The state has opportunities to ensure new electricity infrastructure, built for climate mitigation, can withstand future climate effects

New electricity infrastructure must be designed and built to be resilient to changing climate conditions. Vulnerability assessments help infrastructure developers and utilities respond to likely risks posed by changing climate conditions, but current processes to site and build new electricity infrastructure lack requirements to do them. Adding climate-related vulnerability assessments to environmental regulations could help inform new infrastructure decisions. Climate-related vulnerability assessments for electricity infrastructure are already required in some states and municipalities. Vulnerabilities found through those types of assessments can be addressed in planning, siting and construction processes. Infrastructure design that considers future climate effects can ensure facilities function for their expected lifetime.

Additional analyses of forecasted climate information could help the state adapt infrastructure to the changing climate

Centrally compiled and analyzed climate-science data already helps Washington address adaptation and resilience. The Climate Impacts Group at the University of Washington currently disseminates scientific

information about the changing climate to those who need it. By using forecasted climate information that the Climate Impacts Group already provides, the state could improve its existing efforts to map wildfire risk. With some additional resources, the Climate Impacts Group could provide additional analysis to ensure adaptation of critical infrastructure. More granular data and analyses could improve the state's responses to location- and infrastructure-specific climate risks. Collaboration between state climate experts and utility engineers could help the state develop design standards to address vulnerabilities.

Broader collaboration around climate adaptation efforts could help the state's electricity sector prepare for future climate risks

Responsibilities for Washington's electricity industry are fragmented, making collaboration more challenging. Ownership, planning, regulation and operation of electricity infrastructure is distributed among various private, state, local, regional, tribal and federal entities. The state lacks a centralized home for energy-related responsibilities, information and tools, thereby hampering coordination. Collaboration must extend to conflict resolution that involves both the public and private sectors. A single office could facilitate collaboration and conflict resolution, and provide tools for climate adaptation. Washington already recognizes the need for better collaboration and conflict resolution tools in completing renewable energy projects.

State Auditor's Conclusions

Each year, it becomes more evident that Washington's climate is changing, increasing the risks of climate hazards such as wildfires and flooding. In response, our state has taken significant steps to mitigate the emission of greenhouse gases. For example, the Clean Energy Transformation Act requires the state's electric utilities to fully transition to renewable electricity generation by 2045. This performance audit focuses on an emerging area of concern – adapting renewable energy infrastructure to the effects of a changing climate. For example, when planning a wind farm, it is important to assess whether the site is likely to face increased wildfire risk in the future. This kind of evaluation enables project designers to incorporate fire-resistant features that can help ensure the facility functions throughout its intended lifespan.

We came to three broad conclusions regarding the climate resiliency of energy infrastructure in Washington. First, requiring vulnerability assessments, which describe how proposed projects could be affected by conditions such as higher temperatures and the associated risks of increasing wildfires. These assessments could help developers and utilities better respond to the likely risks of a changing climate. Second, the state should make use of more granular climate-science data, such as forecasts for stream flows, snowpack and drought for a particular site, when mapping risks to new projects. And finally, establishing a nonregulatory information sharing function in state government could improve the infrastructure development process. Adapting to a changing climate will be a very complex challenge for years to come, as experts forecast its effects will only become more extreme. This report offers insights that will help make critical investments in that effort more resilient and effective.

Recommendations

We made a series of recommendations to improve the state's efforts at adapting critical electricity infrastructure to the increasing hazards posed by the changing climate. The recommendations include creating a non-regulatory office to disseminate electricity information, promote sector coordination and address conflict resolution of new energy projects. In addition, we recommend expanding the analysis the Climate Impacts Group provides, as resources allow, so that decision-makers have the resources they need to make informed judgements. Finally, we recommend adding climate-related vulnerability assessments to planning and siting processes of new infrastructure so adaptation efforts can occur as new infrastructure is considered.