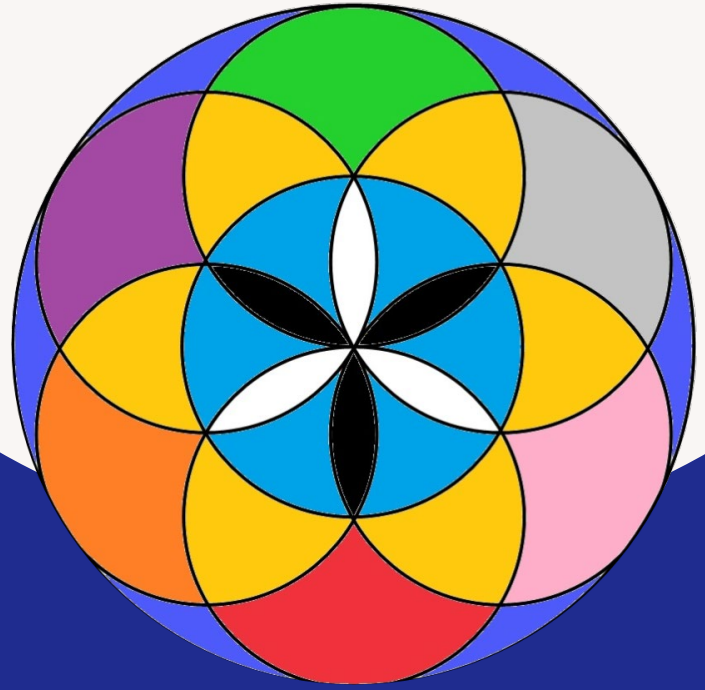
CAP WORKSHOP #4
SESSION 2
FRIDAY MAY 9TH 10AM – 12PM



AGENDA

Trauma-Informed Space Agreement

BOT Priority

Pre-workshop survey

Example from DNR or Participant

AWP connections to CAP

Small Group Exercise

- Short-Term = Mitigation
- Long-Term = Adaptation

Participants Reflections & Takeaways

Post-workshop survey

Follow-Ups with FFPP –if needed

TRAUMA INFORMED SPACE AGREEMENT

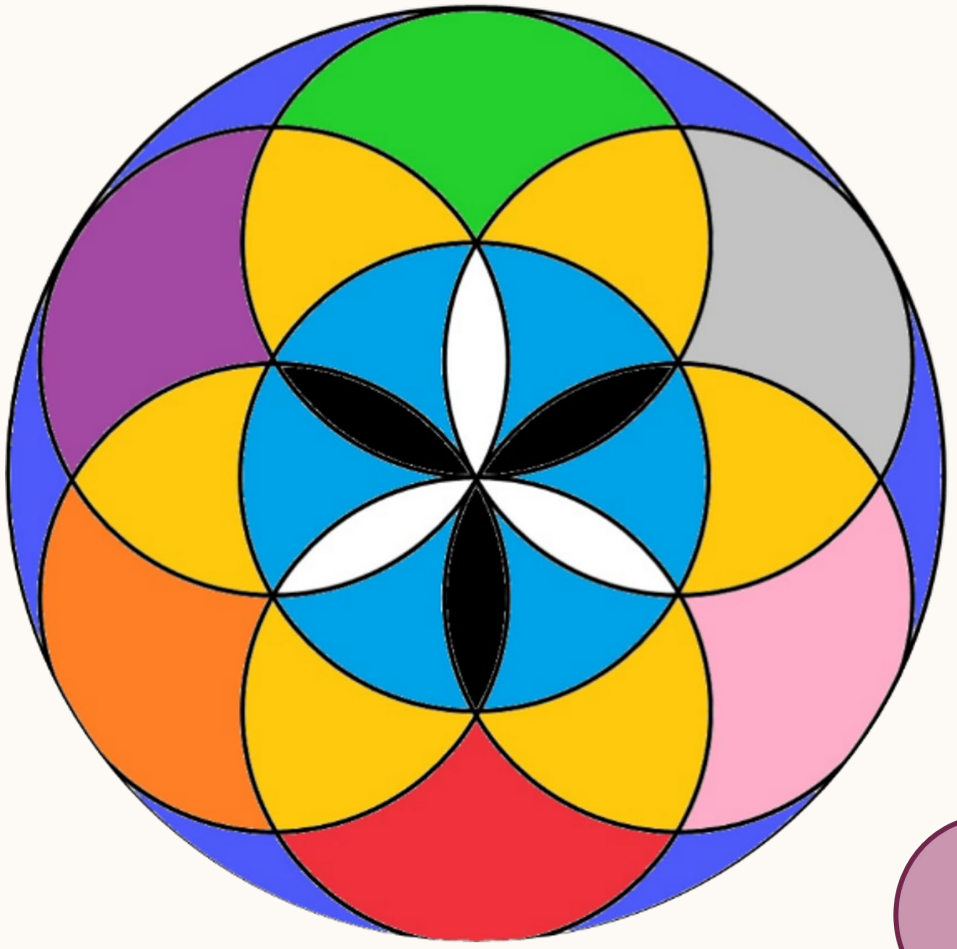
First Foods Policy Program strives to provide services that are Trauma Informed and will work to maintain a space that is supportive, conducive to learning, and will reduce harm at all possible opportunities.

To do this, we ask that participants agree to the following terms. **By remaining in this space today, you agree to:**

- Bring a learning mindset instead of an expert mindset
- Set a safe space: What's said here stays here, what's learned here leaves here
- Listen with curiosity & compassion
- Be patient, practice taking a pause
- Listen with empathy
- Hold space for multiple truths
- Create a judgment free zone
- Ask for what you need
- Commit to open two-way communication
- Keep each other safe
- Contribute to the well-being of the group
- Speak with intention, use "I" statements
- Be polite and respectful
- Understand that people are the experts in their own experiences
- Keep in mind we are all working towards a common goal

First Foods Policy Program will work to keep this space as safe as possible for you to share your experiences and learning with others. We reserve the right to give warnings to those who are not abiding by this agreement. If you are warned and do not change the offending behavior, First Foods Policy Program reserves the right to ask you to leave.

THE BOARD OF TRUSTEES (BOT) PRIORITY 9.2 “DEVELOP SCHEDULE AND ACTION PLAN FOR CLIMATE ADAPTATION PLAN IMPLEMENTATION FOR ALL CTUIR DEPARTMENTS AND ENTITIES (WRC, YELLOWHAWK, NCFS, CAYUSE).



Cúuš
Water (Surface & Groundwater)

Á́wtni Tkʷá́tat
First Foods Availability & Access

Infrastructure & Built Systems

Šapánaknuwit ku Kʷałaná́wit
Human Health & Happiness

Energy Production & Use

Ẋaẋáykʷit ku Pawiyaɬixsímit
Economics & Community

Tímani Tamánwit
Sovereignty & Treaty Rights

PRE WORKSHOP SURVEY

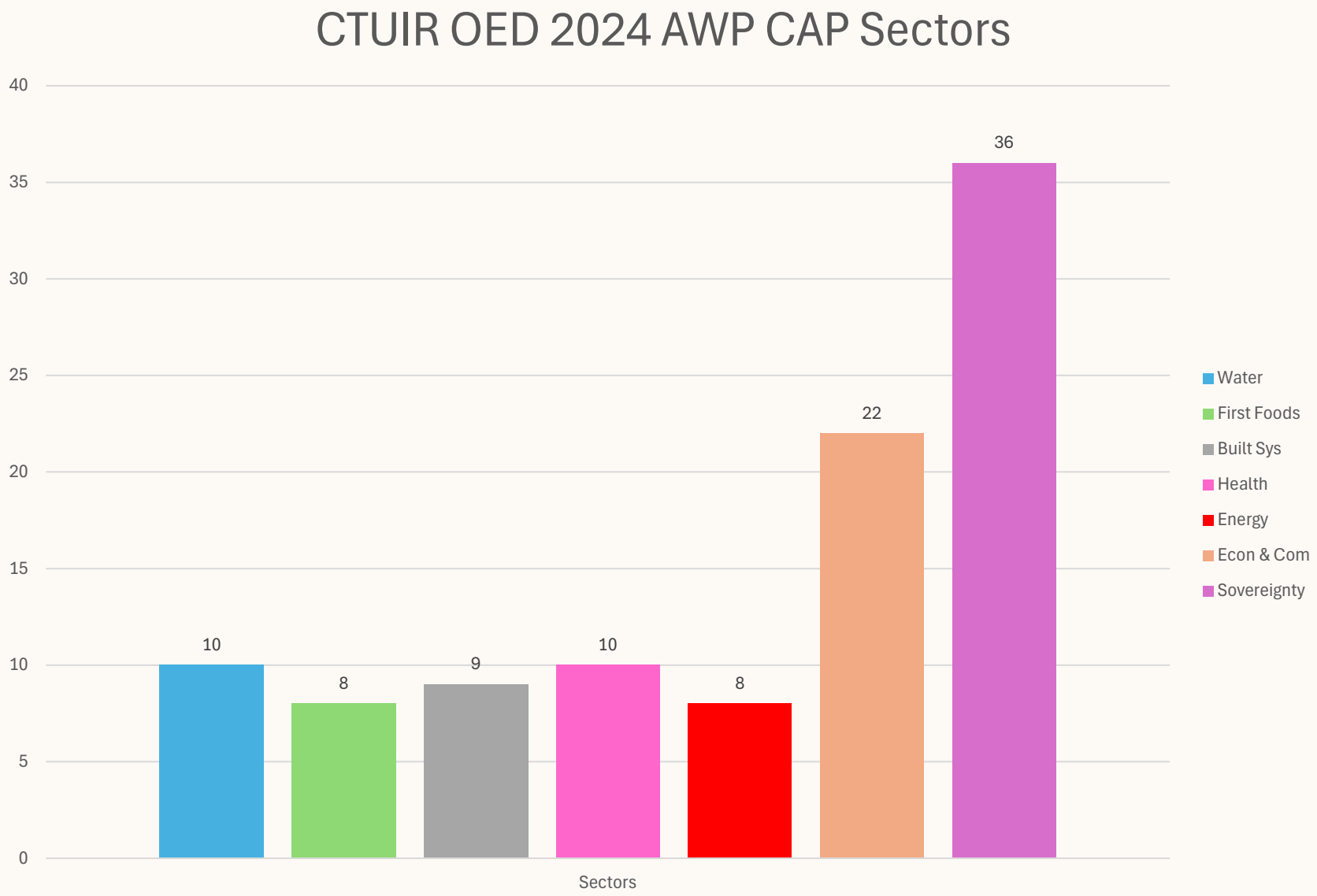
Q1: To what degree do you feel your department has a role to play in climate adaptation/response?
Q2: What level of awareness or understanding do you feel you have about climate impacts that will affect CTUIR priorities?
Q3: Evaluate the statement: I feel I have a firm understanding of the role my position can contribute to being prepared for climate crisis mitigation and adaptation.

EXAMPLES OF CLIMATE RESPONSES

Employee impacts
Client/Customer Responses
Service adjustments

AWP CONNECTION TO CAP

- General categories of services in AWP
- General categories of climate impacts
- General categories of climate mitigations/adaptations


CTUIR OED 2024 AWP CAP Sectors
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Sectors
Water
First Foods
Built Sys
Health
Energy
Econ & Com
Sovereignty

OED Summary

Water
- Policy & Planning
- Monitoring

First Foods
- Policy & Planning
- Education & Enforcement

Built Systems
- Kayak Public Transit

Health & Happiness
- Coordination & Collaboration
- Life & Wellness

Energy
- Policy & Planning
- Development
- Hanford

Economics & Community
- Emergency Preparedness & Response
- Food & Farms
- Homes & Lands

Sovereignty & Treaty Rights
- Planning & Policy
- Education

Water

Policy & Planning

- 2.5 Develop A Drought Management Plan for implementation including an early drought warning system.
- 2.6 Update Emergency Operations Plan with New Drought Management Plan
- 14.1-2 Municipal Water Reuse System: develop a plan etc

Monitoring

- 2.10 Monitor Ground Water Resources on The Umatilla Indian Reservation
- 7.2 Complete Update of Emergency Operations Plan with Drought Management Plan.

