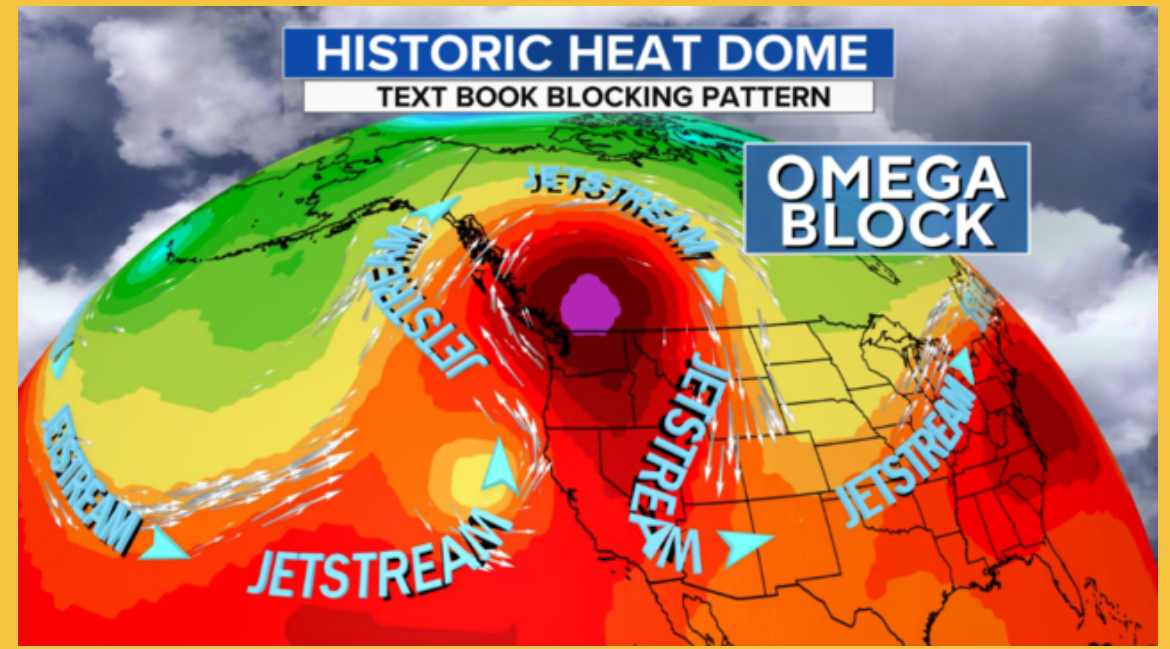


San Francisco 2040 Net-Zero and Building Electrification

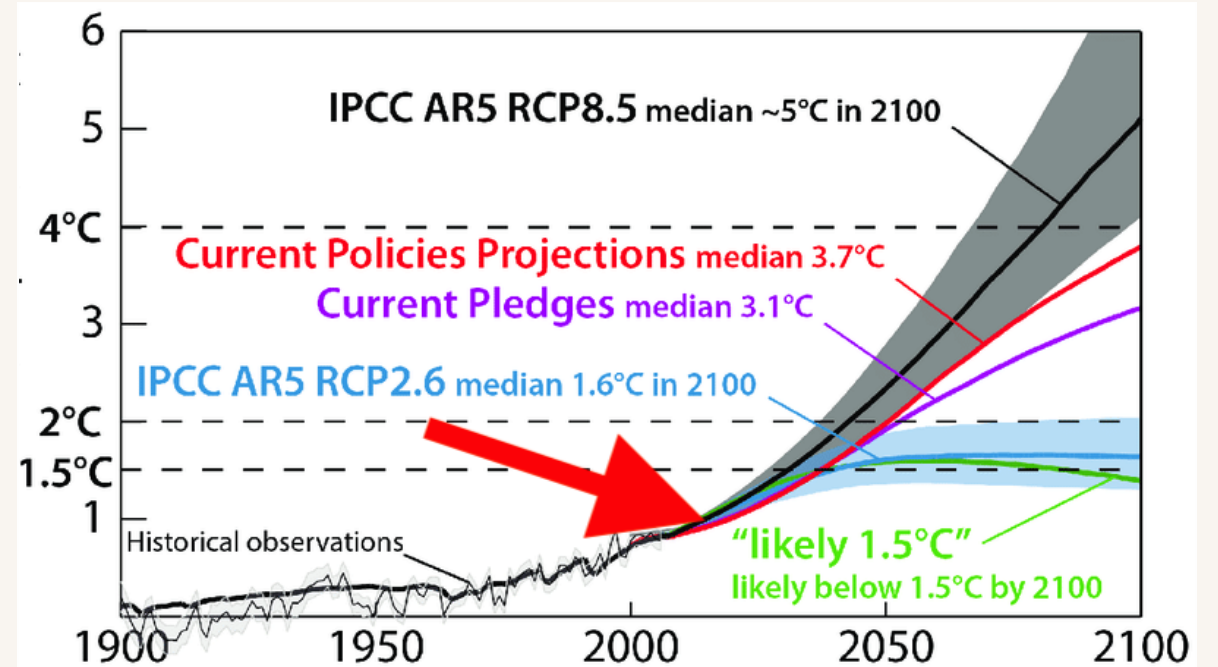
Erika Reinhardt, San Francisco Climate Emergency Coalition



