



OREGON COOLING NEEDS STUDY

Submitted to the
OREGON LEGISLATURE

by the
OREGON DEPARTMENT OF ENERGY

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Prepared by
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BEAT THE HEAT:
OREGON COOLING NEEDS STUDY


 OREGON DEPARTMENT OF ENERGY

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INTRODUCTIONS




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AGENDA




Study overview and key takeaways




Equity focused public outreach



Innovative GIS and Power BI Dashboard tools to serve different audiences



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QUESTIONS FOR THE AUDIENCE

Question 1

- Who is in the room today?
 - Public agency
 - Consultants
 - Other

Question 2

- Is your organization (or are you supporting an organization) planning for impending climate hazards?
 - Heat
 - Other hazards



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OREGON COOLING NEEDS STUDY OVERVIEW AND KEY TAKEAWAYS



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STUDY BACKGROUND – 2021 HEAT DOME

Record breaking heat waves of over 100 degrees resulted in ~120 deaths statewide.

Lack of cooling infrastructure exacerbated impacts to traditionally cooler climates.

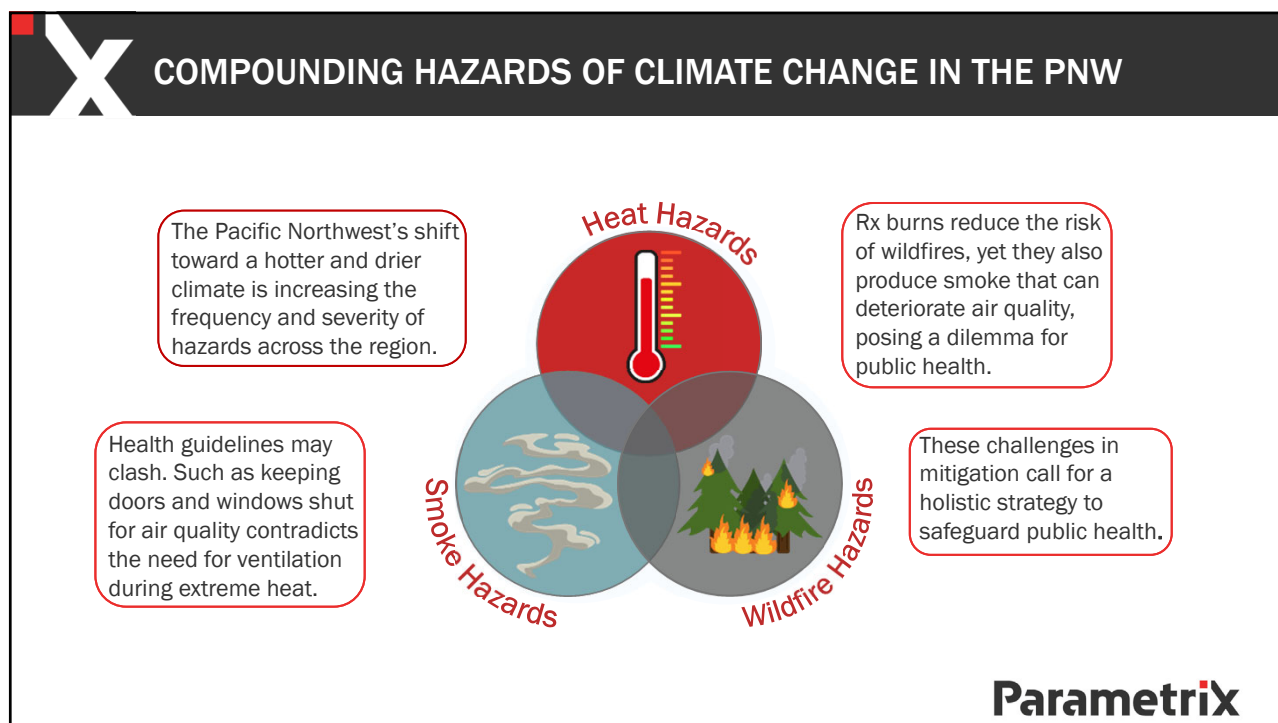
These events catalyzed government intervention and the ODOE Cooling Needs Study.