First Foods

Policy & Planning

- 2. Salmon Recovery: Contribute to the continued development and refinement of the strategies and activities associated with the CTUIR salmon recovery strategy.
- 23.1 Columbia River and Salmon Restoration/Treaty Rights: develop and implement comprehensive plan to restore Columbia and Snake River salmon, coordinate actions with Columbia Basin Tribes and Northwest Tribes (FMCS & Biden Administration Initiative).
- 23.9 Revise Fish and Wildlife Code to close roads for wildlife preservation: amend Code to provide Fish and Wildlife Commission authority to close roads to access in order to protect wildlife/fish/resources.

Education & Enforcement

- 23.3 Education and Information to Tribal Members/Others on Treaty Rights: develop an action plan to educate Tribal Members, counties, state, federal agencies and public on Treaty Rights.
- 23.5 Defend Fish and Wildlife Ceremonial and Subsistence in ced1ed lands/aboriginal lands: expand and develop MOU/MOAs with state and federal agencies, Tribal Members access to federal and state parks (inform 3rd party vendors at parks).

Built Systems

Kayak Public Transit

- 18.1 Kayak: Implement 5-year transportation plan and develop options for future operations of the Kayak Transportation entity in coordination with regional partners (county, city, etc.).

Health & Happiness

Coordination & Collaboration

- 5. Coordinate services with Yellowhawk: Continue to coordinate with Yellowhawk Tribal Health Center, the public health authority for the Umatilla Indian Reservation, on COVID-19-related activities, actions, and recommendations and report those back to the Board of Trustees on a regular basis.

Life & Wellness

- 9.7 Revise Codes to Allow for Virtual Participation and Improve Technology for CTUIR Tribal Members to Attend Board of Trustees and Committees and Commission Meetings.
- 25.2 Enhance wrap around services: develop and implement plan to improve elder services, cleaning homes, firewood, direct funds to elders, better coordination between Yellowhawk and DCFS

Energy

Policy & Planning

- 3. Strategic Energy Plan Implementation: Coordinate the implementation of the 2020-2035 Strategic Energy Strategic Plan (Strategy) and hire and oversee Climate Coordinator Analyst to ensure they initiate energy programs and projects phased in the most effective manner possible considering Federal, State, Tribal, and other resources. Secure funding to hire an Energy Project Coordinator to coordinate and manage tribal renewable energy projects and the Strategic Energy Plan.

Development

- 2.9 Promote And Develop Tribally Owned Renewable Energy on The Umatilla Indian Reservation.
- 8.1 Develop and implement a plan to transition to zero emissions, electric fleet for Fleet Management and Kayak.
- 9.1 Design and Implement Renewable Energy Project for Community/Tribal Member Homes: resources and grants to support community & tribal member renewable projects (solar, wind, storage batteries, etc.).
- 9.2-3 Develop CTUIR solar project etc
- 19.1 Tribal Energy Plan Implementation: continue to update the Strategic Energy Plan implementation plan, secure funding to hire Energy Project Coordinator, and identify, and conduct feasibility of renewable energy projects for the CTUIR.

Energy

Hanford

- 19.2 Monitor Small Modular Nuclear Reactors (SMNR) and impacts/opportunities: engage in government-to-government consultations at Hanford, analyze impacts, opportunities, policy.
- 26.1 Track Hanford Waste Treatment Plans (DFLAW)& Hanford Natural Resource Damage Assessment: track and monitor progress to ensure effective damage assessment from Hanford.

Economics & Community

Emergency Preparedness & Response

- 10. Exercise Emergency Authorities: To protect life and property, the Executive Director shall exercise the emergency authorities delegated by the Board of Trustees through enacted laws and policies.
- 7.3-6 Develop A Response Plan and Team for Tribal Emergency Response etc

Food & Farms

- 4. Regenerative Agriculture: Effectively oversee the execution of the Regenerative Agriculture pilot project and prepare a strategic plan for the development of the CTUIR Farm and Agriculture Department and ensure current operations begin a positive direction into full regenerative processes.

Homes & Lands

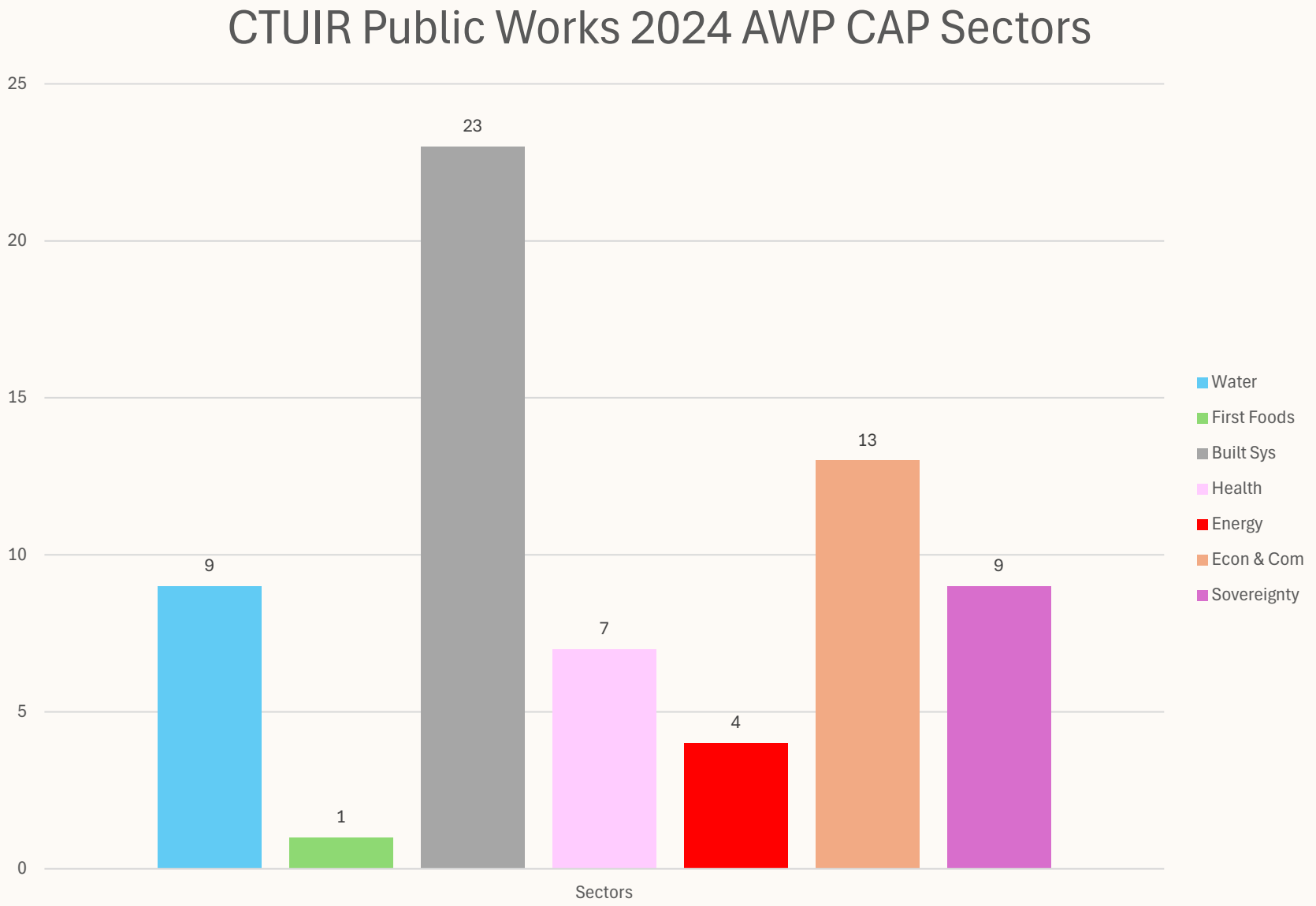
- 12.5 Analysis of Tribal lands purchased via Land Acquisition purchases and Land Buy Back Program to determine Tribal housing opportunities.
- 12.6 Work with NCFS on the creation of homeownership opportunities for homes purchased via Land Acquisition purchase and Land Buy Back Program.
- 7.2 Tribal Land Management Services: develop plan/strategy to improve Land Acquisition Strategy, develop recommendations to better manage tribal property, establish Land and Property management office, prepare plan to protect, utilize, manage, repair, lease tribal property, optimize use for Tribe and Tribal Members including housing, cultural heritage, etc.

Planning & Policy

- 1.Implement the policies, laws, and budgets of the CTUIR as adopted by the Board of Trustees.
- 2.b Budget Development and Implementation: Ensure accurate projections of revenue and expenditures, and recommend budgets for all operations, investments, and reserves, taking into consideration short- and long-term Tribal goals and economic self-sufficiency as directed by the Board of Trustees. Implement and authorize expenditures in accordance with Fiscal Management Policies and approved budgets.
- 6. Issue rules and regulations: The Executive Director shall have the authority to issue rules and regulations governing tribal government and administration as authorized by the Board of Trustees.
- 12. Strategic Planning and Goals: The Executive Director shall assist the Board of Trustees in planning and goal setting. Ensure implementation of such plans and goals as directed by the Board of Trustees. Regularly report to the Board of Trustees on progress made towards achieving goals.
- 2.1 Engage in Climate Change planning, community outreach, and strategy development and implementation.
- 2.2 Hire and direct the Climate Coordination Analyst in the Office of the Executive Director and coordinate the Climate Adaptation Plan implementation with the DNR and all other Departments and CTUIR Entities.
- 2.3 Develop Goals for Climate Gas (greenhouse gas produced on the reservation) Reduction and Set a Cap.
- 2.4 Assess and develop a Plan to Mitigate the Impacts to CTUIR First Foods.
- 2.7 Incorporate Climate Change Actions into All Tribal Departments and Tribal Entities.
- 7.1 Conduct an analysis/lessons learned and prepare a report on recommendations from past events (flooding, snow, wildfires)

Education

- 2.8 Continuing Education and Outreach on Climate Change to CTUIR Tribal Members & Local Community: Including Education on Our River and Uplands Visions.


CTUIR Public Works 2024 AWP CAP Sectors
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Sectors
Water
First Foods
Built Sys
Health
Energy
Econ & Com
Sovereignty

Water & First Foods

Operations & Funding

1.2 Research potential funding source opportunities for capital projects which include wastewater treatment and reuse of wastewater discharge, well site telemetry upgrades, road resurfacing, and facilities re-use and re-purposing.

3.1 Provide quality water and sewer services to the CTUIR service area.

3.4 Develop standard operating procedures (S.O.Ps) for the operations and maintenance of the water distribution and sewer collections system and equipment.

3.5 Proactively pursue funding to expand systems capacity by identifying and prioritizing program service needs in order to develop grant proposals consistent with Water and Sewer Program Missions.

3.7 Operate the water and sewer system, SCADA controls, and billing systems in a professional and fiscally responsible manner. Work closely with Finance for billing systems efficiency and solutions.

Water & First Foods

Landscape and Irrigation

2.4 Assess and repair existing irrigation systems on the upper campus. Ensure irrigation upgrades include water-efficient sprinkler heads. Implement xeriscaping to reduce water use and operations and maintenance for suitable landscape areas.

2.7 Maintain existing lawn, bedding, and irrigation systems at the NGC complex. In conjunction with the Native Plant Nursery, complete replacement of trees and shrubs surrounding the NGC complex with a focus on drought tolerant native species, reduce the amount of needed irrigation with xeriscaping, remove invasive vegetation, and ensure trees are spaced appropriately for tree health.

Built Systems

Planning & Monitoring

2.1 Develop predictive and preventive repairs for each tribal property to ensure longevity. Establish and document a property-by-property schedule of current, deferred, and capital maintenance needs. Ensure all aspects of the maintenance schedule incorporate safety and perform job walkthroughs by the responsible staff member to periodically to ensure work is being performed safely and effectively.