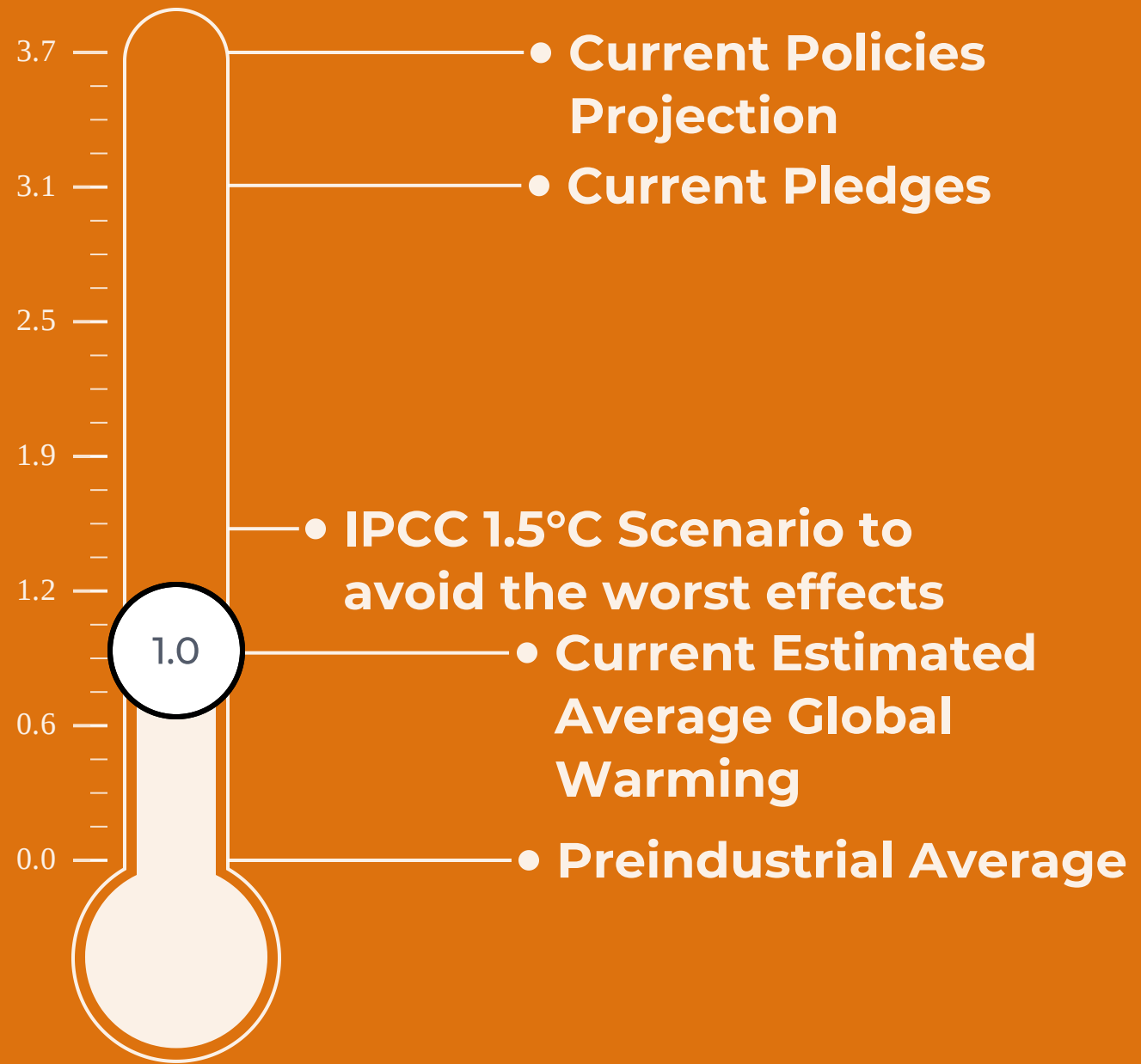
We are in the
beginning
of a climate
emergency

This
is **NOT**
the new
normal.

It's getting worse.



We are **not** succeeding. Current pledges are insufficient, and current policy does not even meet current pledges.

