



Behind-the-Meter (BTM) PV Forecast Integration with Load Forecasting

UVIG Variable Generation Forecasting Workshop
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The Producers (2005)

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PG-13 | 2h 14min | Comedy, Musical | 25 December 2005 (USA)

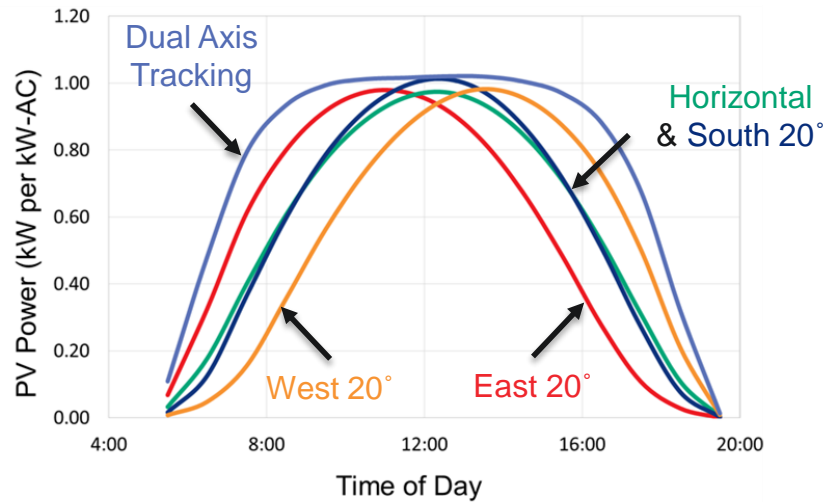


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Current Results Represent the Efforts of Multiple Parties

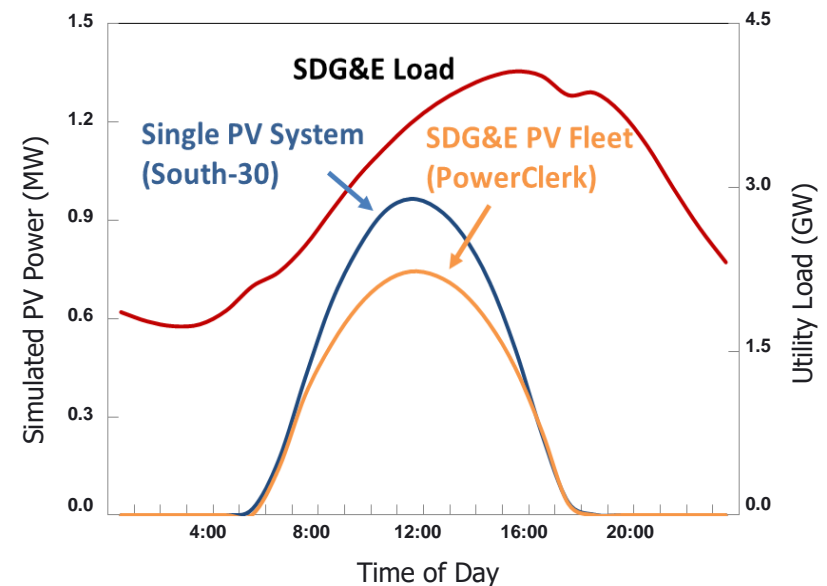


Why Bother w/ Forecasting Behind-The-Meter PV?