2.2 Hire additional staff to improve custodial services and groundskeeping services to all tribal facilities, grounds, and common day-use areas daily. Keep track of services performed and look for unsafe and high-cost areas which can be remedied by improvements or strategic staffing assignments.

3.10 Update G.I.S mapping and train staff on updated system operating procedures utilizing the G.I.S database for O&M tracking

4.4 Develop an updated Long Range Transportation Plan (LRTP) and submit it per CFR 170.

4.9 Study and present improved traffic flow/multimodal options on the Highway 331 Corridor, including heavy traffic in front of Wildhorse Resort. In coordination with CTUIR Planning, Finance, and Economic and Community Development Departments, apply for all available Federal Grants for these types of potential projects.

4.9 Improve access and safety on Mission Highway for pedestrians, biking, and equestrian traffic by adding sidewalks, multi-modal paths, and crosswalks. Improvements will focus on Mission Housing to the new education center and including the intersection at Highway 331 and Mission Road via available Grant Funding.

7.2-3 Identify short-term and long-term deficiencies and report to the Capital Improvements Committee.

Maintenance and Operations

2.12 Upgrade senior center parking and storm drainage and remove and replace sidewalks with upgraded ADA access.

4.3 Continue inspection, maintenance, and repair of Roads Program infrastructure, vehicles, and equipment within DPW internal and external programs.

7.1 Ensure current infrastructure (water/sewer and roads) adequately serves the community.

Health & Happiness

Environmental Health

2.3 In compliance with the Environmental Health Code and industry-standard safety expectations, perform intensive cleaning of facilities regarding safety, sanitation, and pest control on an ongoing basis or as determined by the facility schedule or use. Within school and daycare areas, ensure sanitation meets required health and safety guidelines.

Energy

Energy Efficiency

2.11 Continue to upgrade LED lighting in the NGC switching T8 lights over to LED.

Electric Vehicles

5.3 Conduct feasibility of transition to Electric fleet where appropriate based off data collection of fleet usage.

5.4. Design, Engineer & construct EV charging stations for the NGC.

5.5 Develop and Fill the vacant Fleet position within Public Works to act as liaison with the assigned point of contact for each department & program. This position will assist the Public Works Director in the development of the overall CTUIR Fleet Operations, maintenance, and transition to EV.

Economics & Community

Emergency Response

1.6 Identify and acquire the best emergency response equipment needed to respond to natural and man-made disasters. Train CTUIR employees and tribal members on the operations of equipment.

Community Engagement

6.6 Improve pride in workmanship and continue to promote community involvement by participating in events such as the community picnic and Elders programs.

Coordination & Communication

1.3 Promote coordination among CTUIR departments and entities – Tamastslikt Cultural Institute, Housing, Yellowhawk, and Wildhorse Resort Casino with emergency response, maintenance, and repair operations intended to increase cost efficiencies, purchasing power, and expertise.

1.10 Collaborate with DNR and other CTUIR departments on climate change planning, response actions, and opportunities while supporting the integration of the Climate Adaption Plan into decision-making processes.

3.6 Continue communications with IHS and Federal programs for adequate financial support services provided by the CTUIR Public Works department.

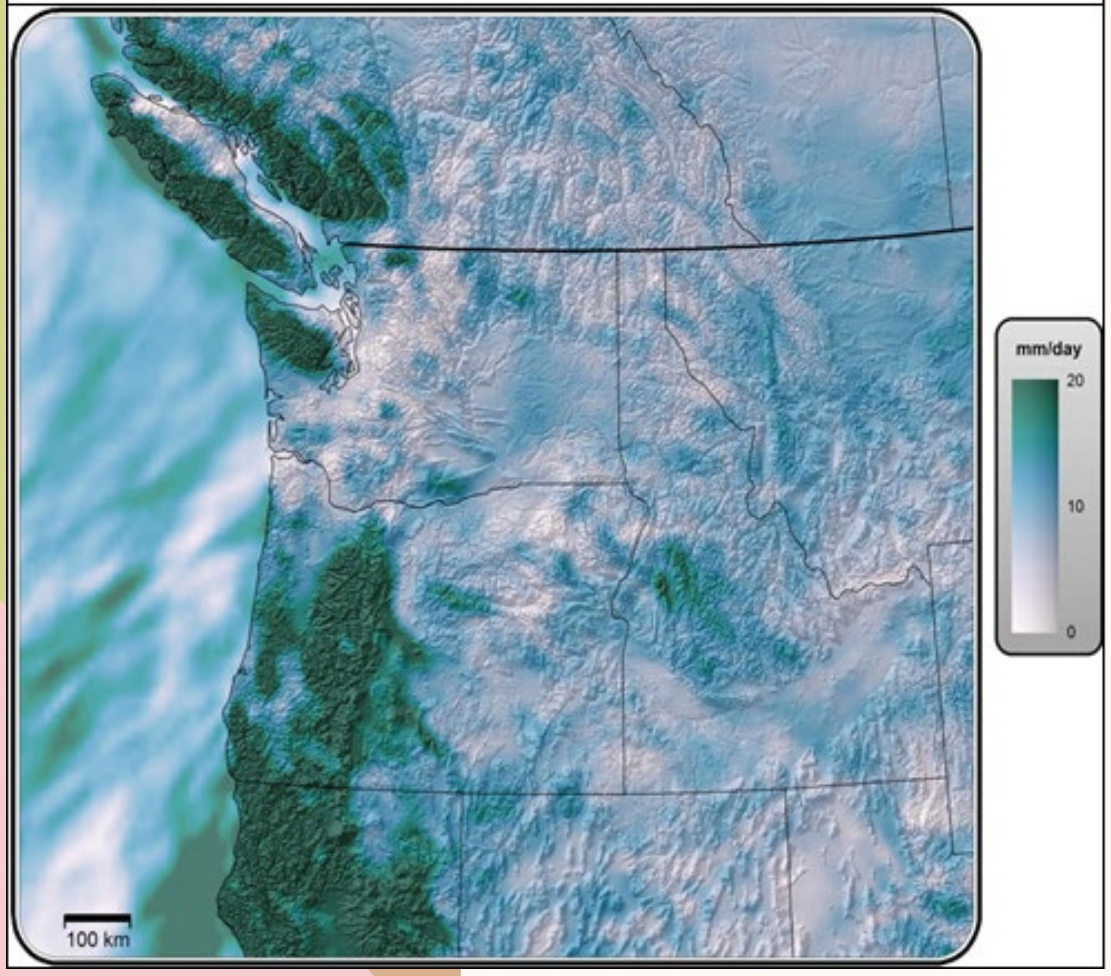
6.3 In coordination with Human Resources, provide available technical training for all Public Works staff, such as leadership training, first aid/CPR, OSHA safety training, and CDL training.

8.2 Budget: Oversee the implementation of the department's annual budget while seeking efficient business practices that maximize current funding. Monitor the use of the department's budget and ensure procurements are processed in a timely manner.

8.5 Management Team participation: Participate on the CTUIR Management Team to share information between departments, coordinate on projects, address issues that affect the entire organization.

HIGHLIGHTED CLIMATE IMPACTS – WATER

Figure 3A.2: Projected Increase in Heavy Precipitation by 2050

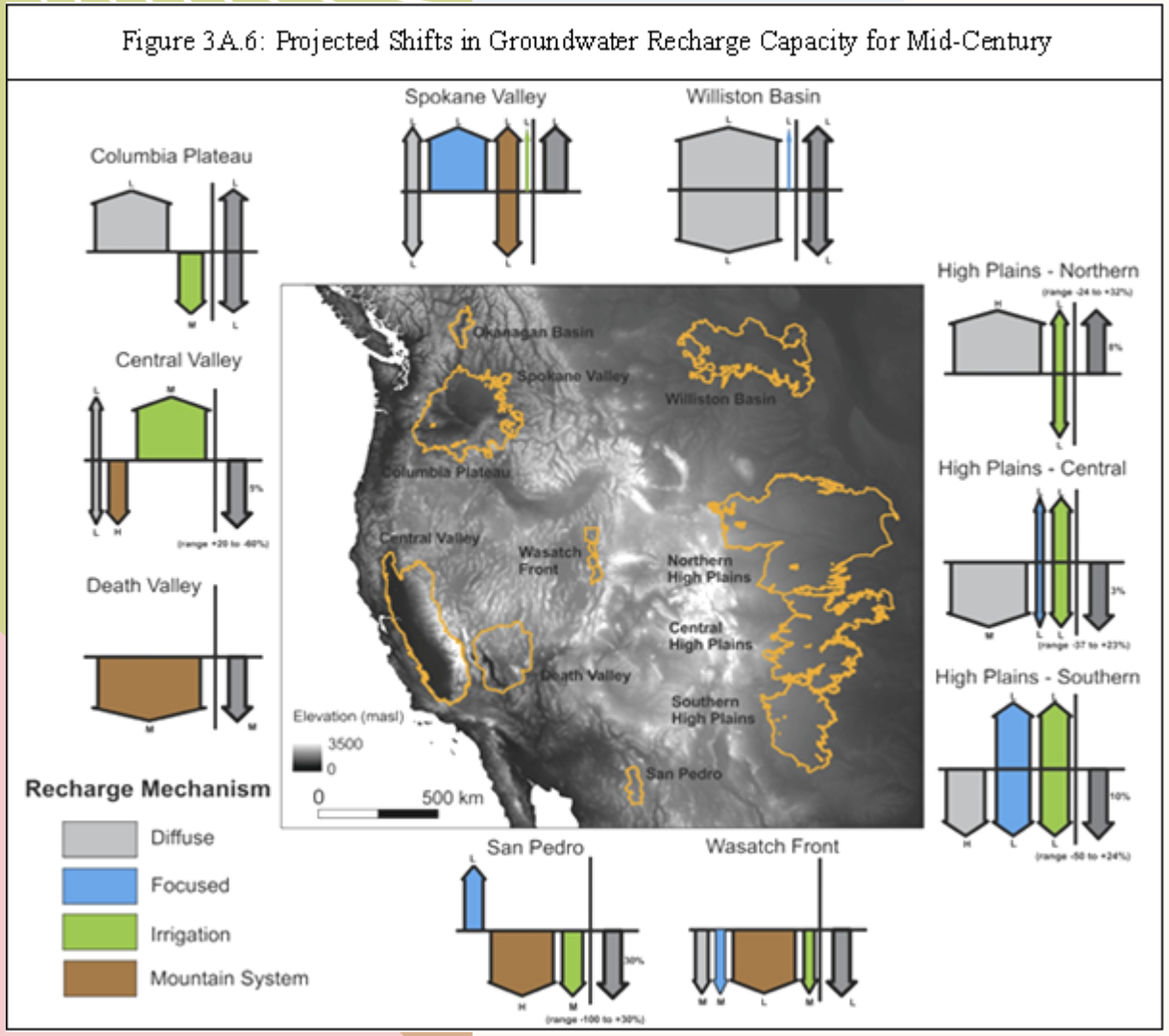


Faster Melt of Winter Water

Unlike snow, warm winter rain increases runoff into rivers and streams immediately, resulting in winter flooding. A single ROS event increases the volume of flow in a river basin by 12% per event (Eiriksson, 2012). This means that a rain-on-snow event will cause rivers to flood by 12% more than if the rain fallen on bare soil.

Increasing frequency of heavy precipitation events, measured as estimated 12% increase in the maximum daily precipitation into 2050 (Salathe et al, 2014) as seen in Figure 3A.2 (page 46).

HIGHLIGHTED CLIMATE IMPACTS – WATER



Depletion of Groundwater & Surface Waters

Residential and municipal demands on freshwater will continue to draw from groundwater. If not managed in accordance with recharge capacity, groundwater sources will be depleted, and can have negative impacts on surface-water base flows.

Overall, the study found that total Columbia Plateau groundwater recharge decreased, because the decrease in irrigation recharge (-37 mm) was larger than the increase in diffuse recharge (+6 mm) (Meixner, 2016) as seen in Figure 3A.6 (page 58).

