DOCKETED	
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CEC – Staff Workshop

Staff Workshop on Heat Pump Goals, Supply Chain, and Programs

(Heat Pump Water Heaters)

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Corporate Vice President
Government & Industry Affairs
April 5, 2022

Overview

- A. O. Smith
- Market-Ready Technologies
- Market Projections
- Supply Chain
- Future State

A. O. Smith – Vision and Values

Handed down from founding Smith family and embraced by all employees worldwide

We do business with uncompromising honesty and integrity

- A. O. Smith will achieve profitable growth
- A. O. Smith will emphasize innovation
- A. O. Smith will preserve its good name
- A. O. Smith will be a good place to work
- A. O. Smith will be a good citizen

A. O. Smith

The company is one of the world's largest manufacturers of residential and commercial water heating equipment and boilers, as well as a leading manufacturer of water treatment products for residential and light commercial applications.

Listed on the New York Stock Exchange (NYSE:AOS) and part of the S&P 500 Index, A. O. Smith Corporation has paid cash dividends on its common stock every year since 1940.

Headquartered in Milwaukee, Wisconsin, since 1874, A. O. Smith Corporation has a strong and growing presence around the globe, with more than 13,700 employees in 12 countries, serving customers in more than 60 countries.

Our Family of Brands

Market Ready Technologies - Heat Pump Water Heaters

Standard Residential
240V HP

Residential New Construction

Multifamily

Heat Pump Technology

Residential Retrofit

Plug-in 120V

Commercial Split System

Commercial

Light Commercial

Unitary Commercial

Standard Residential – 240V

- High Efficiency
- 50, 66, and 80 gallon models
- Demand Response Capable
- Wi-Fi and Bluetooth connectivity
- Connect through free A. O. Smith app
- Time-of-use Schedules
- NEEA QPL Listed
- JA13 Certified

Unitary Commercial

- ENERGY STAR® Qualified
- High Efficiency – 4.2 COP
- Integrated design for easy installation
  - 119-gallon tank enables heat pump to operate more frequently than backup electric elements to improve system efficiency
- 150 gallon First Hour Delivery
- HP + 12kW backup elements = 20 kW total heating capacity
- Multiple operating modes to balance efficiency and hot water delivery

Commercial Split Systems

- Packaged system solutions
- Air and Water Source Split System Heat Pumps
- Sized for Commercial and Multifamily Applications
  - 25,000 to more than 2,000,000 BTU/h heating capacities
  - Modular design
- Suitable for indoor and outdoor applications
- Double wall stainless steel condenser for potable water applications
- Compatible with Single-Pass or Multi-Pass systems

