Tesla SAVPP Integration and Scaling into the NEM

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ESIG 2020 Down Under – Customer/Grid interface

LAST EDITED
11 Sep 2020

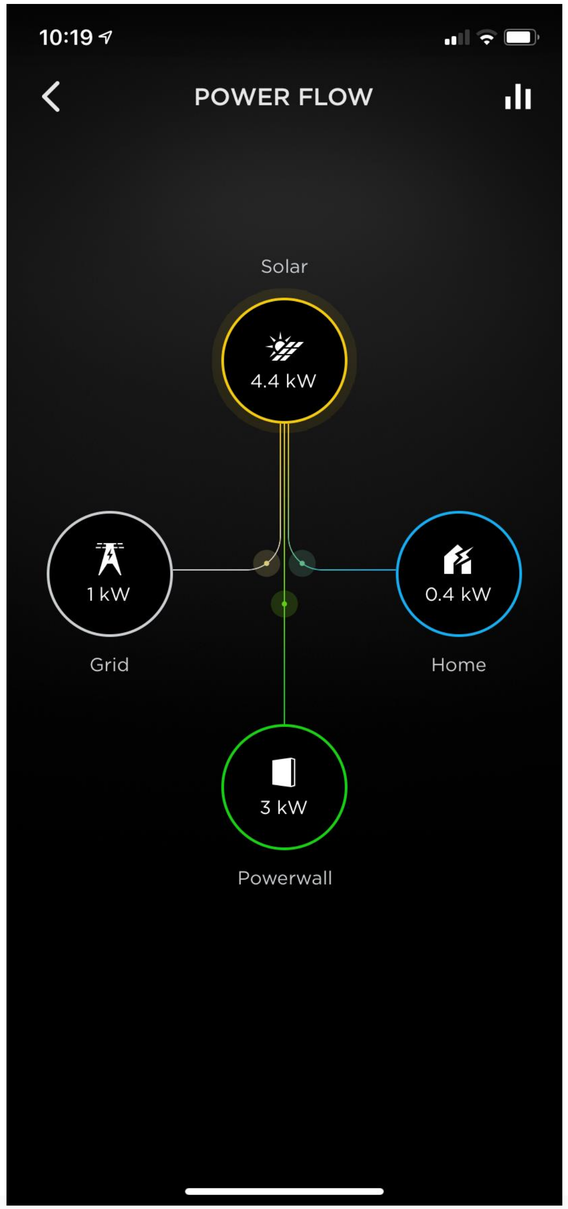
SAVPP Integration and scaling

