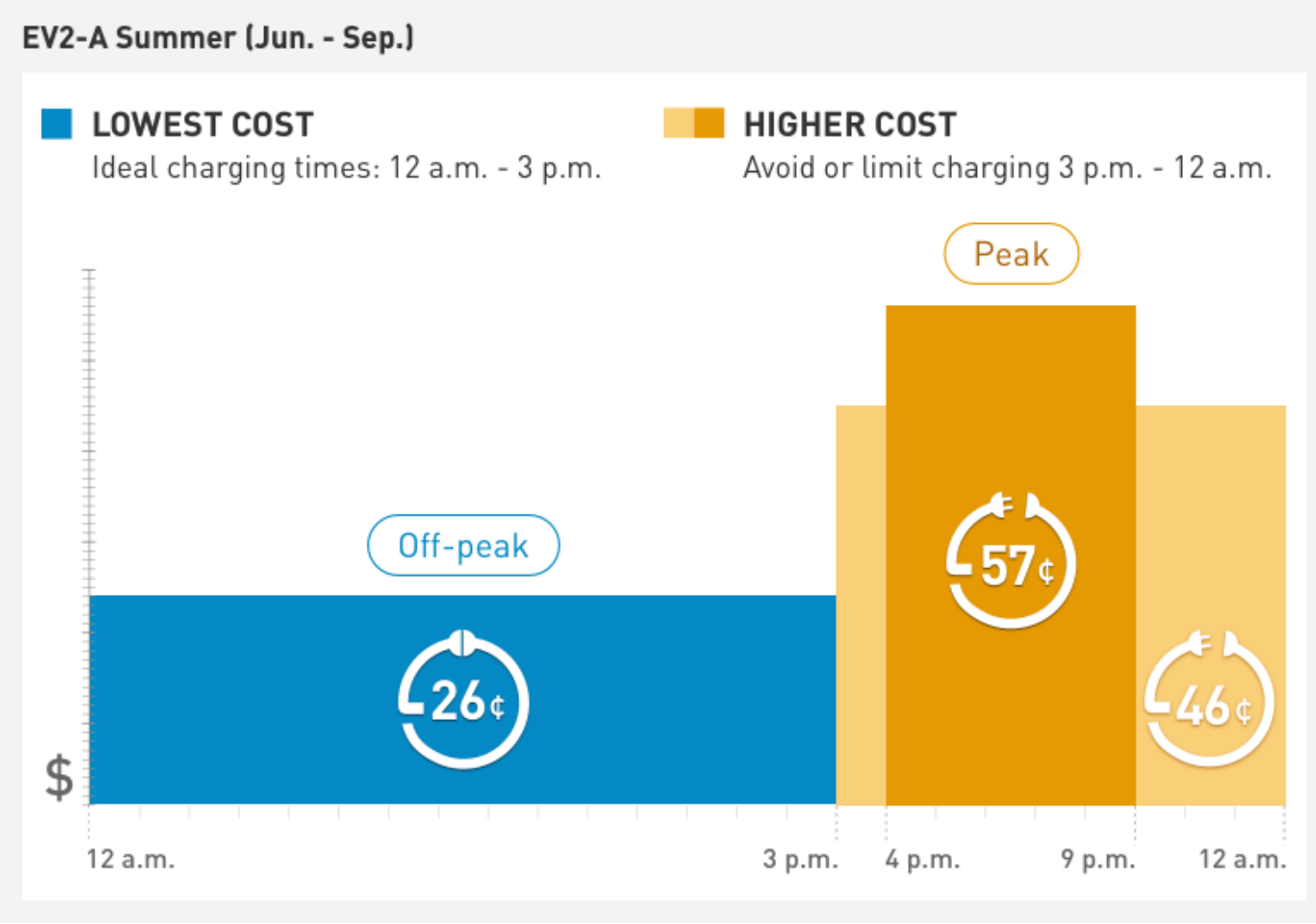
Peninsula Clean Energy Managed Charging Pilot Recap

