WatterSaver
The Effects of HPWH Settings

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Helen Liu, Pacific Gas & Electric

Amélie Besson, Association for Energy Affordability

WatterSaver Background

California Assembly Bill 2868 (2016)

Required utilities to propose distributed energy storage programs to achieve ratepayer benefits, reduce dependence on petroleum, meet air quality standards, and reduce emissions of greenhouse gases.

PG&E proposed WatterSaver (2018)

Program designed to use electric water heaters to shift load outside of peak periods on a daily basis. Incentives are only for **control** of water heaters, not for water heater cost/installation.

WatterSaver Program Implementation (2022-2025)

- ERWH and HPWH
- Enrollment (one-time $50 gift card) and participation ($5/month) incentives
- # of participants: >1,200
- Eligibility requirement: must be on time of use rate
- API, CTA-2045 UCM, DLC

- WatterSaver Phase 2 launching Mar 2026, funded by EE instead of AB 2868

Load Up Options

Basic Load Up

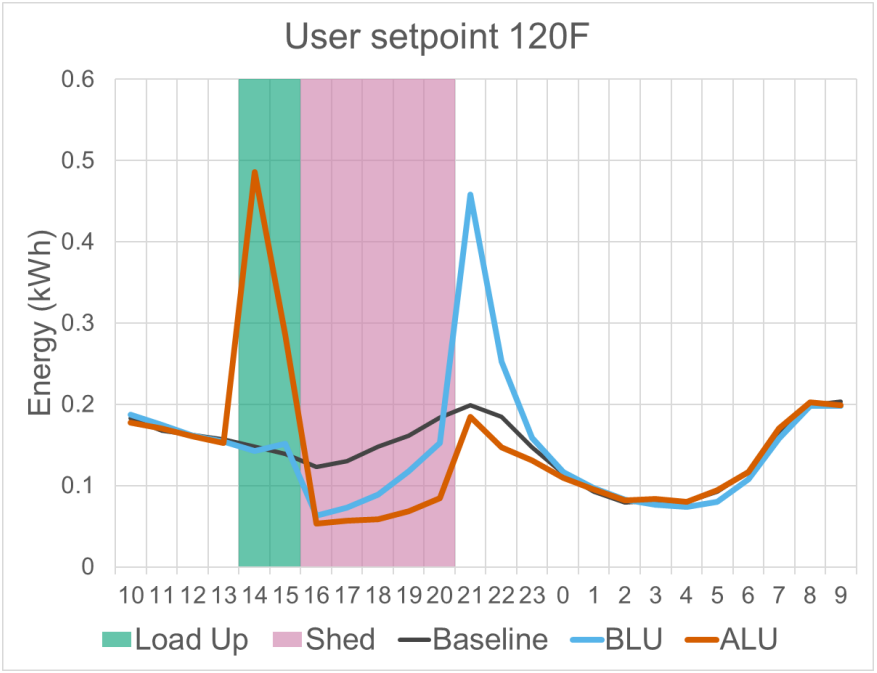
- Use **CTA-2045 Load Up** command
- **Normal setpoint** during load up
- Available for all participants

