

# CLIMATE MITIGATION & ADAPTATION NEXUS

How might future electricity generation choices impact water resources?



When all you have  
is a hammer every  
problem looks like  
a nail

# CLIMATE MITIGATION & ADAPTATION NEXUS

- Focus on the SW and SE
- Project electricity mixes out to 2050 under different electricity scenarios (carbon budgets)
- Impacts to water systems
- Resiliency & vulnerability of water sector to climate change

# ELECTRICITY MODEL

Energy Analysis

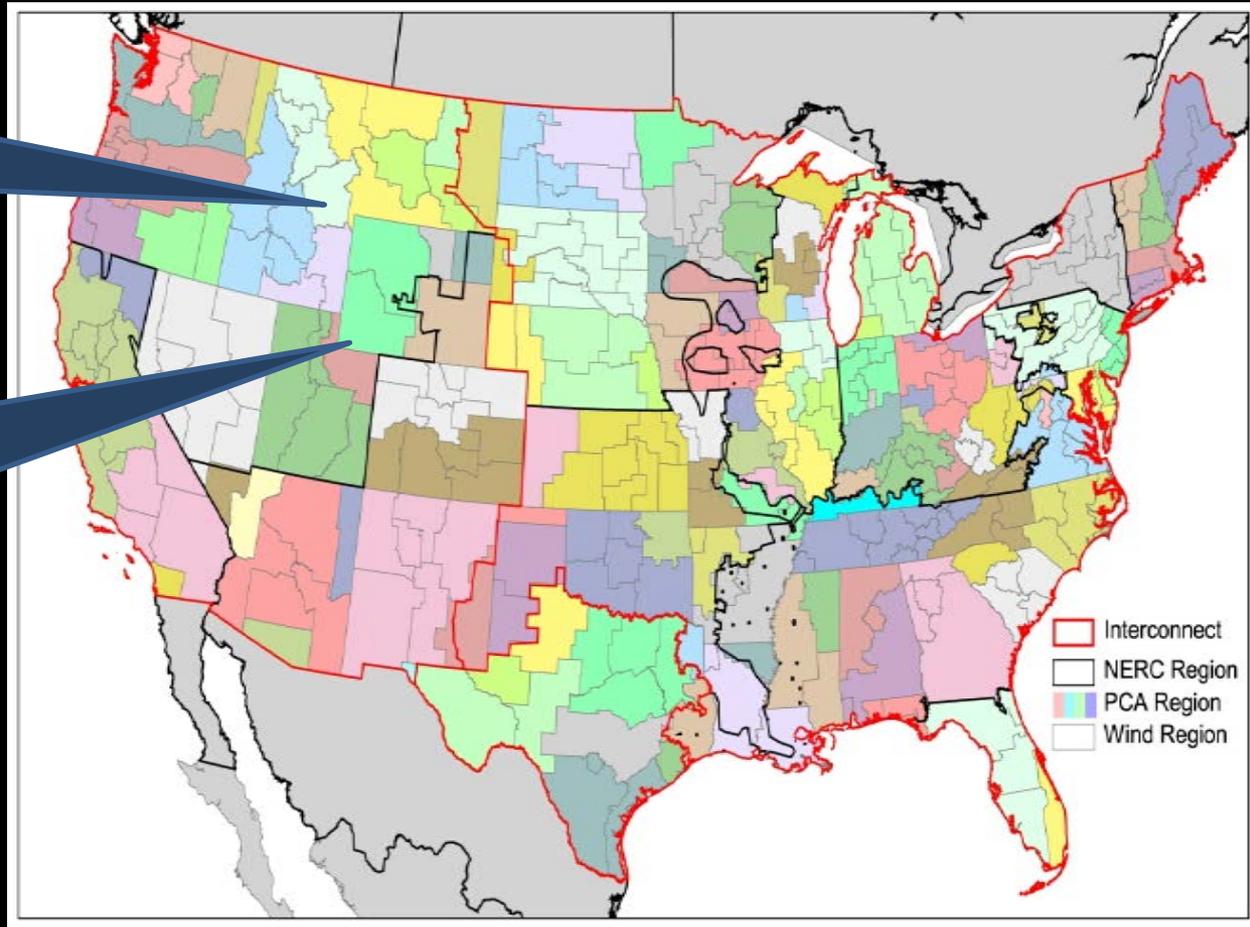
## Regional Energy Deployment System (ReEDS)

