

REVIEW OF OTHER ONGOING STUDIES AND OPPORTUNITIES FOR COORDINATION

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Identification of other studies addressing renewable integration requirements and solutions

- Advisory group will assist in a literature review of modeling integration solutions
- Many renewable integration studies are underway and methods continue to be refined
- Growing literature on modeling of integration solutions, notably storage, demand response, and fossil generation upgrades
- A few studies are utilizing the LTPP database and should be evaluated to determine whether they can fulfill some of the CAISO/LTPP study objectives and timing
 - E.g., NREL and EPRI studies of storage

Selected studies of regional, utility-scale integration options and valuation

Study author, region, and delivery date	Integration options modeled	Key methodological details
EPRI, California (12/2011)	CAES, pumped storage, battery	LTPP Data Base; production simulation
NREL, California/ WECC (late 2011-spring 2012)	Concentrating solar power with thermal storage	LTPP Data Base; production simulation
MISO, Midwest ISO (phase 1 – 11/2011; phase 2 – 6/2012)	CAES, pumped storage, battery	Production simulation; long-term generation expansion models
MISO/Manitoba (5 phases, 2011-14)	Hydro storage	Production simulation
DOE/EPRI, U.S./WECC model (1/2012)	Conventional and pumped storage hydro	Production simulation

Selected studies of regional, utility-scale integration options and valuation

Study author, region, and delivery date	Integration options modeled	Key methodological details
NREL, Western Wind and Solar Integration Study – Phase 1, WestConnect, (2010)	Balancing area cooperation, improved subhourly scheduling, demand response	Production simulation
NREL, Western Wind and Solar Integration Study – Phase 2, WestConnect (underway)	Generation retrofits	Production simulation; evaluation of costs of increased generation O&M and retrofits