



Missoula City and County Sustainability Initiatives

Chase Jones, City of Missoula

Diana Maneta, Missoula County











Outline

A person wearing green waders is holding a large rainbow trout in a river. The fish has a greenish-brown back with dark spots and a pinkish-red stripe along its side. The background shows a calm river reflecting the sky, with snow-capped mountains in the distance under a clear blue sky.

1. Climate Ready Missoula

2. ZERO by FIFTY

3. 100% Clean Electricity



Climate Change Impacts All of Us.

**Let's Get
Climate Ready, Missoula**



Project Leads + Steering Committee

Diana Maneta, Missoula County

Amy Cilimborg, Climate Smart Missoula

Caroline Lauer, Climate Smart Missoula

Chase Jones, City of Missoula



Adriane Beck, Missoula Co. Office Emergency Management

Bonnie Buckingham, Community Food & Ag Coalition

Bryce Christiaens, Missoula County Weed District

Donna Gaukler, City of Missoula Parks & Recreation

Heather Harp, Missoula City Council

Paul Herendeen, Clearwater Credit Union

Karen Hughes, Missoula Co. Community & Planning Services

Gwen Lankford, Sapphire Strategies, Inc.

Alex Leone, Clark Fork Coalition

Laval Means, City of Missoula Development Services

Nick Silverman, Adaptive Hydrology LLC

Dave Strohmaier, Missoula County Commission

Shannon Therriault, Missoula City-County Health Dept

Laurie Yung, University of Montana

What does climate change mean for Missoula County?



Higher Temperatures



Drier Summers and Drought



Wetter Springs and Flooding



Wildfires



Wildfire Smoke

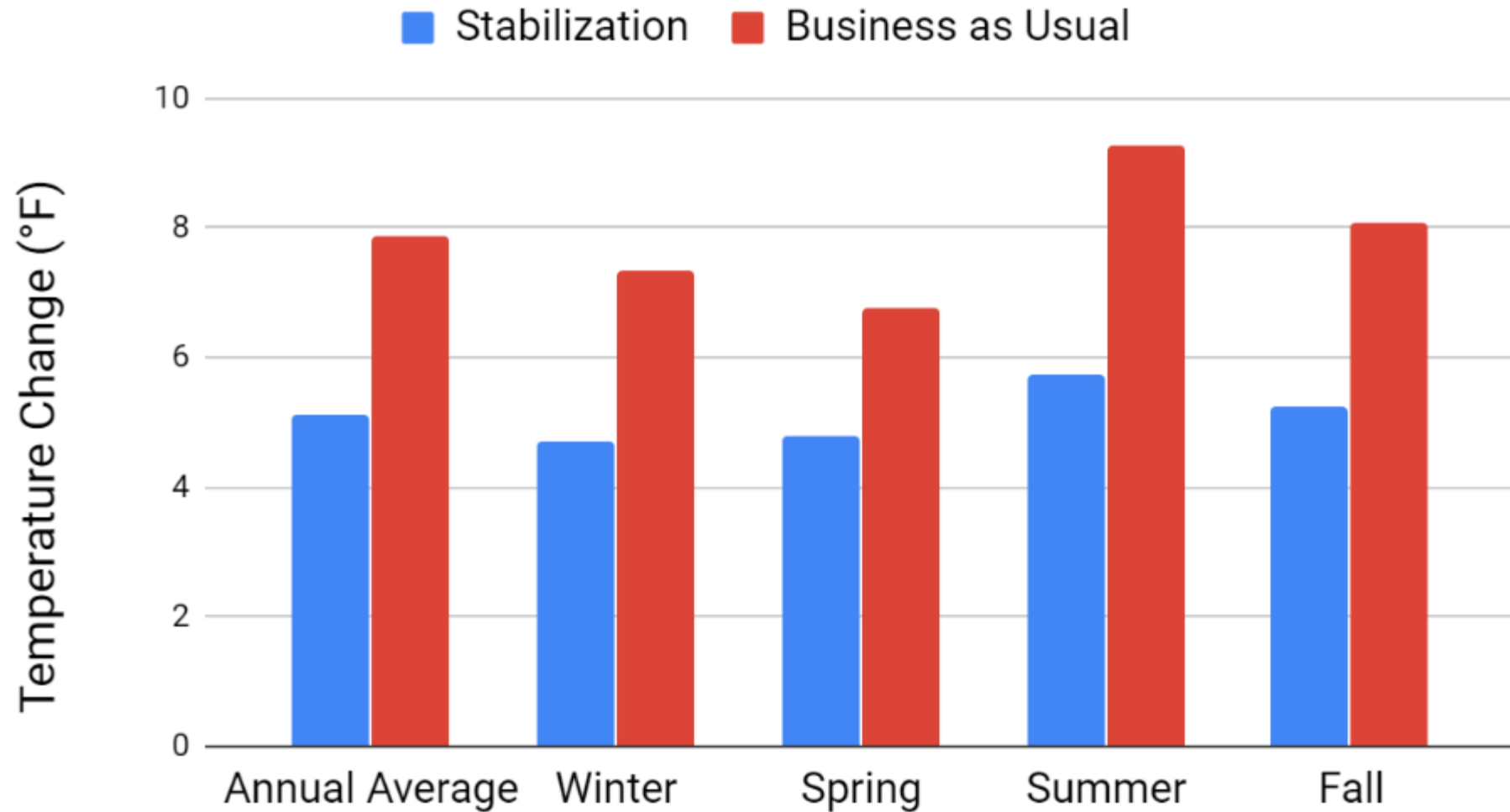


Climate Variability



Climate Migration

What does climate change mean for Missoula County?



