New Architectures for Interacting with Demand Side Resources in Ancillary Services Markets

Ed Koch – Akuacom/Honeywell

Sirajul Chowdhury, CAISO

John Hernandez, PG&E

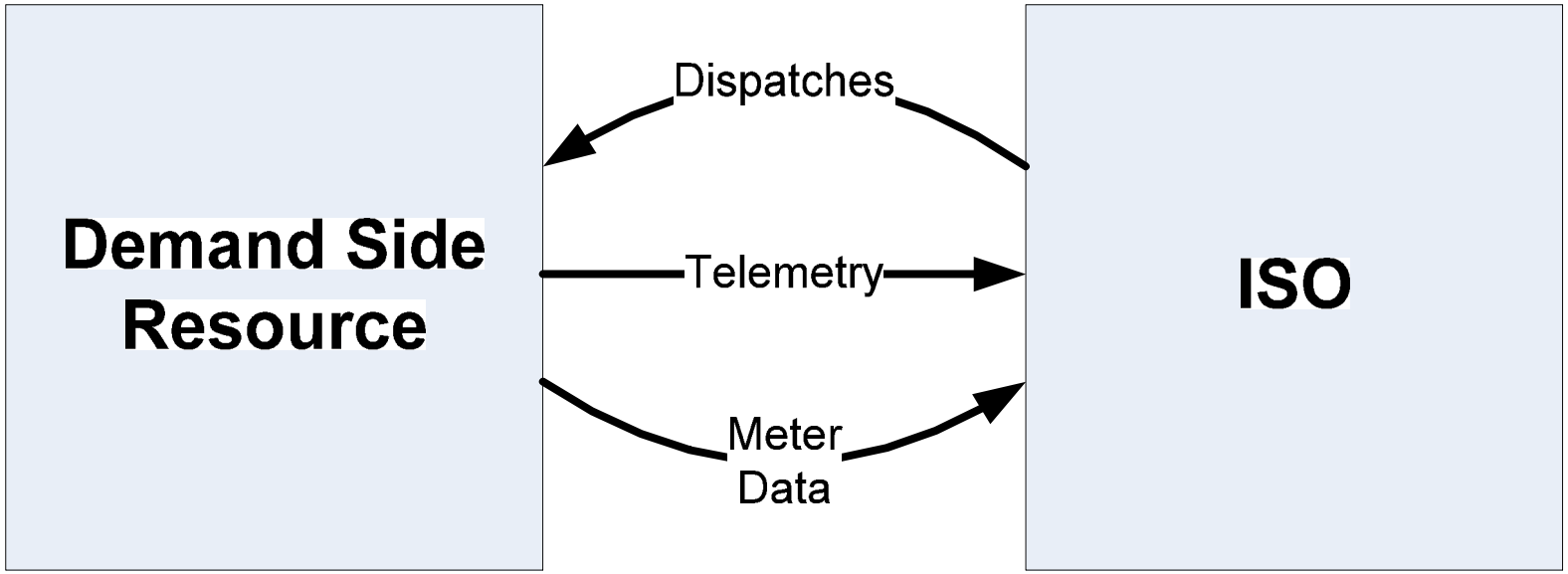
Grid-Interop
Driving to Grid 2020

Agenda

- Current scenarios
- Issues
- Possible solutions
- Pilots with alternate architectures

