

# Resilient residential and transportation energy management with electric vehicles during power outages

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# Grand Challenge: Decarbonize Transportation Systems

**Climate change** mitigation requires massive shifts to clean vehicle technologies and travelers' attitude change

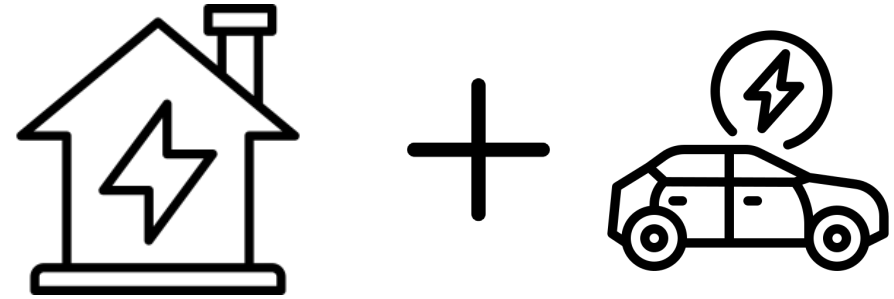


**Resilience** of sustainable transport systems and infrastructure against extreme events



# Electric Vehicle – to – Home (**V2H**) during **Power Outages**

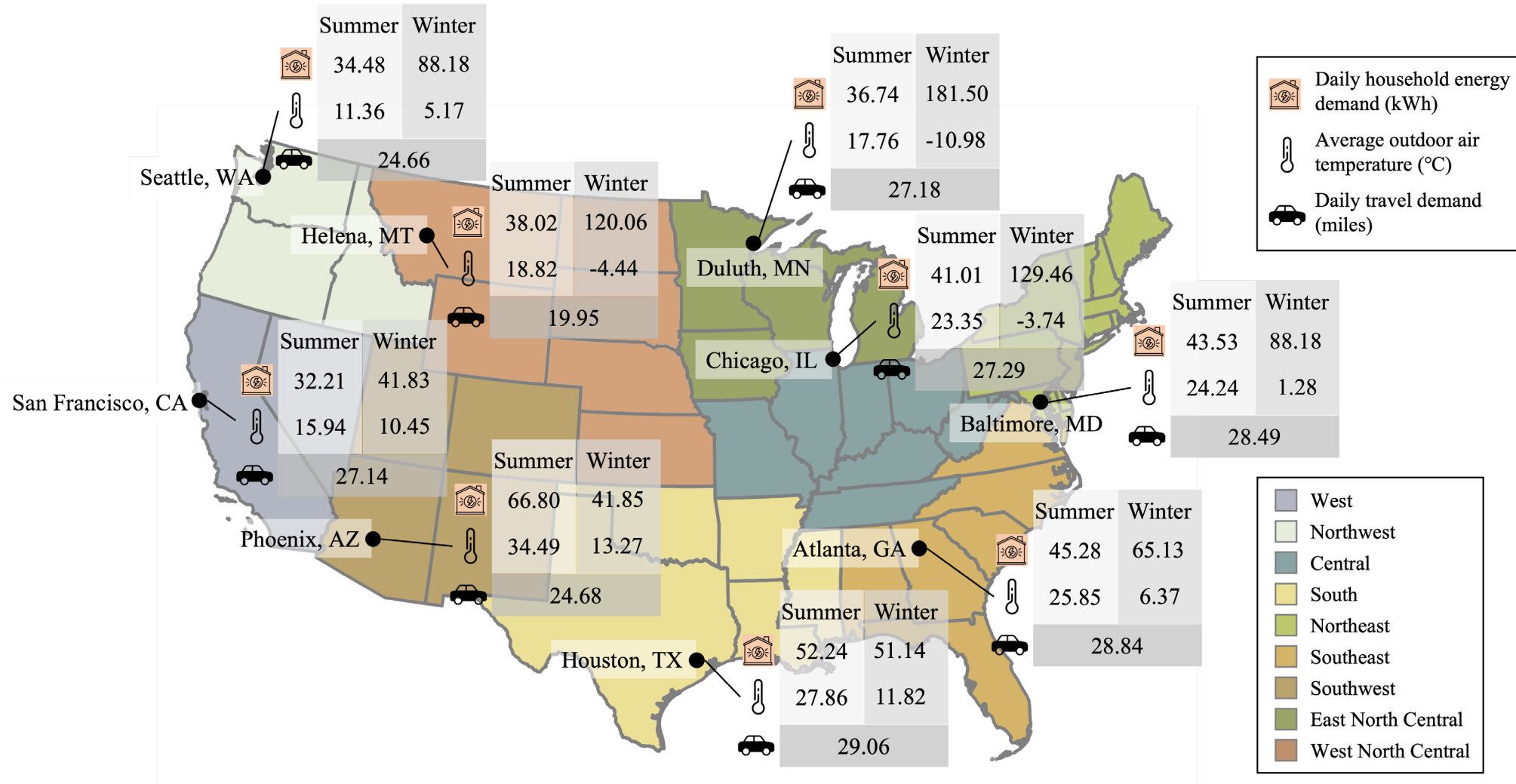
Battery electric vehicle provides backup power during outages through **vehicle-to-home technology**