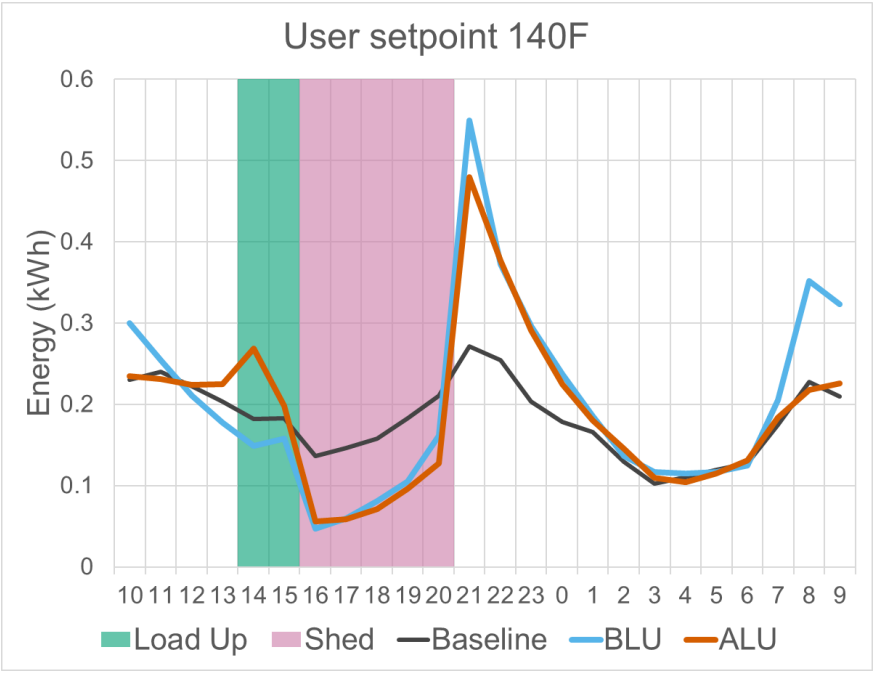
Advanced Load Up

- Use **CTA-2045 Advanced Load Up** command
- **Higher than normal setpoint** during load up
- Only available for participants with thermostatic mixing valve

ALU vs BLU

ALU command does not always result in ALU behavior





ALU vs BLU

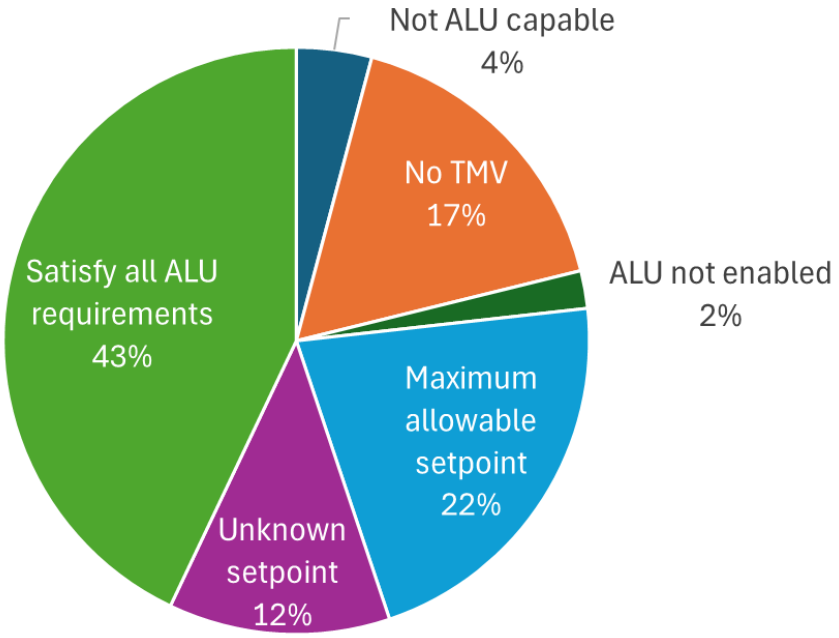
ALU results in higher grid impact

	Behavioral ALU	Behavioral BLU
Energy Usage Impact	-8%	-7%
Energy Shifted out of Peak (4pm-9pm)	0.5 kWh	0.2 kWh
Peak Demand Reduction	0.17 kW	0.13 kW
GHG impact	-12%	-8%
ACC	$35-40/yr	$20-30/yr

Requirements for ALU

To utilize ALU strategy, all these conditions must be met:

- CTA-2045 B Level 2 standard or API connection (OEMs and DERMS)
- ALU functionality enabled at device level
- Thermostatic mixing valve
- User setpoint below maximum allowable temperature