134

power control areas

356

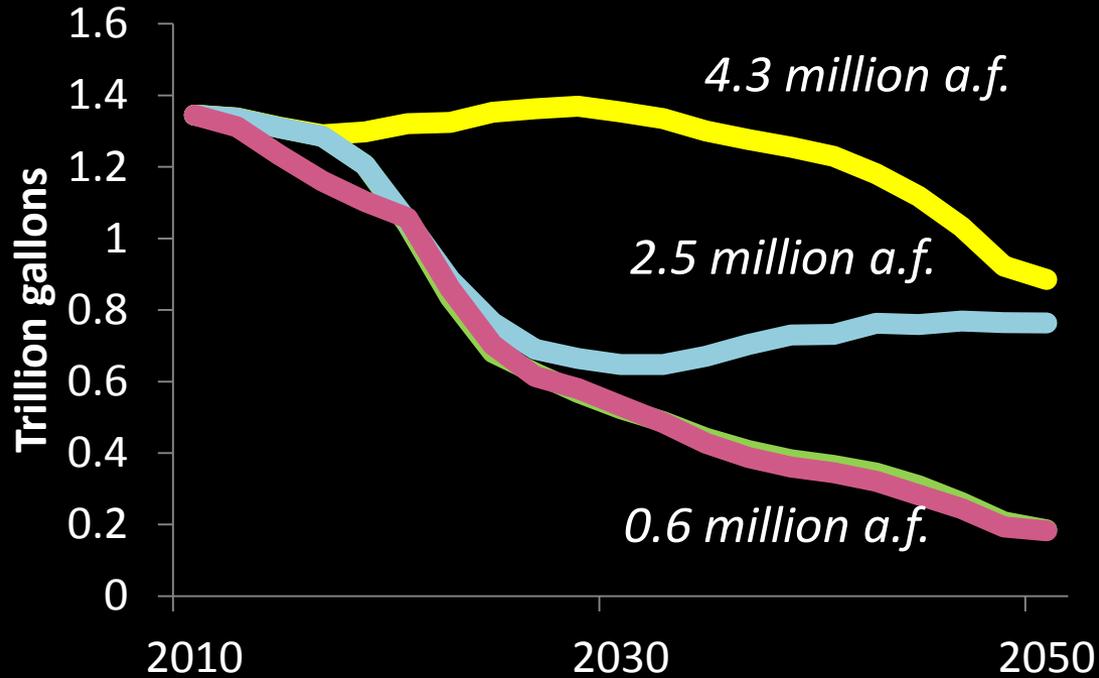
wind & solar resource regions



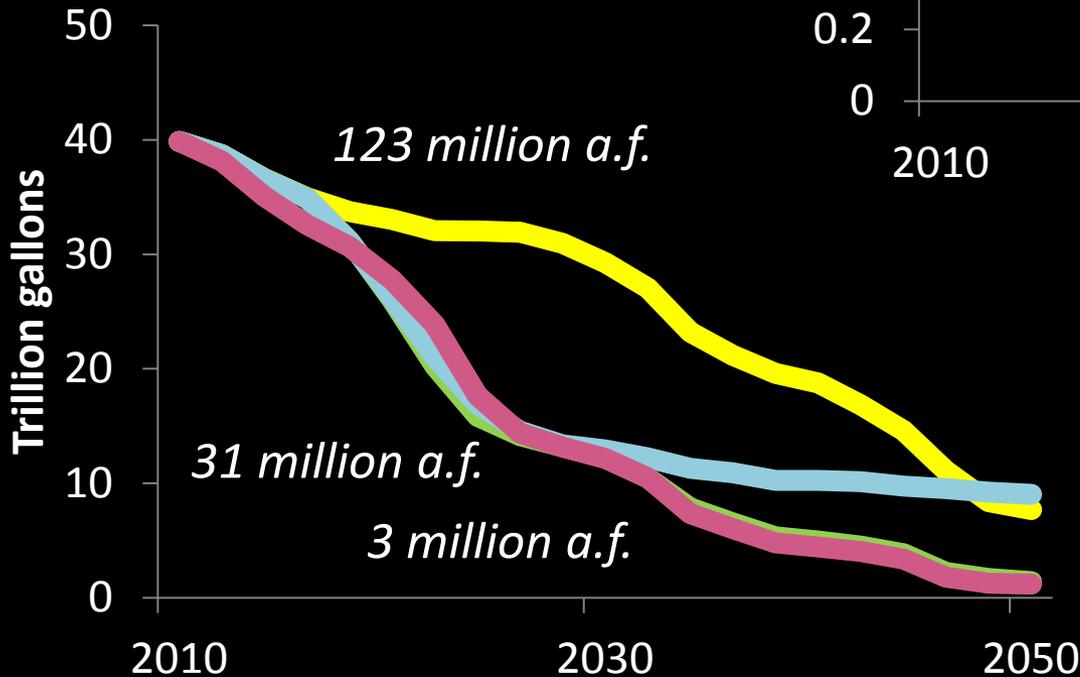


# ELECTRICITY MIX: NATIONAL FRESHWATER USE

## CONSUMPTIVE USE



## WITHDRAWALS



Reference

Nuclear + CCS

Carbon Budget

Renewables + EE

4.3 million a.f.

