



September 30, 2024

Versant Climate Vulnerability Study Introduction

Meeting Logistics



Please ensure you are muted unless you are called on



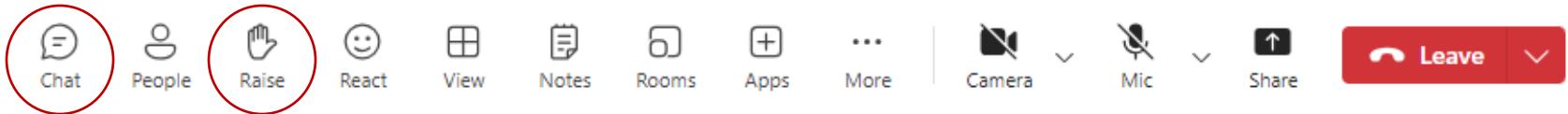
The meeting is being recorded



Please provide your name, title, and affiliation



Feel free to ask questions or comment during the presentation using the chat feature or the raise hand function



If you have technical difficulties or need assistance, please message Judy Long at judy.long@versantpower.com

Agenda

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1. Welcome and Introductions
 2. Project Background
 3. Project Approach and Stakeholder Engagement Roadmap
 4. Climate Science Methodology and Results
 5. Questions and Feedback
 6. Next Steps

Introductions

Pete Caron, Versant Power

Tyler Stanley, Versant Power

Judy Long, Versant Power

Lisa Martin, Orion Ventures



ICF's climate resilience team specializes in analyzing future climate scenarios, assessing climate risks, and building climate resilience for utility assets, operations, planning, design standards, and investments.

Live Poll



In a few words, what does “climate resilience” mean to you?

To participate in the poll, select one:

1. Go to www.menti.com and enter **7288 1015**
2. Click the link posted in the Teams chat.
3. Scan the QR code on the screen.

