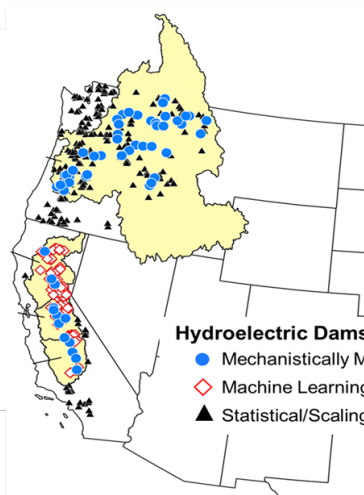
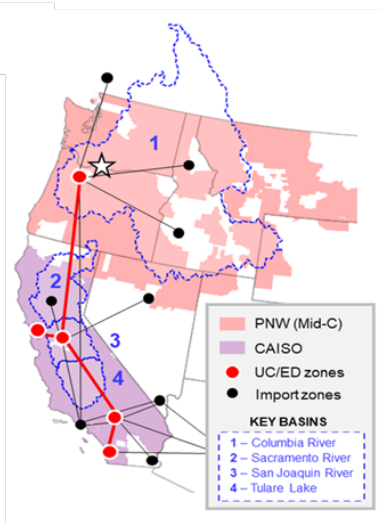


Valuing Streamflow Forecasts in Centrally Controlled Power Systems

Funding from:

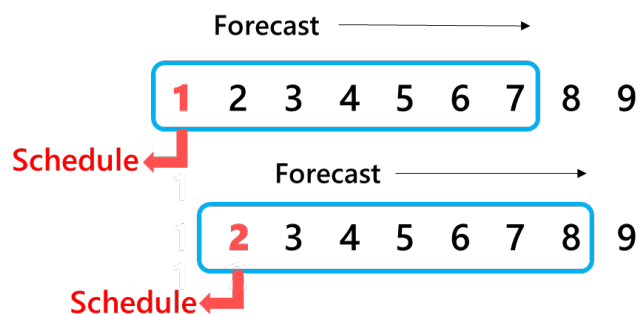


¹Nathalie Voisin (*lead*); ²Jordan Kern; ¹Hongxiang Yan; ¹Sean Turner; ³Andy Wood; ⁴Thomas Mosier



Study domain: U.S. West Coast Grid; two major markets Mid-C (Pacific Northwest) and CAISO (California)

For day in 1..365:



Central Control:
A single, cost-minimizing system operator

Also: market prices are *outputs* of the power system model (not exogenous)

Will forecasts of hydro availability improve operation of fossil fuel units?

Controlled Experiment:

1996-2006

Fixed schedule

Hydro-thermal coordination

Persistence Forecast

LOWER BOUND:
Poor forecast + inflexible dam operations

Poor forecast + flexible dam operations

Perfect Forecast

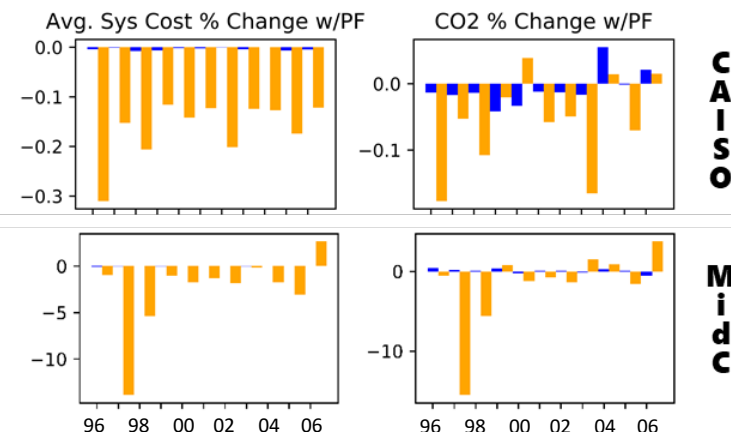
Perfect forecast + inflexible dam operations

UPPER BOUND:
Perfect forecast + flexible dam operations

Results:

- Limited value to system operators without dam flexibility

Fixed
HTC



- Evident market power in use of forecasts
- Points to competition between system-wide and "firm" specific objectives