2.5 million a.f.

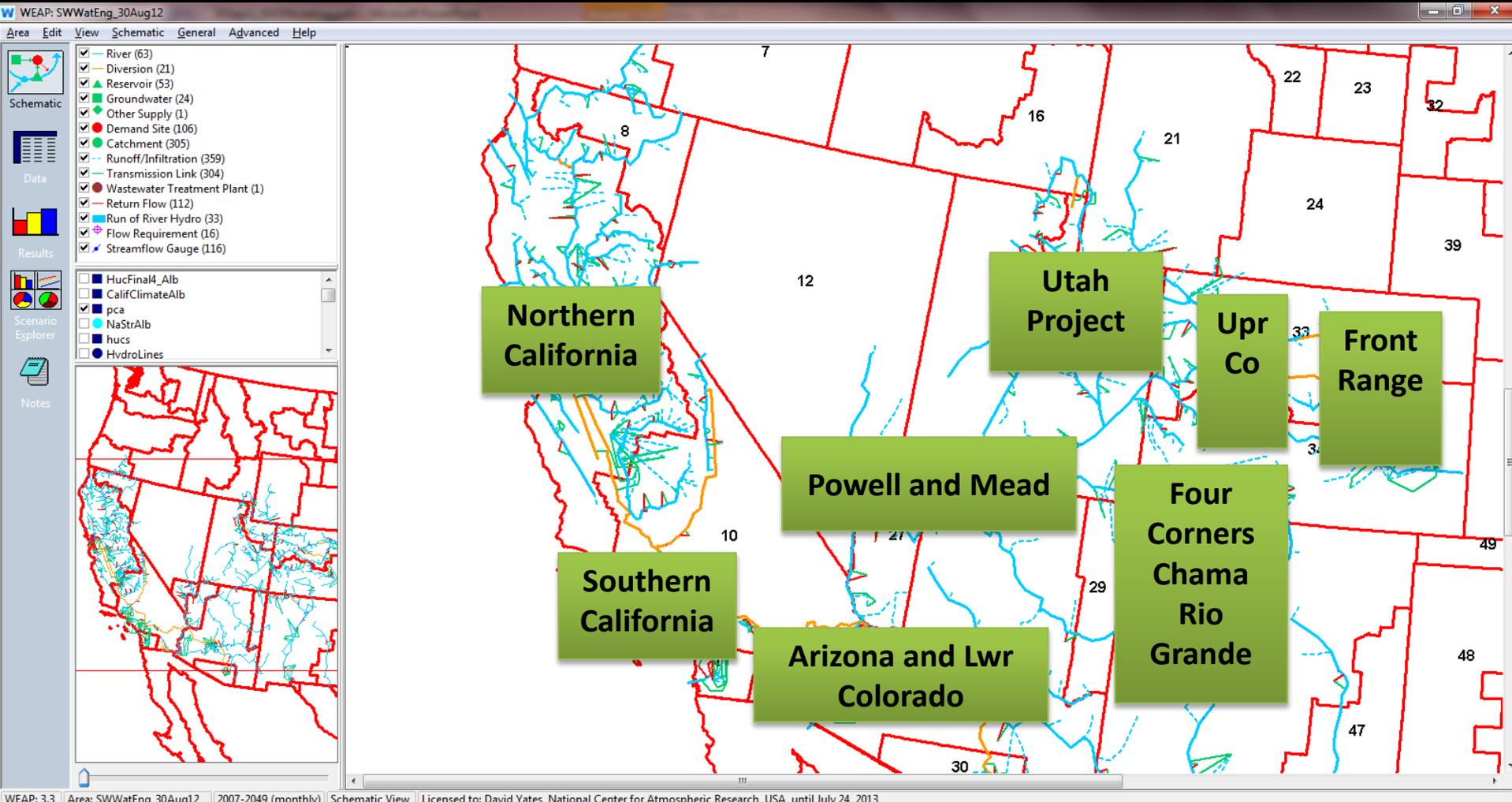
0.6 million a.f.

123 million a.f.

31 million a.f.

3 million a.f.