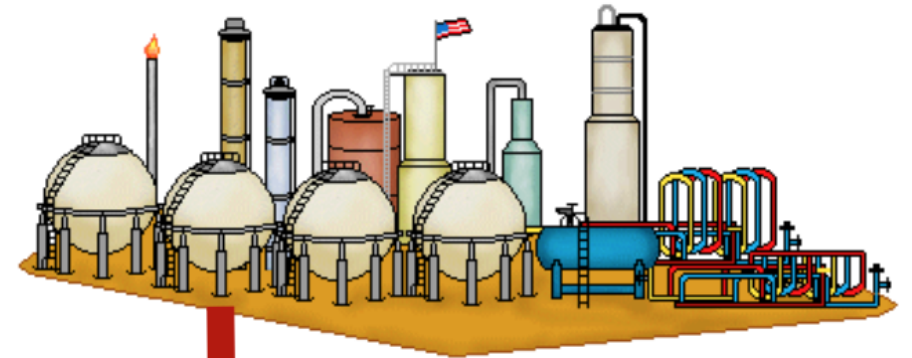


By

2040

San Francisco pledges to be net-zero.

Natural-gas heated buildings are fossil fuel infrastructure, in our city.



Natural-gas heated buildings are oil and gas infrastructure, in our city.

1 Many buildings burn natural gas, the “gas” in “Oil and Gas.” Natural gas is a fossil fuel, primarily composed of methane, a potent greenhouse gas.

2 This methane is known to leak from pipes leading to our homes, and in our homes, causing severe short-term climate change effects.

3 There are hundreds of thousands furnaces and water heaters in SF that burn natural gas today, producing carbon dioxide, the primary greenhouse gas.

4 There are also hundreds of thousands of stoves and dryers in SF that burn natural gas today. Gas stoves also add indoor air pollution, causing childhood asthma.

**The only way to get
to zero-emissions is to
replace all usage of natural
gas in our buildings.**

In making a net-zero by 2040 commitment, San Francisco has committed to ensuring that every gas appliance in San Francisco is electrified by 2040.

By 2040, every furnace, water heater, stove and dryer will need to be all-electric.

1. Appliances have average lifespans of 12-30 years, but with wide variation (there are certainly furnaces in our city older than that).
2. The most cost effective time to convert an appliance from gas to electric is when it would already naturally be replaced, for example when a previous appliance breaks, or will already be replaced because of a desired upgrade or remodel.
3. Switching from gas to electric appliances can require additional wiring and electrical upgrades, which are better foreplanned rather than done during an emergency appliance replacement.
4. While these appliances are widely used, they are relatively new and not yet dominant in the market, which will require marketing and workforce training.

It's time to get started.



Furnaces and space conditioning

15 - 30 year average lifespan.

There are **already** gas furnaces installed today that will still be around in 2040, and will need to be replaced before their natural end-of-life.

Every gas furnace installed after **2025** will need to be retired before its natural end-of-life.



Stoves

15 year average lifespan.

100% of gas stoves must be replaced at their natural end-of-life with electric versions by **2025** to avoid early retirements for average-lifespan stoves.



Dryers

13 year average lifespan.

100% of gas dryers must be replaced at their natural end-of-life with electric versions by **2027** to avoid early retirements for average-lifespan dryers.