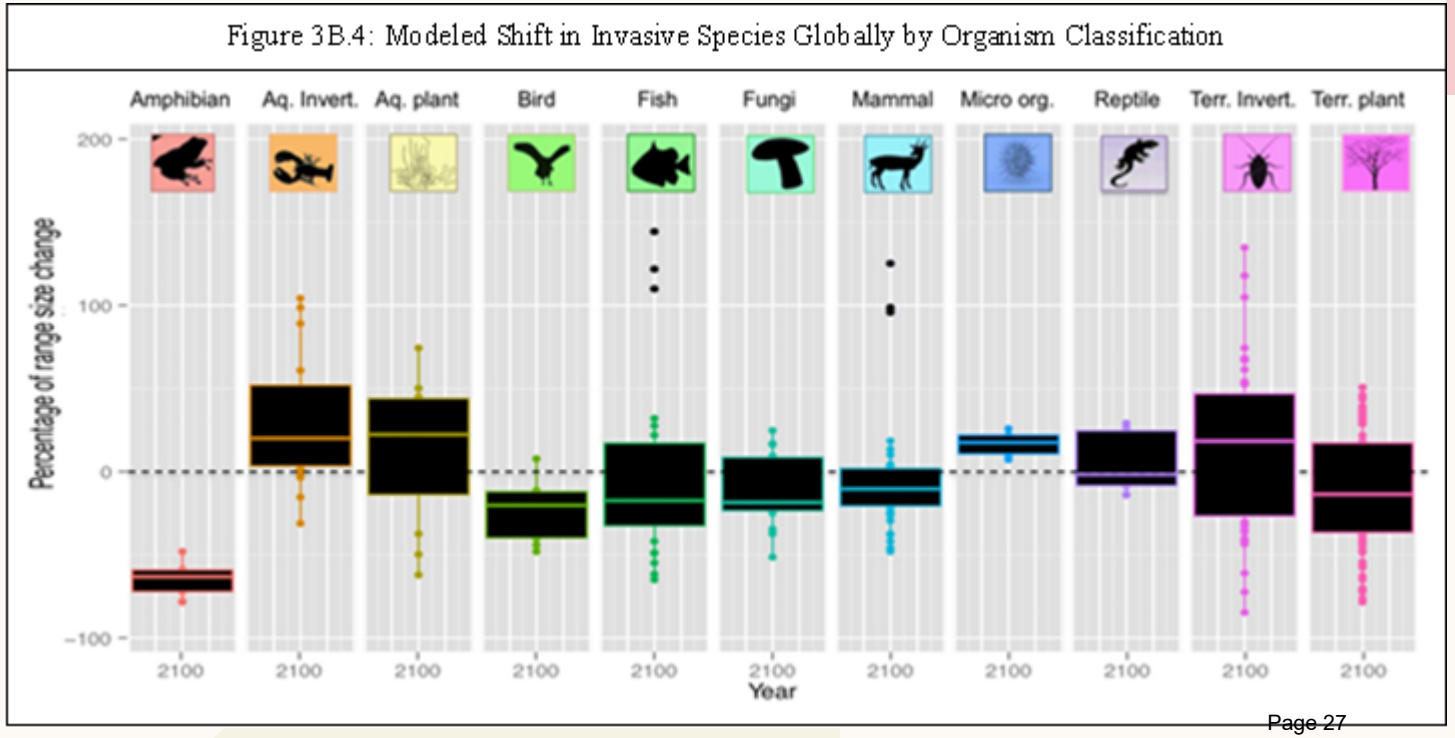
HIGHLIGHTED CLIMATE IMPACTS –FIRST FOODS

Increased Invasive Species Pressure

Within aquatic systems, invasive mussel and predatory fish species thrive in hotter water temperatures which stress native fish. In terrestrial landscapes, invasive grasses are better suited to summer drought than native shrubs and trees. Additional atmospheric stress could increase invasive species competitive advantage over desired native First Foods and habitat species.

Aquatic Invertebrates (+59%) and Plants (+12%), and Terrestrial insects (+18%) will experience the largest Increase (Bellard et al 2013) in Figure 3B.3 (page 75).

Specific weeds expected to increase include **Cheatgrass, Yellow starthistle, and Saltcedar** (Gervais et al 2020).



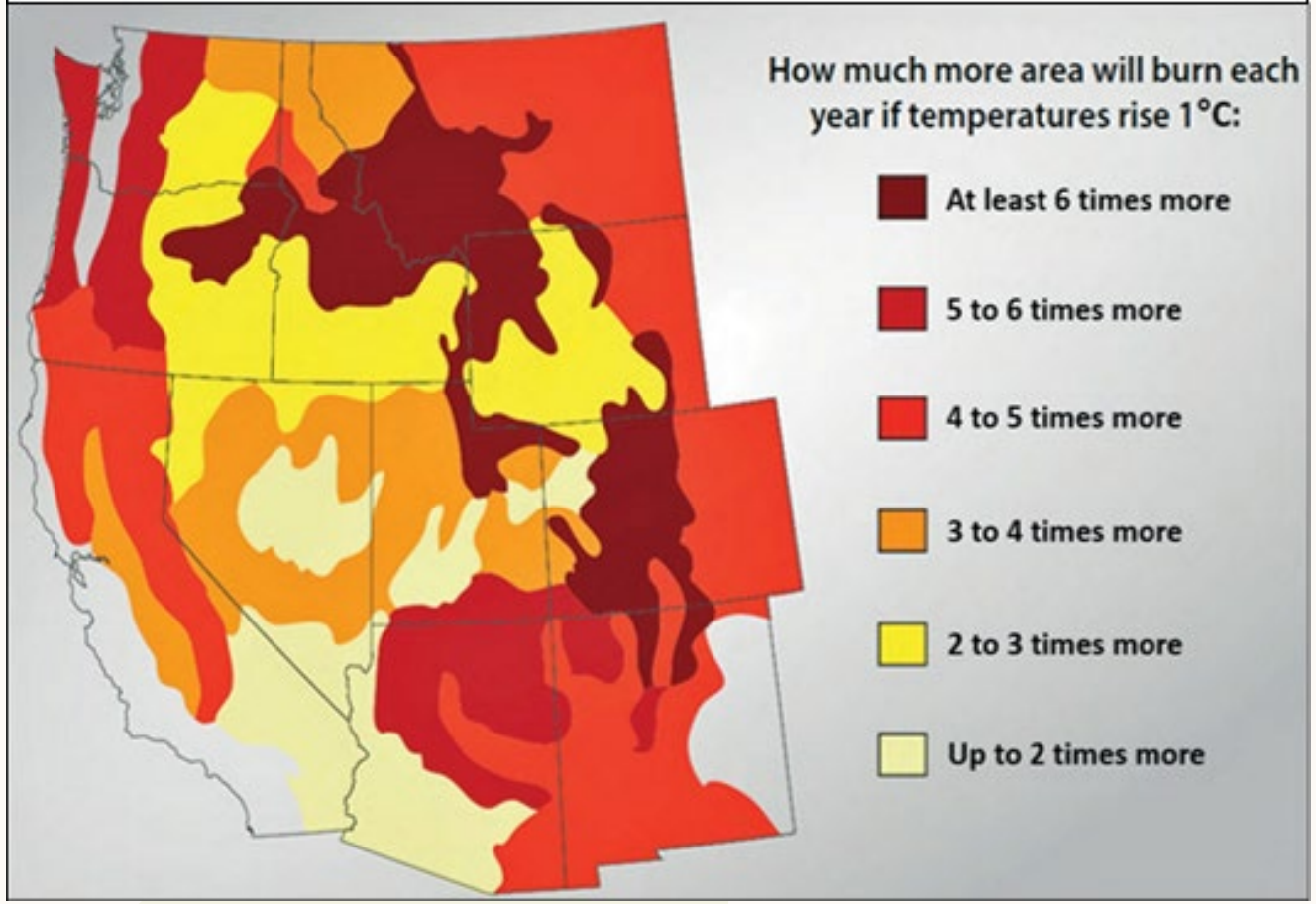
HIGHLIGHTED CLIMATE IMPACTS –FIRST FOODS

Increased Frequency & Severity of Wildfire Risk

Land management and climate impacts increase the possibility of experiencing a catastrophic wildfire.

2-3 times increase in risk along the Columbia River, with the Blue Mountains likely to experience 6 times greater risk of fire for a 1˚C (1.8˚F) increase (USFS, 2017) as shown in Figure 3B.9 (page 94).

Figure 3B.9: Projections of Increase in Wildfire Due to 1˚C Temperature Increase



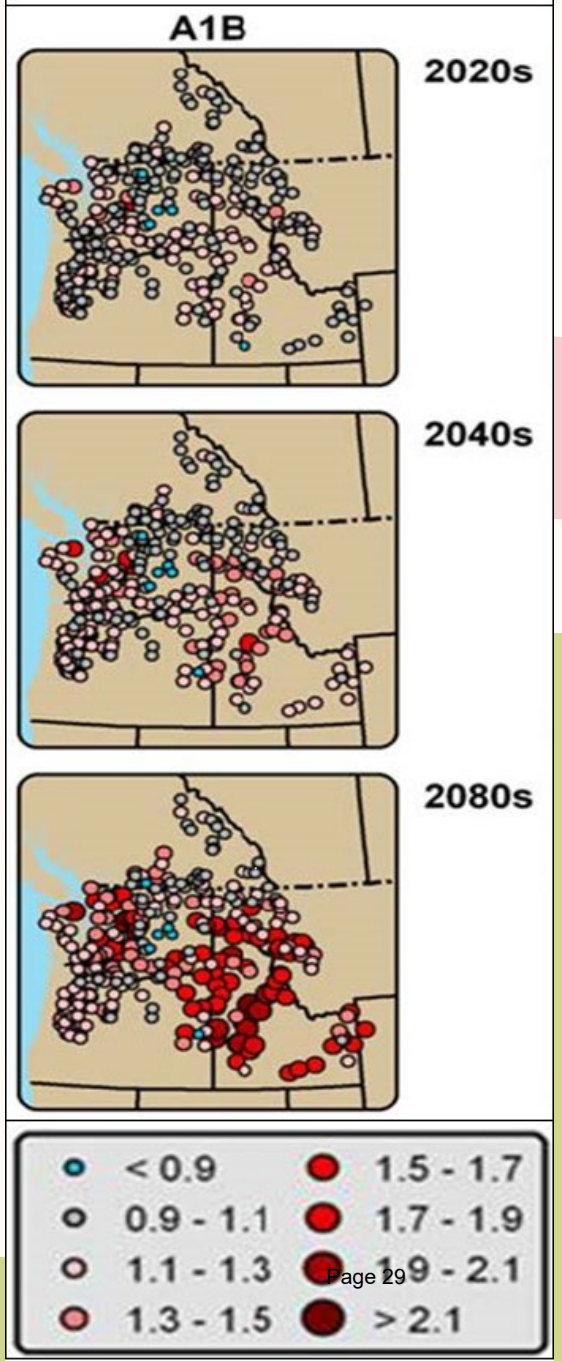
HIGHLIGHTED CLIMATE IMPACTS – BUILT SYSTEMS

Increased Severity and Frequency of Storms

Seasonal flooding events will increase in magnitude, though large annual variability will exist. Flooding and associated storms are likely to increase damage to homes and buildings, cause roadway blockages, and down power lines.

20-30% increase in 100-year flood events by 2040 (Tohver and Hamlet, 2010) as seen in Figure 3C.1 (page 108).