Climate Ready Missoula | **Process**

Phase

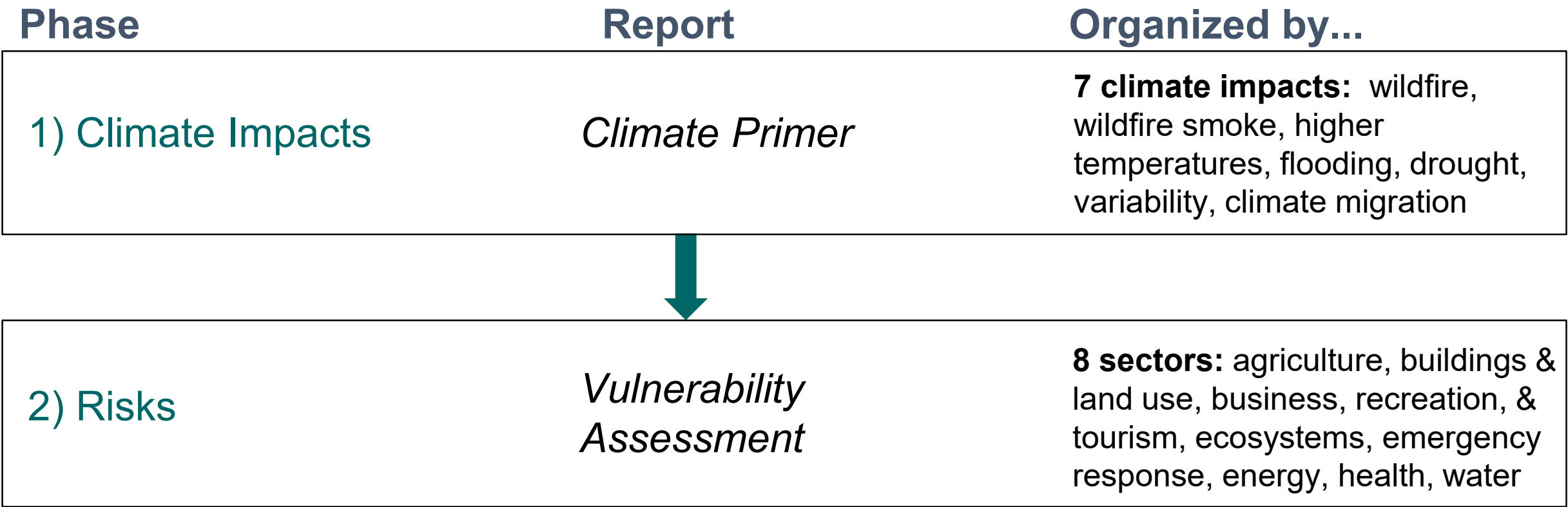
Report

Organized by...