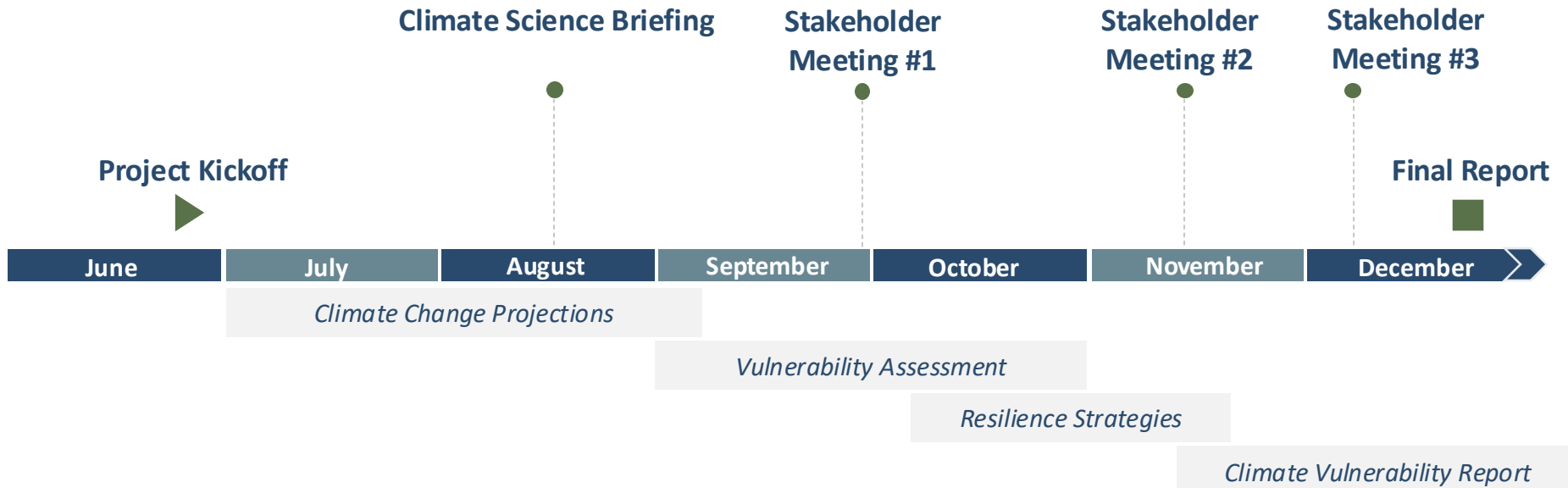


Project Background

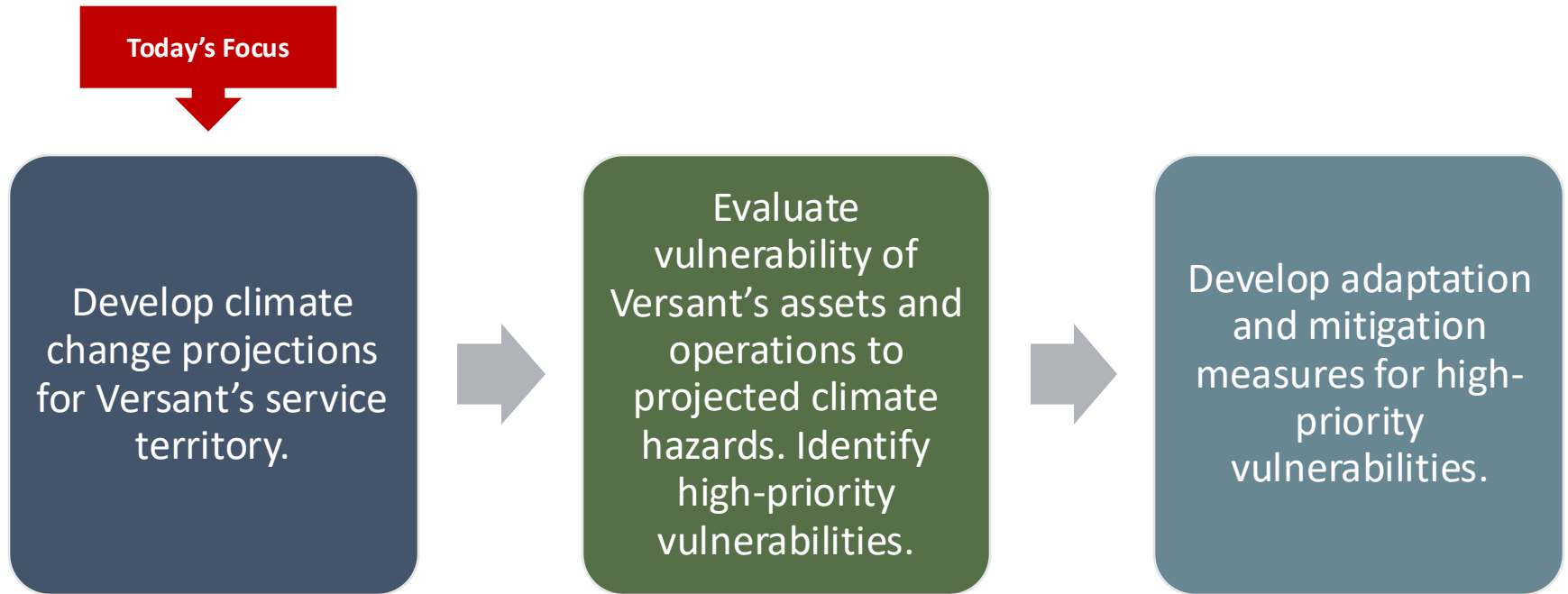
- The Climate Vulnerability Study is part of Versant’s broader grid and climate planning efforts
- It follows the 2023 [Climate Change Resilience Plan](#), which was required by An Act Regulating Utility Accountability and Grid Planning for Maine’s Clean Energy Future
- The Maine Public Utilities Commission review of utility climate plans is outlined in Docket No. 2023-00282



Versant's Climate Vulnerability Study and Stakeholder Engagement Roadmap



Overall Project Approach



Climate Science Approach

- Developed **climate change projections** for a range of possible outcomes in terms of future temperatures, rainfall, flooding, drought/wildfire, and sea level rise.
- Developed metrics to evaluate plausible risks from climate and extreme weather hazards.
- Variables were tailored to Versant's system constraints related to climate and extreme weather.
 - For example, days with temperature above 86°F relevant to conductor wire ratings

Climate Hazards

1. Extreme Heat
2. Heavy Precipitation and Inland Flooding
3. Coastal Flooding and Sea Level Rise
4. Wildfire and Drought
5. Winter Weather
6. High Winds