Projected Change in Days with Heat Index $\geq 90^{\circ}\text{F}$ – Higher Emissions (RCP 8.5) 2010-2039 vs. historical simulation 1971-2000, mean change

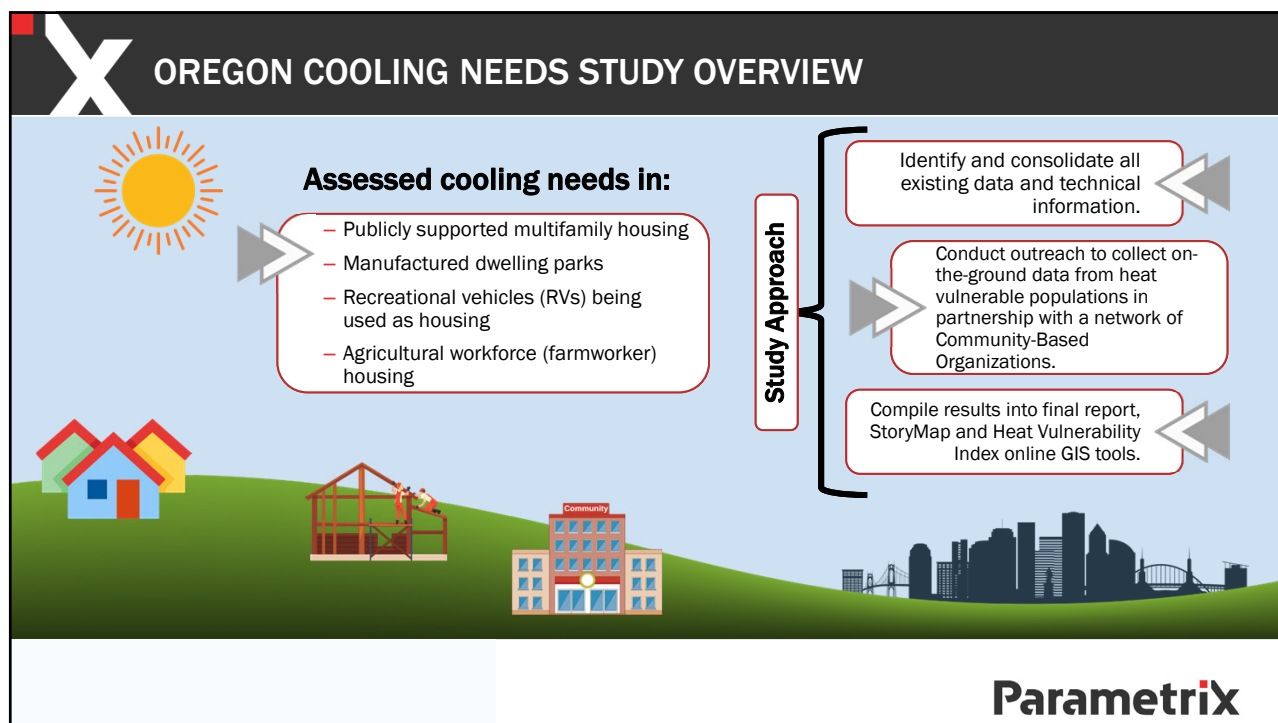