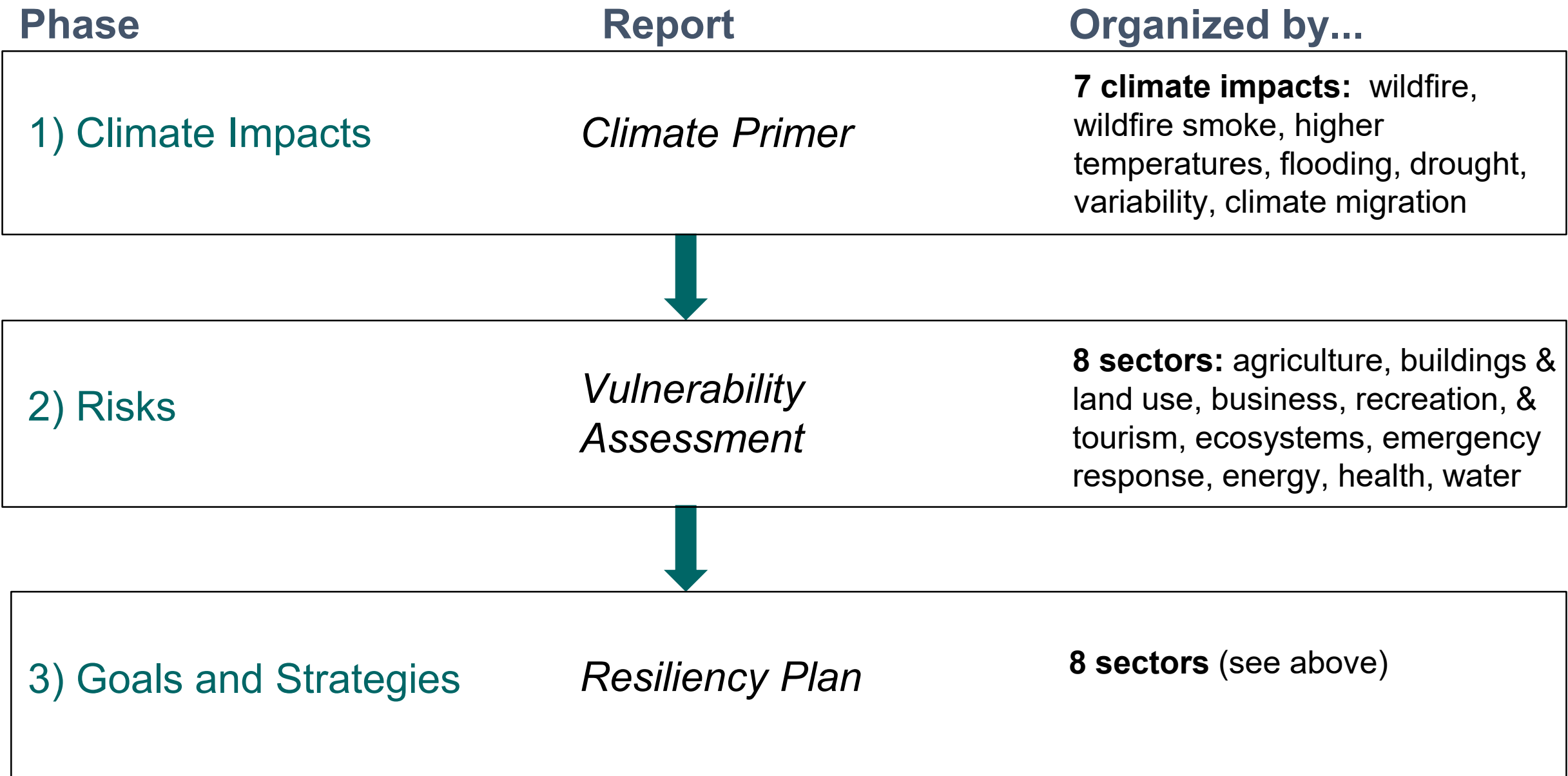
Climate Ready Missoula | **Process**

Phase	Report	Organized by...
1) Climate Impacts	<i>Climate Primer</i>	7 climate impacts: wildfire, wildfire smoke, higher temperatures, flooding, drought, variability, climate migration