... because production is influenced by orientation

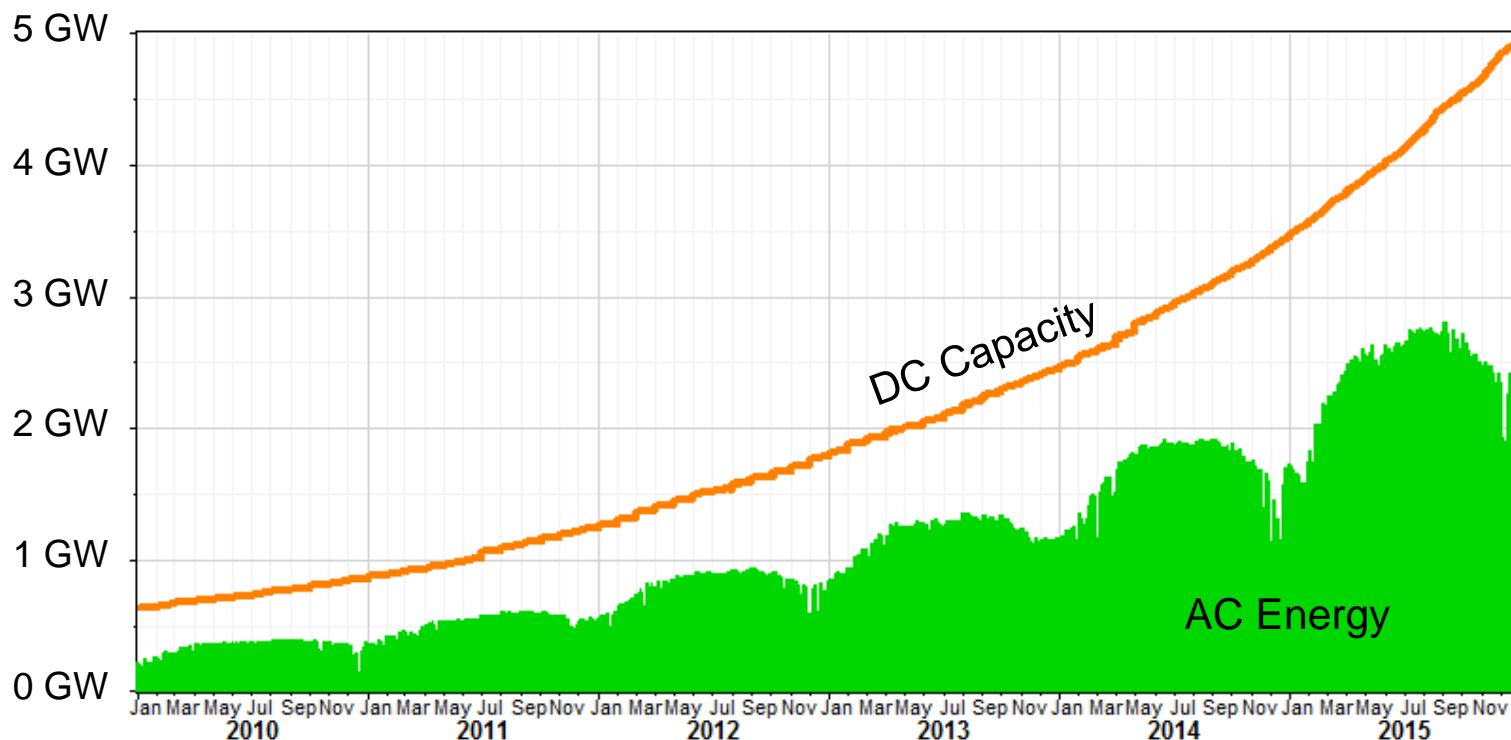
... because fleet and individual system results differ