Figure 3C.1: Ratio of 100-Year Flood Statistics into the Future

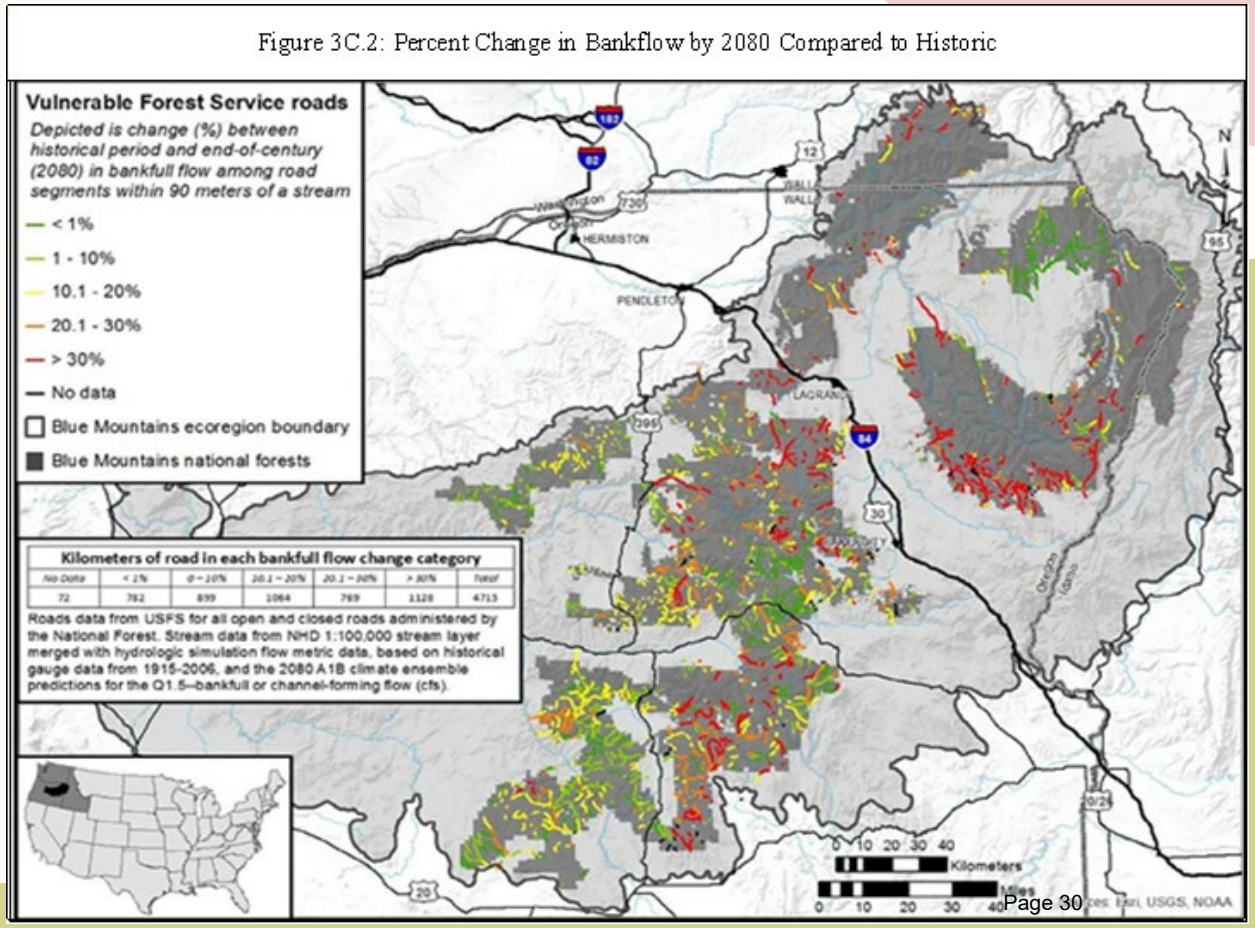


HIGHLIGHTED CLIMATE IMPACTS – BUILT SYSTEMS

Increased Vulnerability of Transportation Infrastructure

Transportation to cultural sites and harvest opportunities to exercise Treaty Rights require access roads for Tribal members. USFS low traffic roads in forested lands are especially necessary for First Foods access. Many stream-adjacent sections of these roads will be threatened by flooding.

Roads in the Powder and Burnt River basins, southwestern Malheur River, Grande Ronde River, and southern Eagle Caps Wilderness have 20-30% + risk from floodwaters; least threatened is the Wenaha-Tucannon Wilderness, with 10% or less of risk change, as seen in Figure 3C.2 (page 109).

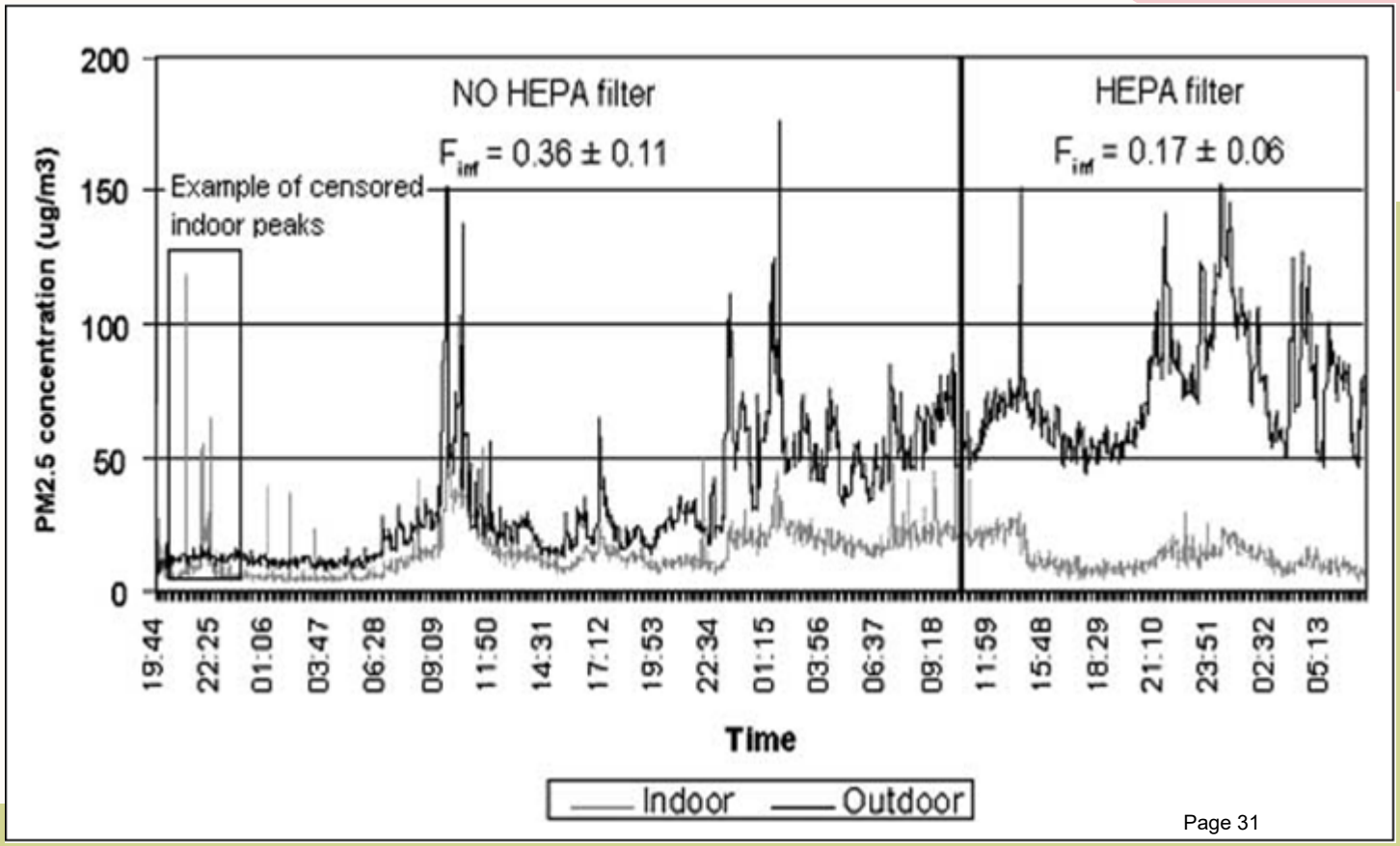


HIGHLIGHTED CLIMATE IMPACTS – BUILT SYSTEMS

Increased Stress on Indoor Air Filtration Systems

Stress on air filtration systems for facilities of all sizes will increase as particle pollution from many sources increases. Indoor HVAC and filtration systems are likely to need to be upgraded for changing climate demands.

During nearby smoke events, **use of HEPA filters provides 58% reduction in particle exposure compared to non-filtered indoor conditions** (Barn et al, 2008), as shown in Figure 3C.3 (page 111).



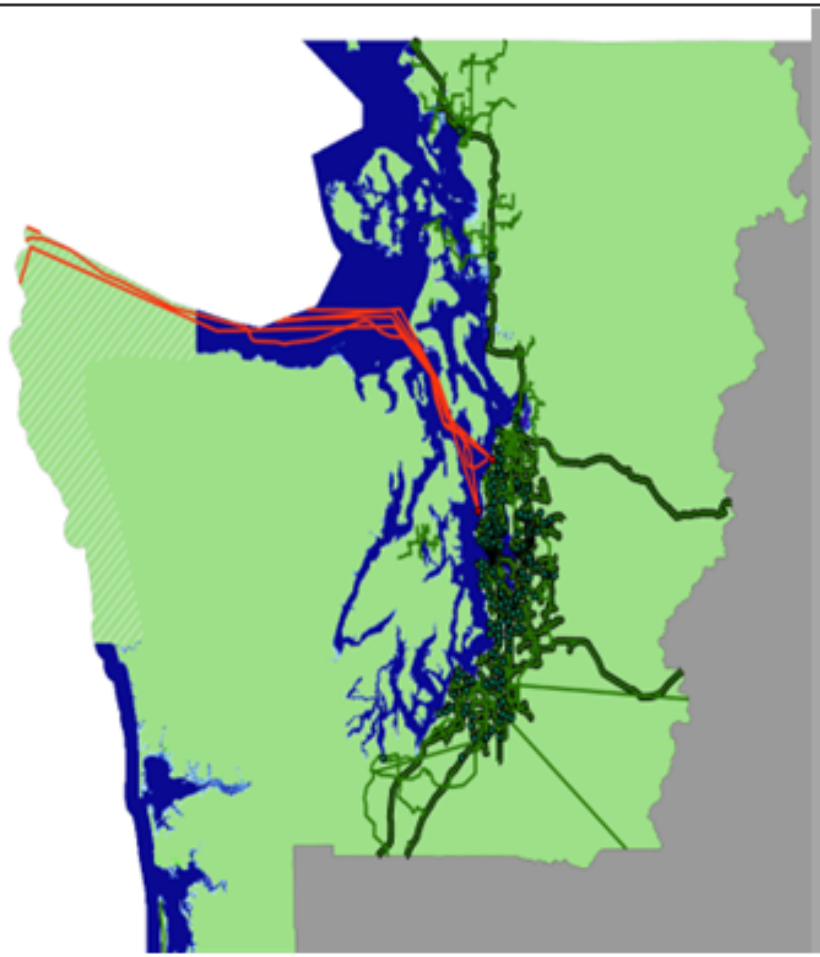
HIGHLIGHTED CLIMATE IMPACTS – BUILT SYSTEMS

Potential Disruption of Communication Networks

Telecommunications networks have physical infrastructure that spans large areas of the Pacific Northwest region to bring telephone and internet access to residents of Oregon, Washington and Idaho. These networks have cables and connection hubs that are threatened by climate change impacts and extreme events.

Estimated **236 miles (23%) of fiber optic line in the region is at risk of seawater inundation** (Durairajan et al, 2018) as seen in Figure 3C.5 (page 125).