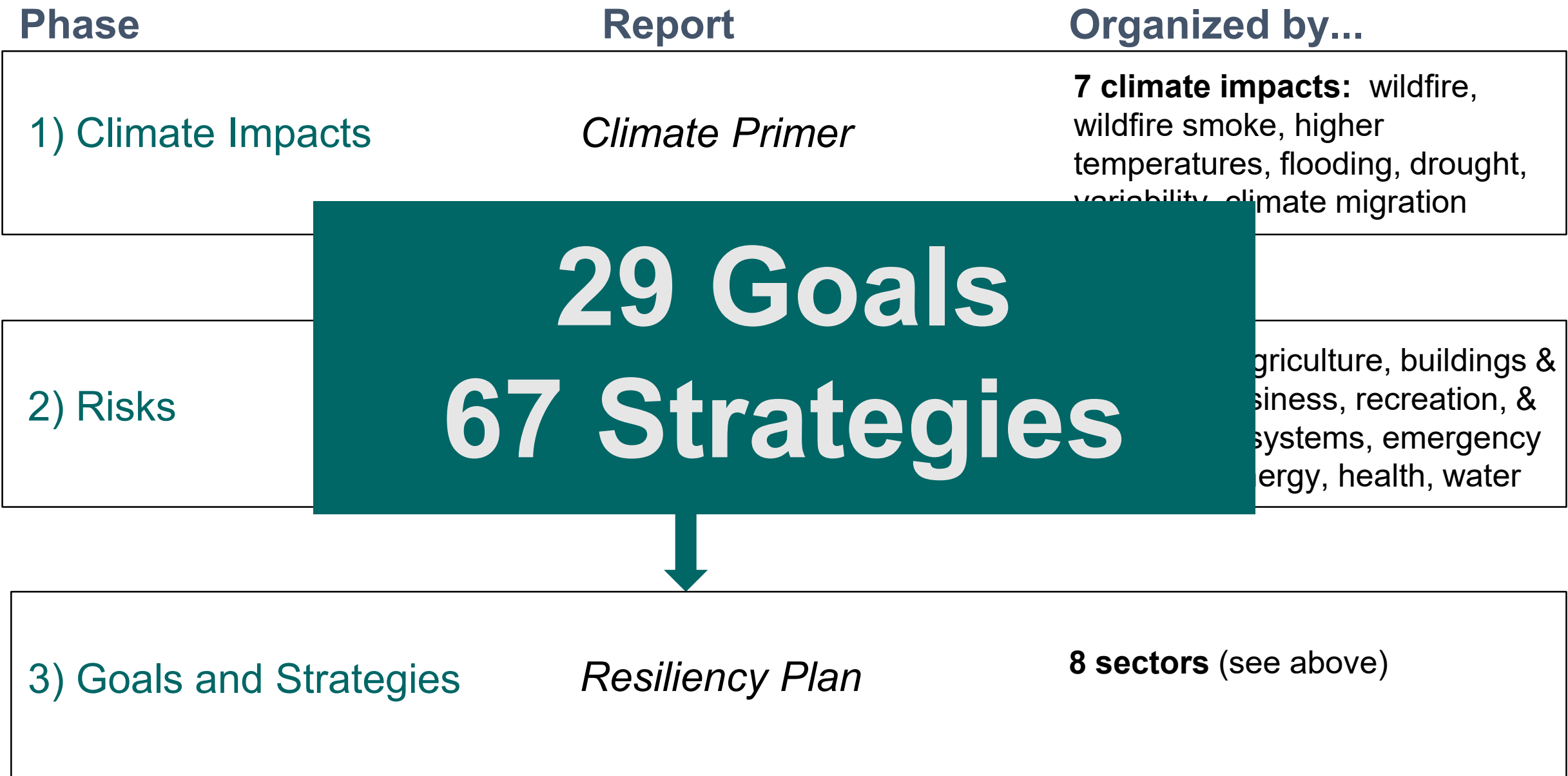
Climate Ready Missoula | **Process**



Climate Ready Missoula | **Process**



Climate Ready Missoula | **Process**



Buildings and Human Health | Risks + Strategies



Buildings and Human Health | Risks + Strategies



Buildings and Human Health | **Risks**

Unhealthy indoor air

Increased cooling costs

Physical and mental health impacts of smoke and heat

Damage to urban trees



Buildings and Human Health | Strategies

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Increase access to HEPA air filters



Buildings and Human Health | Strategies

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Increase access to HEPA air filters

Energy efficient building practices and policies



Buildings and Human Health | Strategies

The background image shows a residential street scene. In the center, there is a two-story house with a yellow facade, partially obscured by large trees with autumn-colored leaves. Two people are walking on a sidewalk in the foreground, and a black trash bin is visible on the right. The sky is blue with some clouds.

Unhealthy indoor air

Increased cooling costs

Physical and mental health impacts of smoke and heat

Damage to urban trees

Increase access to HEPA air filters

Energy efficient building practices and policies

Collaborate with healthcare providers to develop wildfire smoke exposure checklist

Buildings and Human Health | Strategies



Unhealthy indoor air

Increased cooling costs

Physical and mental health impacts of smoke and heat

Damage to urban trees

Increase access to HEPA air filters

Energy efficient building practices and policies

Collaborate with healthcare providers to develop wildfire smoke exposure checklist

Encourage planting of appropriate tree species, watering, and care

The background is a collage of five images. Top left: A dense forest of tall evergreen trees. Top center: A large, billowing plume of white and grey smoke from a wildfire against a blue sky. Top right: A man wearing a straw hat and a light-colored t-shirt, holding a blue bucket. Bottom left: A river with white water rapids flowing through a forest. Bottom center: A paved road winding through a landscape with trees and hills. Bottom right: A close-up of bright yellow wildflowers.

Ensure sufficient emergency response personnel within rural areas of Missoula County

Diversify farm income sources

Increase watershed resilience to fire through streamside buffers and support of beavers

Incorporate climate migration in population growth projections in planning efforts

Increase agility of tourism and recreational businesses to adapt to change (timing + location of activities)

Regulate and restrict new development in high-risk areas (flooding + wildfire)



Climate Ready Missoula

[READ THE FULL PLAN](#)[READ THE EXECUTIVE SUMMARY](#)

I want to know more about...

[THE PROCESS AND THE PEOPLE BEHIND THE PLAN](#)[CLIMATE PROJECTIONS IN MISSOULA COUNTY](#)[THE IMPACTS CLIMATE CHANGE POSES](#)

Guiding Principles

We have developed 12 principles to guide the process of prioritizing and implementing the climate adaptation goals and actions that are presented in this plan. While all of these principles should be considered with respect to each adaptation goal and action, we recognize that in some cases there will be tradeoffs among the principles. We also know that to be resilient we need to collectively reduce our contributions to climate change by

Explore the plan at:

climatereadymissoula.org

Public Input

Climate Ready Missoula

Learn more and comment on Missoula's *draft* climate resiliency plan:
climateredymissoula.org

Public Open Houses:

- January 22, 11:30 – 1:30pm, County Courthouse (Sophie Moiese Room)
- January 22, 4 – 6pm, County Courthouse (Sophie Moiese Room)
- January 24, 11:30 – 1:30pm, City Council Chambers