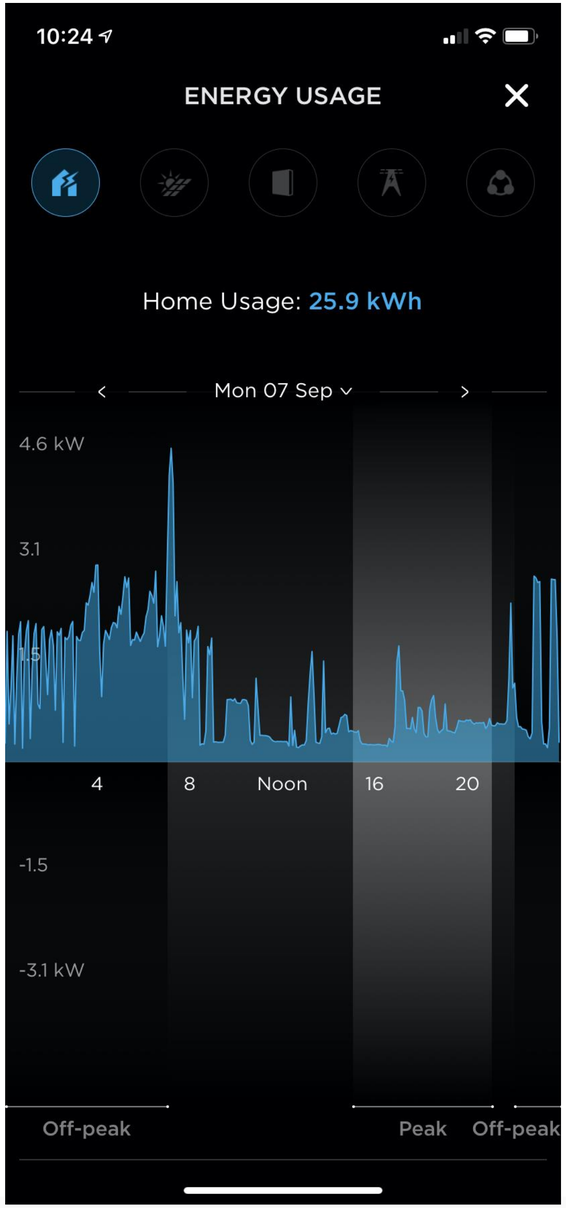
Overview

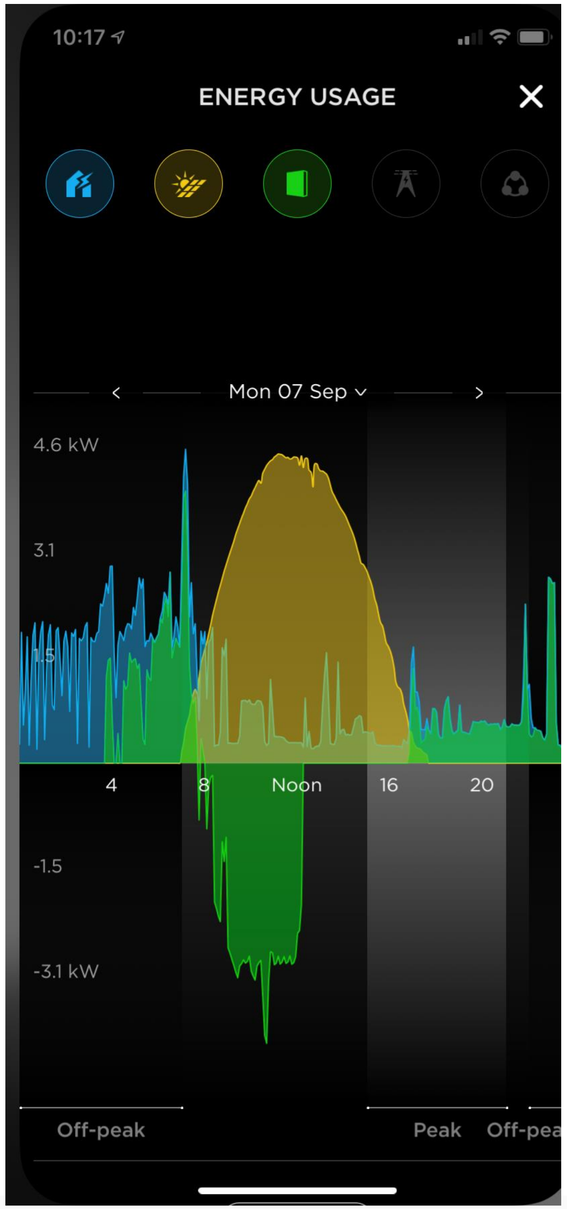
OVERVIEW

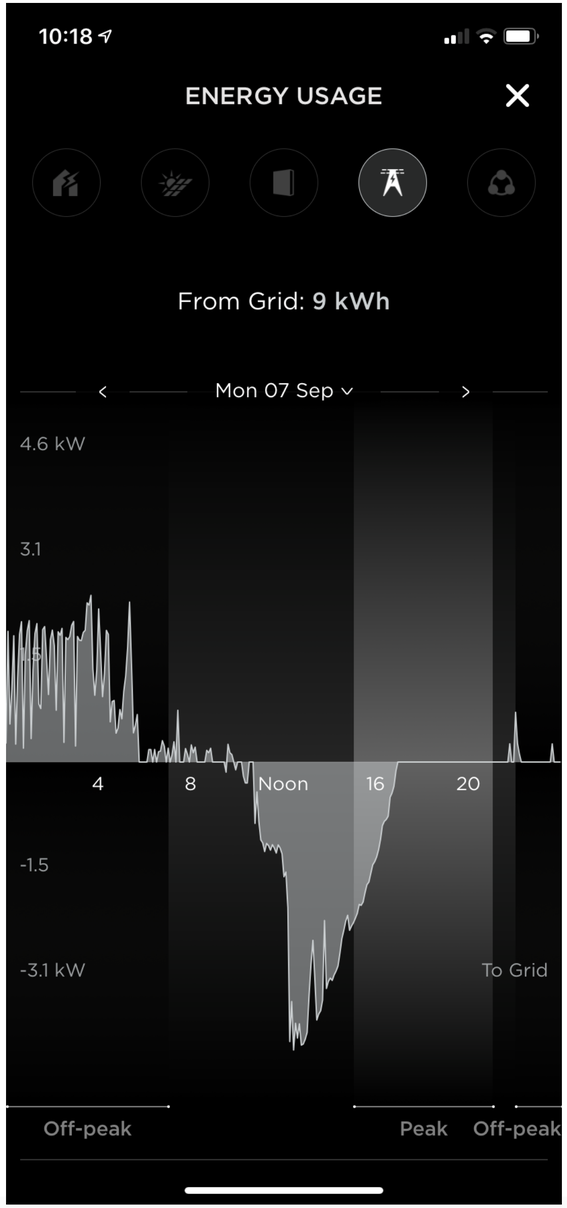
- SAVPP from 1000 to 5000 to 50,000
- Solar Self Consumption
- Energy/FCAS co-optimization
- EV charging
- Case Studies