Grid-Interop
Driving to Grid 2020

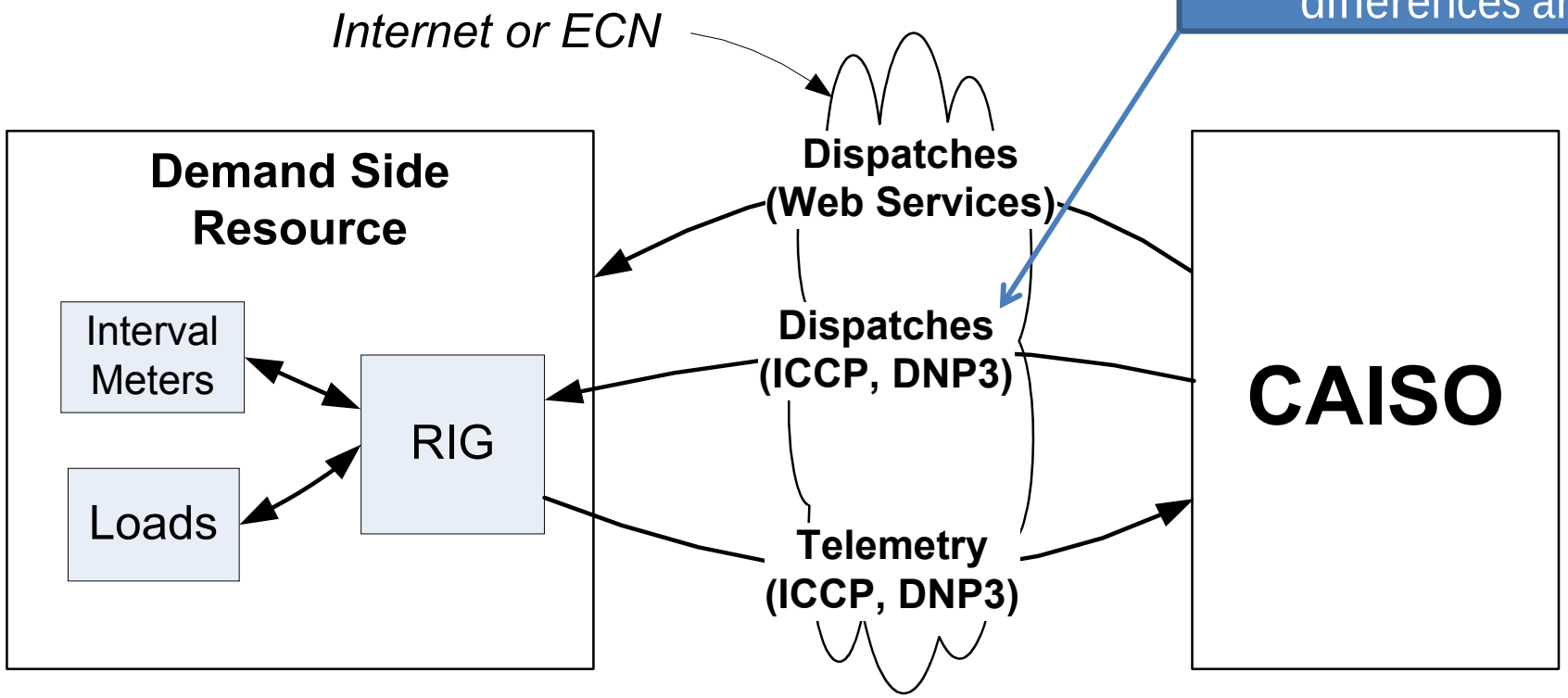
Demand Side Resource Interactions



Grid-Interop
Driving to Grid 2020

Current CAISO Interactions

On the middle "dispatches," please put AGC so there is some clarity on what the differences are



Grid-Interop
Driving to Grid 2020

Issues with Existing Interactions

- All interactions are directly between CAISO and resources – little allowance for intermediaries
- Requirements for interactions are fairly prescriptive and do not allow for lower cost alternatives (e.g. ECN)
- Requirements tend to be one size fits all and are geared towards traditional generation resources