# WATER EVALUATION AND PLANNING (WEAP) SYSTEM



# DATA AND INFORMATION GAPS

## WATER SUPPLY:

- groundwater
- water quality

## WATER & ENERGY DEMANDS:

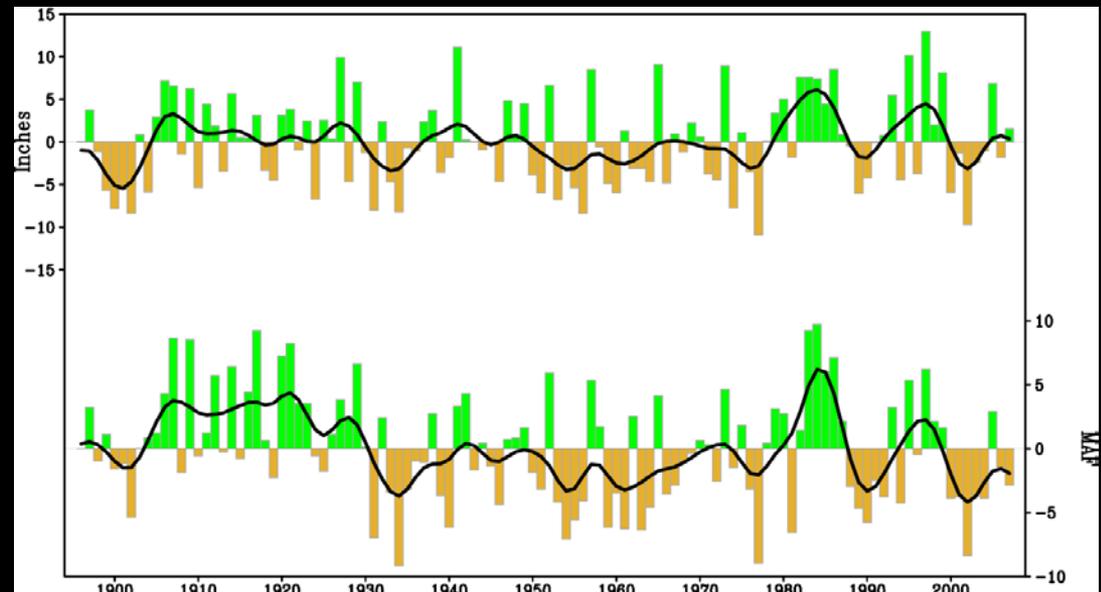
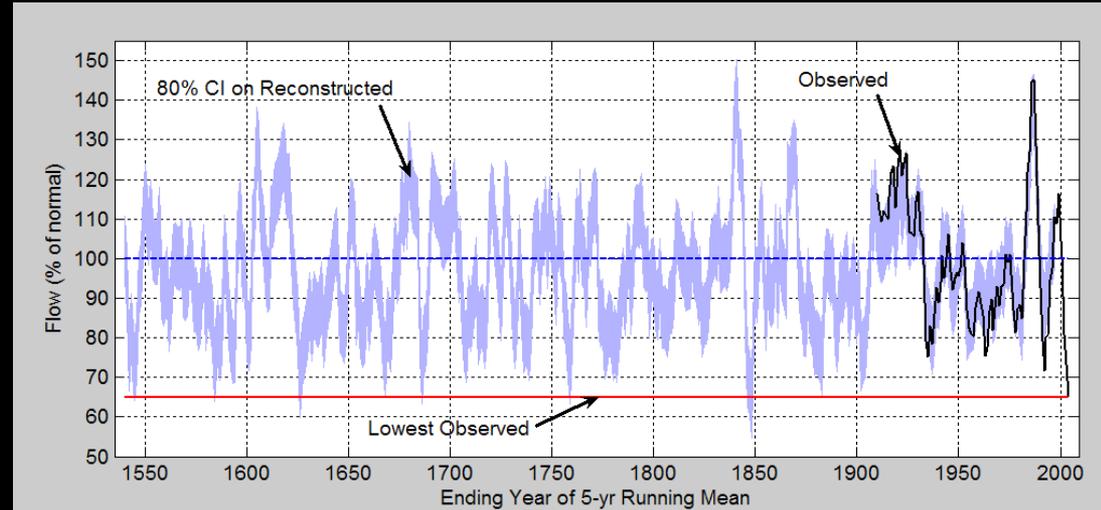
- human behavior & conservation
- technological innovation
- environmental flows

## MARKETS:

- integrated energy & water pricing

# DROUGHT AS A PROXY FOR CLIMATE CHANGE

Risk-based frameworks and scenarios don't necessarily require enhanced predictability of extremes or better models



THANK YOU

# DROUGHT AS A PROXY FOR CLIMATE CHANGE

Lake Powell Inflow - 10 yr sum