Melbourne 7th of September 2020…

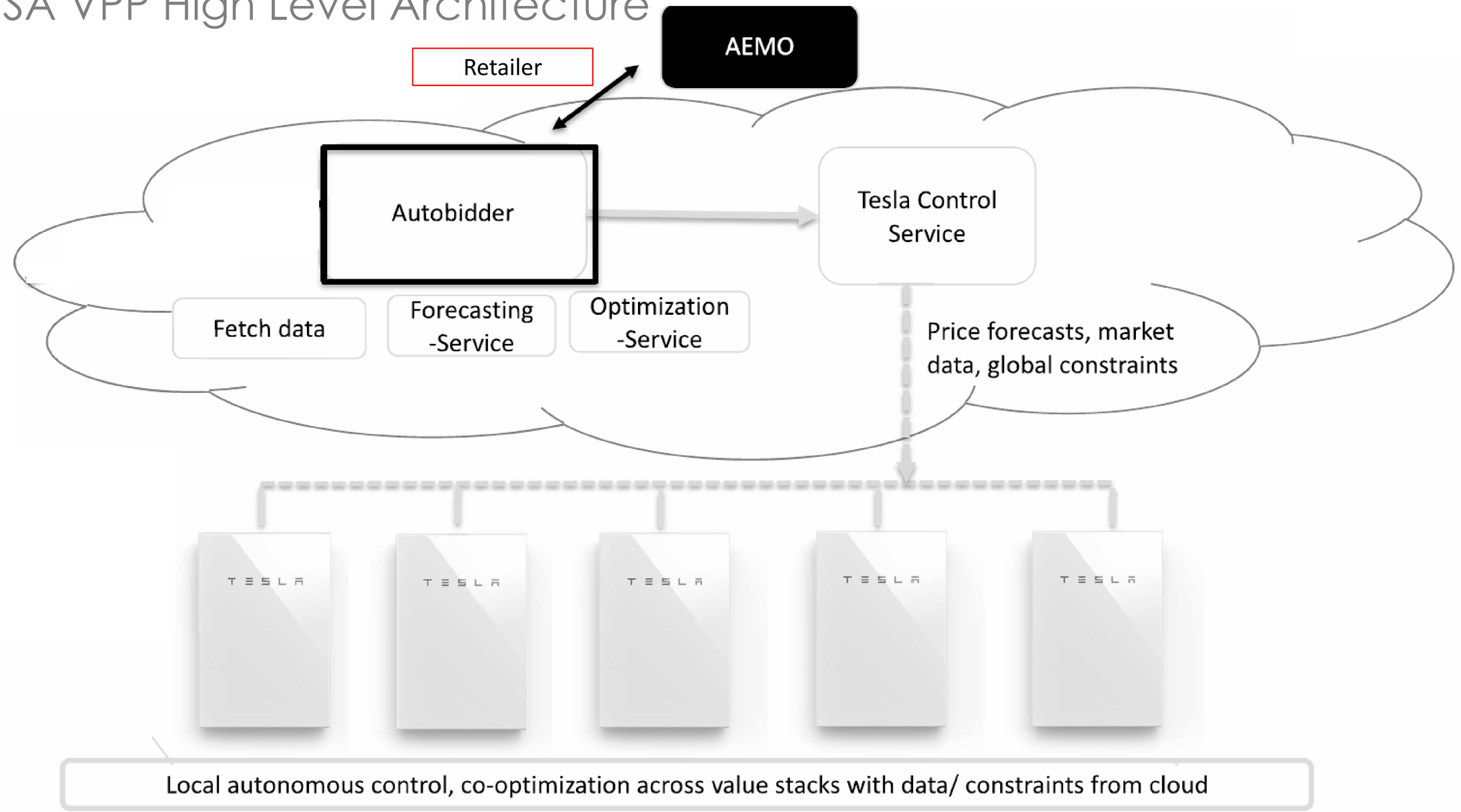




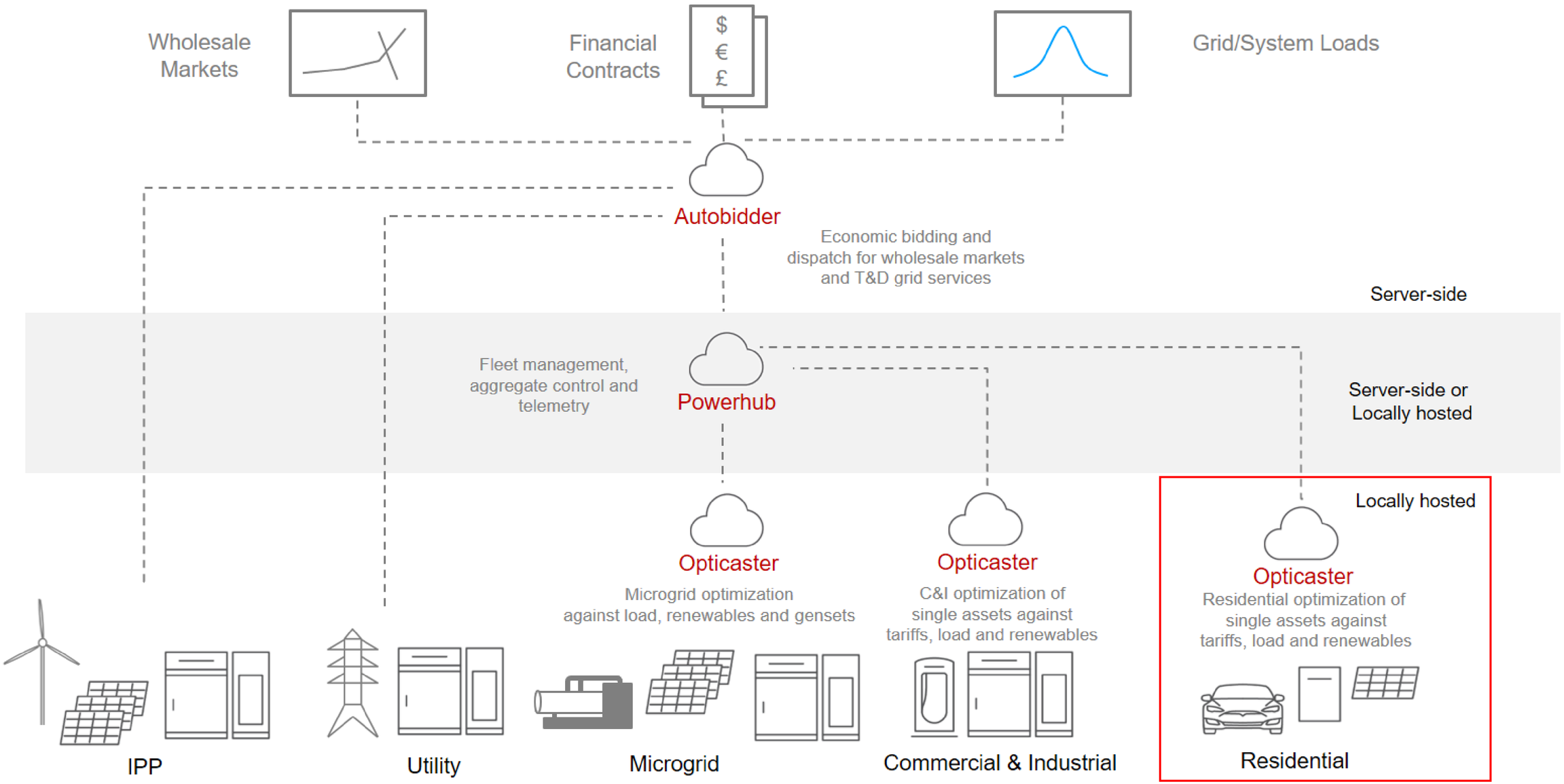