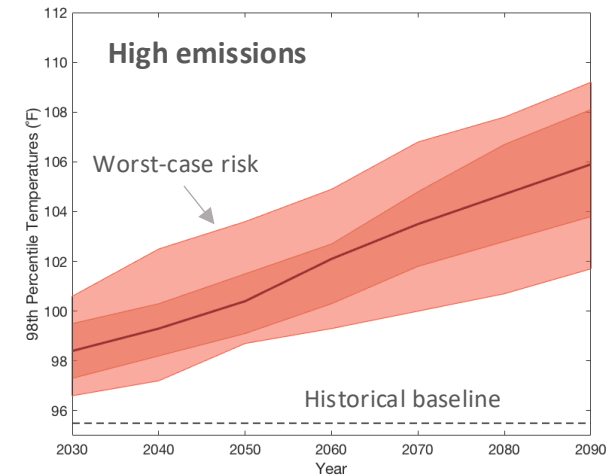
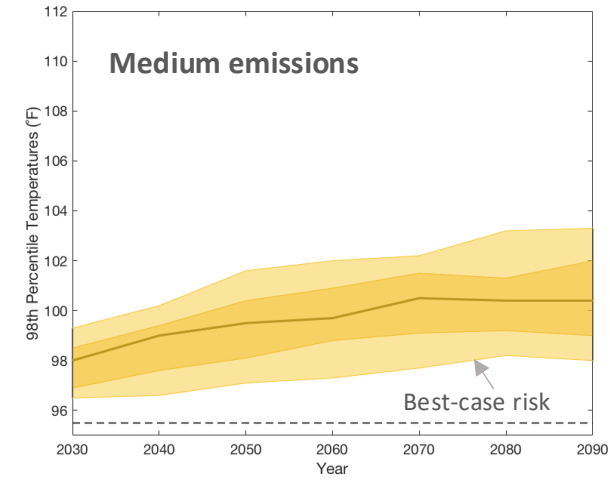
What climate hazards do you see as most impactful to your community/organization?



Climate Change Scenarios

- Vulnerability analysis will focus on upper and lower bounds of climate model projections, characterized by emissions scenarios:
 - Shared Socioeconomic Pathway (SSP) 2-4.5 and 5-8.5
 - **Higher Emissions:** SSP5-8.5 assumes greenhouse gas concentrations continue to rise throughout the century
 - **Lower Emissions:** SSP2-4.5 assumes significant greenhouse gas emission mitigations prior to mid-century
- Model ensemble to evaluate probabilistic projections and support a risk-based assessment
- High and low emissions scenarios differ more significantly from each other later in the century
- Scenarios for risk assessment are not indicative of scenarios that will be used for planning, which are likely to fall between these bounds

Charlotte, NC



Source: Developed by ICF for Duke Energy

Overall future picture

Due to climate change, Maine could experience **warmer temperatures** and more frequent heat waves, **more extreme precipitation** with more frequent flooding, a **northward shift** of frozen precipitation, **less snowfall** and **snowpack**, and greater potential for **extreme winds** from coastal and severe storms

Review of Selected Results



Extreme Heat

- Frequency and intensity of extreme heat projected to **increase significantly** across the service area
- Heat waves projected to become **more frequent**



Heavy Precipitation and Inland Flooding

- Extreme precipitation intensity projected to proportionally **increase** across much of the service territory, especially for inland locations and under a high emissions scenario
- Rising extreme precipitation could lead to **more inland flooding**, particularly in and near to the 100- and 500-year FEMA floodplains



Coastal Flooding and Sea Level Rise

- Sea level rise could **increase permanent inundation** and coastal flood exposure in some coastal areas without adaptation measures, although **extent of inundation is likely to be small**



Wildfire and Drought

- High fire danger days projected to **increase** across the service territory, which could increase fire activity or intensity in historically exposed areas



Winter Weather

- Cold weather projected to be **less frequent** in the future
- Extreme frozen precipitation and heavy snow intensity projected to **increase in cooler inland locations** and **decrease in warmer coastal locations**, as frozen and near-freezing precipitation likelihood decreases



High Winds

- Annual maximum 1-day averaged wind speeds projected to **decrease for most months**, particularly during fall and winter months under a high emissions scenario