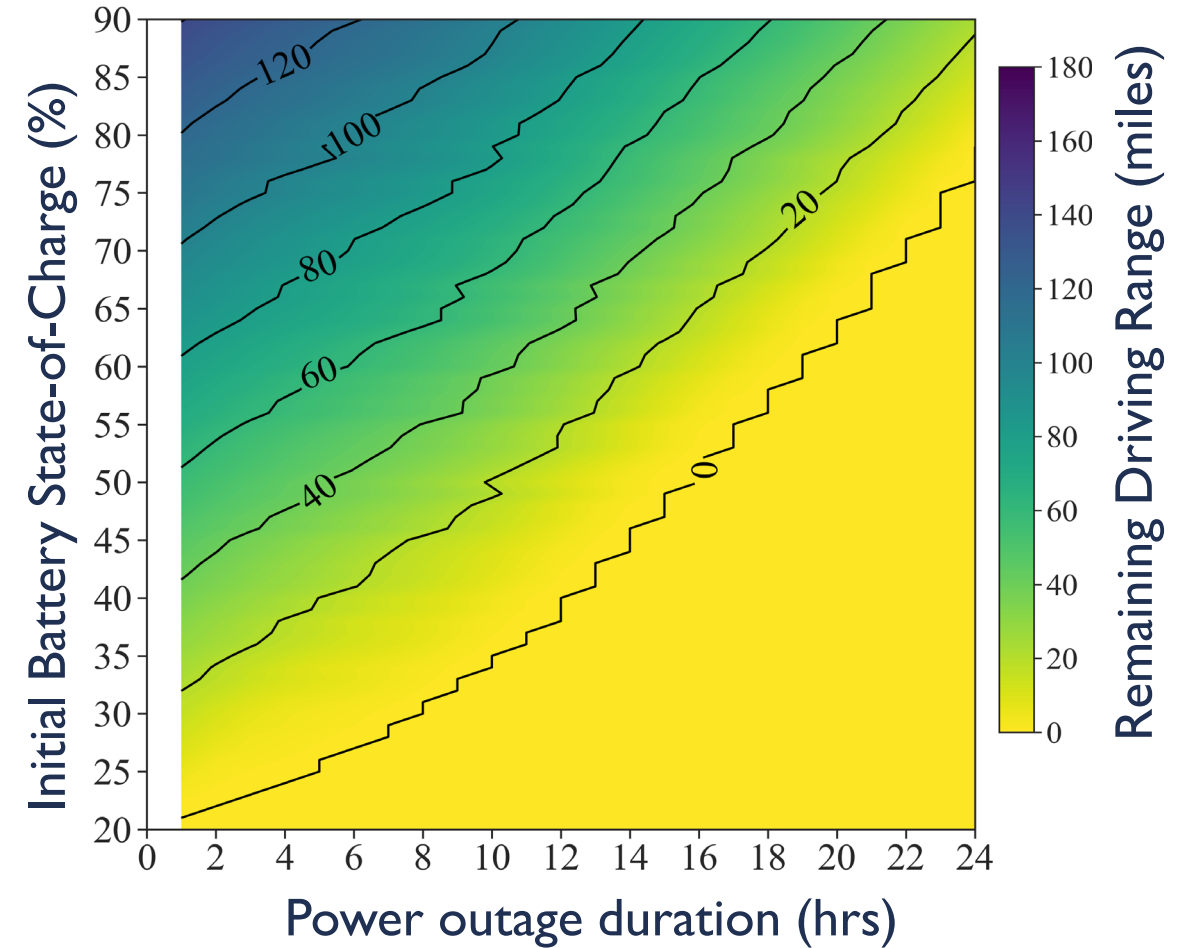
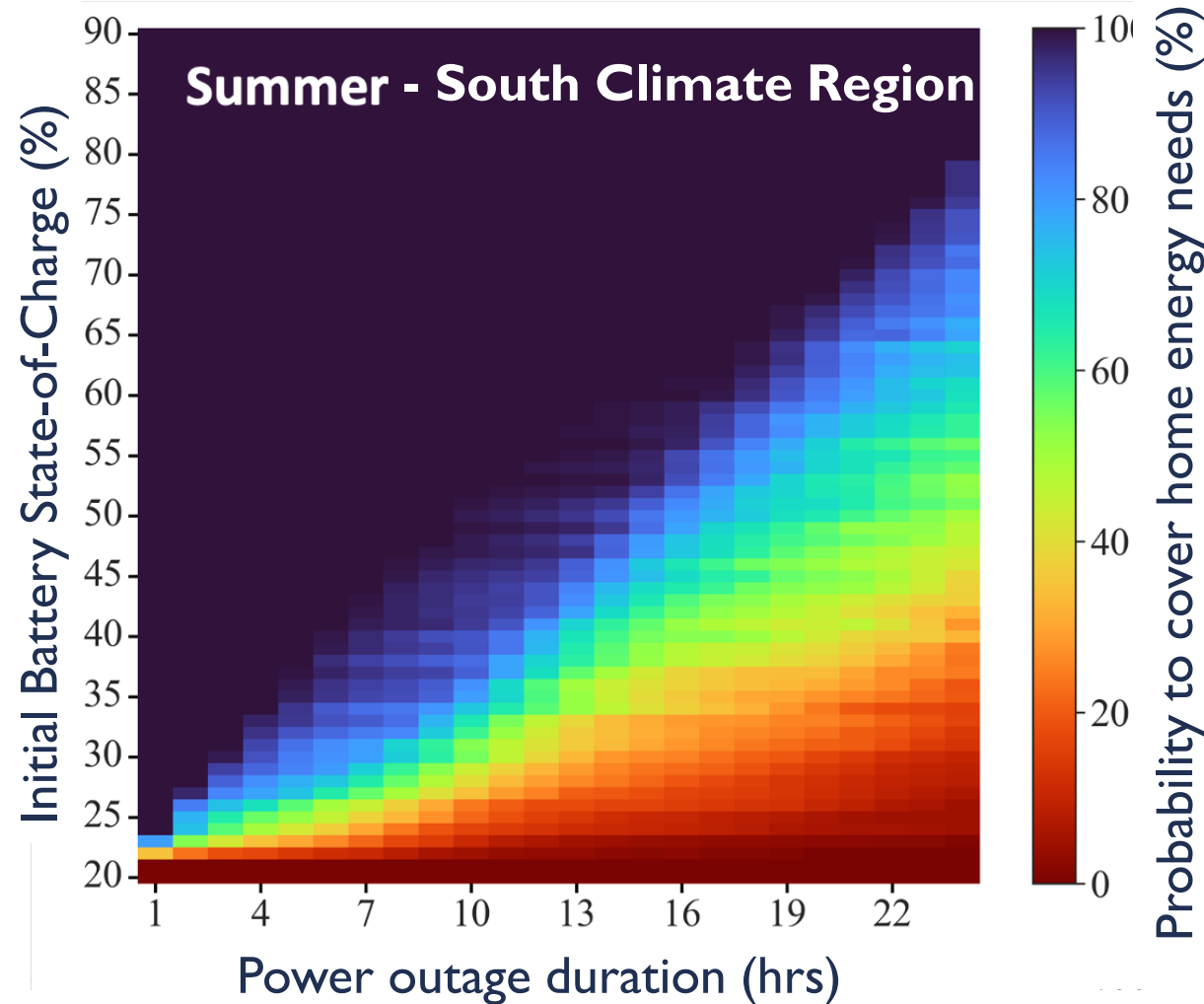
**Trade-offs between household energy needs and mobility needs**



# Simulations of V2H across 9 US Climate Regions



# Residential & Transport Energy: Short-Term Outage



Graphs source: Liu, Vlachokostas, Kontou. In preparation.



# Thank you!

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## Funders