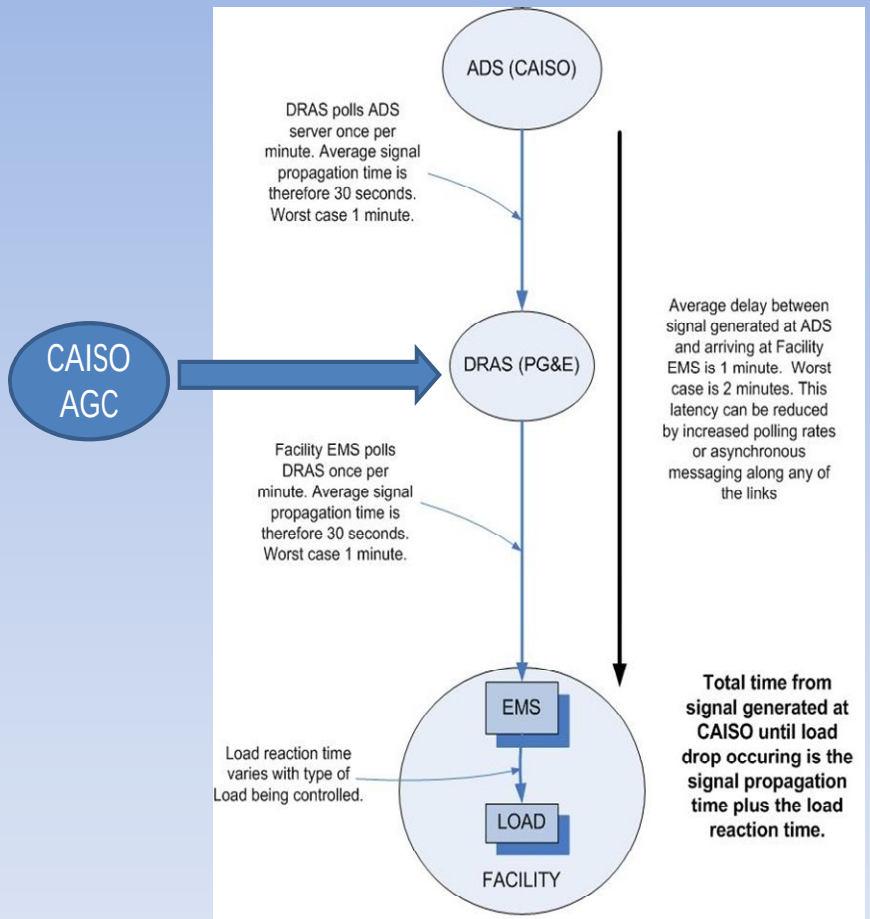
Grid-Interop
Driving to Grid 2020

Possible Solutions

- Allow for hierarchical interactions (e.g. intermediaries – data concentrators and aggregators)
- Create requirements that are less prescriptive, but still satisfy the core objectives of the requirements
- Create tiered requirements that are more stringent for larger resources and less stringent for smaller resources