Deadline for comments: February 3, 2020

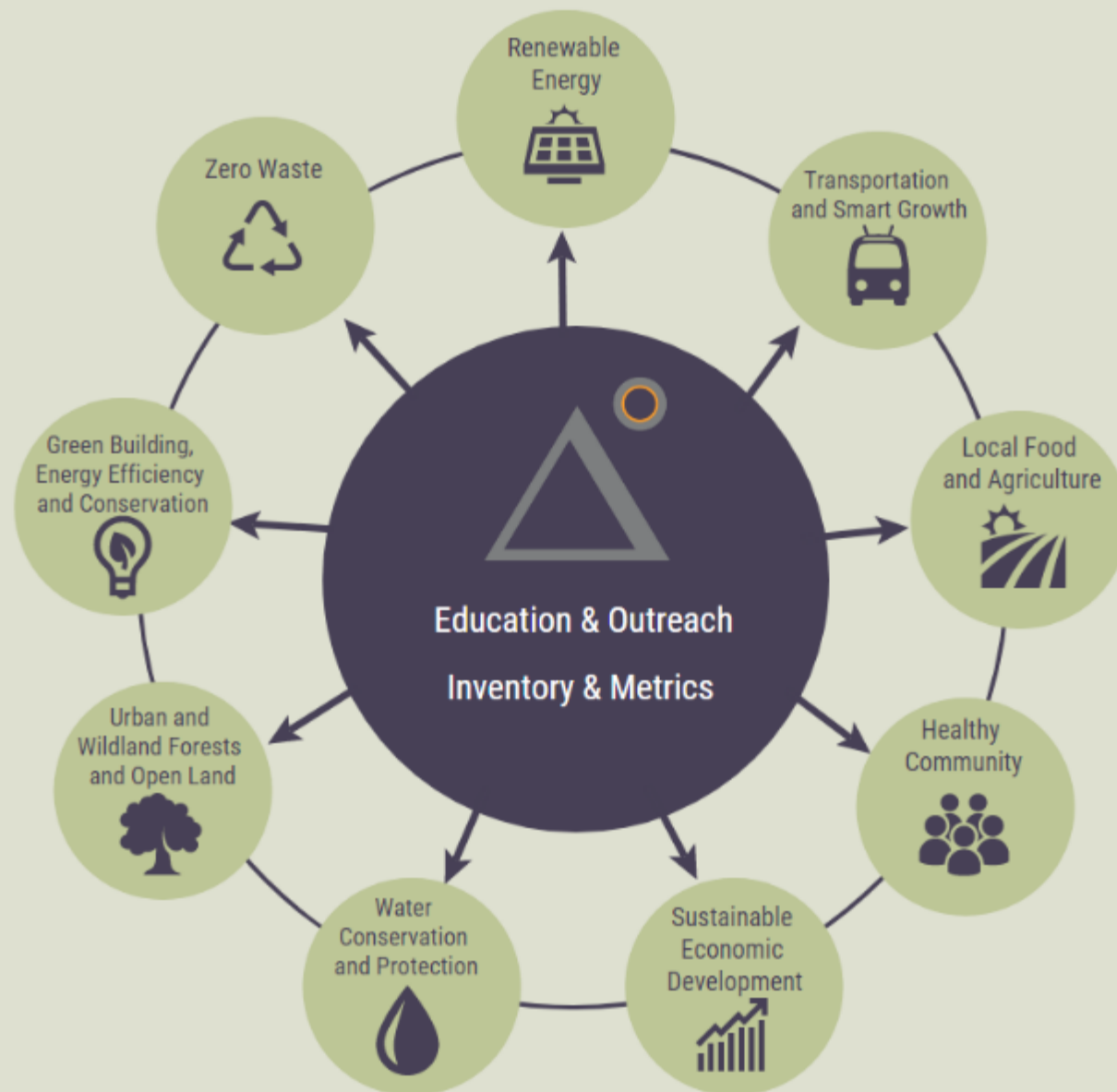
Led by: **Missoula County**

Climate Smart Missoula
City of Missoula



Climate Smart Missoula's Bucket Strategy

Click below to learn about what we do and how to get involved!





ZERObyFIFTY

Missoula's Pathway To Zero Waste



ZERO by FIFTY Waste Reduction Targets

**Goal:
90% by 2050**

**Target 1:
30% or better by 2025**

**Target 2:
40% or better by 2030**

**Target 3:
60% or better by 2040**

"Zero Waste...or darn near"

Eric Lombardi. Eco-Cycle International. Boulder, CO.

Resource conservation, open space preservation, climate action, public health, and smart growth are long-held Missoula values. Zero Waste is a global movement that supports those values through practical measures that can be implemented at the local level. Zero Waste is a community priority for Missoula's institutions, businesses, nonprofit organizations, and citizens. After years of collaborating and planning, these values and visions have coalesced into a City of Missoula ZERO by FIFTY Zero Waste plan.

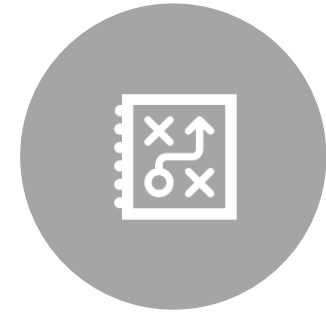
ZERO by FIFTY: Missoula's Pathway to Zero Waste is already in motion, with Zero Waste making its way to local businesses, parks, and schools. With a guiding framework and prioritized recommendations, the ZERO by FIFTY plan provides a formal starting line for an earnest and concerted Missoula Zero Waste effort.