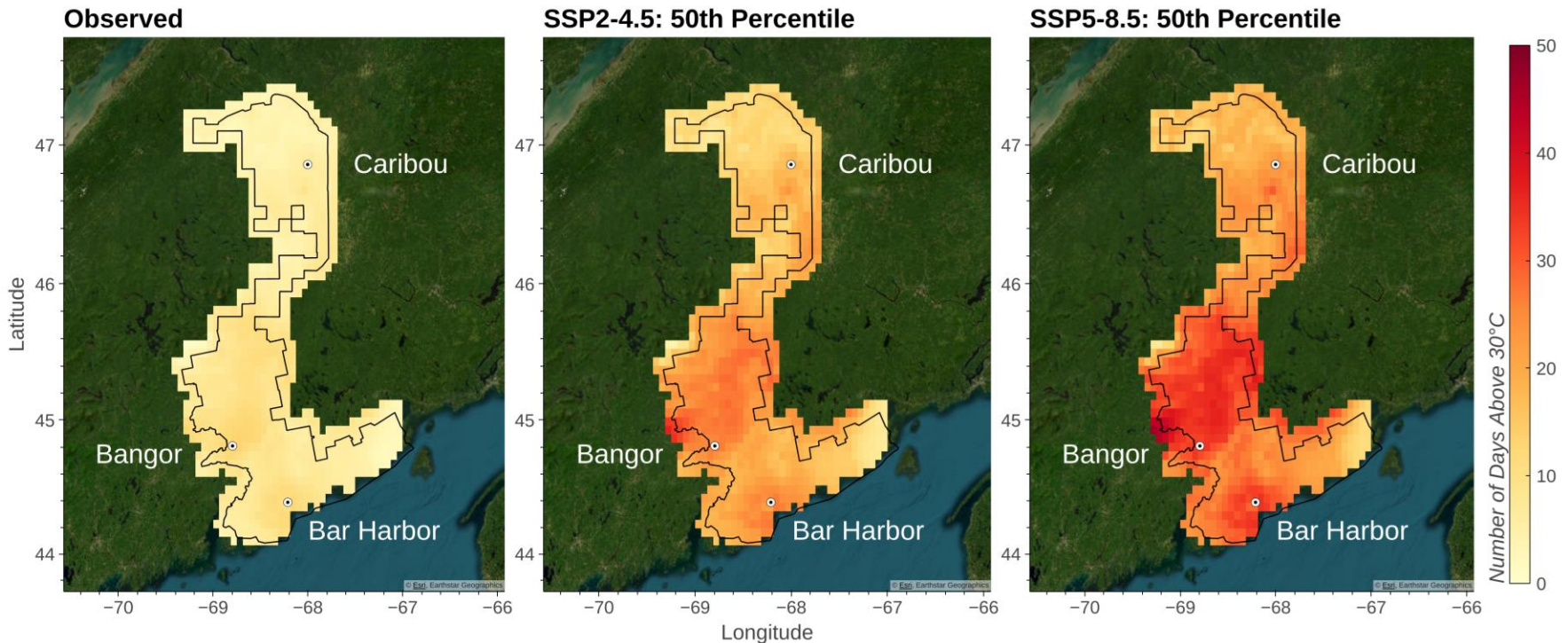


How have climate-related events impacted your community in recent years?

Extreme Heat

By 2050, across Versant's service territory the number of days per year above 30°C is projected to *increase* from a baseline of **0.7 – 14.0 days** by:

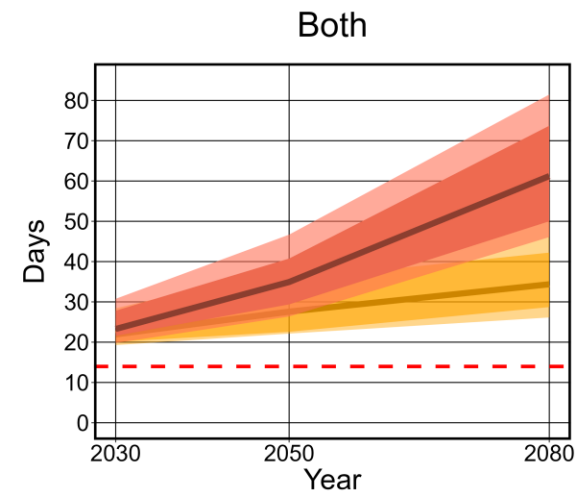
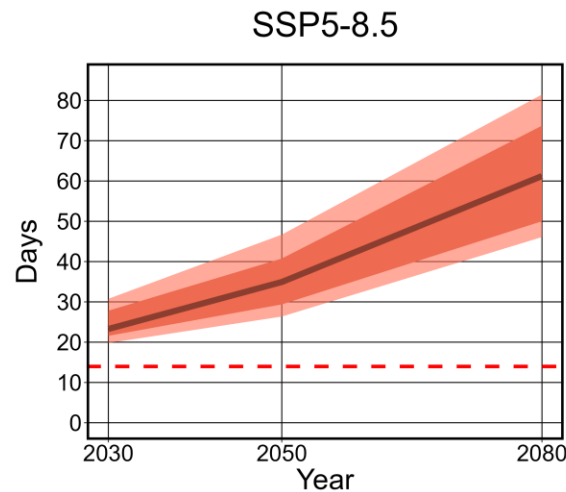
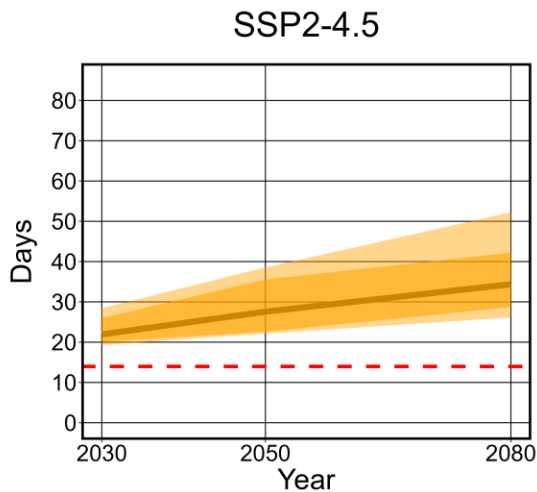
- **3.5 – 23.6 days** for lower emissions scenario
- **6.4 – 33.5 days** for higher emissions scenario