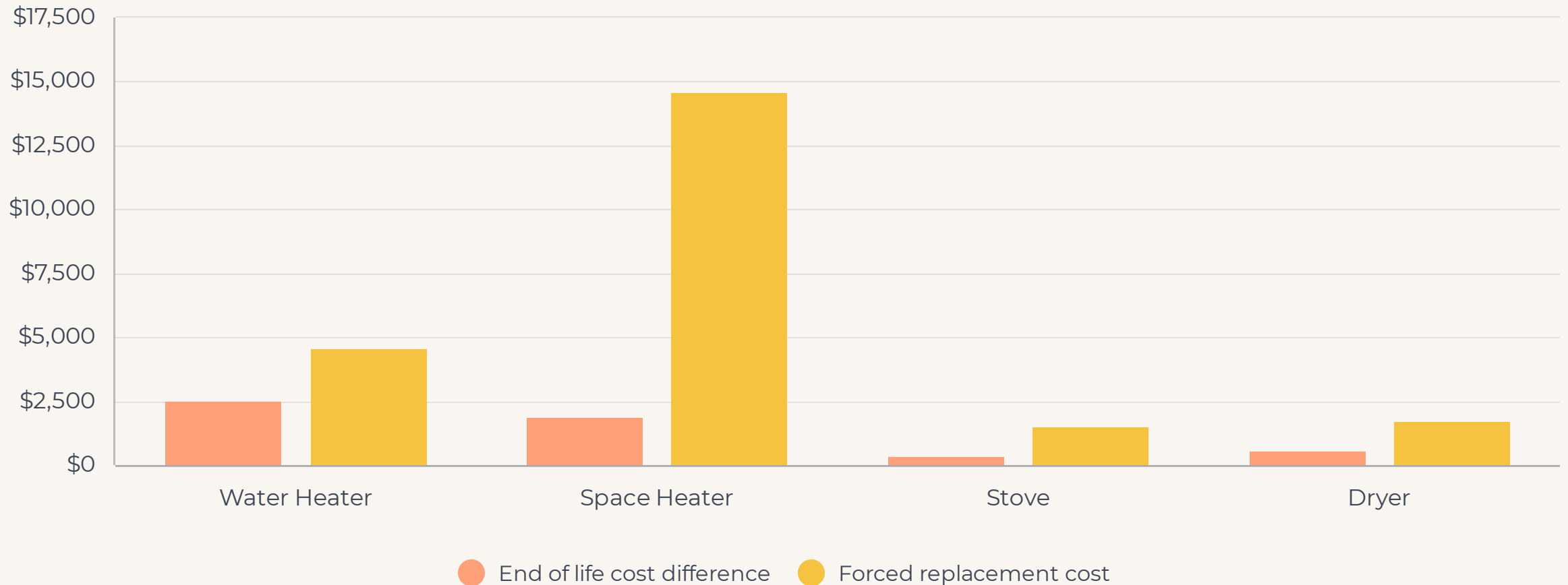


Water Heaters

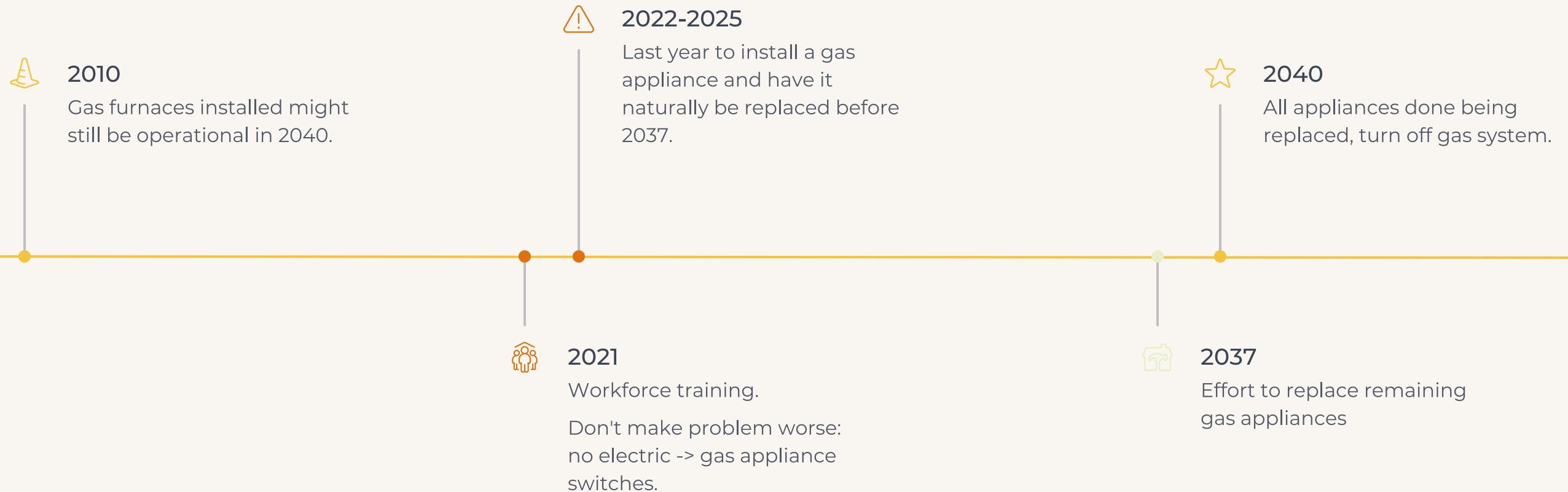
8-12 year average lifetime

100% of gas dryers must be replaced at their natural end-of-life with electric versions by **2028** to avoid early retirements for average-lifespan dryers.

Replacing appliances at their natural end-of-life is the lowest CapEx option.



By 2040, every furnace, water heater, stove and dryer will be all-electric.





Opportunities for Action

- 1 Stop converting any existing electrical appliances to gas. No new gas hookups in any buildings, including existing buildings.
- 2 Every time AC is installed, make it a heat pump that can both heat and cool.
- 3 Residential solar improves the utility cost economics of electrification, often substantially bringing down the payback period.



What we need to do

- Convert commitment to a decisive plan to passed policy to reach zero emissions in all sectors by 2040, including buildings.
- Bring everyone along in this transition. Create a working group with diverse stakeholders to co-create this future together.