Figure 3C.5: Telecommunications Infrastructure Threatened by Sea Level Rise



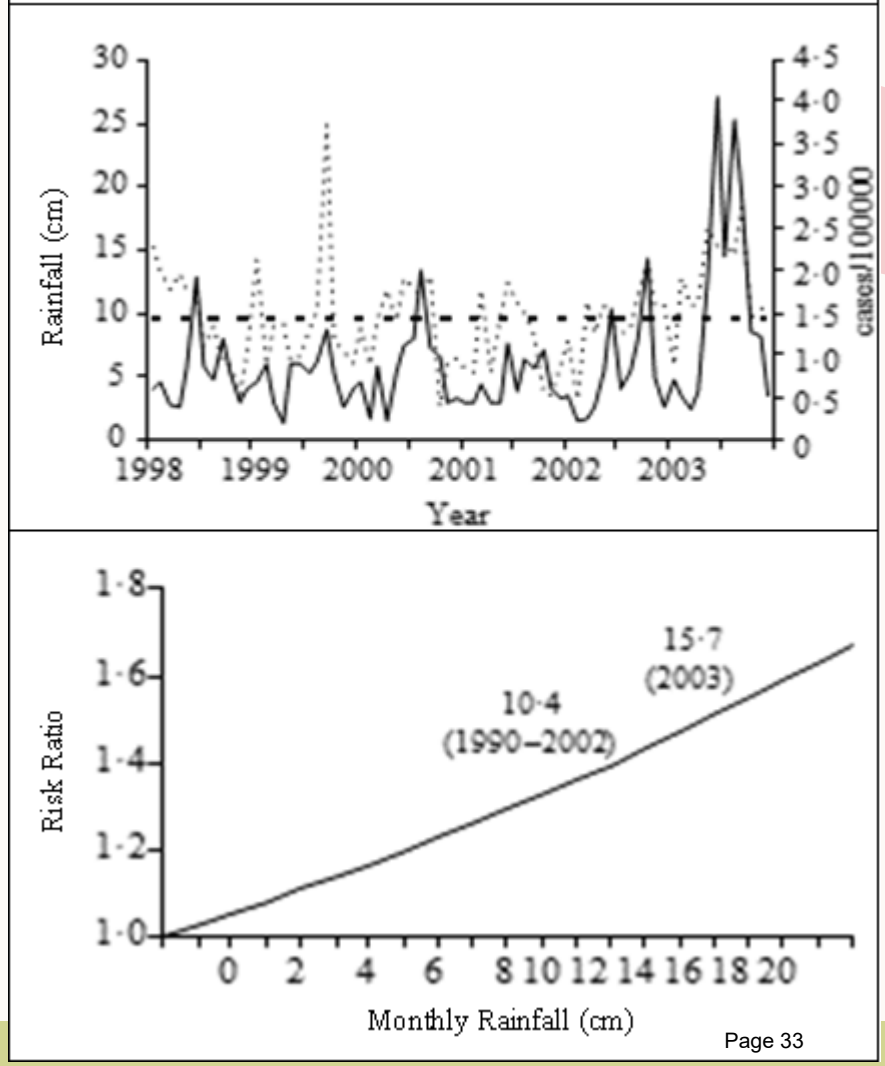
HIGHLIGHTED CLIMATE IMPACTS – BUILT SYSTEMS

Increased Potential for Water– and Air-borne Pathogens

Aging water delivery infrastructure exposed to flood and heat stress can transmit water-borne infectious diseases. Some infectious diseases can become air-borne through water outlets such as toilets and sinks, and can become more virulent as air temperatures increase.

1 cm increase in rainfall results in a 2.6% chance of contracting disease; a 1°C (1.8 ˚F) increase correspond to a 2.8% increase in likelihood of contracting the disease (Hicks et al, 2007), as seen in Figure 3C.7 (page 128).

Figure 3C.7: Precipitation and Incidences of Legionnaires Disease Over Time (Top) and in Relation to Rainfall (Bottom)



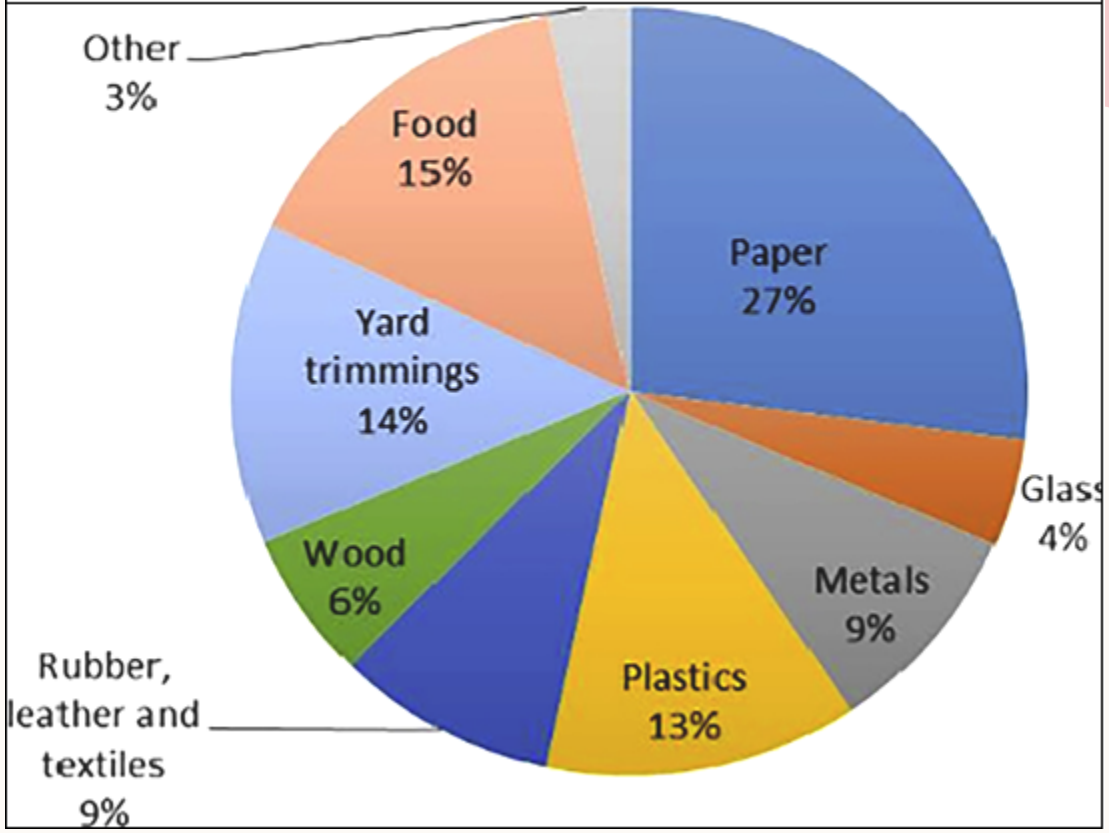
HIGHLIGHTED CLIMATE IMPACTS – BUILT SYSTEMS

Opportunities to Mitigate Carbon through Materials Management and Recovery

Waste is a huge contributor to greenhouse gas emissions and represents a large potential to develop adaptation. Much of the municipal solid waste in landfills is biodegradable and could be diverted and recovered, and other materials are recyclable if necessary infrastructure is present.

62% of the materials in landfills are biodegradable, and other non-biodegradable waste materials make up 13% that could be recovered and reused in triage management streams (Abdel-Shafy and Mansour, 2018) as seen in Figure 3C.8 (page 130).

Figure 3C.8: Analysis of Waste Components within the United States



HIGHLIGHTED CLIMATE IMPACTS – HEALTH

Complications from Extreme Heat

Heat is an incredibly dangerous form of storm, and can take a devastating toll on both healthy and vulnerable community members. As extreme heat worsens health complications, especially for those chronically exposed such as outdoor workers and unsheltered persons, and those with existing health issues.

Extreme heat (at or above 90˚F) has potential to cause health complications within humans in at least 27 different ways (Mora et al 2017)**,** as seen in Figure 3D.1 (page 141).

Figure 3D.1: Potential Pathways of Complication from Heat

Organs	Mechanisms				
	Ischemia	Heat Cytotoxicity	Inflammatory Response	Disseminated Intravascular Coagulation	Rhabdomyolysis
Brain	X	X		X	
Heart	X	X			
Intestines	X	X		X	
Kidneys	X	X	X	X	X
Liver	X	X	X	X	X
Lungs		X	X	X	X
Pancreas	X		X		

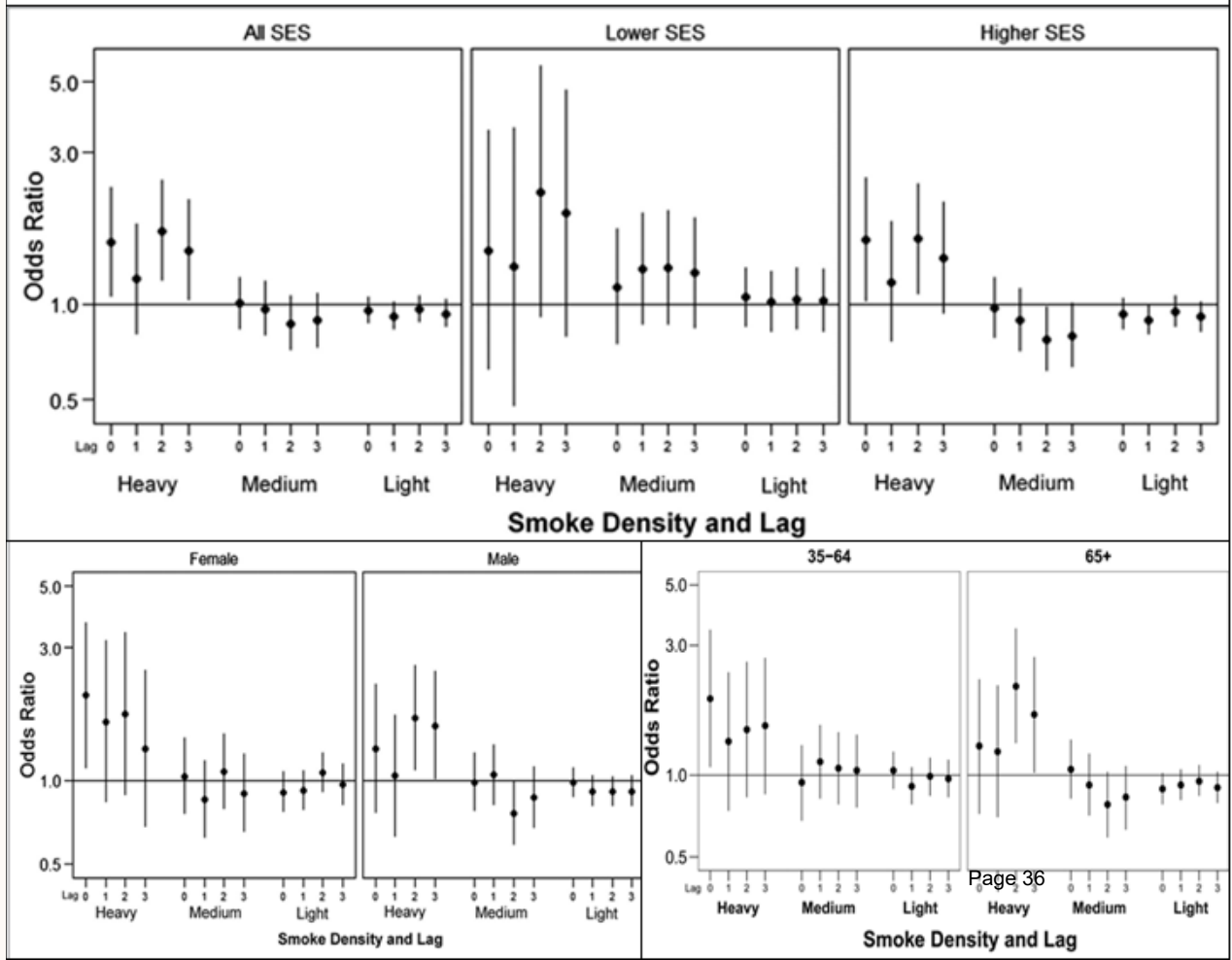
HIGHLIGHTED CLIMATE IMPACTS – HEALTH

Complications From Wildfire Smoke

Particle pollution has a very negative effect on health, especially for those who are chronically exposed, and who live with pre-existing illness. Complications from smoke will increase morbidity and mortality around each event.