Extreme Heat

- By 2050 in Bangor, the number of days per year above 30°C is projected to increase relative to a baseline of **14.0 days** by:
 - **13.6 days** for lower emissions scenario
 - **20.9 days** for higher emissions scenario

Projected Number of Days above 30°C in Bangor

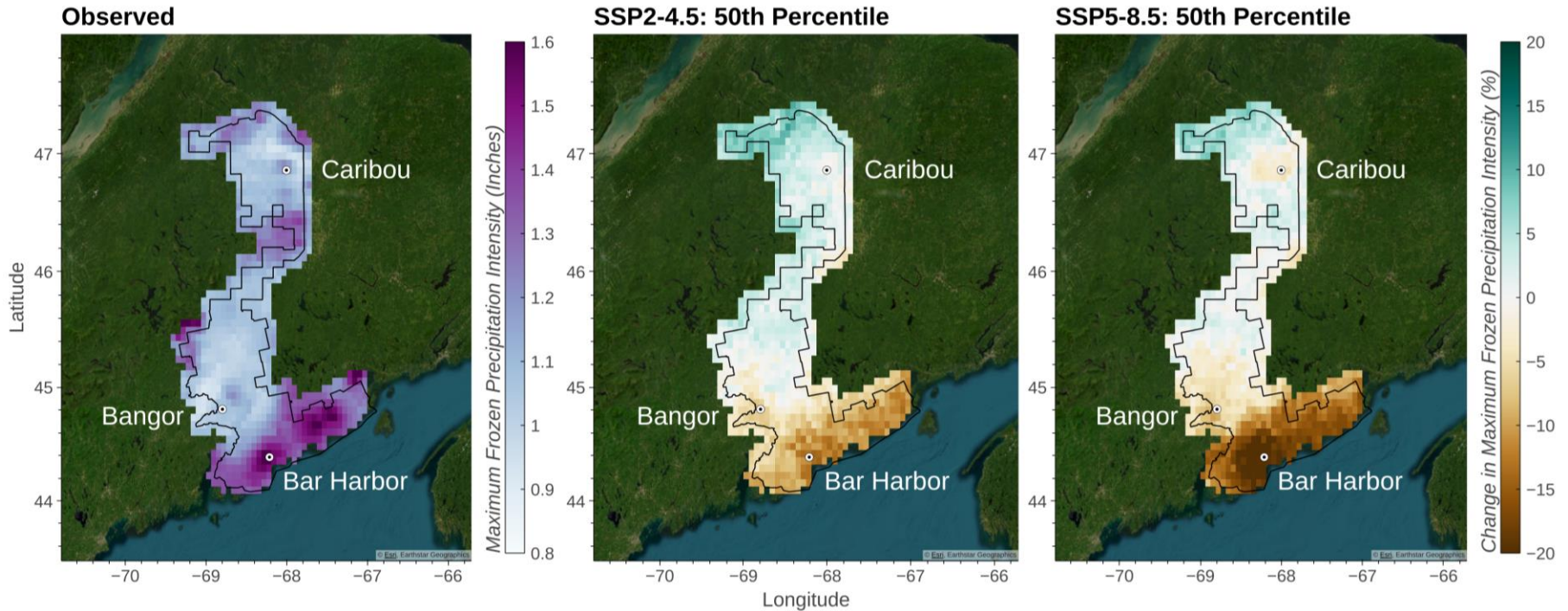


Baseline = 14.0 days

Winter Weather

By 2050, across Versant's service territory the annual maximum 1-day frozen precipitation is projected to change compared to the baseline of **0.9 – 1.7 inches** by:

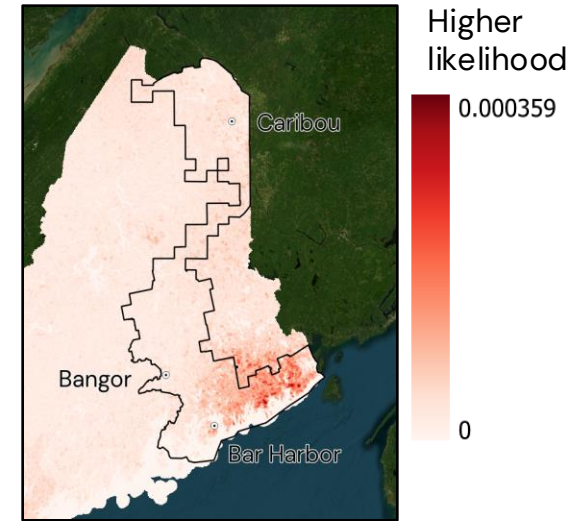
- **-14.4% to +11.5%** for lower emissions scenario
- **-23.6% to +9.6%** for higher emissions scenario