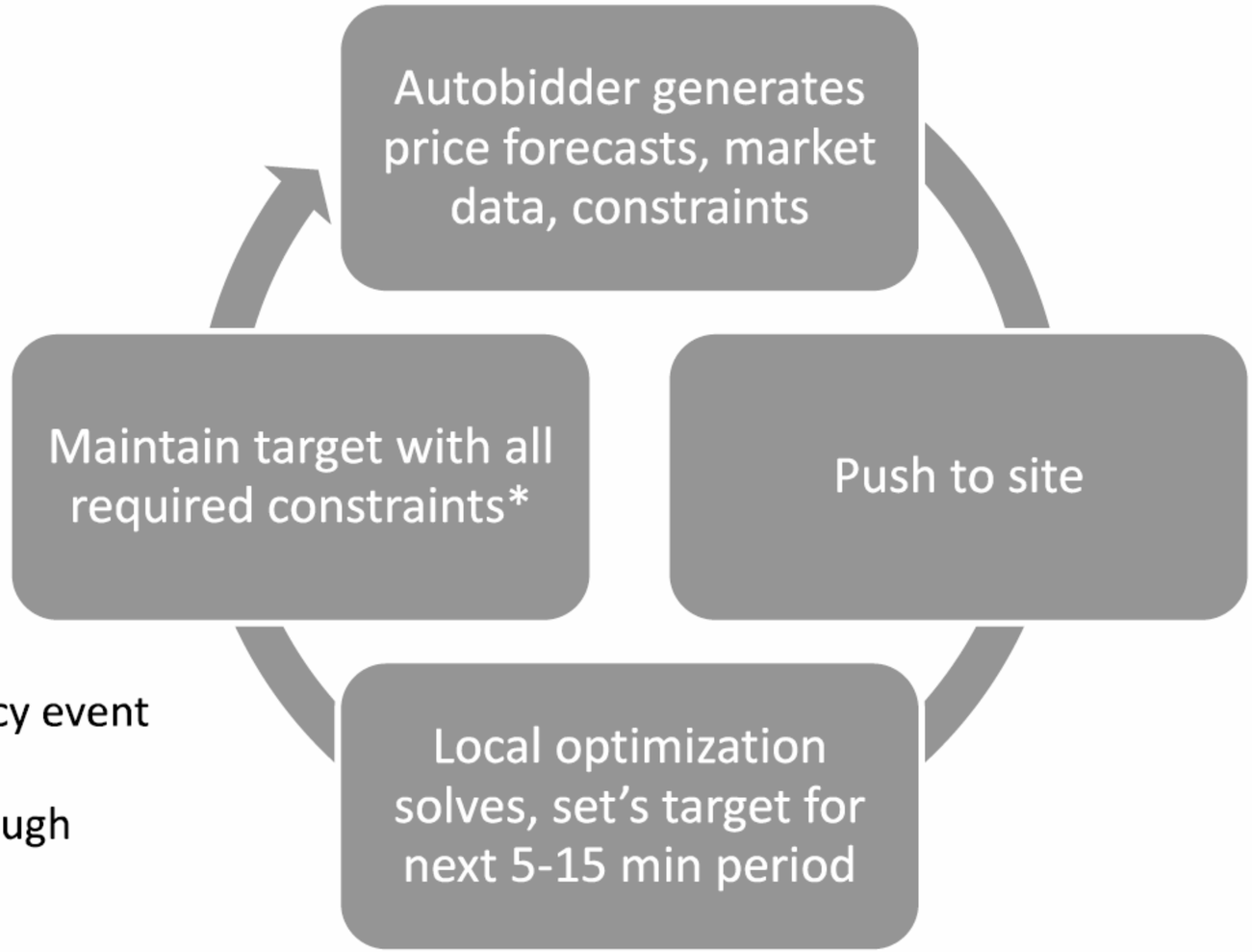
Tesla SA VPP High Level Architecture



Autonomous Control Software Across the Energy Ecosystem



