
Using Behind-the-Meter Energy Storage to Improve Reliability and Lower Cost in California’s Power System

Jim Detmers, PSR LLC | Will Fadrhonc, Stem

Aggregating distributed storage is the fastest, cheapest, and cleanest way to solve grid-level capacity challenges.

54 kW/kWh PowerStore | San Jose, California
Light industrial
Avoiding wide-area load shedding

Load shed layers based on frequency

Improved system resilience with storage

The California-Oregon Intertie example

- COI stability rating: 4800 MW
- COI thermal rating: 7000 MW
- Stability limits exist because the system rings!!
- PNW resources slower to respond than steamers in Southern California

2,200 MW available capacity if can fully rate COI, need fast responding systems in load centers to do so!
Texas sees this too

Source: Texas Syncrophasor Network Weekly Report 140112. Run by Mac Grady at Baylor University
Why we like distributed solutions

1. Reduces single point of failure risk, N-1
2. Located at the load
3. Built incrementally, reduces risk of under/over sizing
4. Moveable as power system changes, no stranded assets
5. Cheaper, faster, safer
Operating parameters to solve the problem

1. Automatic dispatch based on local sensing
2. Must not harm distribution to help transmission
3. Firmware changes available as system needs change
Walk before you run

- Reliability planning is best left to the pros
- Establish standards to ensure predictability
- Explore cost share models through policy
- Stringent reporting requirements
- Build slow, improve over time
Thank you

Jim Detmers
PSR LLC
Will Fadrhonc
Stem

Stem, Inc.
100 Rollins Road
Millbrae, California  94030

jdetmers@live.com
willem.fadrhonc@stem.com