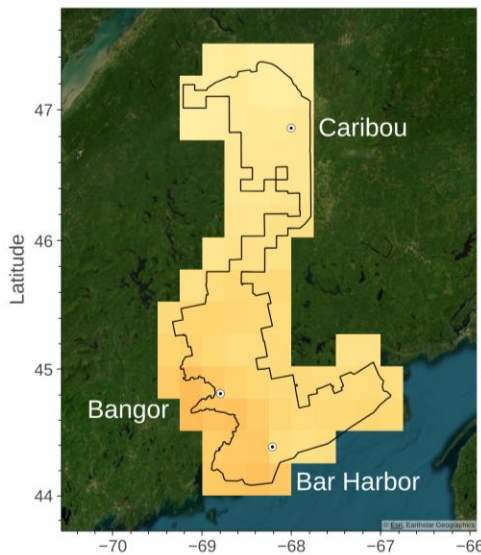
Wildfire

- Areas exposed to flammable vegetation and increases in high fire danger days are most susceptible to increased high fire danger days
- While fire weather is projected to increase most in the southwest, historical wildfire likelihood is low
- Areas in southeastern portion of the service territory have historically experienced the highest wildfire likelihood

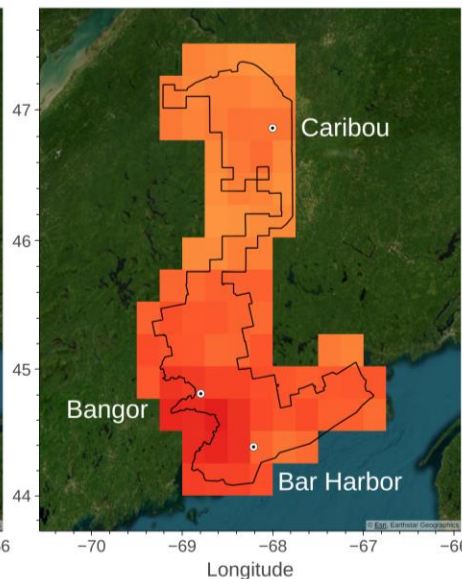
Wildfire Likelihood