Why Bother? ... Because Impacts Become More Dramatic Over Time

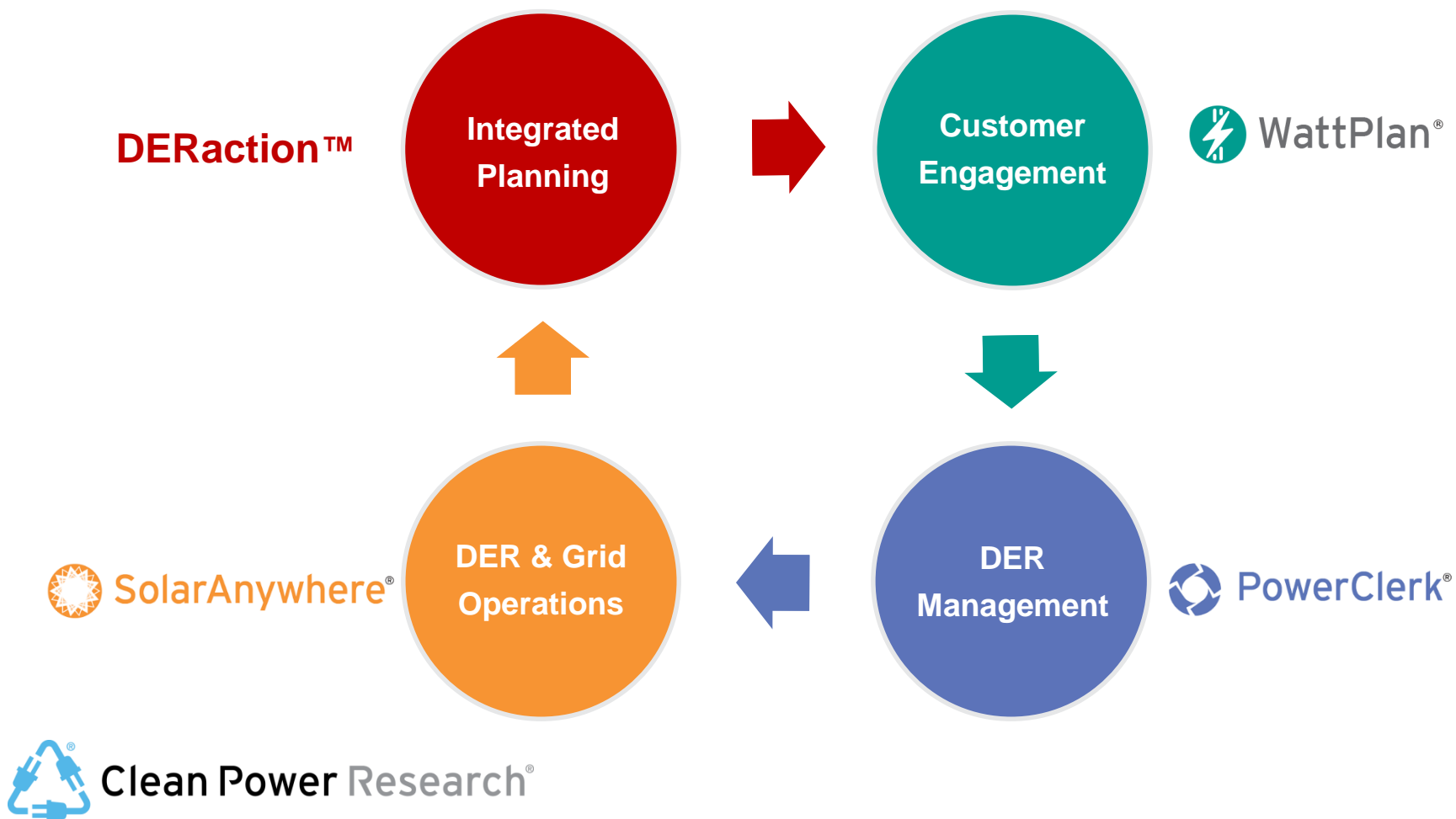
PV Power

CAISO Aggregate Zone



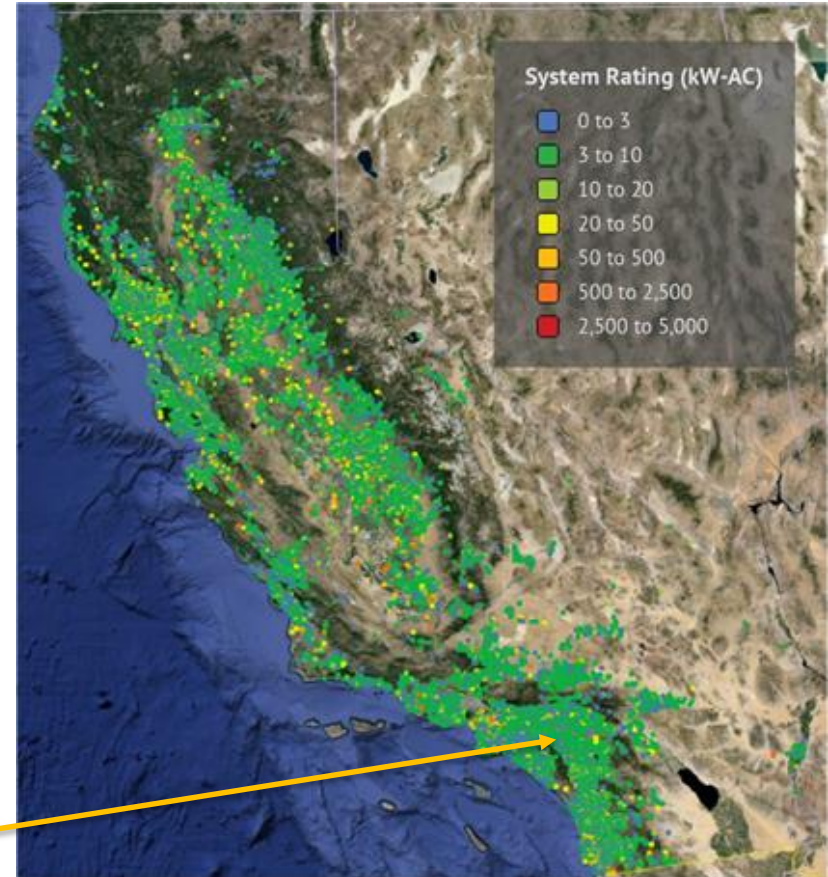
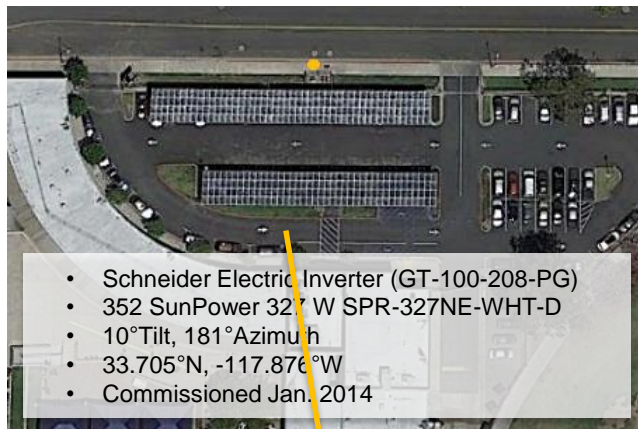
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Distributed Energy Resource Lifecycle