ZERO by FIFTY

Guiding Principles



RETHINK: WASTED
MATERIALS =
RESOURCES



PRIORITIZE UPSTREAM
AND MIDSTREAM
SOLUTIONS



MAINTAIN EQUITY



INCORPORATE
TRANSPARENCY AND
ACCOUNTABILITY

PATH A: ACCESS

Vision: Missoulians will adopt and normalize Zero Waste behaviors with the increase of convenient, affordable Zero Waste services and programs.

- *Objective A1: Create universal access to Zero Waste systems, services, and programs*

PATH B: INFRASTRUCTURE

Vision: Missoula's Zero Waste economy will be supported by a network of facilities and businesses that together provide the framework for sustainable materials management.

- *Objective B1: Enhance and develop Zero Waste infrastructure*
- *Objective B2: Create opportunities to jump-start local Zero Waste markets and business development*

PATH C: EDUCATION

Vision: Missoulians who understand the benefits of Zero Waste and how to get there will drive the community toward achieving its Zero Waste goal.

- *Objective C1: Educate the Missoula community about Zero Waste in general and ZERO by FIFTY in particular*
- *Objective C2: Encourage Zero Waste education and skill-building across the community in our homes, schools, businesses, and organizations*

PATH D: POLICY

Vision: The City's careful use of incentives, policies, safeguards, and restrictions will ensure continuous community progress toward its Zero Waste goal.

- *Objective D1: Lead by example by implementing Zero Waste across all City operations*
- *Objective D2: Stimulate and support Zero Waste activities across the community*
- *Objective D3: Compel community-wide participation in Zero Waste*
- *Objective D4: Reduce availability of problematic materials and limit inappropriate disposal options*



GOING GREEN GUIDE: HOW TO BE A SUSTAINABLE CONCERTGOER AND ITS REWARD

200,000 lbs
of waste diverted from
the landfill to composting
& recycling since Jan 2018

Explore the plan at:

zerobyfiftymissoula.com



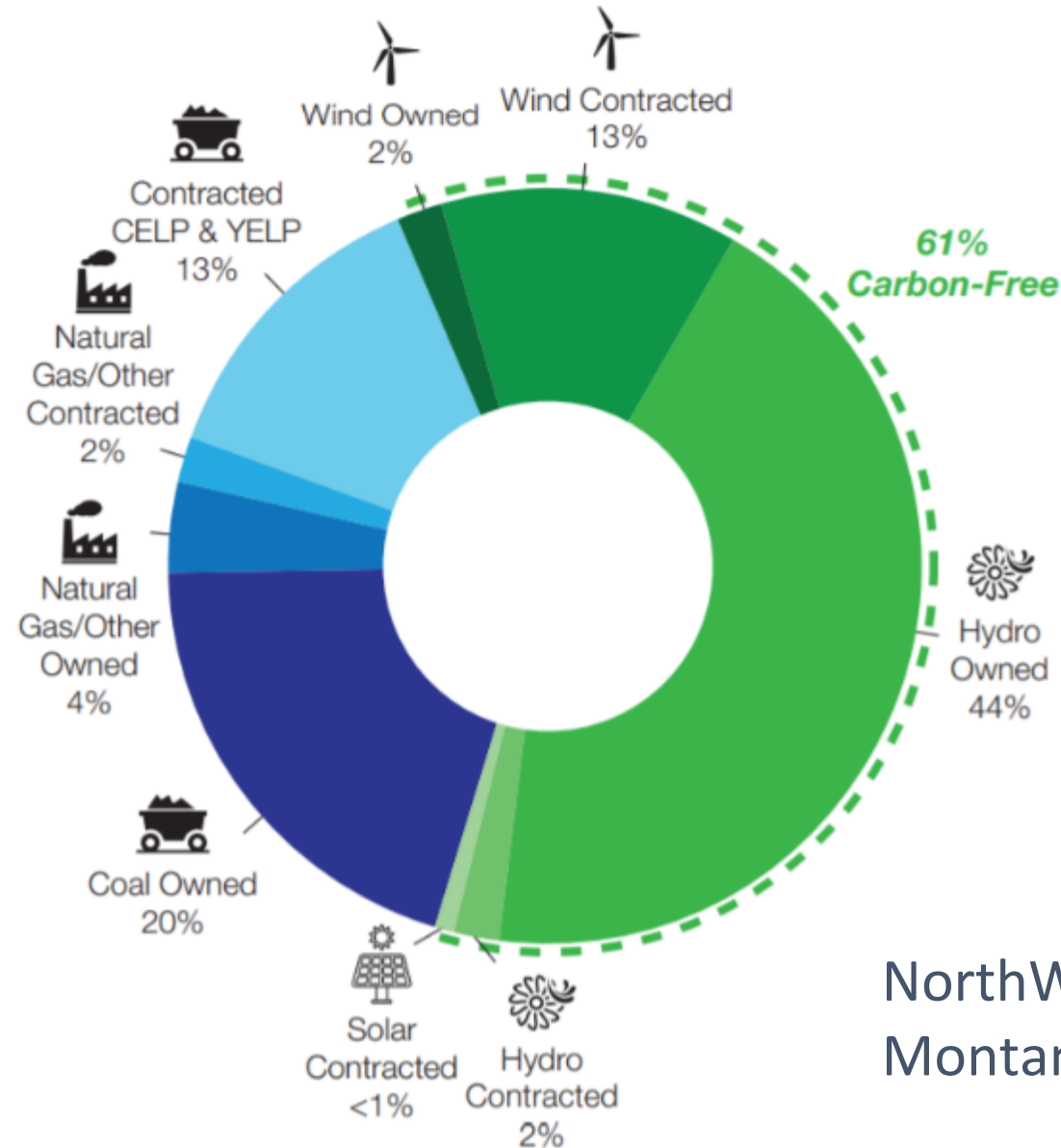
100% Clean Electricity for Missoula

NOW THEREFORE BE IT RESOLVED,
the City of Missoula and Missoula County formally commit to
take the necessary steps to power the community with 100%
clean electricity by 2030.



April 2019

Current Electricity Mix



NorthWestern Energy's 2018
Montana electric supply mix

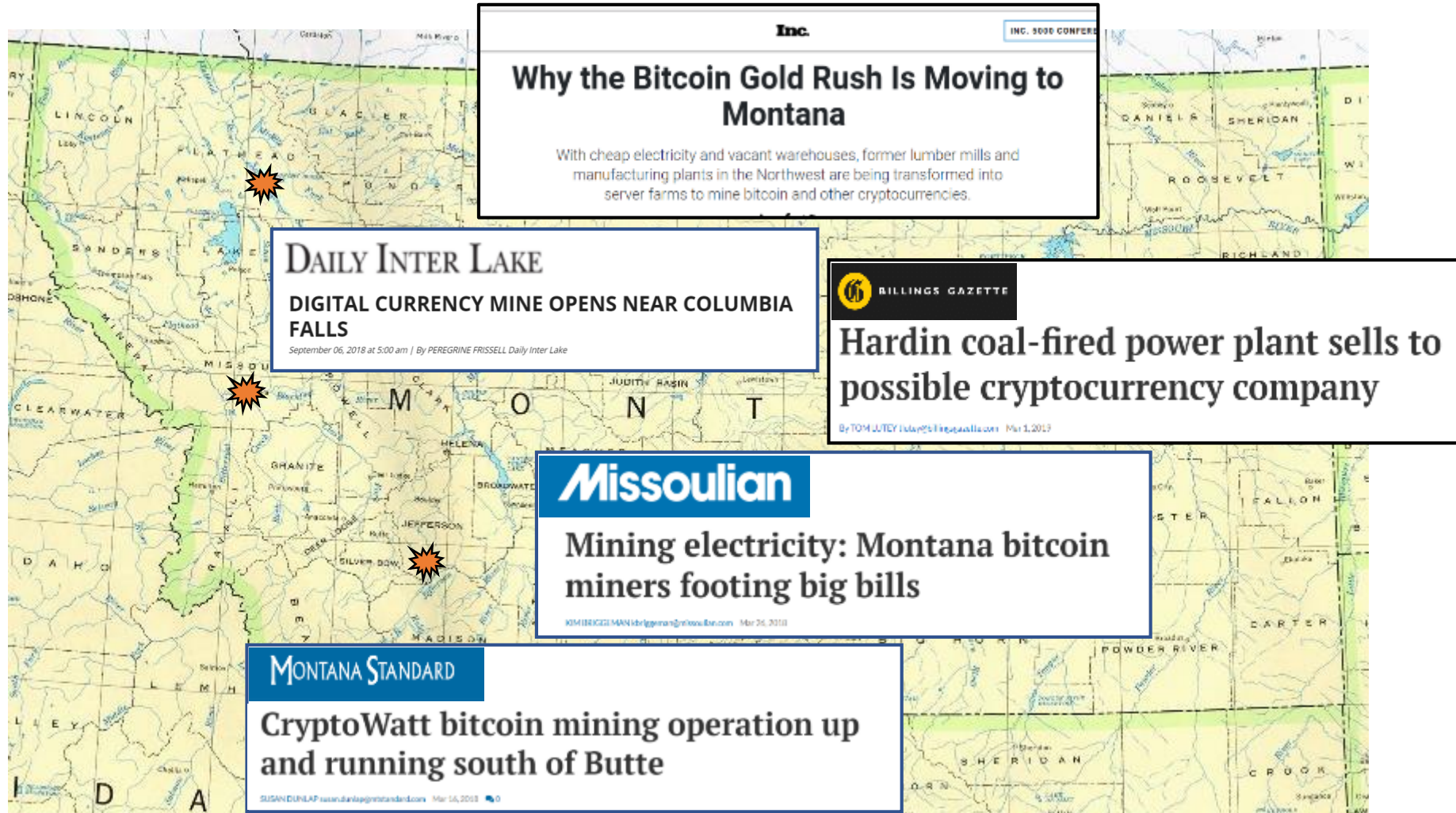


How do we reach 100%?

