

CHALLENGES TO BUILDING ELECTRIFICATION

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US GREEN BUILDING COUNCIL CENTRAL CALIFORNIA



USGBC
CENTRAL
CALIFORNIA

Mission: Engage San Joaquin Valley communities in the transformational development and promotion of ecologically healthy built environments

- Aligned chapter of USGBC
- Focus on education, networking, green building project management and advocacy

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ELECTRIFICATION

- Speeds up decarbonization process and reduces impact of climate change
- Removes fossil fuels from energy consumption at the end source: the user
- Energy created by electricity creates less greenhouse gases than energy used directly from fossil fuels

~25% of California's Greenhouse Gas Emissions come from commercial and residential buildings, building electrification solution to reduce usage of fossil fuels

WHAT DOES IT TAKE TO SWITCH
EVERY HOME IN CALIFORNIA
FROM FOSSIL FUEL HEATING,
COOLING AND COOKING TO
ELECTRIC HEATING, COOLING
AND COOKING?

Alternatives to fossil fuel devices:

- Heat Pumps
- Electric Water Heaters
- Induction stoves
- Dryers



AREAS TO ADDRESS FOR BUILDING ELECTRIFICATION

- Regulatory issues
- Equity concerns
- Market barriers



New buildings easiest

Existing buildings harder

Restaurants hardest

MARKET BARRIERS



HIGH INVESTMENT
COSTS



LACK OF KNOWLEDGE
AND AWARENESS



AVAILABILITY OF
APPLIANCES



LONG LIFE SPAN OF
FOSSIL FUEL APPLIANCES



READINESS OF THE GRID
AND EXISTING
ELECTRICAL
INFRASTRUCTURE IN
BUILDINGS FOR
ELECTRIFIED FUTURE



INVESTMENT COSTS

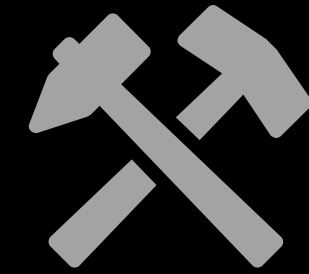
- Higher upfront cost
 - Economy of scale
 - Cost to be electric ready
- > Incentives and financing structure

KNOWLEDGE AND AWARENESS



Consumers:

- Awareness
- Availability
- Trust
- Deep seated beliefs



Contractors:

- Skills
- Willingness
- Advice



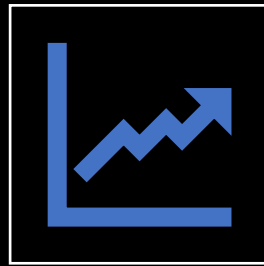
RESTAURANT ELECTRIFICATION

- Common perception: good cooks cook with gas
- Barrier: Cost
- Needed: education and hands-on experience
- Co-benefits of electrification:
 - less energy waste
 - more precise temperature control: quicker and more consistent cooking
 - less heat = cooler kitchens = less stress
 - no gas = less harmful particles
- Increased scale improves reliability and drives down prices

AVAILABILITY



Supply



Demand response



Education of
suppliers

BUILDING AND GRID READINESS FOR ELECTRIFICATION

- Electric panel upgrade
 - > CA requiring 200amp electric panel since 2019
- Demands on GRID:
 - Impact of climate change
 - Increased demand
 - Increased use of variable renewable energy sources

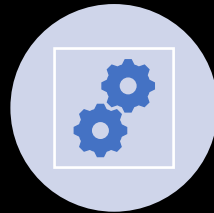
POSITIVE OUTLOOK



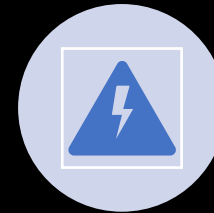
REACH CODE
DEVELOPMENT IN
CALIFORNIA



PROVEN CONCEPTS:
ZERO NET ENERGY
PROJECTS PROVED THAT
AMBITIOUS PROJECTS
CAN BE IMPLEMENTED,
AND DRIVE CONFIDENCE
TO STRIVE FOR MORE



BUILDING INTEGRATION
DRIVES INNOVATION:
OVERALL PERFORMANCE
TARGETS AND
INTEGRATIVE PROCESS
DELIVER MORE EFFICIENT
BUILDINGS



NOT A ZERO-SUM GAME:
INCREMENTAL CHANGE
IS POSSIBLE: EE IS A
GOOD START AND HELPS
ELECTRIFICATION



INCREASED AVAILABILITY
OF ELECTRIC DEVICES
AND APPLIANCES

NEEDED:

- Investment in Education and Outreach
- Investment in Workforce Development



QUESTIONS?

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