PG&E Pilots with New Architectures

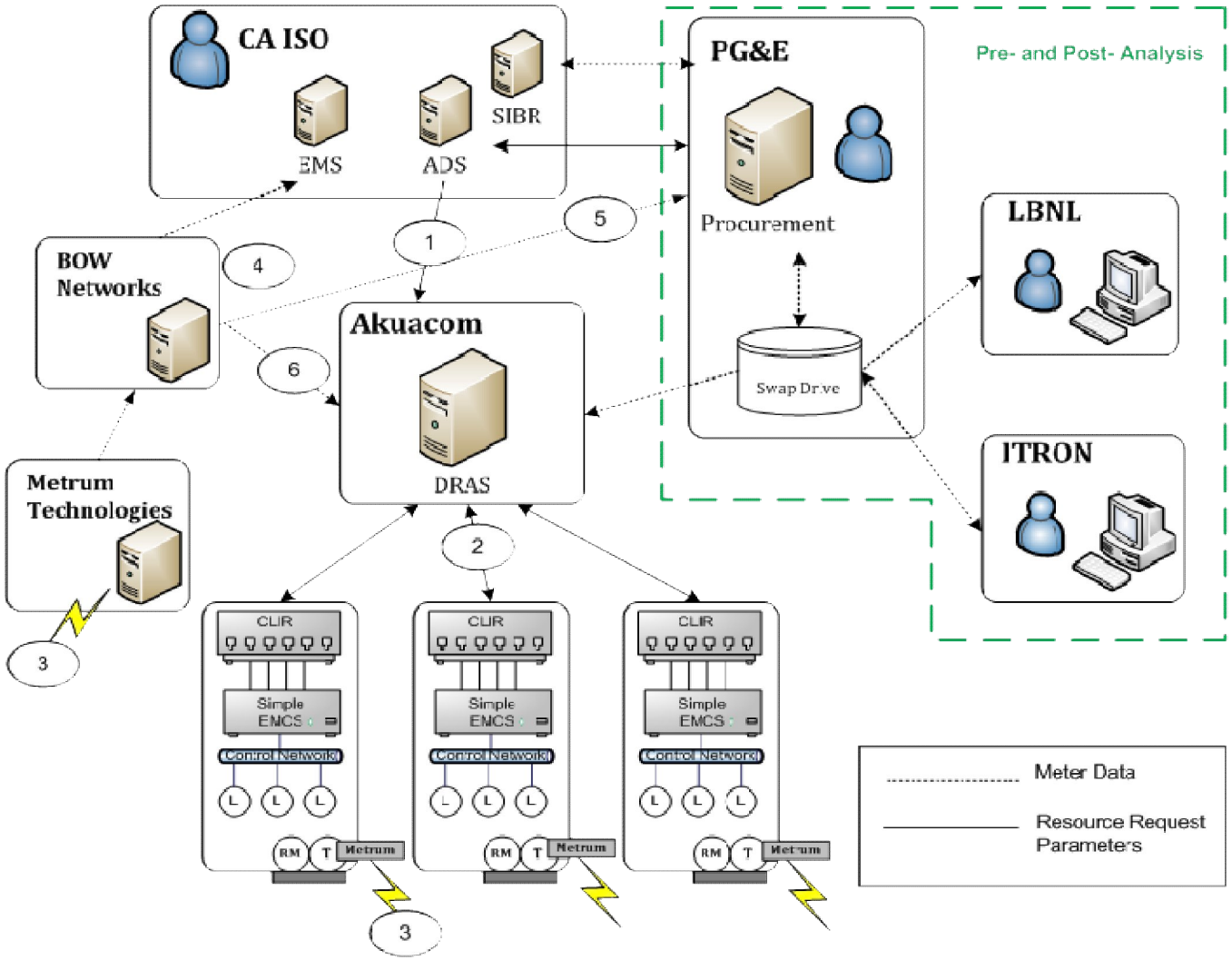
What PG&E has now



Signal Latencies and Load Reduction Times Between