Captures Behind-the Meter (BTM) Fleet Locations and Diversity

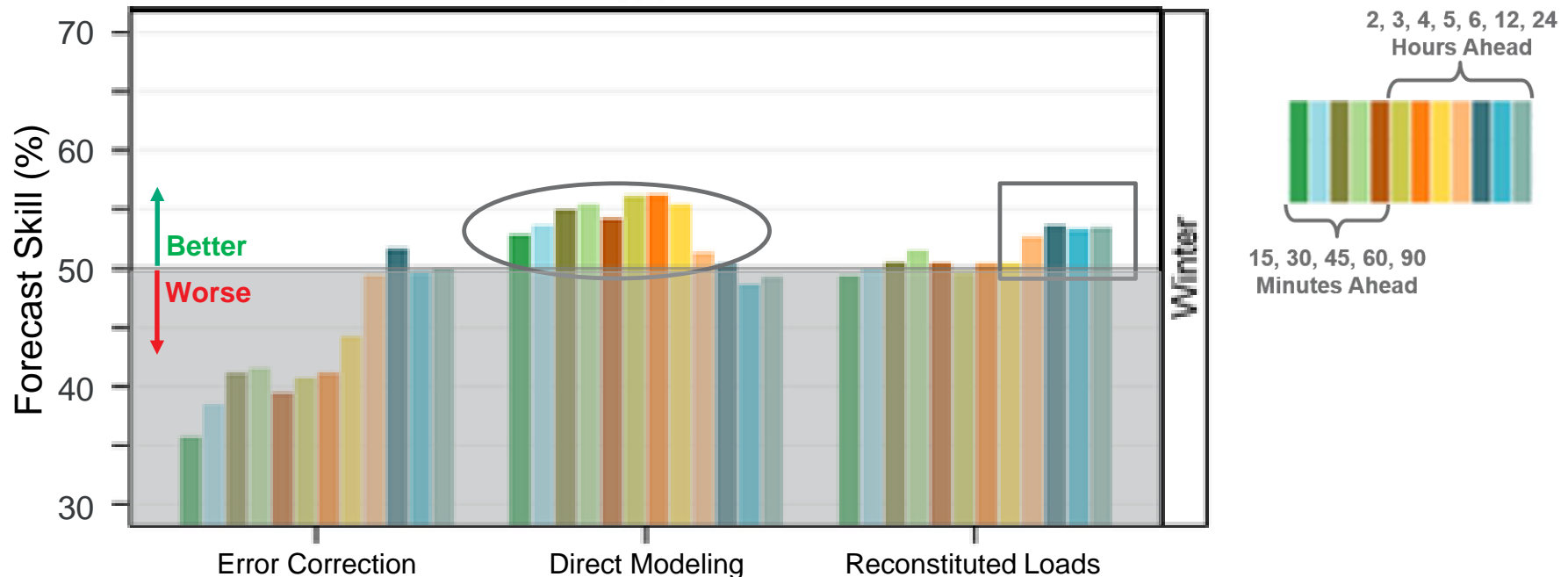
- PowerClerk® links administration to fleet simulation
- Use same methodology as employed with utility-scale PV simulations



Regional and system-wide BTM
simulation capabilities

ALFS Forecast Skill for all CAISO Zones

Correctly applying BTM input can lead to ALFS improvement at all times

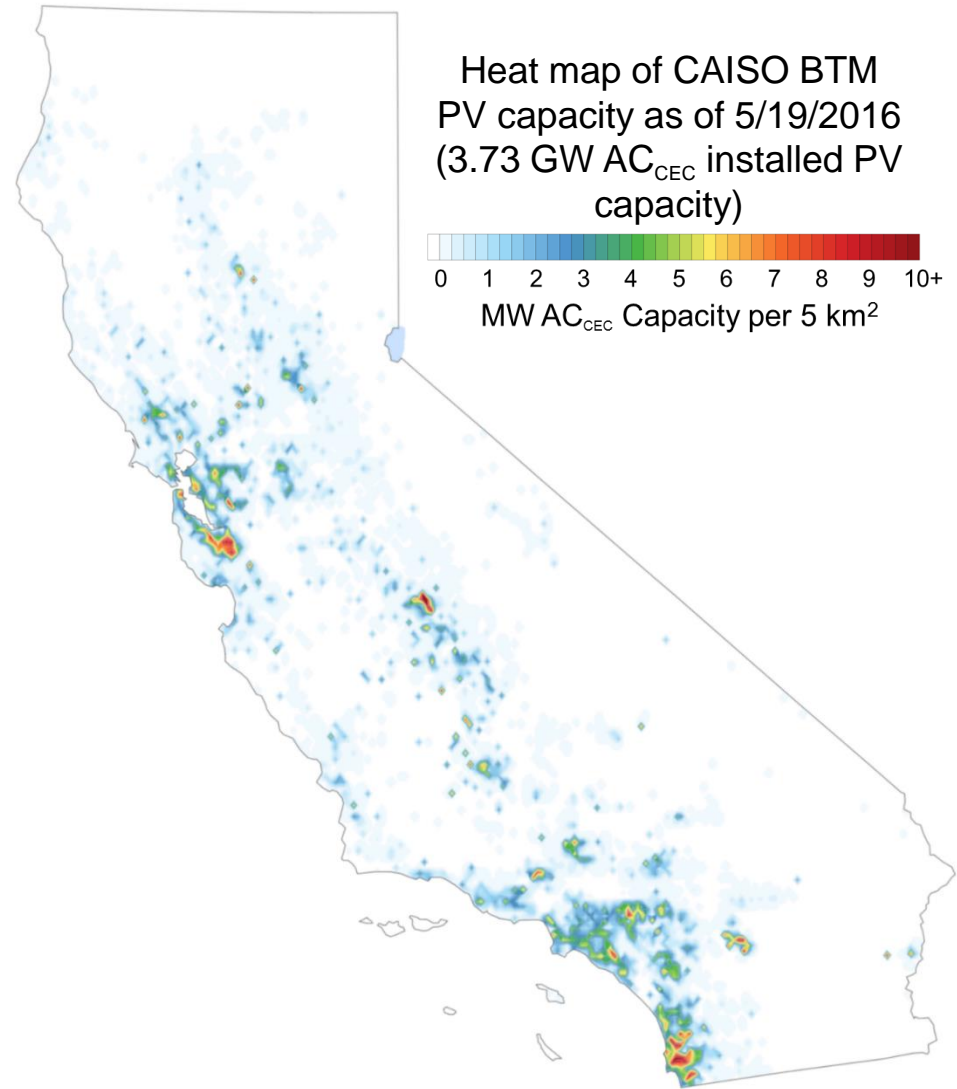


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BTM PV Solar Fleet Management