Source: Climate Toolbox

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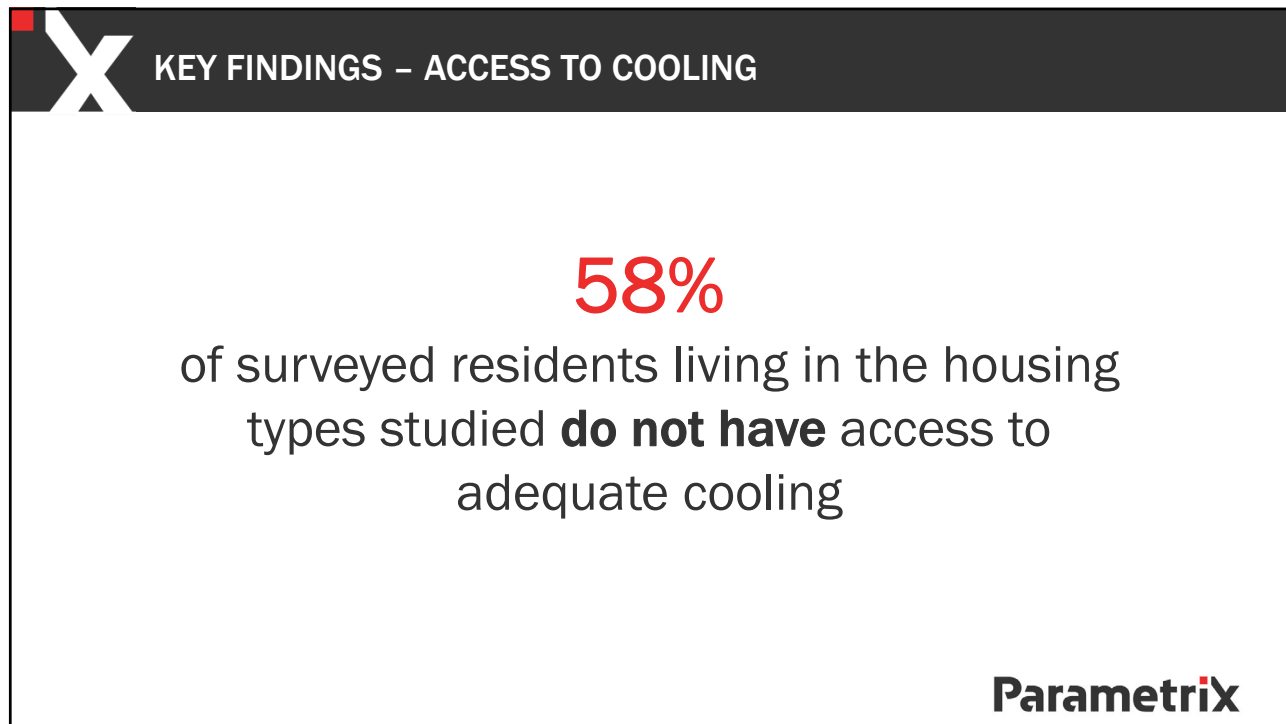
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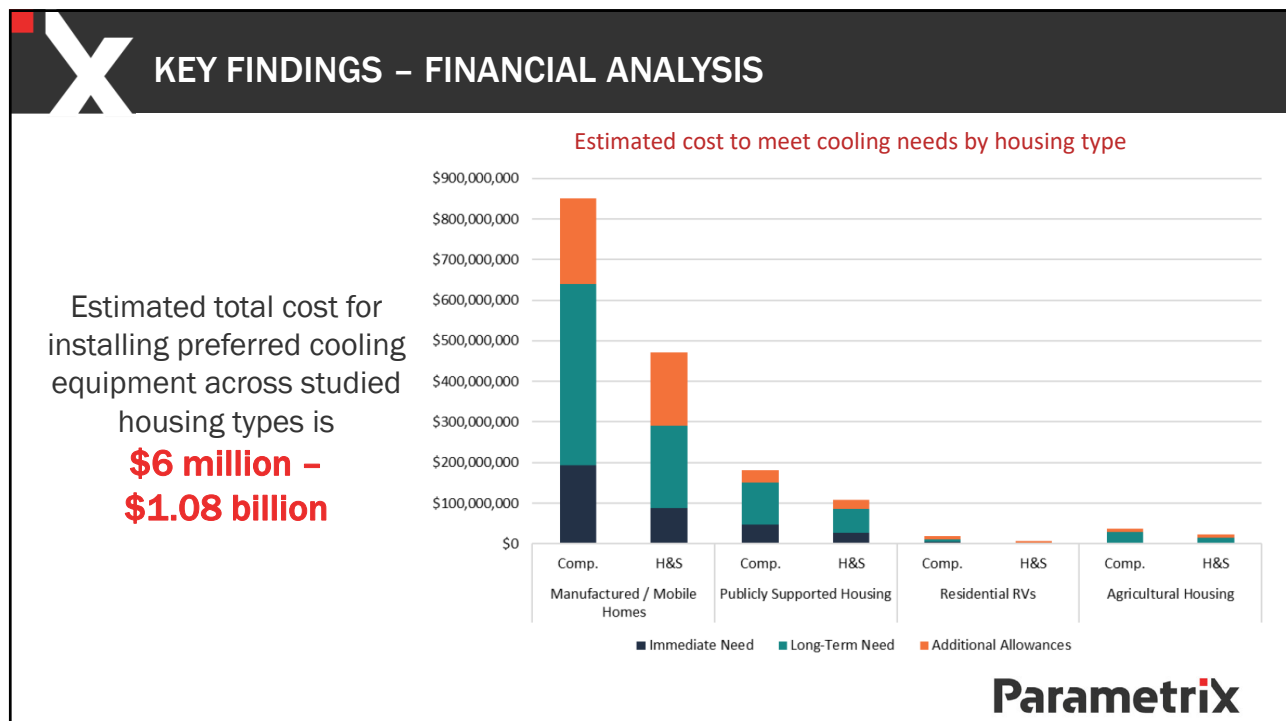