CAISO and Facility Loads

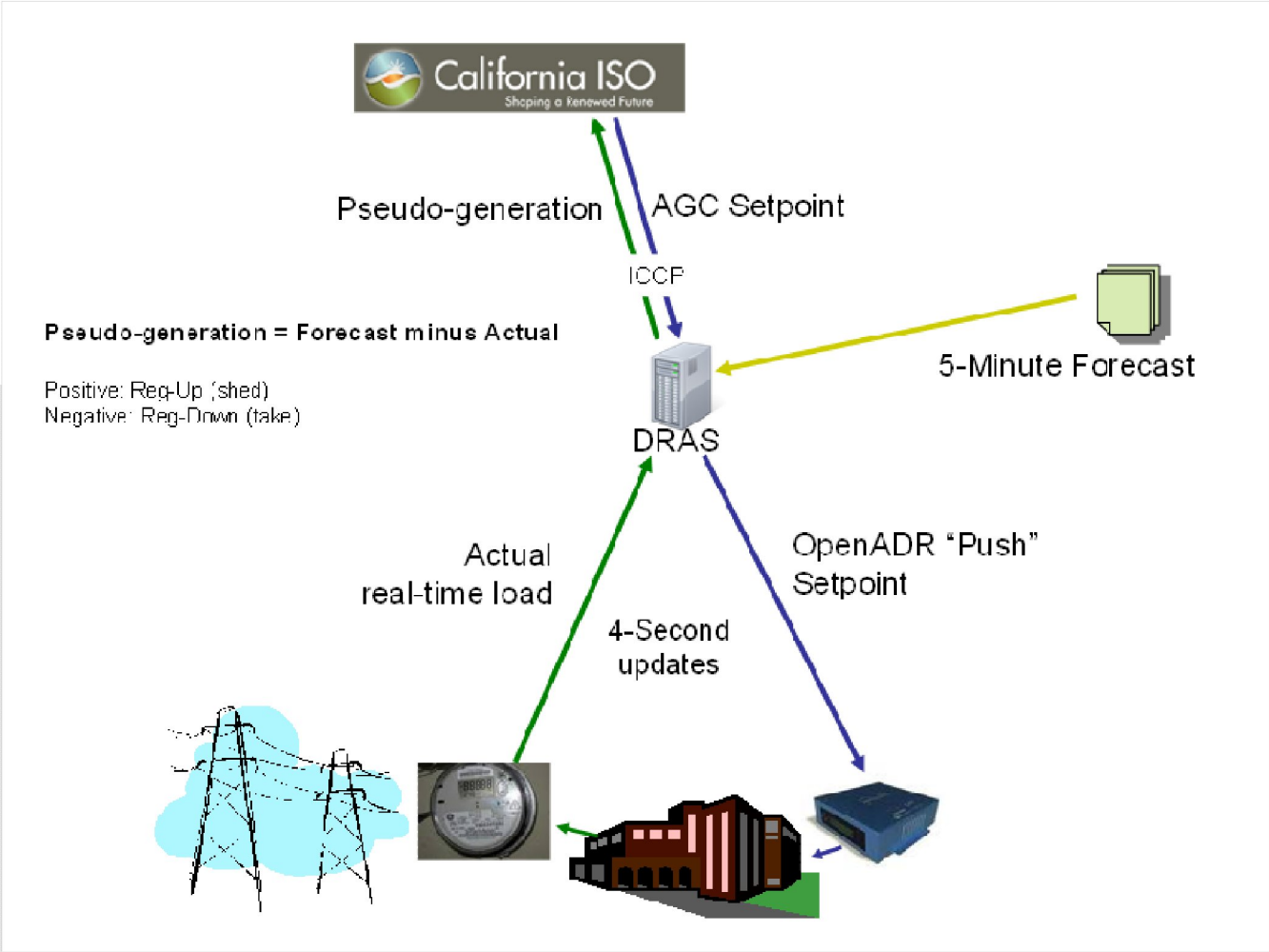
Grid-Interop
Driving to Grid 2020

Participating Load Pilot
(non-spinning reserves)