Event Cycle



*If FCAS contingency event called, respond autonomously through frequency droop

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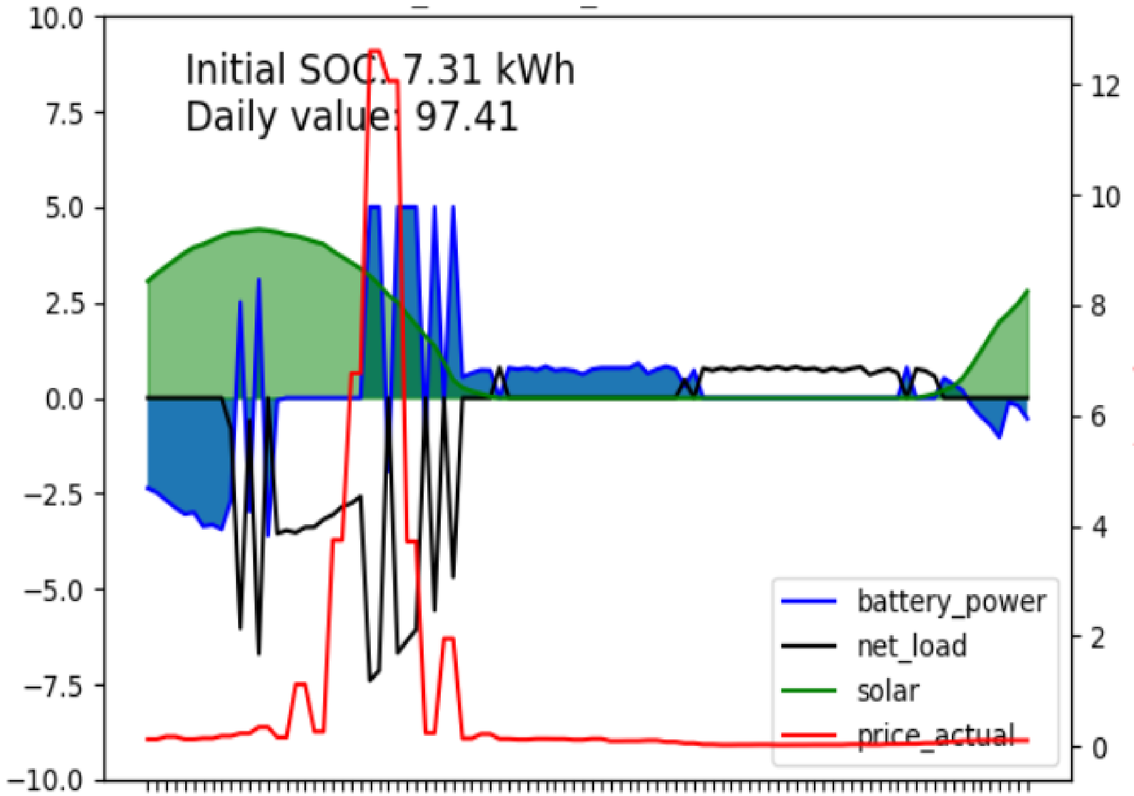
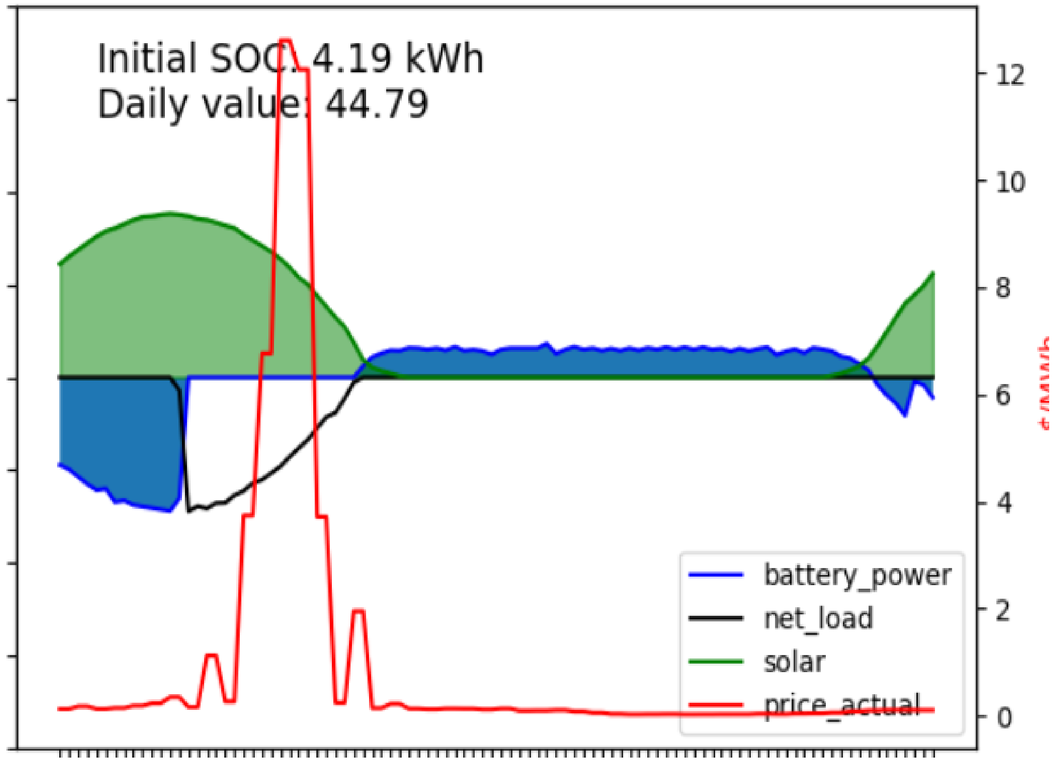
Energy Arbitrage (March 1st 2020)