Heavy smoke events result in a **9.0% increase in the odds of same-day respiratory mortality, and a 14.0% increase in the odds of same day COPD mortality. Cardiac arrest risk increased 70%** as seen in Figure 3D.2 (page 142)**. There was also a 4.9% increase in lung cancer and 10% increase in brain cancer associated with smoke exposure** (Jones et al 2020).

Figure 3D.2: Increased Risk of Out of Hospital Cardiac Arrest (OHCA) Due to Wildfire Smoke Over Time

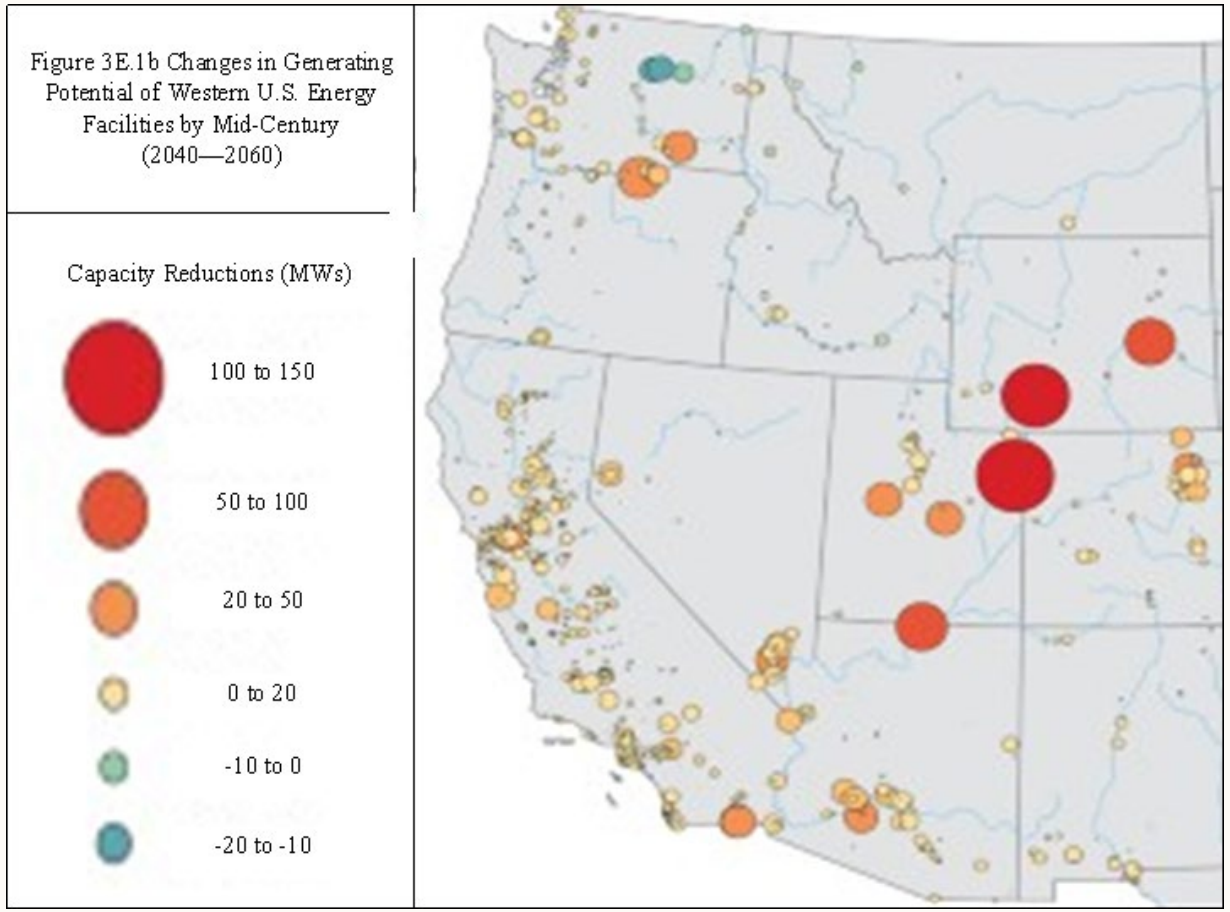


HIGHLIGHTED CLIMATE IMPACTS – ENERGY

Shifted Hydropower Generation Potential Due to Changing Hydrology

Energy generated from hydroelectric facilities will face a constriction in the amount of power they are able to generate from seasonal water supplies due to shifting hydrologic patterns.

By 2040s hydropower production in summer decreases 13-16% (2.5-4.0% annually); by 2080s hydropower production in summer decreases 18-21% (3.0-3.5% annually) (Hamlet et al 2010) as seen in Figure 3E.1a (page 180).



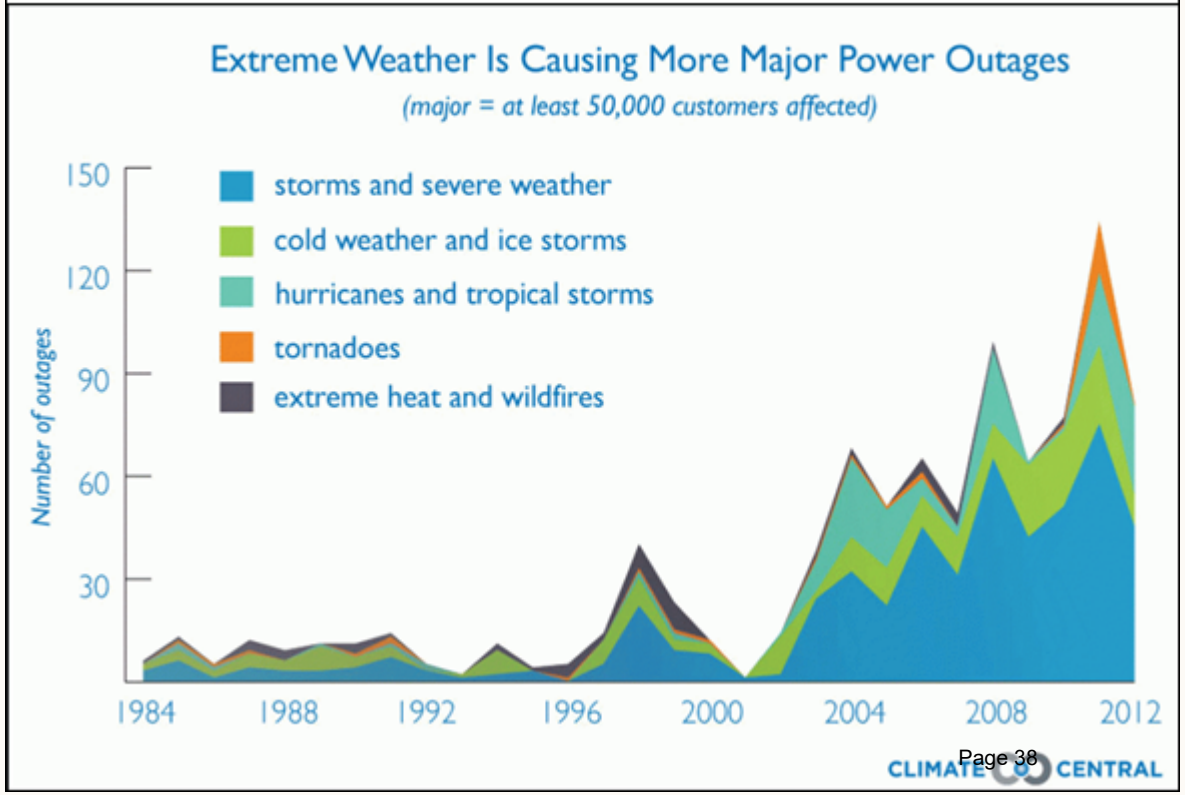
HIGHLIGHTED CLIMATE IMPACTS – ENERGY

Transmission Interruptions Become More Frequent

Energy transportation will see impacts from aging infrastructure as well as climate change. Moving energy from generation sites to end users depends on a highly integrated network of transmission infrastructure that will be threatened.

Storms and severe weather cause 59% of weather-related outages, 19% by cold weather and ice storms, and **2% by a combination of extreme heat events and wildfires (**Kenward and Raja 2014) **with roughly 800% increase in interruption over the past 26 years,** as seen in Figure 3E.2 (page 183).