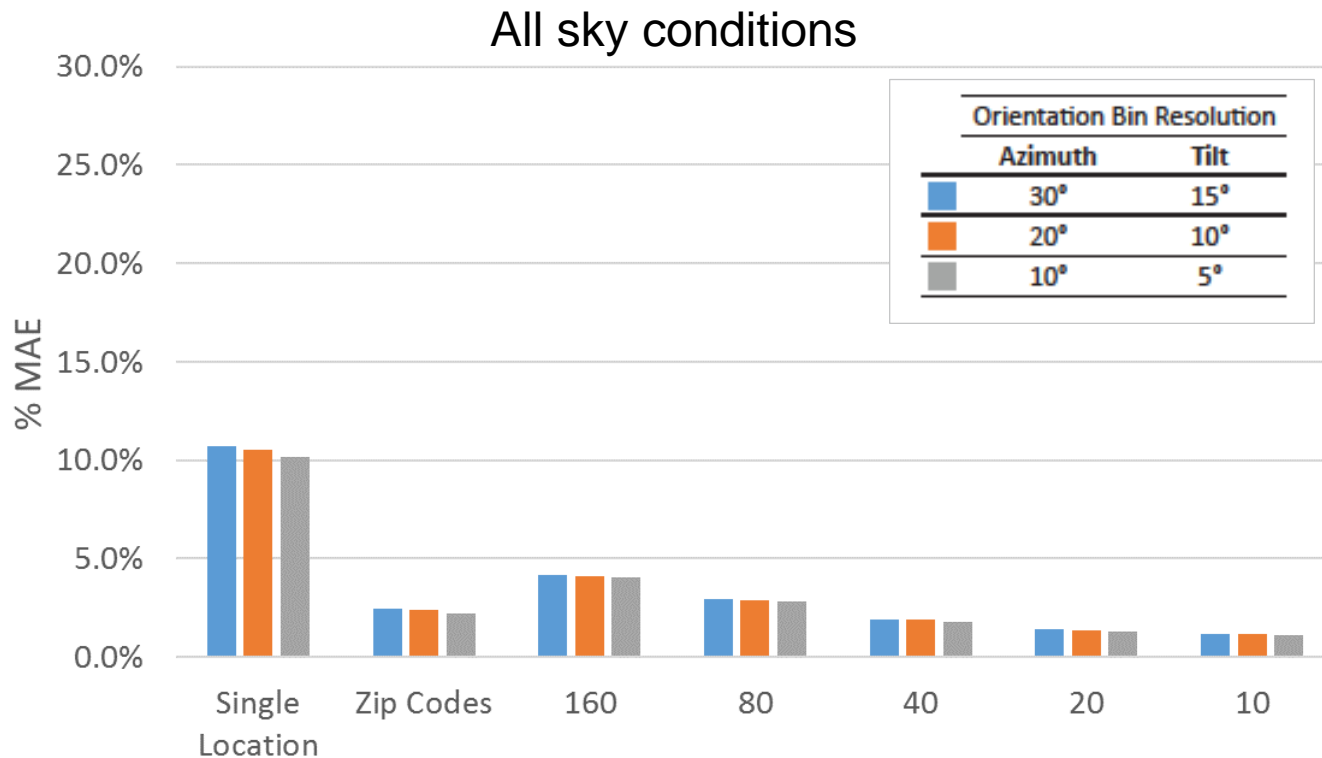
BTM PV solar is not
spatially homogenous and
evolves over time!