Heat Pump

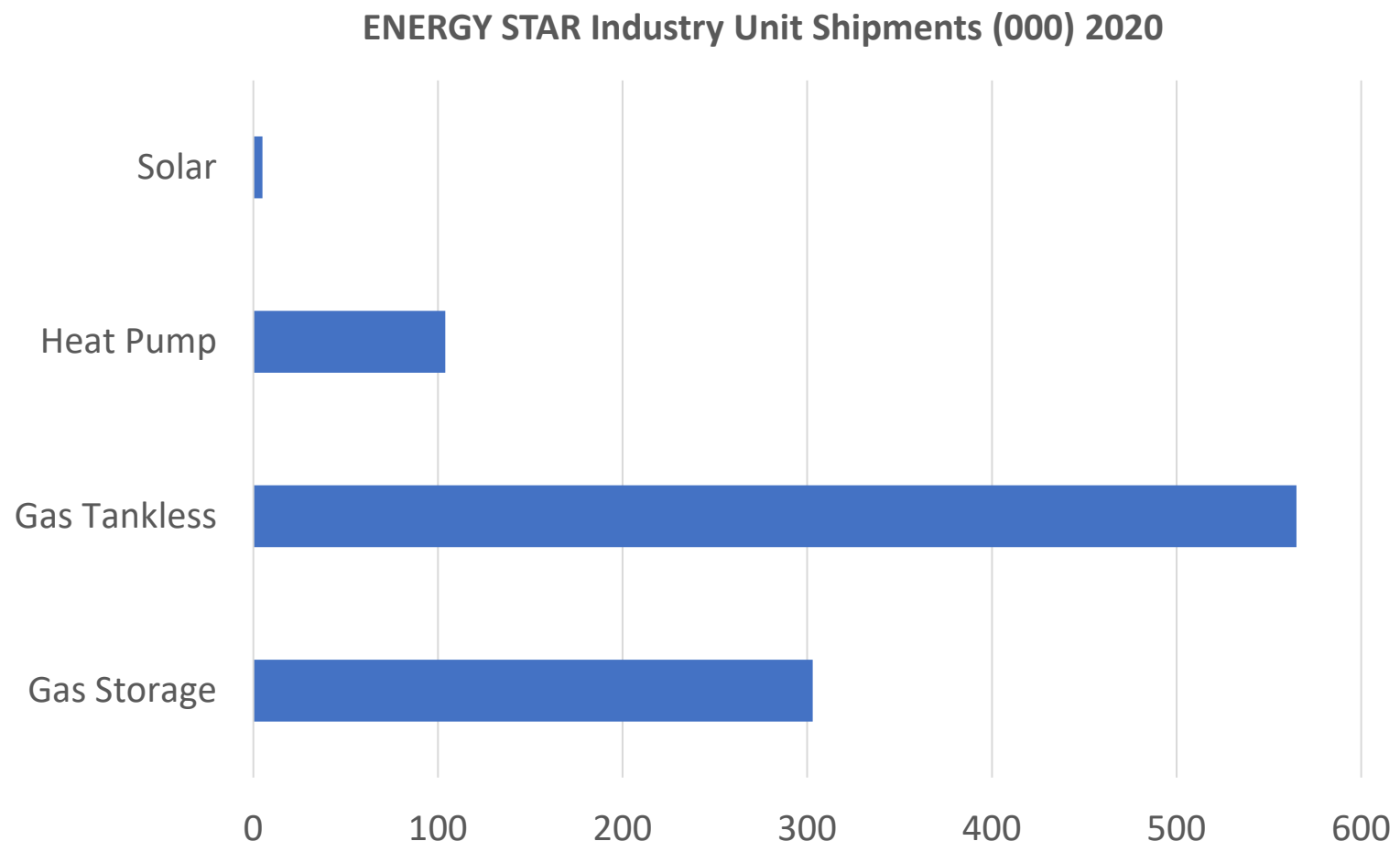
Storage Tank

Residential – 120V Plug-In HPWH

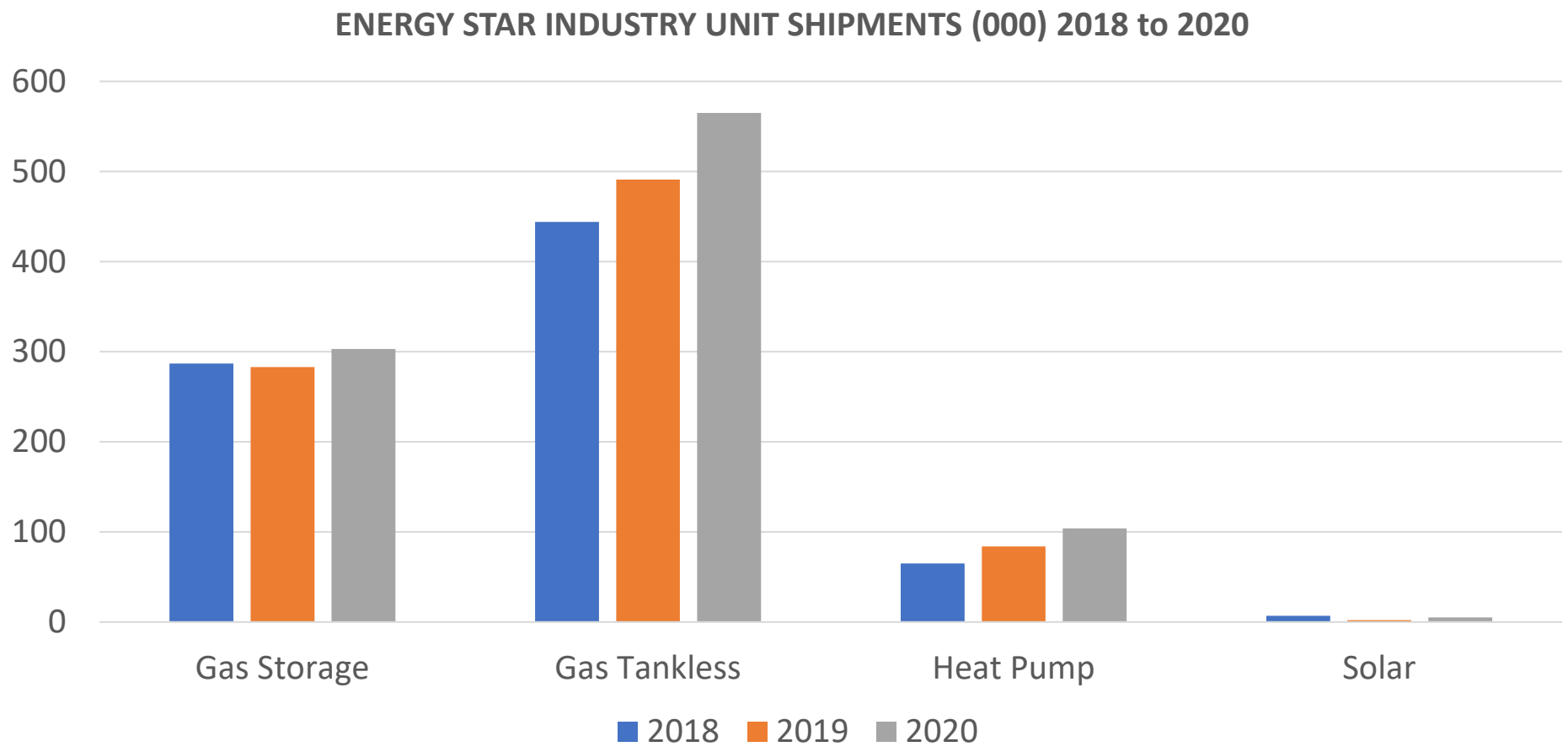
COMING SOON

- Designed to meet NEEA AWHS v7.0 Plug-In specification
- Plugs into standard residential outlet (120 volt 15 amp shared circuit)
  - Work within a home's existing electrical system
  - One-trade or DIY instantiation
- 40-80 gallon model sizes
  - Options to fit within existing gas water heater installation footprints
- First Hour Ratings in line with UPC sizing requirements
- JA13 and CTA-2045 Capable
  - Time-of-use Rate Scheduling
  - Utility Demand Response ready

ENERGY STAR® Industry Unit Shipments 2020



ENERGY STAR® Industry Unit Shipments 2018 to 2020



Market Projections – Trends (California)

- CA New Construction – 2019 T24 Code
  - 53,000 tankless units 2020 (SF)
  - 3,000 unitary HP units 2020 (SF)
- CA New Construction – 2022 T24 Code
  - 110-120k new housing starts in 2023 (SF + MF)
  - 16,000 HPWH annually (2024) (SF + MF)
- CA Retrofit & Replacement (2020)
  - 147,000 tankless (SF)
  - 4,800 unitary HPWHs (SF)
- CA Retrofit & Replacement (2022 – 2024 annually)*
  - 132,300 tankless (SF)
  - 19,500 HPWHs (SF + MF)