Figure 3E.2: Electrical Transmission Interruptions Increased in Recent Years

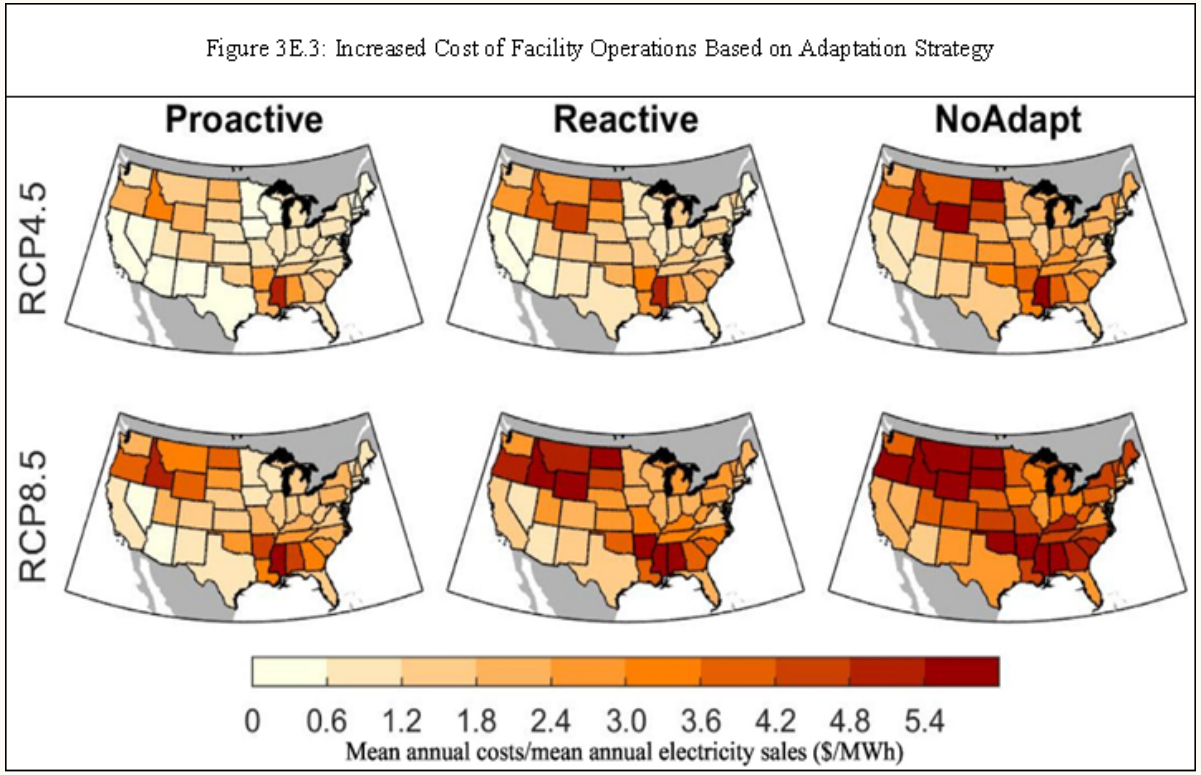


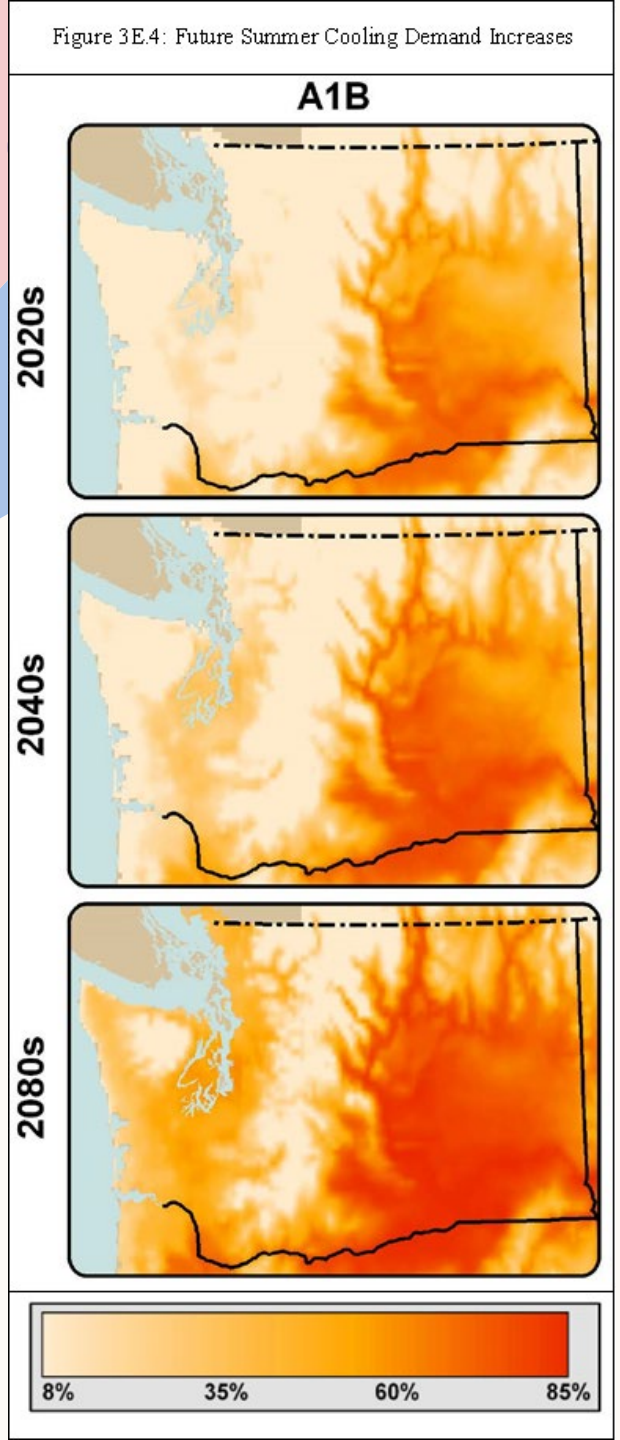
HIGHLIGHTED CLIMATE IMPACTS – ENERGY

Energy Facility Operating Costs Increase

Increasing intensity of extreme weather events creates challenges for energy generation facilities, and cost to operate facilities is likely to increase as routine and emergency maintenance is required. These costs are likely to be passed on to taxpayers and utilities customers.

State of Oregon may experience a projected 2-4$/MWh for a Proactive response, 3-4 $/MWh increase for a Reactive response, and a 4-6 $/MWh for No Adaptation response by the end of the century (Fant et al 2018) as seen in Figure 3E.3 (page 185).





HIGHLIGHTED CLIMATE IMPACTS – ENERGY

Increased Demand for Summer Cooling

As summer temperatures rise, the Pacific Northwest will experience a shift in energy demand from winter heating to summer cooling, and the usage of air conditioners as a life-saving necessity.

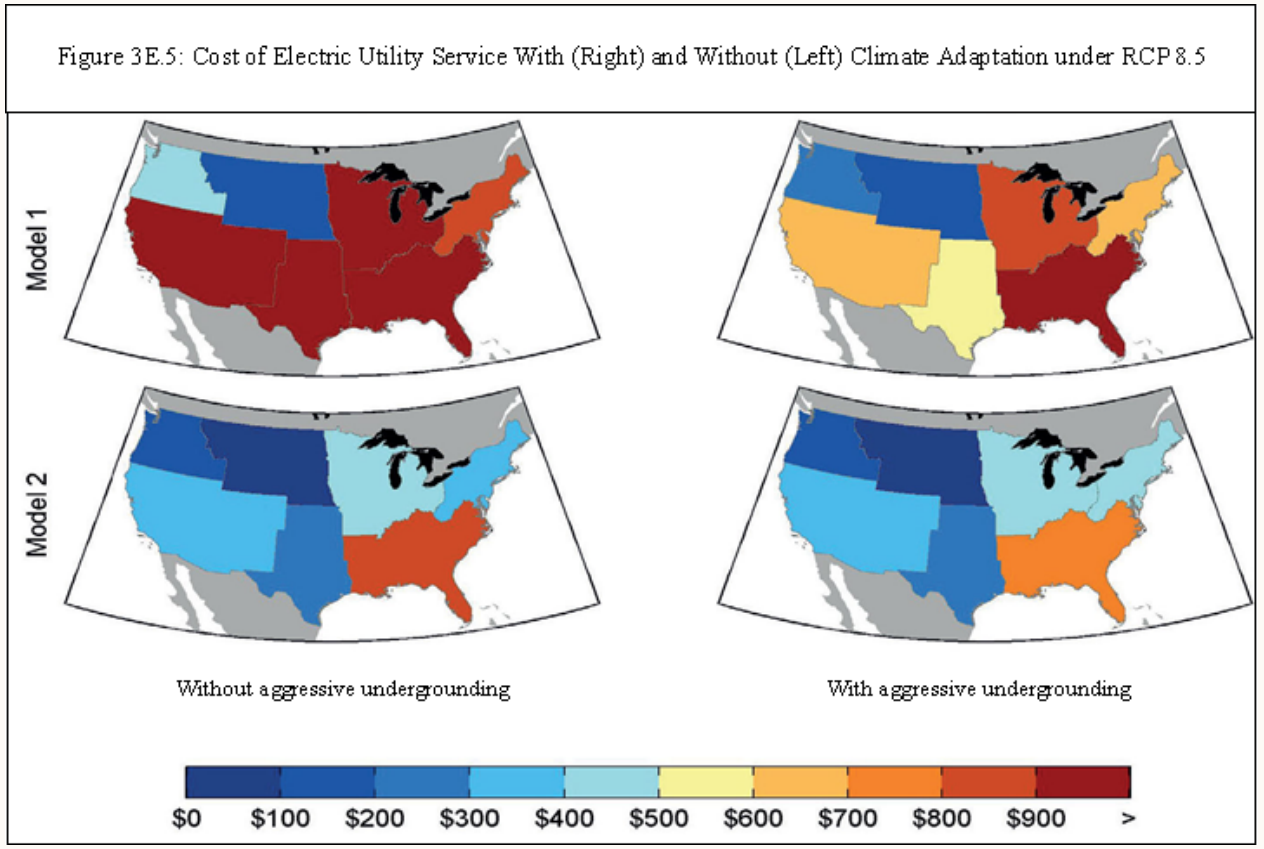
Cooling demand during summer months is estimated to increase 363 - 555% by 2040, and 981-1,845% by 2080 in the Columbia River region (Hamlet et al 2010), as seen in Figure 3E.4 (page 200).

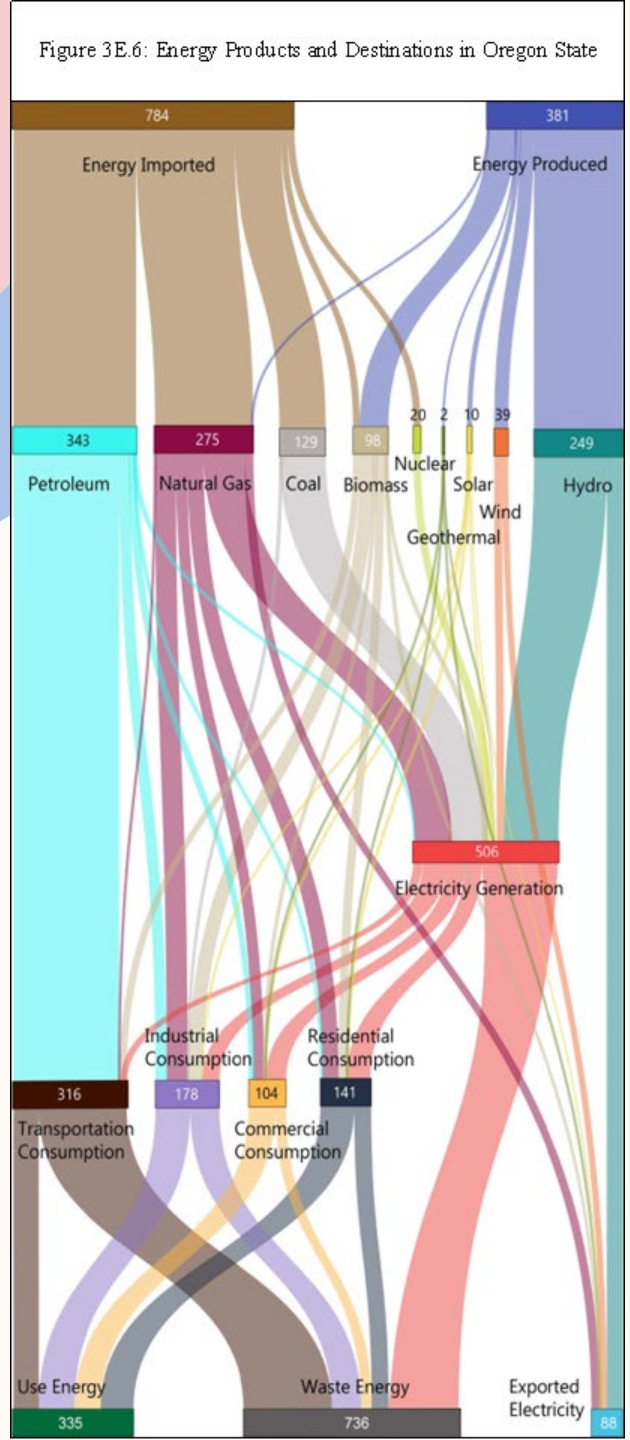
HIGHLIGHTED CLIMATE IMPACTS – ENERGY

Energy Prices Likely to Increase

Increasing costs to generate and transmit energy will likely be passed to utility customers, though in some places adaptation and energy efficiency could mitigate for these increases.

Energy costs to utilities customers are estimated to increase $100-$400 billion dollars by 2100 regardless of energy adaptation (Larsen et al 2018), as seen in Figure 3E.5 (page 201).





HIGHLIGHTED CLIMATE IMPACTS – ENERGY

Opportunities for Energy Efficiency to Reduce Carbon Demand

Losses of energy are a source of unnecessary greenhouse gases releases into the atmosphere, and represent points of diversion where carbon emissions can be reduced.

42.4% of Oregon's energy consumption is in the form of electricity; 25.5% as "direct use fuels;" and 32.1% as transportation fuels (Oregon Biennial Energy Report 2020) as seen in Figure 3E.6 (page 203).

MITIGATION VS. ADAPTION

Mitigation = Short-Term

Is an immediate reaction to climate change. The actions an organization makes to reduce environmental impacts that could include altering services to clients or patients.

Adaptation = Long-Term

Is a preventative response to climate change. These are proactive actions on organization takes to continue continuity of services under changing conditions to reduce future impacts to the environment.

SMALL GROUP ACTIVITY

Employee impacts
Client/Customer Responses
Service adjustments

Resiliency: what can we do in the short-term and what can we adjust for the long-term?

PARTICIPANT REFLECTIONS & TAKEAWAYS

STICKY NOTE BOARD --

Reporting back to the larger group for reflections

- Sticky notes
- FFPP will generate workshop takeaways per session for participant review

Post-meeting

- Share with the rest of your staff
- Record staff responses and suggestions
- Email FFPP post-workshop department notes

POST WORKSHOP SURVEY

Q1: To what degree do you feel your department has a role to play in climate adaptation/response?

Q2: What level of awareness or understanding do you feel you have about climate impacts that are/will affect CTUIR priorities?

Q3: Evaluate the statement: I feel I have a firm understanding of the role my position can contribute to being prepared for the effect of climate crisis mitigation and adaptation

EMAIL FFPP WITH QUESTIONS OR FOLLOW-UP NEEDS

FirstFoods@ctuir.org

THANK YOU