Smart = Self-consumption + energy arbitrage



Dumb = Only Self-consumption

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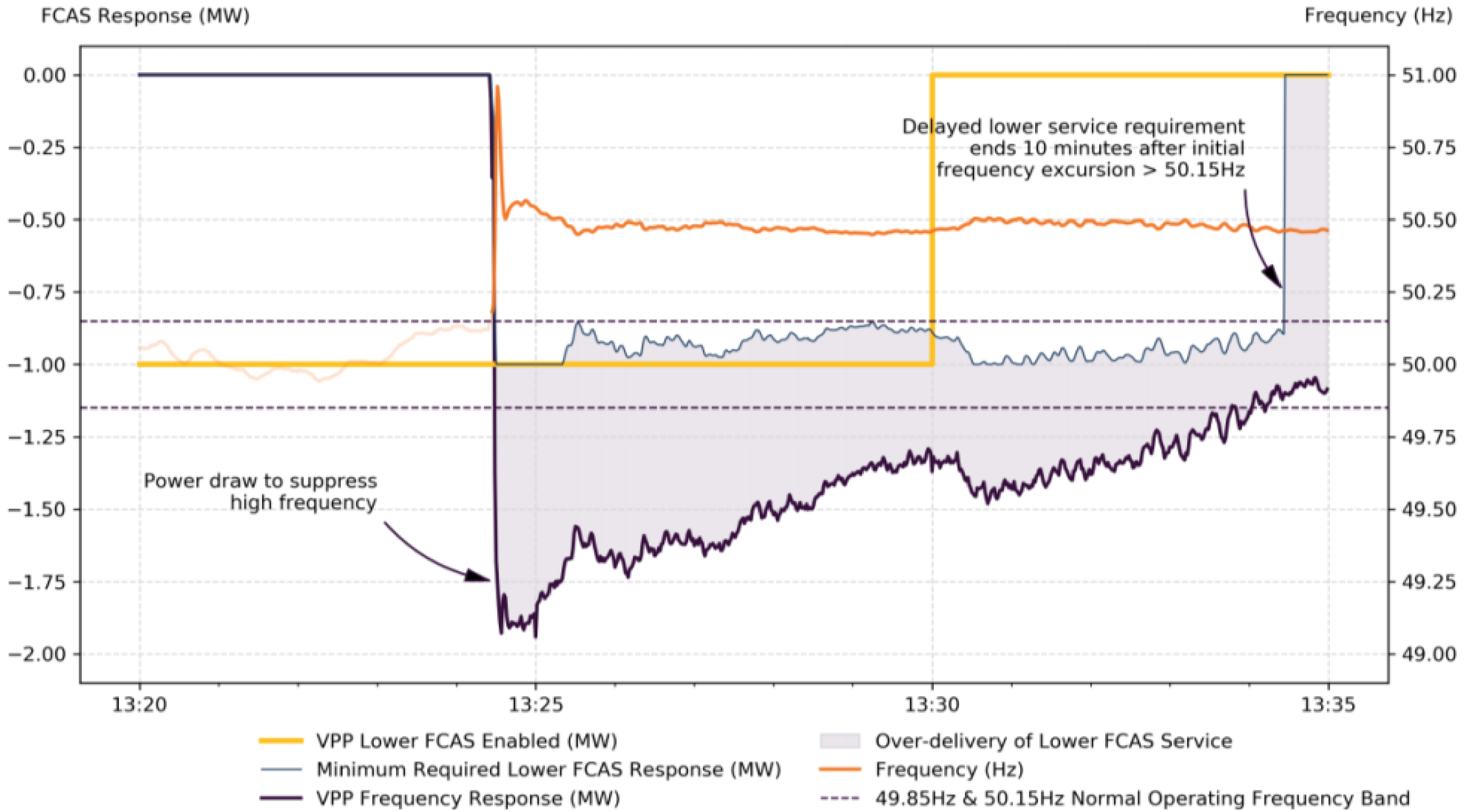
FCAS Response (SA islanding 31st Jan 2020 SA)