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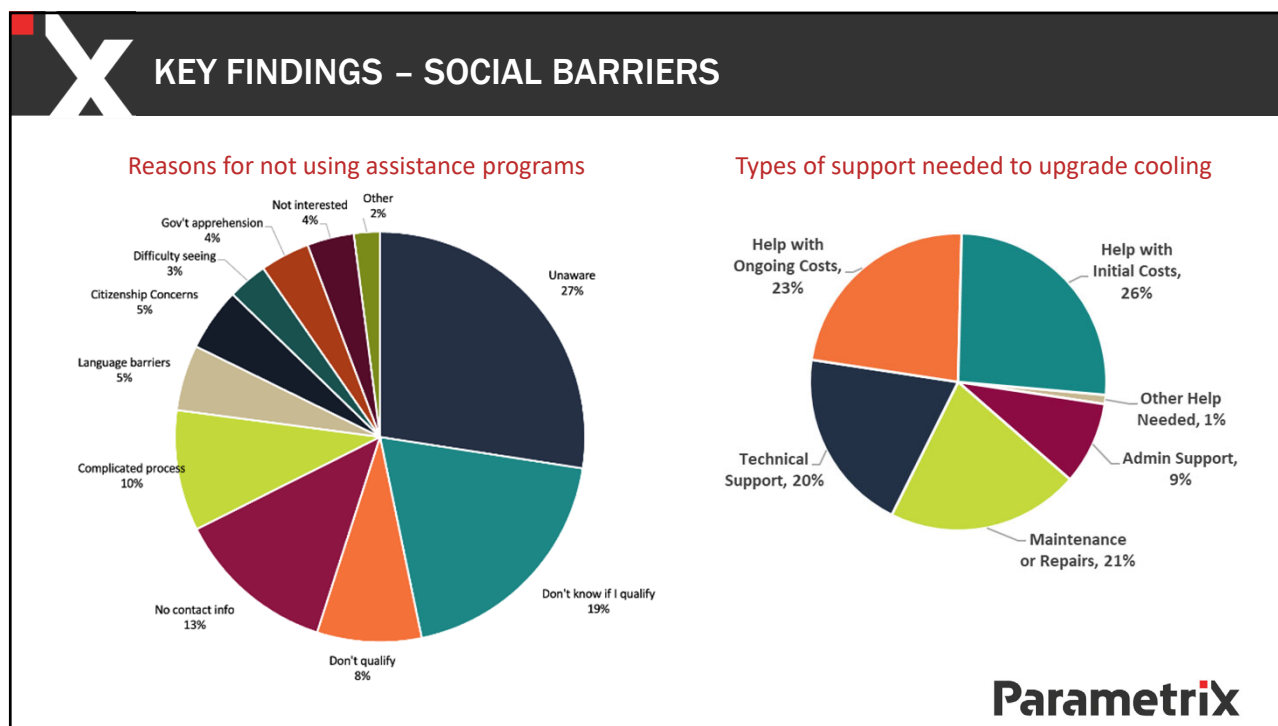
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QUESTIONS TO THE AUDIENCE