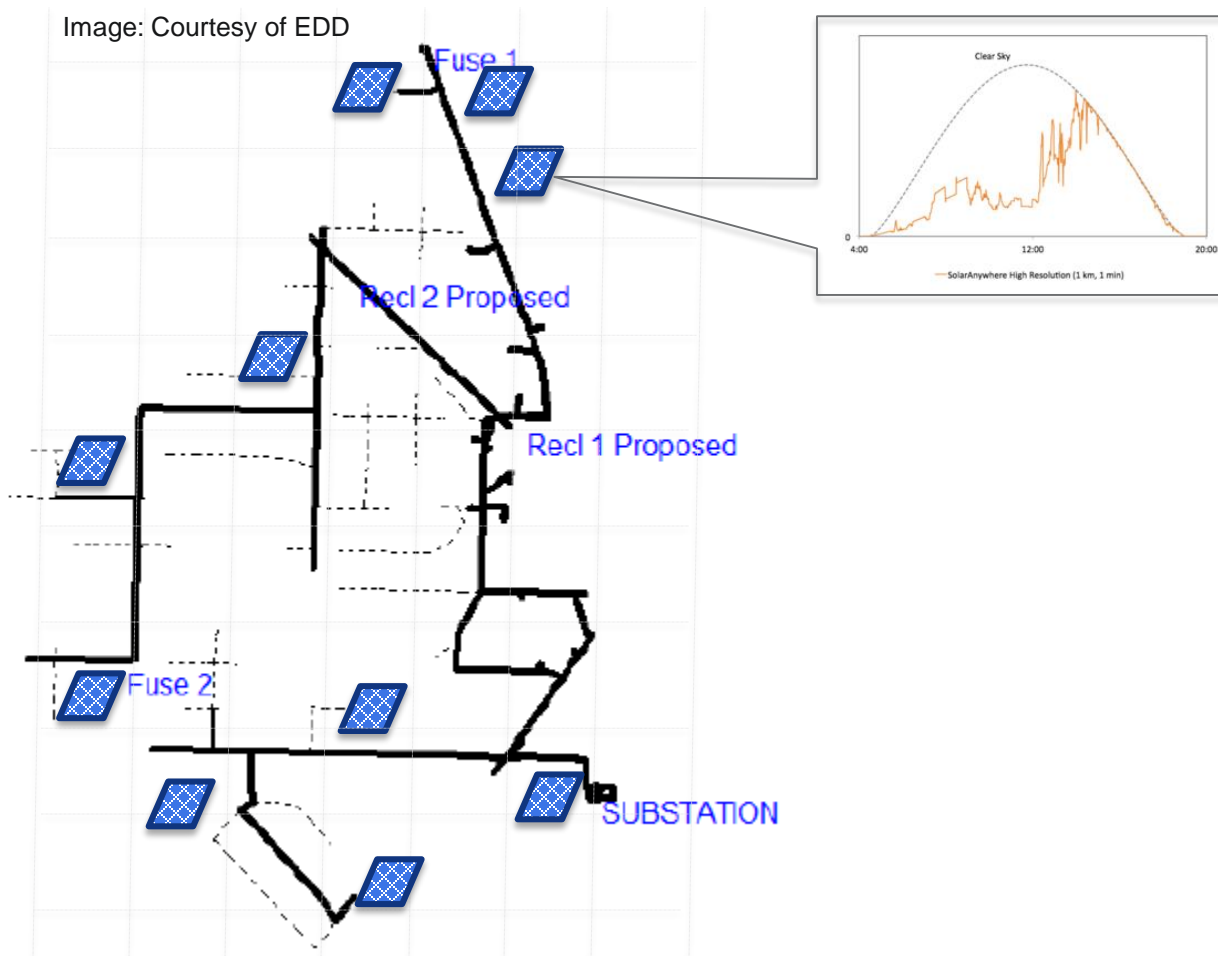
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Accuracy Compared to Baseline Fleet

Assumed fleet shapes introduce avoidable error



Distribution Analysis at Pepco



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Distribution Analysis Project Results

