



## Climate Impacts and Resilience in the Power System

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# EPRI: Born in a Blackout

The Electric Power Research Institute (EPRI) was founded in 1972 as an independent, non-profit organization for public interest energy and environmental research



*New York City, The Great Northeast Blackout, 1965*

- Annual research budget of \$450M
- 450+ participants in more than 35 countries
- EPRI membership represents approximately 90% of the electricity in the United States

# Extreme weather and climate resiliency affect the electric system via multiple pathways and at various scales

	Vulnerability	Driver	Risk
Supply and Distribution	Hydropower	precipitation, snowmelt, runoff	Reduced hydropower resource availability
	Thermoelectric units	air temp	Reduced thermal efficiency of power generation
	Power plants near water	sea level rise, precipitation	Flood risk in low-lying coastal and riverine areas
	Water-cooled units	water temp	Temp of intake and discharge water, cooling efficiency
	Wind and solar	wind speed & direction, clouds	Availability / predictability of renewable power
	T&D lines	air temp	Line efficiency, sagging lines
	Utility assets	extreme weather, storms	Power outages, infrastructure damage
Demand	Total consumption	air temp, extreme weather	Changes in HDDs / CDDs Changes in demand shapes and regional patterns
	Peak demand	air temp, humidity, extreme weather	Increase in summer peak load, power outages

Adapted from NYSERDA (2011)