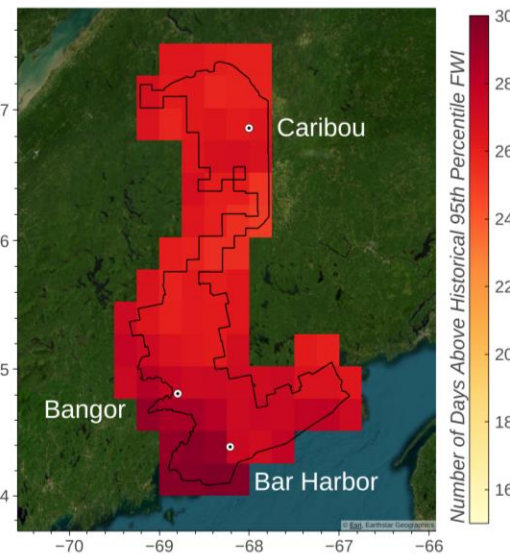
Observed



SSP2-4.5: 50th Percentile



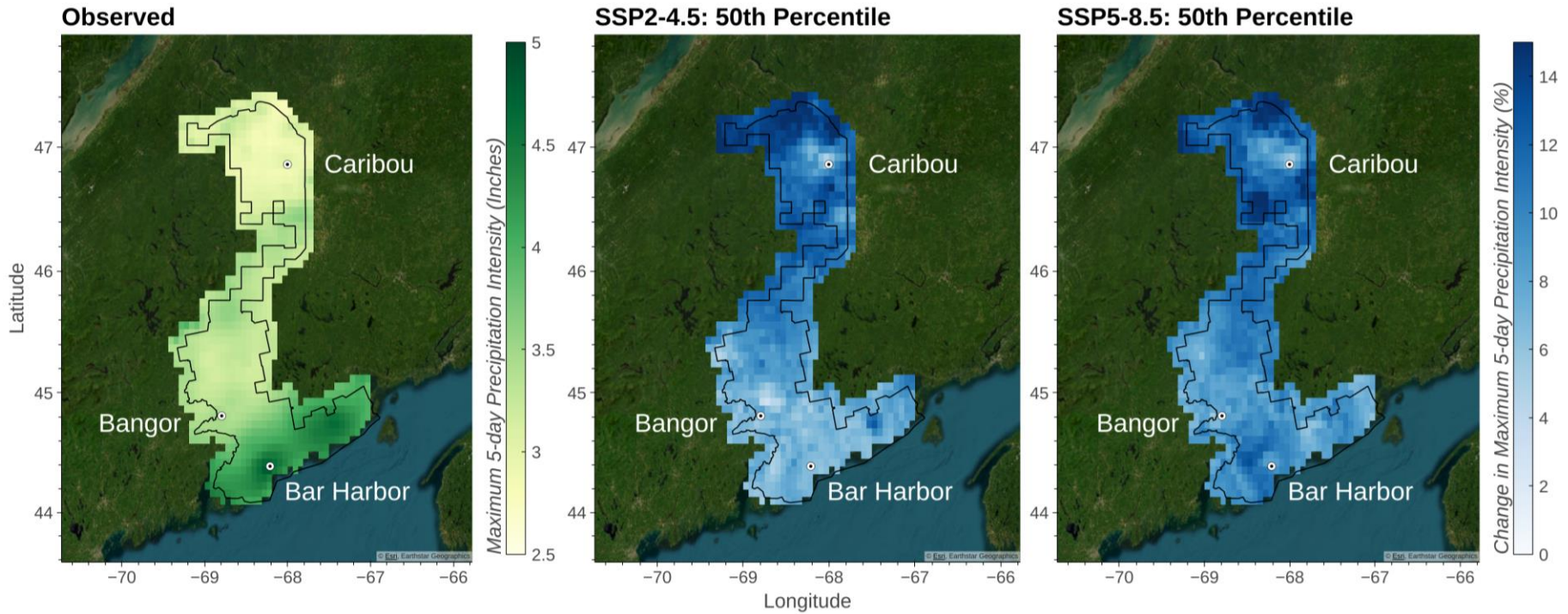
SSP5-8.5: 50th Percentile



Heavy Precipitation and Flooding

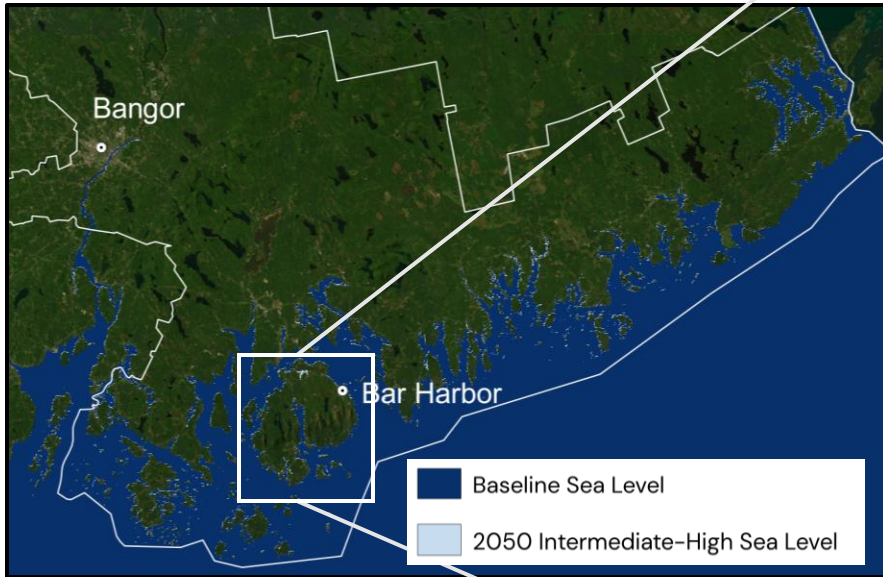
By 2050, across Versant's service territory the annual maximum 5-day precipitation is projected to *increase* compared to the baseline of **2.8 – 4.8 inches** by:

- **3.1% to 17.1%** for lower emissions scenario
- **5.5% to 17.9%** for higher emissions scenario