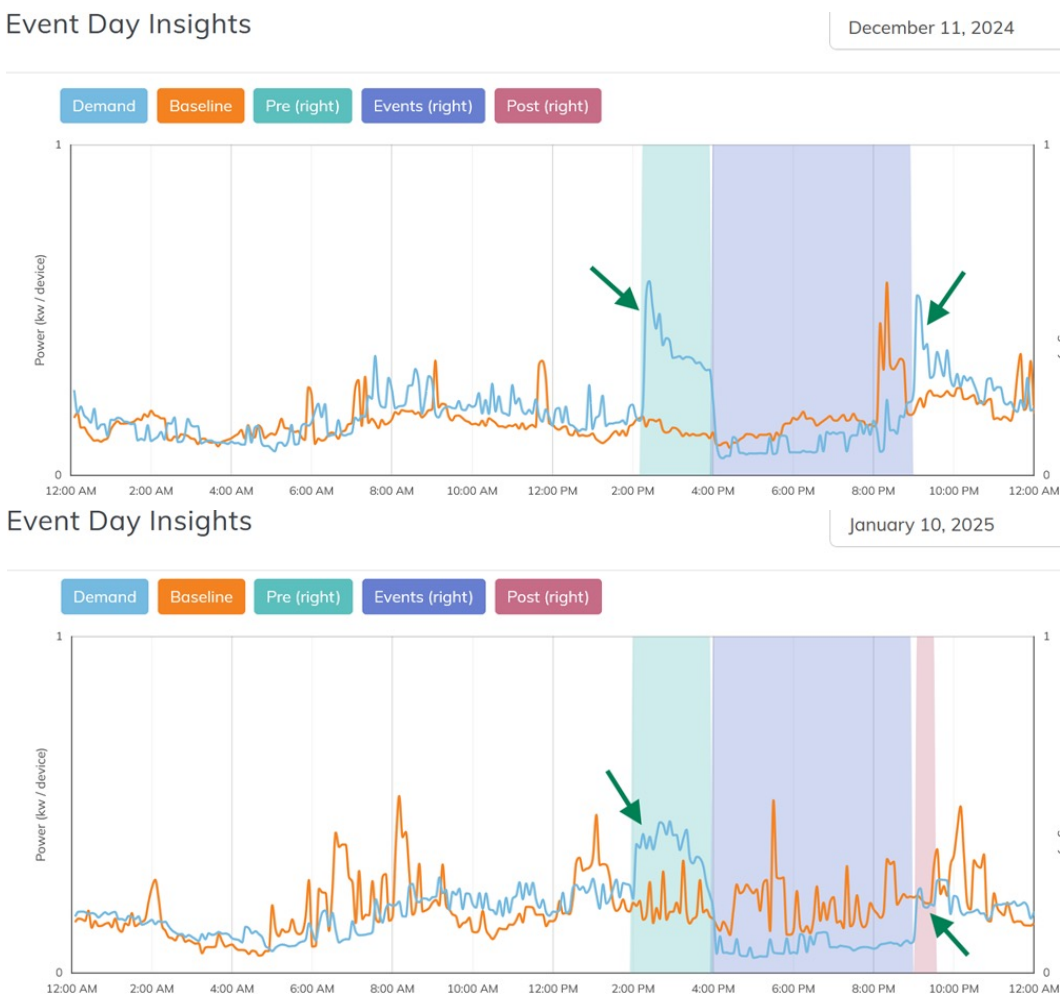
WatterSaver Participants breakdown

Efficiency Mode Control during Events

Objective: Prevent the electric resistance element from turning on during load up and recovery

- DERMS provider enabled software to control efficiency mode and allow flexibility for ALU setpoint differential

	Previously	Now
Advanced Load Up	140F for all No control of efficiency mode	+10°F HP mode
Post-Shed (all groups)	No control of efficiency mode	30min in HP mode



Field Test Protocol/Need for Third Party Verification

Current standards

- Joint Appendix 13 (JA-13)
  - Self-certification for TOU optimization and capable of BLU/ALU
- Northwest Energy Efficiency Alliance's (NEEA) QPL
  - Self-certification for Advanced Water Heating Specification
- Consumer Technology Association (CTA-2045)
  - Compliance testing (command acknowledgement only)
- Air-conditioning, Heating, and Refrigeration Institute Standard 1430-2022 (AHRI 1430)
  - No testing, only a standard

Field Test Protocol/Need for Third Party Verification

Capabilities tested by WatterSaver include

- Establishing communication and receiving payload (power, capacity)
- Communication stability over time
- Conformance testing (behavioral change during events)
- Override impact

**WatterSaver team can share the field test protocol upon request

Thank You

Helen Liu, helen.liu@pge.com

Amélie Besson, abesson@aeacleanenergy.org