*= TECH, BUILD, SGIP Incentives

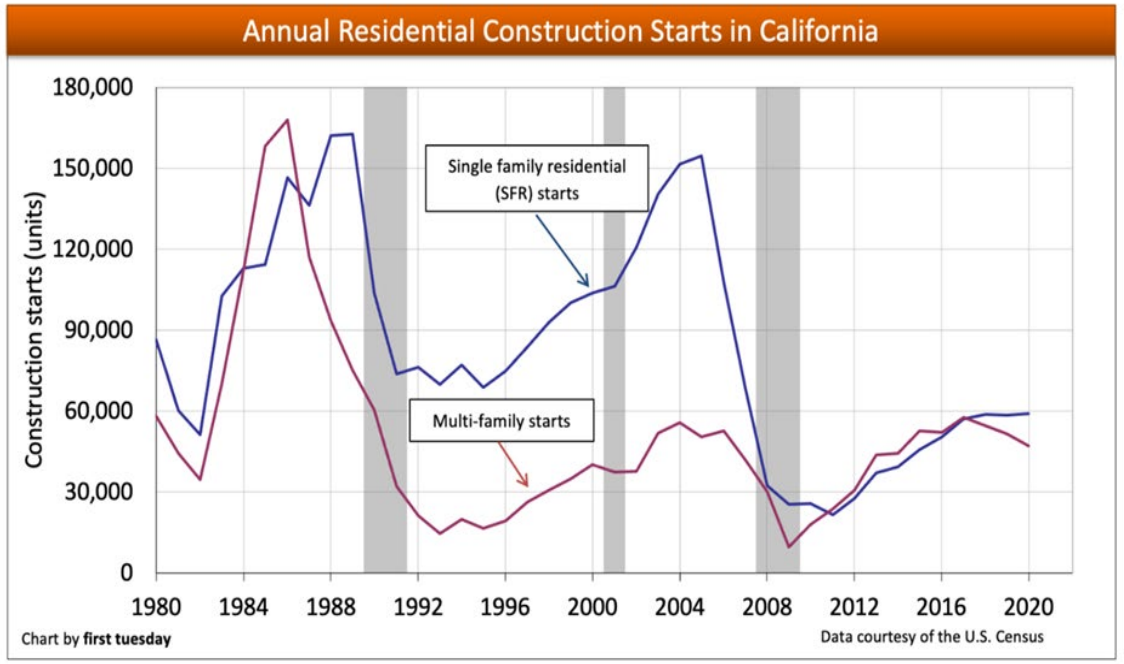
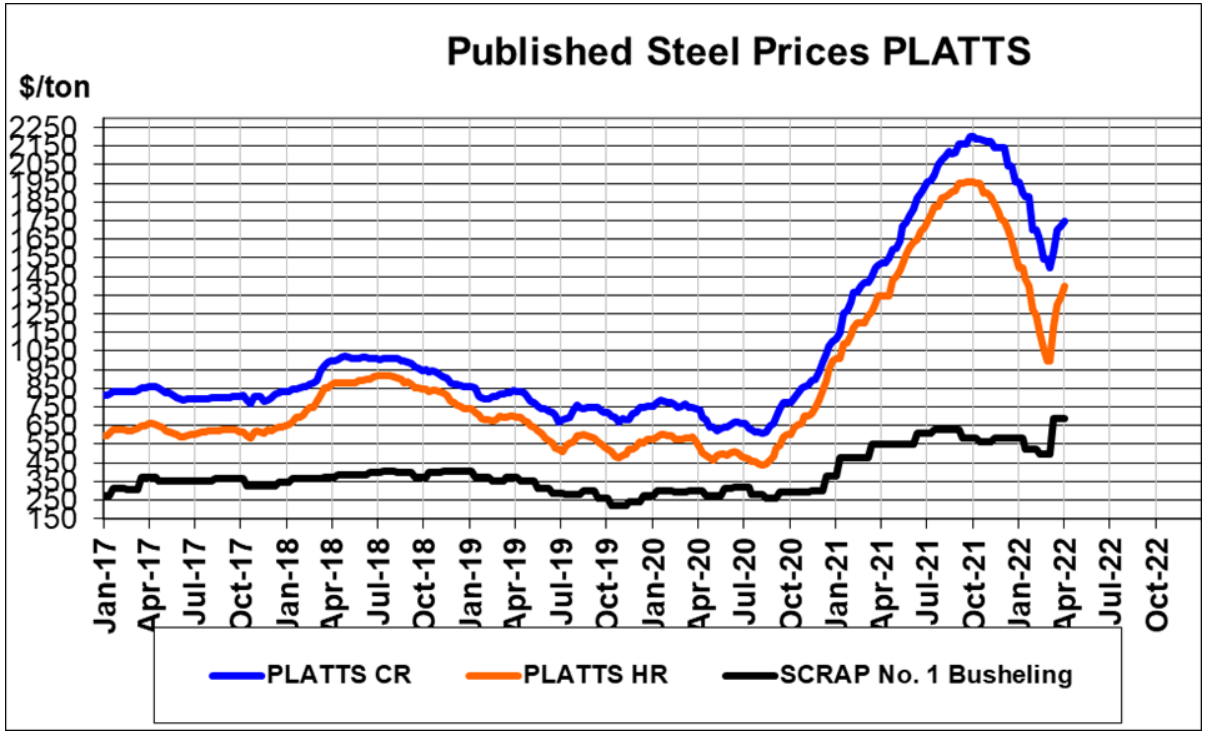