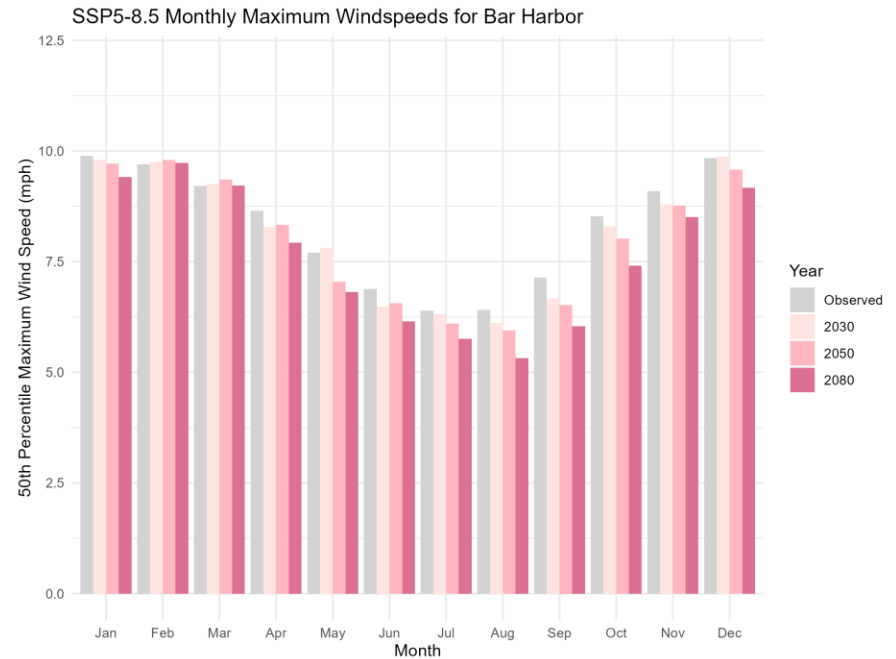
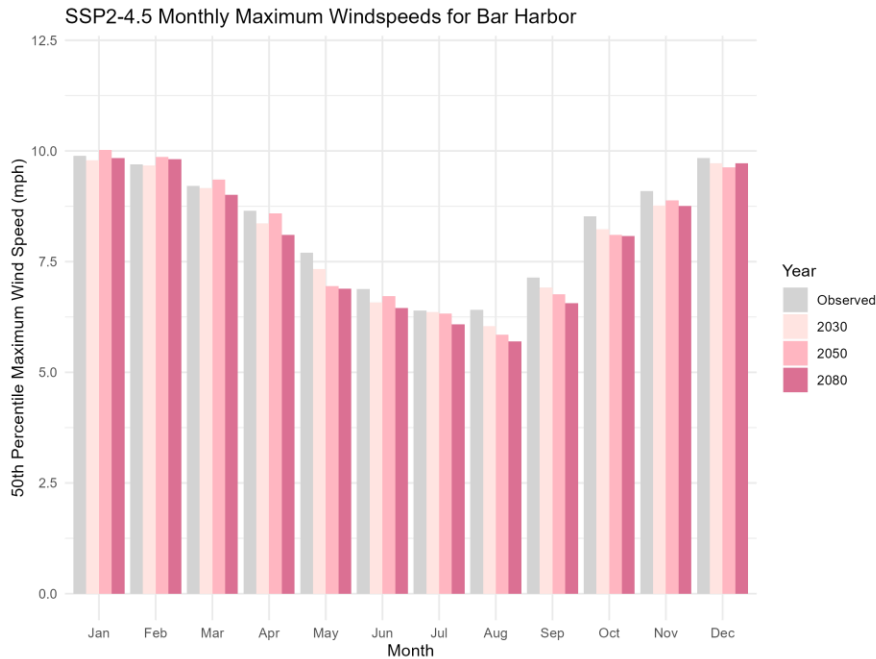
Coastal Flooding

As sea levels rise, some coastal portions of the service territory could experience increased coastal flooding

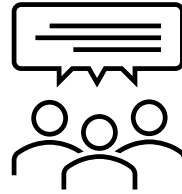


Wind

- Annual maximum 1-day averaged wind speeds are projected to decrease for most months, particularly during fall and winter months under higher emissions scenario
 - Slight increases projected in February and March



Extreme Events



How have weather trends changed in your community, especially severe weather events?

Projected Effects of Warming Temperatures:

- Declining snowpack, earlier spring snowmelt, and a shorter snow season
- Increased frequency of thunderstorms, particularly over higher latitudes
- Shifting of seasonal river-ice occurrences farther north, potentially influencing the frequency and intensity of breakup ice jam events (the direction of this trend, however, is expected to vary by watershed, with a high degree of uncertainty)
- Fewer ice storms and less freezing rain in New England as freezing rain occurrence shifts farther north, especially during spring and fall
- Increased frequency of rain-on-snow events at higher latitudes due to the combination of more overall rainfall and warmer temperatures

Projected Changes in Wind and Hurricane Events:

- More frequent extreme winds, particularly during severe weather events, in some areas; however, the daily average wind speed and average wind direction may not change significantly
- Increased hurricane wind speed intensity due to climate change in the North Atlantic basin, though changes in overall hurricane frequency are uncertain

Additional Discussion Questions



What is most important to your community/organization to see in this assessment and report?



Do you have any questions related to the climate science projections or process?

Next Steps: What to Expect



- Invitations for the second and third stakeholder sessions will be sent out soon.
- The next stakeholder session is scheduled for November and will focus on the results of the vulnerability assessment and proposed mitigation strategies.
- All materials will be available on the company website.
- For any questions, please reach out to Judy Long at judy.long@versantpower.com.



Thank You!