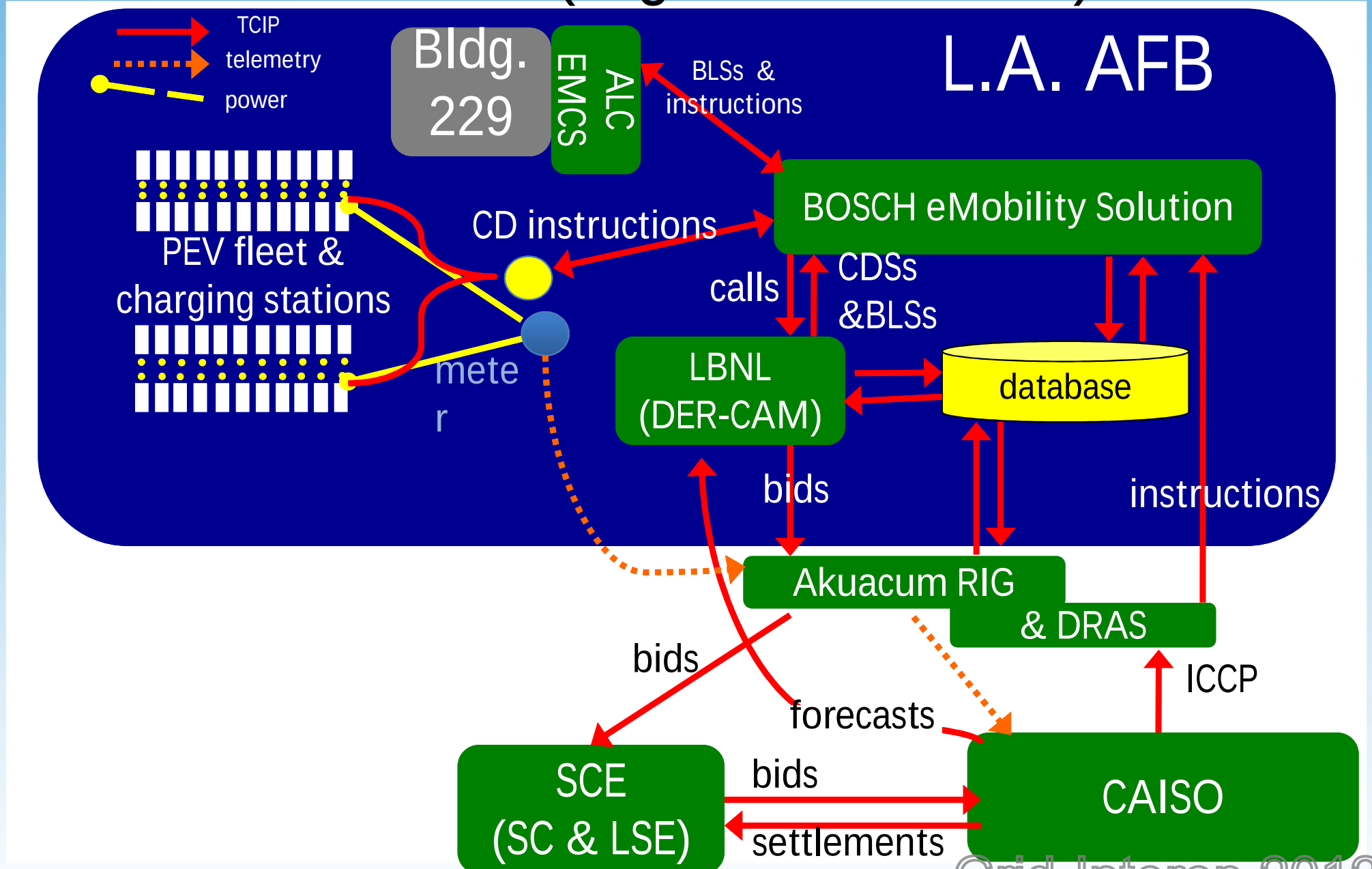


Grid-Interop
Driving to Grid 2020

Intermittent Renewable Resource Pilot (regulation)



LAAFB EV Fleet Management (regulation – NGR)



Grid-Interop
Driving to Grid 2020

Ongoing Efforts

- CAISO workshops on new architectures for Ancillary Services Metering and Telemetry
  - Data concentration and aggregation
- Research/pilots into lower cost telemetry technologies and options
- Requirements for Ancillary Services support being addressed in OpenADR 2.0
  - Ancillary Services Signal support
  - Lower latency transport mechanisms
  - Specifications to support telemetry
- PAP 19 Wholesale market DR
  - Mappings to OpenADR 2.0

Grid-Interop
Driving to Grid 2020

Questions?

Ed Koch
Senior Fellow, Akuacom/Honeywell
edward.koch@honeywell.com

Sirajul Chowdhury
EMS Technical Lead, CAISO
SChowdhury@caiso.com

John Hernandez
Senior Product Manager, PG&E
J6H6@pge.com