Question 1


- Is your organization considering socioeconomic barriers folks face in accessing existing programs?

Question 2

- Is your organization measuring or tracking program barriers and opportunities to address them?

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FURTHER CONSIDERATIONS

- This study only accounts for 5% of housing statewide
 - Does not include naturally occurring affordable housing
- Resiliency needs beyond mechanical cooling
 - For example, wildfire power shutoffs
- Other options to help safeguard human health
 - Passive cooling, expanding water access, community cooling centers, emergency cooling shelters
- Planning for compounding climate hazards
 - Air quality and heat

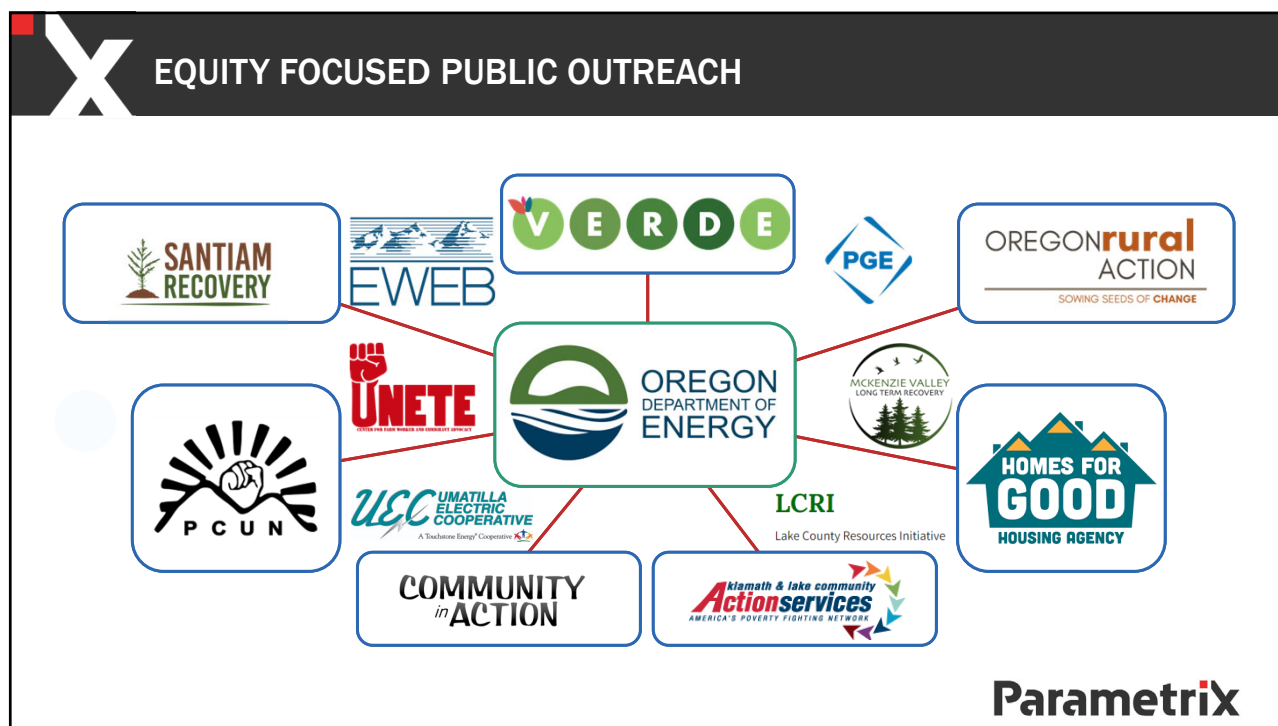
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EQUITY FOCUSED PUBLIC OUTREACH



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X EQUITY FOCUSED PUBLIC OUTREACH – BEST PRACTICES

Engaging with historically underrepresented communities

- Build trust and leverage existing relationships
 - Community-based organizations
- Meet people where they are
 - On the ground effort
 - Multiple formats and languages
- Provide compensation for participants/partners
 - Stipends for survey distribution partners
 - Incentives for survey participants

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QUESTIONS TO THE AUDIENCE

Question 1

- Do you have questions about implementing the following outreach best practices?
 - On the ground outreach
 - Providing compensation
 - Providing materials in multiple formats and languages


Question 2

- Does your organization regularly partner with community-based organizations?