Chart update 05/18/21

	2020	2019	2018	2005 peak
SFR Starts	59,000	58,600	58,800	154,700
Multi-family Starts	47,000	51,600	54,700	50,300

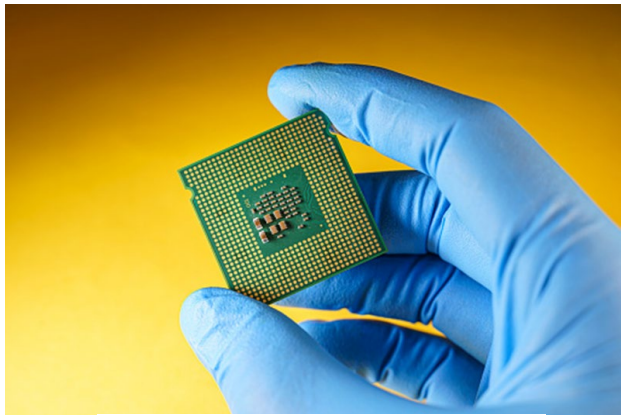
Supply Chain - Steel

- Lead times have improved since Q3 2021 returning to more normalized levels
- Demand in 2022 is unknown given backlogs in automotive and other industries



Supply Chain – Key Components

Microprocessors

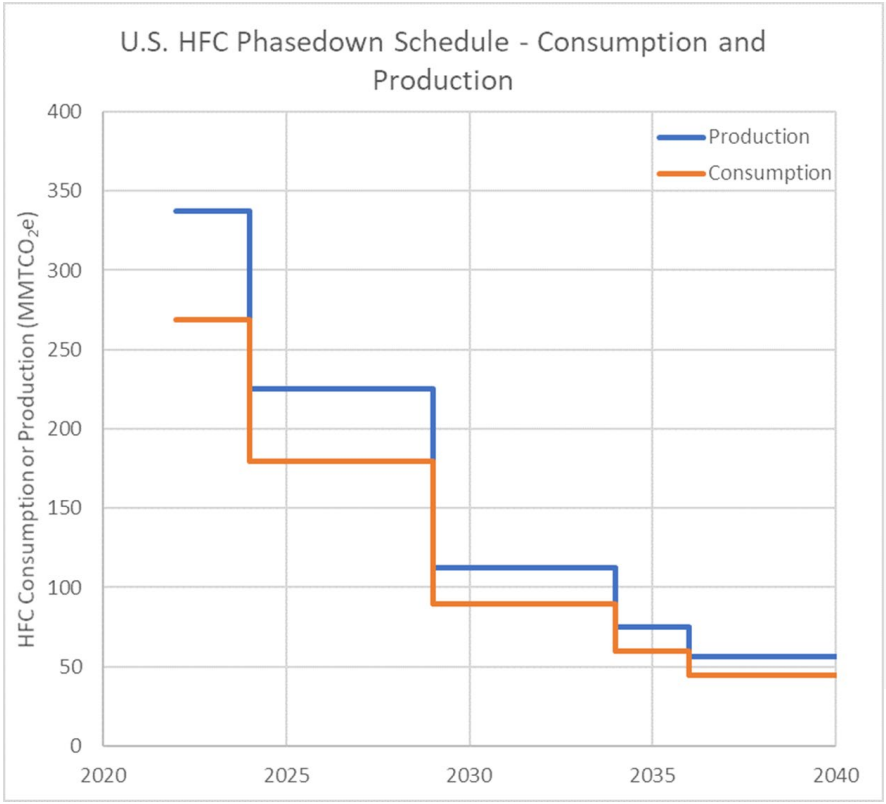


JAGGAER

BDO UNITED STATES

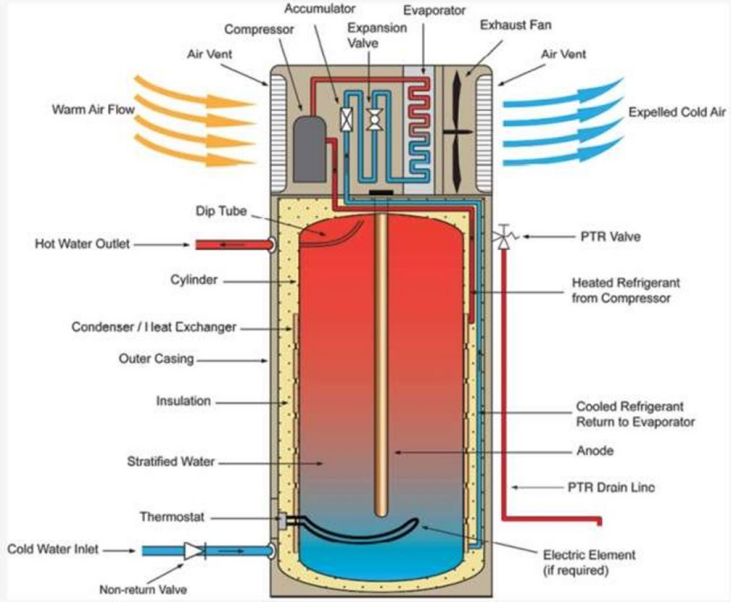
"Company resets of supply chains
By bring production closer to end users"

Refrigerants



CARB regulations requiring transition to low GWP HFCs
SGIP – HPWH < 150 GWP Kicker Incentive

Components



Supply Chain

- **Manufacturing Capacity**
  - Current demand covered
  - Additional capacity available
  - Broader HP adoption will place strains in global supply chains
  - 6M HPWHs in the installed base in CA by 2030?

Future State

- New Construction Programs
  - Easiest time to install a HPWH
  - Products already commercially available
- Instant Rebate Programs
  - Up-front cost is largest barrier for many customers
  - Downstream mail-in rebates have shown that they do not influence the purchase decision
  - Upstream or midstream programs for BOTH wholesale and retail channels to reach all potential customers
- R&R Incentive Programs
  - TECH, BUILD, SGIP ~ $250M in funding over next two years, but needs to be sustained
- Consumer Education
  - Drive proactive replacements when consumers can understand the value prop before an emergency
- Contractor Training
  - Stakeholder engagement with installer network, industry best practices
  - Demonstrate that HP operating costs in CA are lower than natural gas (may require TOU pricing)

Business certainty on regulations
State
Local
Air Districts


AO Smith®
Innovation has a name.