- Utility-Scale Renewables
- Community-Scale Renewables
- On-Site Renewables
- Energy Efficiency and Load Flexibility



Cryptocurrency Mining in Montana



Cryptocurrency Mining Impacts

Annualized Total Footprints

Carbon Footprint

34.75 Mt CO₂



Comparable to the carbon footprint of
Denmark.

Electrical Energy

73.17 TWh



Comparable to the power
consumption of Austria.

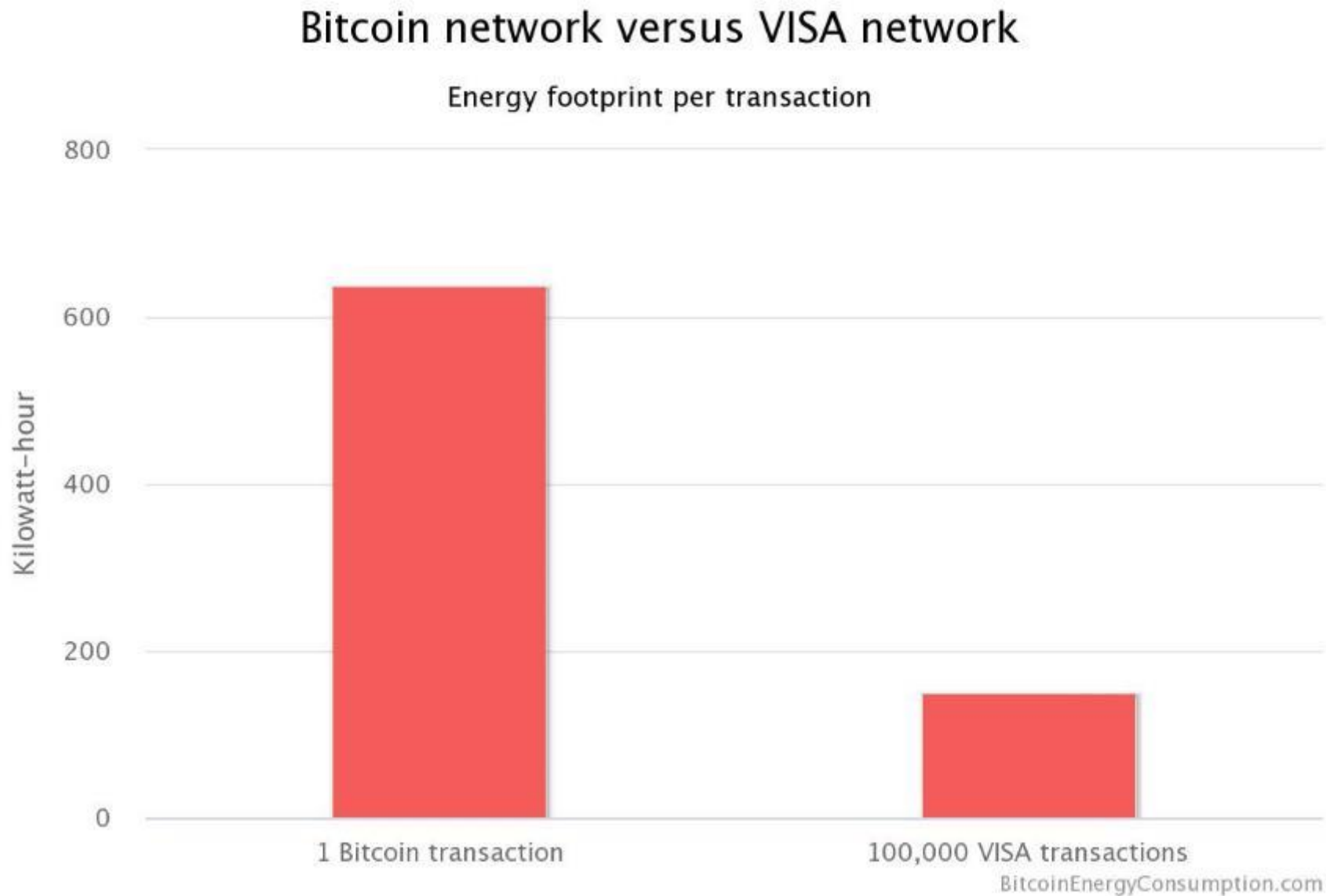
Electronic Waste

11.02 kt



Comparable to the e-waste generation
of Luxembourg.

Cryptocurrency Mining Energy Use



Missoula County Energy Use



**Cryptocurrency mining
operations in Missoula
County**

=
**Use as
much
electricity
as**



**1/3 of the households
in the county**



Missoula County Interim Zoning Regulations for Cryptocurrency Mining Operations

Adopted April 4, 2019

- Allows commercial/industrial cryptocurrency mining under certain conditions
 - Only in light or heavy industrial zoning districts
 - Conditional use or special use (addresses noise impact)
 - Dispose of e-waste with DEQ-licensed recycler
 - Develop or purchase renewable energy to offset 100% electrical consumption
- Temporary (1 year)
- County-wide

Thank You



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