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INNOVATIVE GIS AND POWER BI DASHBOARD TOOLS TO SERVE DIFFERENT AUDIENCES



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X INNOVATIVE DELIVERABLES TO SERVE DIFFERENT AUDIENCES

Provided 3 unique tools for different audiences

StoryMap
General Public

HVI Mapping Tool
Agency Partners

HVI Dashboard
Agency Analysts

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X TOOL DEVELOPMENT – HEAT VULNERABILITY ASSESSMENT

Tools to better understand communities and need: HVI GIS Map Tool

**The Oregon Cooling Needs Study
Heat Vulnerability Index!**

The Heat Vulnerability Index is an interactive, online geographic information systems tool created to identify and measure the relative vulnerability to heat impacts across counties and census tracts. The index synthesizes existing data and uses a standardized scoring system (1-100) to allow for statewide comparison and analysis. The HVI visually displays all counties and census tracts and their relative vulnerability "scores" as a heat map. Higher scores indicate more vulnerability to impacts of heat.

Application instructions are displayed to the right. Click the "Continue" button to start using the HVI Mapping Application.

The Overall Heat Vulnerability Index is comprised of three different indexes, the **Exposure Index**, **Sensitivity Index**, and **Adaptive Capacity Index**. Each index is available to view individually. More saturation indicates higher vulnerability.

The **Exposure Index** evaluates historic temperatures and expected increases resulting in heat exposure. It also considers tree canopy and impervious surfaces to identify areas prone to the urban heat island effect.

The **Sensitivity Index** assesses factors such as age and health conditions that might make individuals more vulnerable to negative health effects from extreme heat exposure.

The **Adaptive Capacity Index** evaluates socioeconomic, demographic, and location-based factors that influence an individual's ability to cope with change, including heat-related challenges.

☐ Don't show this again

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X TOOL DEVELOPMENT – HEAT VULNERABILITY ASSESSMENT

Tools to better understand communities and need:

HVI Dashboard

The Heat Vulnerability Index (HVI) Dashboard is an interactive, PowerBI tool developed in tandem with an [HVI Web Map Tool](#) and [Public Story Map](#) for the [Oregon Cooling Needs Study](#). The [Public Story Map](#) and [HVI Web Map Tool](#) can be accessed from the links below. It is recommended that dashboard users familiarize themselves with the project and HVI Index prior to using the dashboard.

[Oregon Cooling Study Story Map](#)
[HVI Web Map Tool](#)

The HVI measures relative vulnerability to heat impacts across counties and census tracts. The index synthesizes existing data and uses a standardized scoring system (1-100) to allow for statewide comparison and analysis. Higher scores indicate more vulnerability to impacts of heat.

The **Overall Heat Vulnerability Index** is comprised of three different indexes, the **Exposure Index**, **Sensitivity Index**, and **Adaptive Capacity Index**. Each of these indexes data are available to view and analyze in the Dashboard.

The **Exposure Index** evaluates historic temperatures and expected increases resulting in heat exposure. It also considers tree canopy and impervious surfaces to identify areas prone to the urban heat island effect.

The **Sensitivity Index** assesses factors such as age and health conditions that might make individuals more vulnerable to negative health effects from extreme heat exposure.

The **Adaptive Capacity Index** evaluates socioeconomic, demographic, and location-based factors that influence an individual's ability to cope with change, including heat-related challenges.

This video provides instructions for navigating and understanding the results of the study in this dashboard. Please watch the video before proceeding to the County and/or Tract Dashboard pages of this application.
[Dashboard Instructional Video](#)

County Heat Vulnerability Index

Search by Housing Dashboard | County Filter: All | Oregon Region: Central Oregon

Score: 57 | 54 | 44 | 72

Index Scores by County

Exposure Indicators

Indicator	Exposure Index	Sensitivity Index	Adaptive Capacity Index	Overall HVI
Climate	61	51.04	64.28	58.58
Demographics	60	68.43	75.18	67.87
Urbanization	57	73.53	81.75	70.94
Land Use	57	73.53	81.75	70.94
Health	48	74.61	82.22	68.48
Overall	57	73.53	81.75	70.94
Health	48	74.61	82.22	68.48
Overall	57	73.53	81.75	70.94

County Heat Vulnerability Index

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X TOOL DEVELOPMENT – STORYMAP

Tools to communicate to a wide audience: StoryMap

Oregon Cooling Needs Study

Oregon Department of Energy, prepared by Good Company, a Division of Parametrix

This StoryMap presents the findings of the Oregon Cooling Needs Study

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