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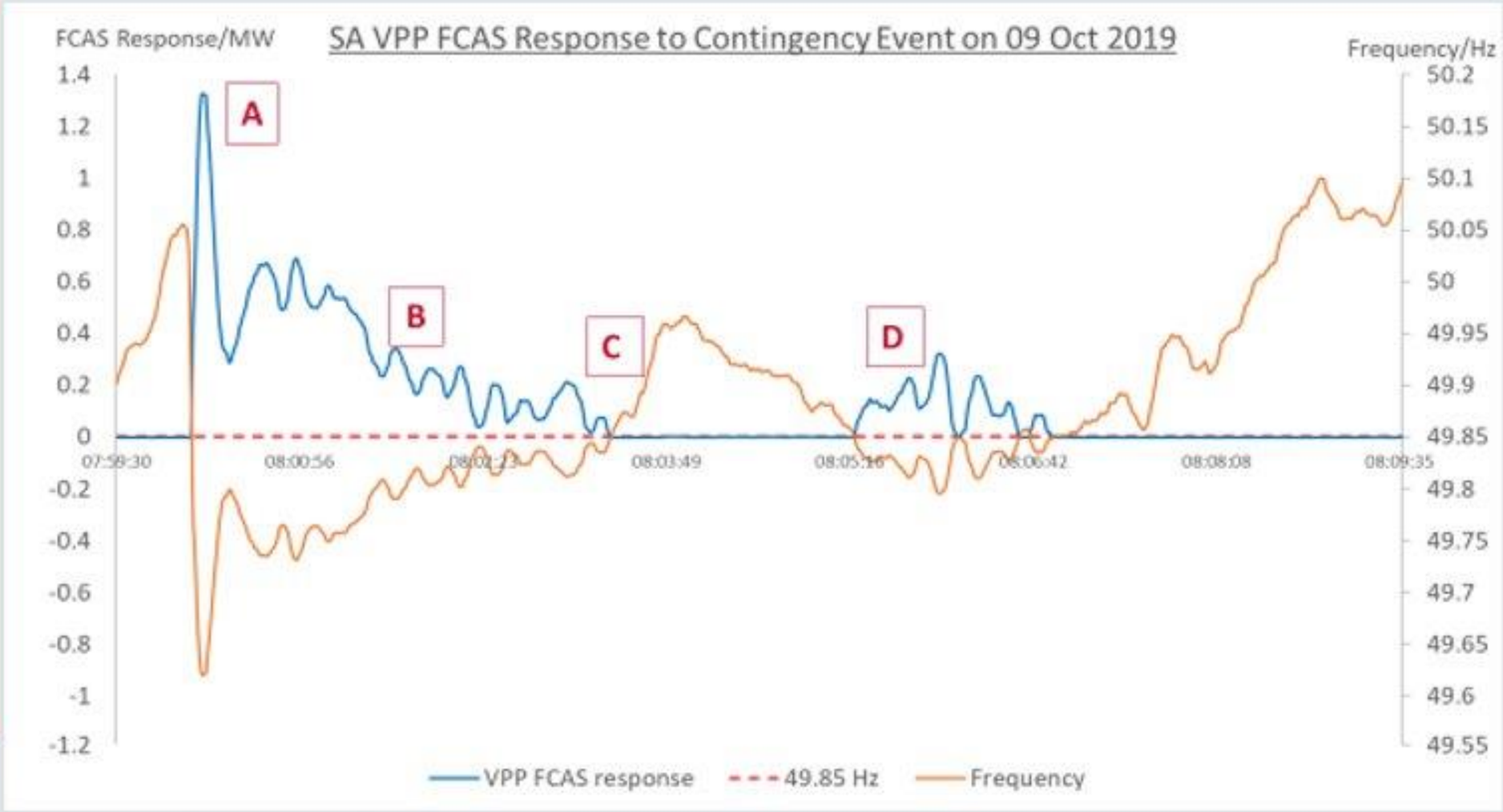
FCAS Response (QLD generator trip 9th October 2019)

A. Initial response to 748 MW trip

B. Continued response as frequency recovers

C. Response stops as frequency now above 49.85Hz

D. New response as frequency drops below 49.85 Hz again



Source: Tesla data, verified by AEMO

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Conclusion

- Remember the Customer!
- Scaling from pilot to 10MW+ requires rethinking
- Autonomous aggregation for Energy and FCAS markets
- Price signals, not command and control.
- EV charging co-optimization starting to ramp