May 2023

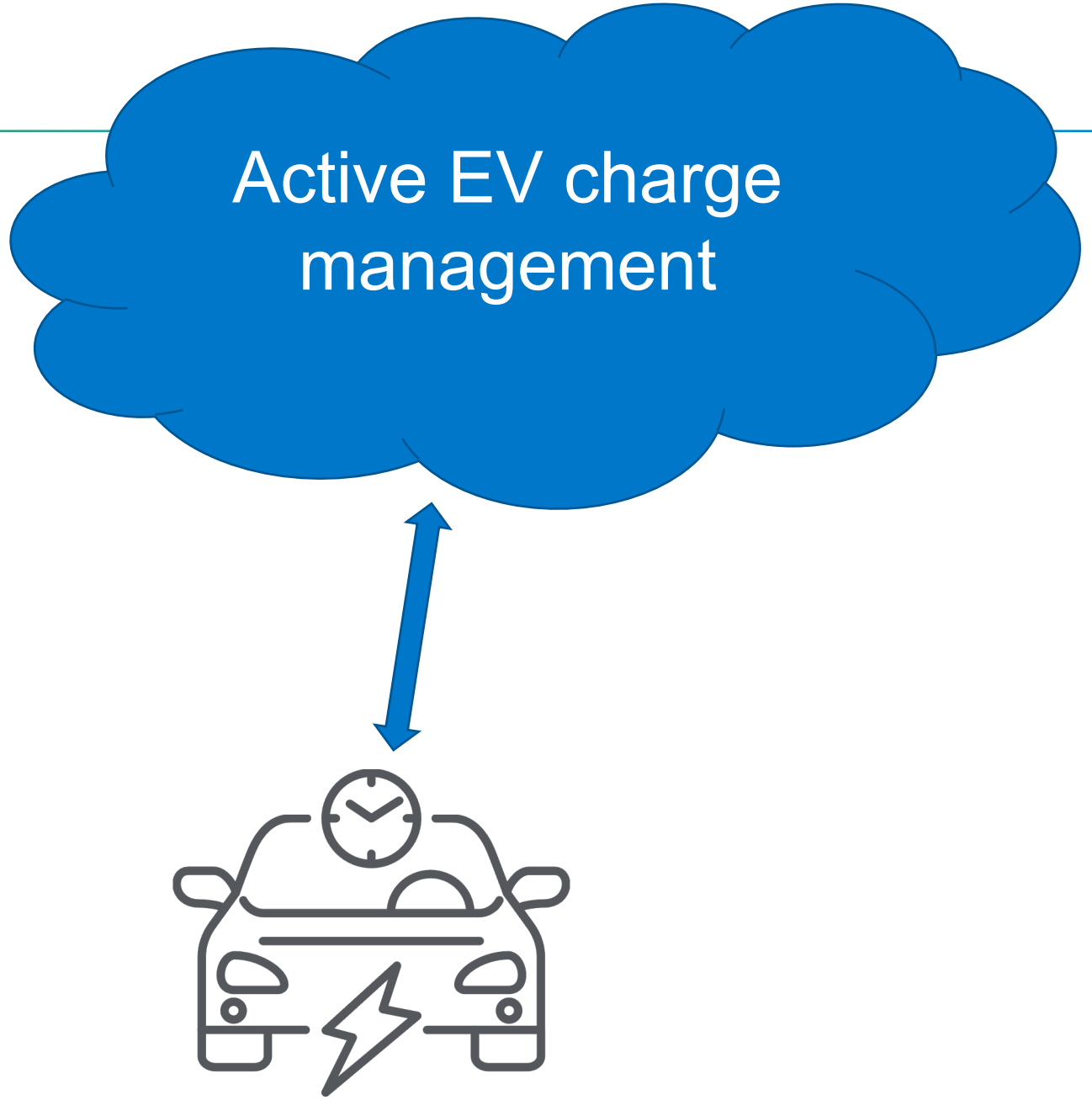
EV Load Shifting

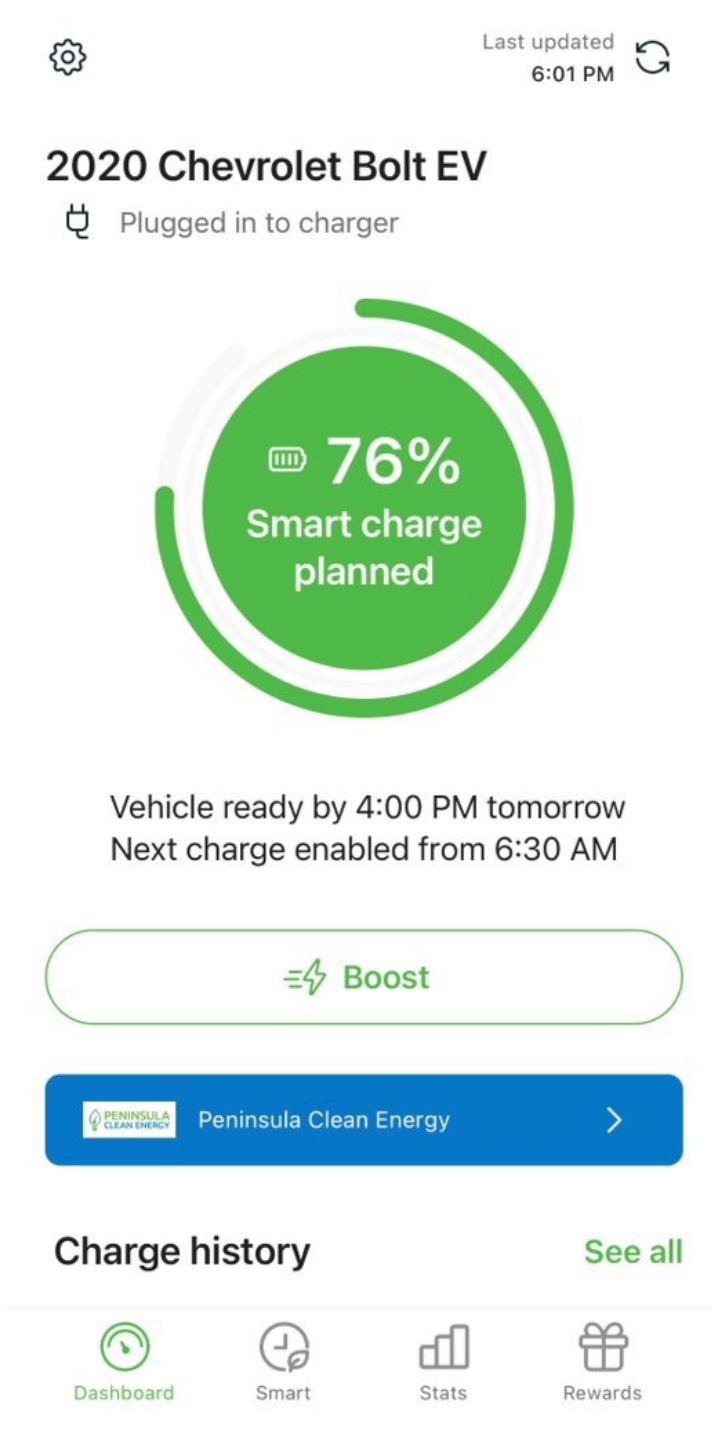


Concept

Shift charging to hours with more renewable energy

No hardware needed, telematics




Last updated
6:01 PM
2020 Chevrolet Bolt EV
Plugged in to charger
76%
Smart charge planned
Vehicle ready by 4:00 PM tomorrow
Next charge enabled from 6:30 AM
Boost
Peninsula Clean Energy
Charge history
See all
Dashboard
Smart
Stats
Rewards

Pilot Objectives and Learning Aims

1. Learn more about **charging patterns**

2. How **much load shift is achievable** with telematics? How does that change by vehicle, home charging type, and elec rate?

3. How much **do incentives matter**? What types?

4. **What do people think** of charge management? Do we get similar results without it?

5. **Can we optimize** for WFH and solar generation?

Managed Charging Pilot Overview

Major Partners:

1. ev.energy: platform, customer support
2. UCD: Exp. design, survey, analysis
3. Calpine: on-bill incentives, TOU tests (experimental rates)

Phases:

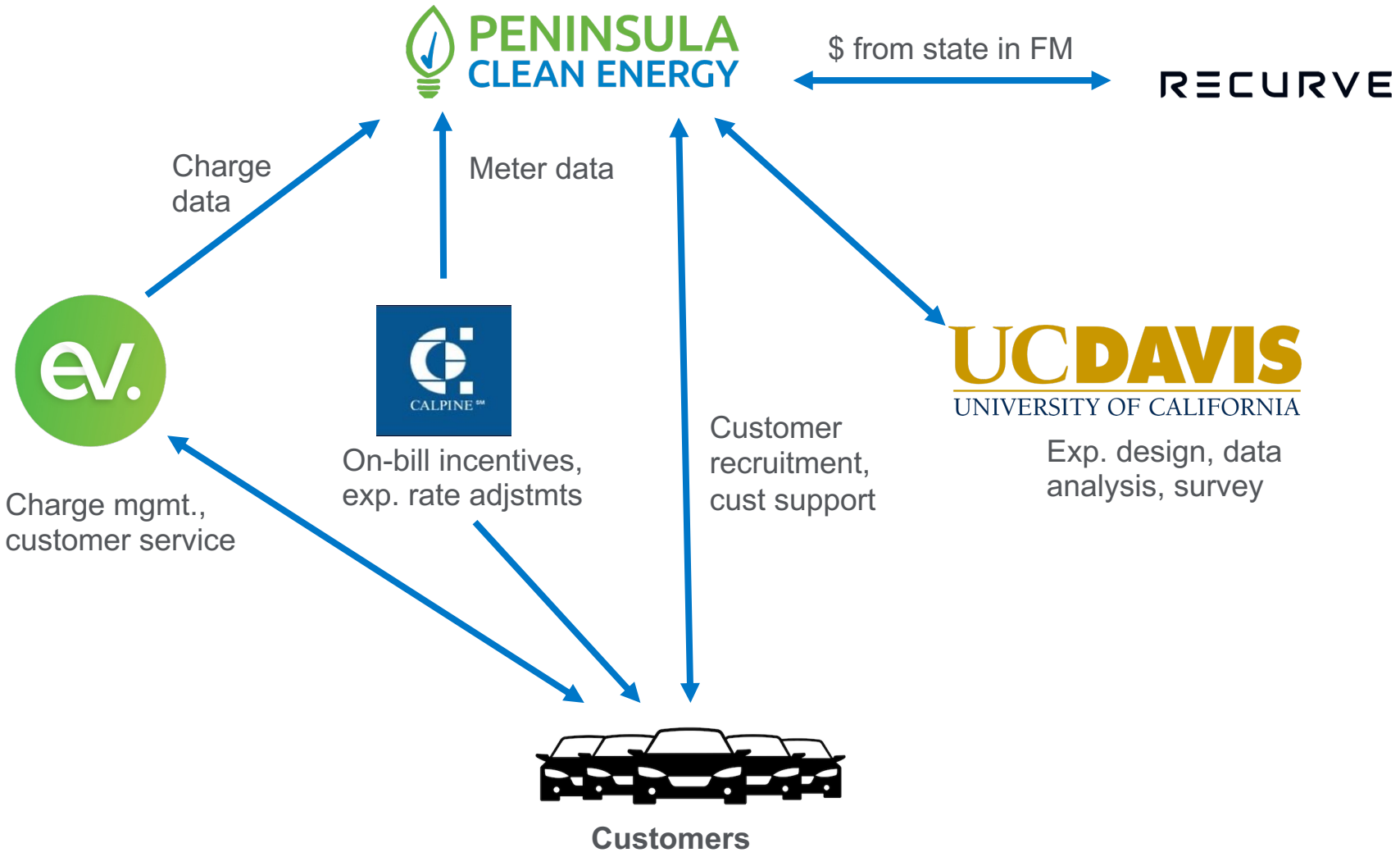
~~1- Proof of concept, Q1/Q2 2020.~~

2- Large scale pilot, 2023

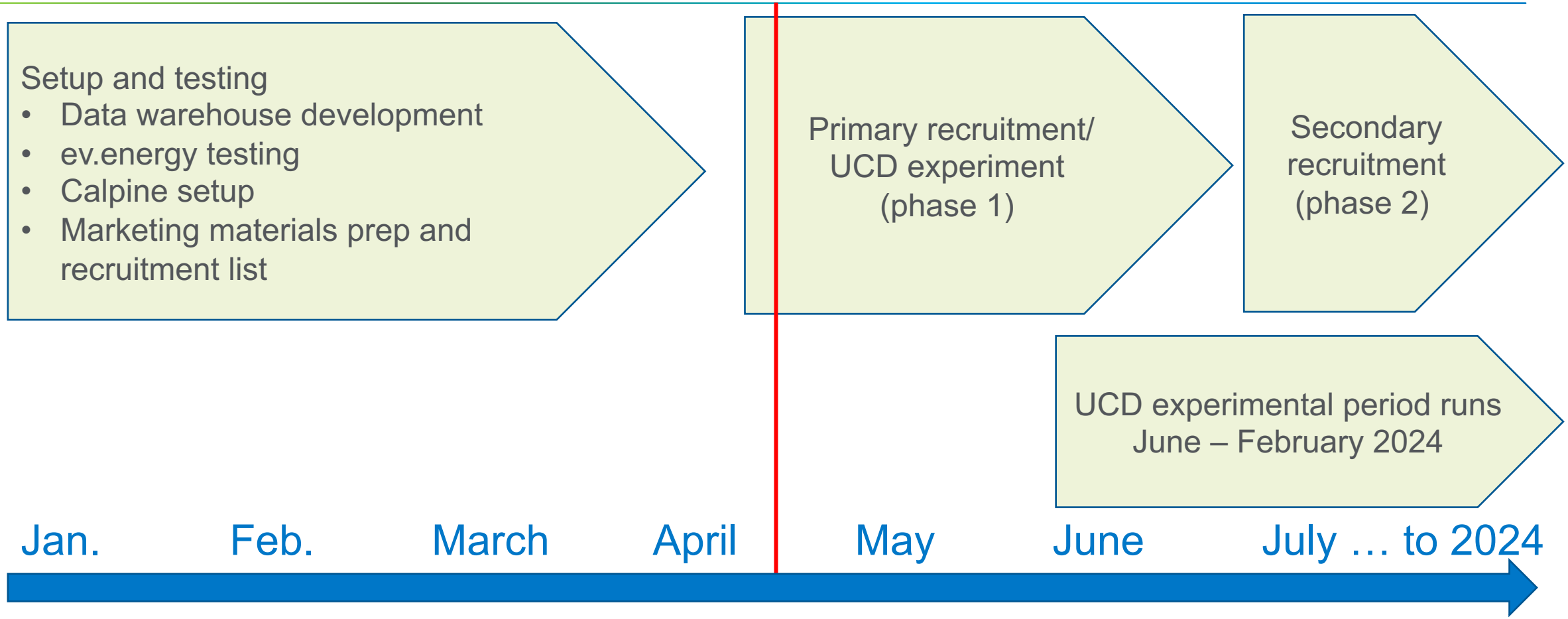
3- Transition to full program, 2024

Project Org. Chart

1. PCE
2. ev.energy
3. UC Davis
4. Customers
5. Calpine
6. FLEXmarket (Recurve)
7. TAC



High-Level Project Timeline Overview



- Survey + analysis in fall 2023, prep for full program rollout in early 2024
- FLEXMarket schedule TBD

Recruitment Plan

Phase 1 (UCD Experiment)

1. May 2 – June 30
2. 2-3 emails, 1 mailer
3. Eligibility
    1. Matched DMV/SAID
    2. Compatible vehicles
    3. EV2A + ETOUC
    4. Charge at home
4. Randomly assigned codes
5. Participation sweepstakes and incentives

Phase 2

1. Ongoing, start July
2. Eligibility
    1. Compatible vehicles
    2. All rates OK
3. No incentives
4. 2022 DMV list

Incentives Overview

Phase 1 only

Everyone: Sweepstakes, 1 of 20 $500 prizes

Treatment group incentives (small groups):

1. Ongoing monthly credit (ranging from $5 - $40)
2. TOU adjustments through “experimental” rates ($.05/kWh decrease off peak and $.05/kWh increase on peak)
3. One-time signup credit (not to exceed $200) + "reverse auction"

UCD Experiment Overview (Phase 1)

Goal: 1,000+ enrolled

Control group

Monitor only

Size: No limit,
250+ target

Treatment 1

Smart charge,
no incentive

Size: No limit,
240-600 target

Small treatment groups

Size: Limited to ~100 - 200 customers each maximum

Treatments 2-4
Monthly bill credit,
$5-$40
Smart charge

T5: Whole Home TOU "X" rate
Monitor

T6: Whole Home TOU "X" rate
No VGI

T7: EV TOU "X" rate, applied as monthly credits
Monitor

T8: Reverse auction

TOU Price Change (“X” Rates) Overview

T5 and T6 - whole home price adjustment

- Two new “X” rates created: “EV2AX” or “ETOUCX”
- Increase peak to off peak differential
- Adjustment on gen. side of bill
- Incentive appears on bill, normal rate
- Customer can opt out any time to prior rate
- Rates close at end of experiment

TOU Price Change (“X” Rates) Overview

T7- **EV only** price adjustment

- Adjustment just to energy used to charge EV at home
- Adjustment is calculated in Data Warehouse
- Monthly credit/debit applied on bill following month

PENINSULA CLEAN ENERGY

Q&A