Each point represents random PV placement at associated penetration level

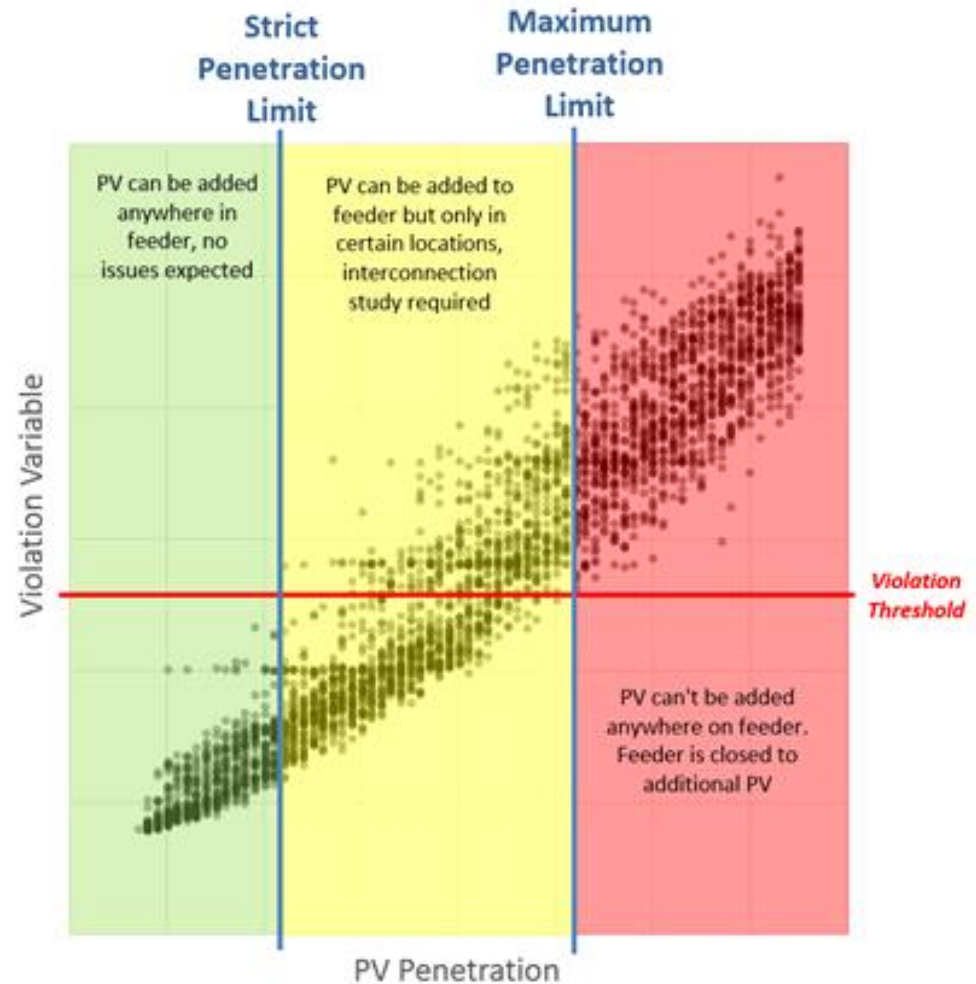


Image: Courtesy of EDD

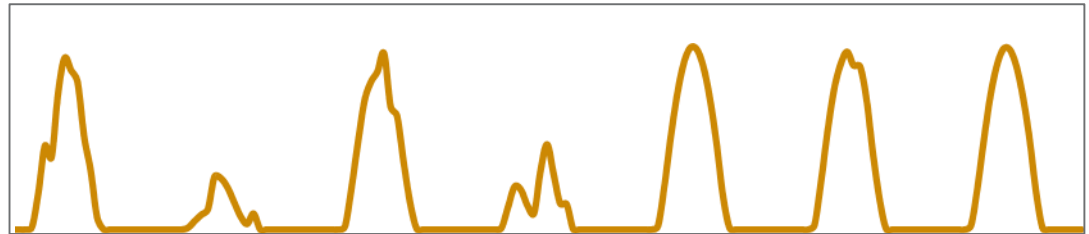


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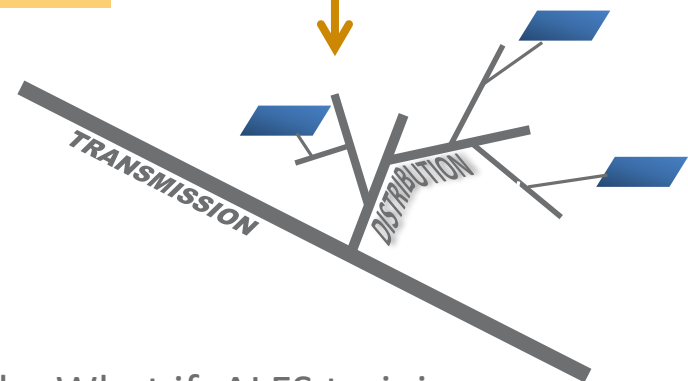
BTM PV Solar Fleet Management

PV FLEET DATA:

*Individual system size, orientation,
location, specs, shading*



PV SIMULATIONS



Historical: What if, ALFS training

Forecast: Operational needs

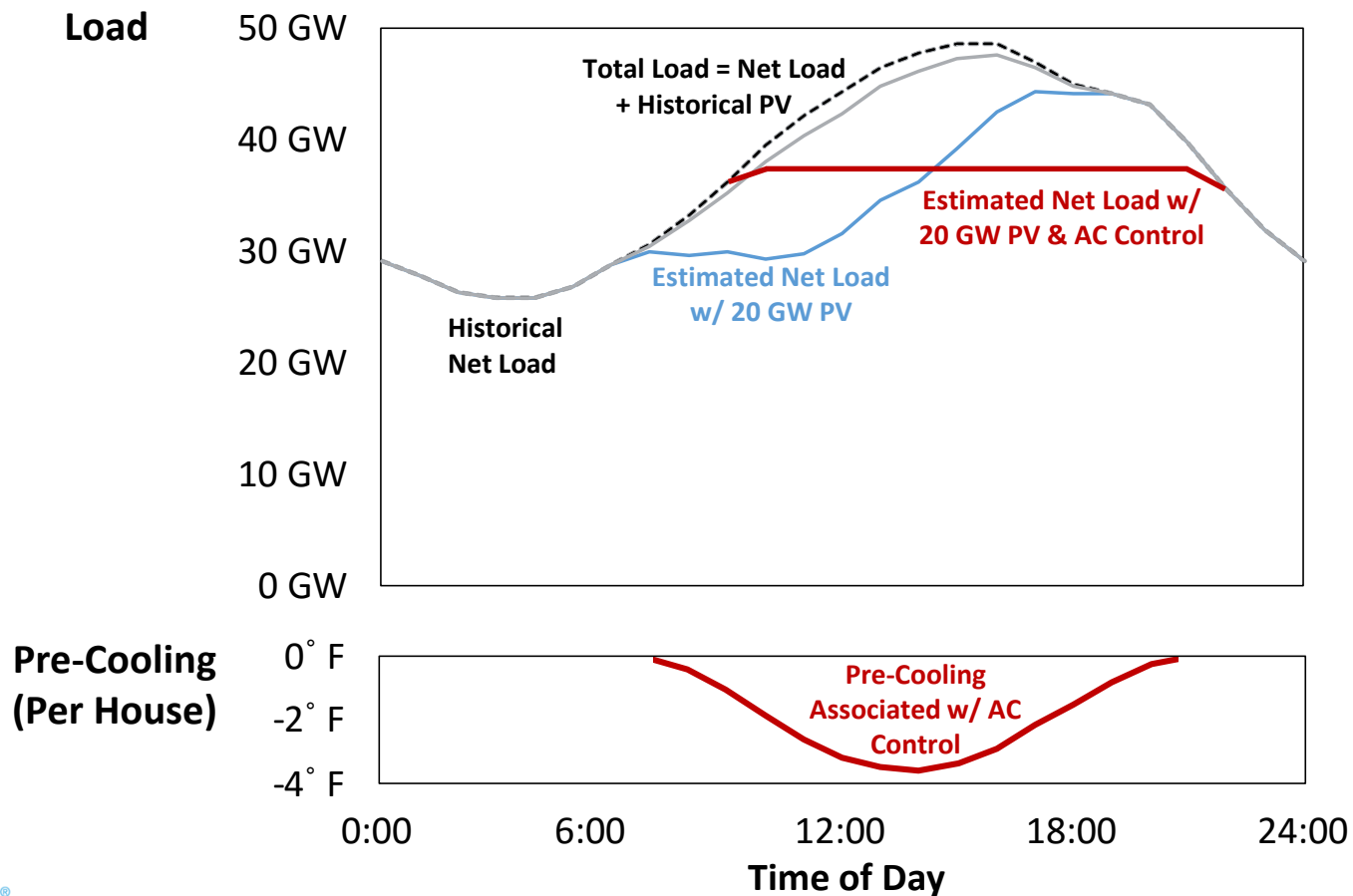
CLIMATOLOGY

NOW

FORECAST

What About the Future?

CAISO 2015 Peak Load Day (September 10)



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Key Takeaways

- Accurate PV specification databases & solar data improve load forecasting accuracy
- It is effective to integrate forecasting into existing tools
- Forecasting could be integrated into building control to create flat net loads



Thank you

Please feel free to contact our technical staff for any details or clarification related to presentation

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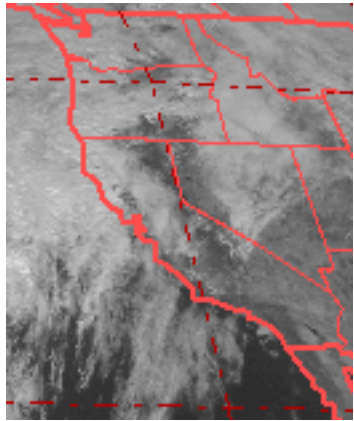
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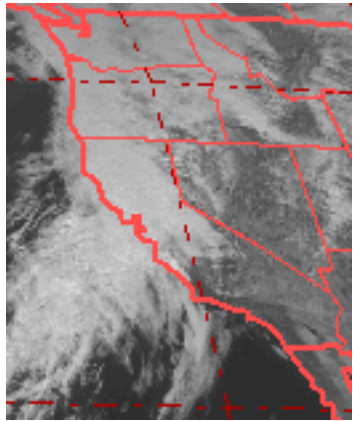
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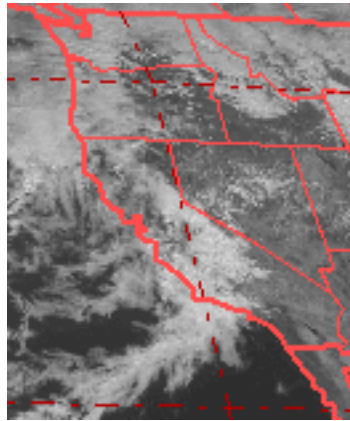
ALFS Forecasting Results for Sample Days



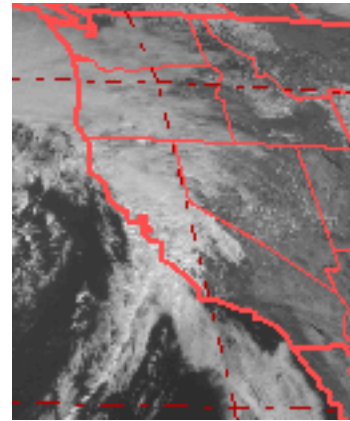
2/5 12 LST



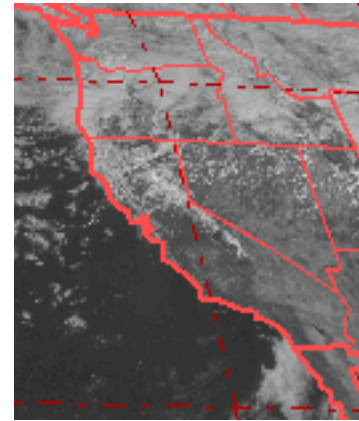
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2/7 12 LST



2/8 12 LST



2/9 12 LST

