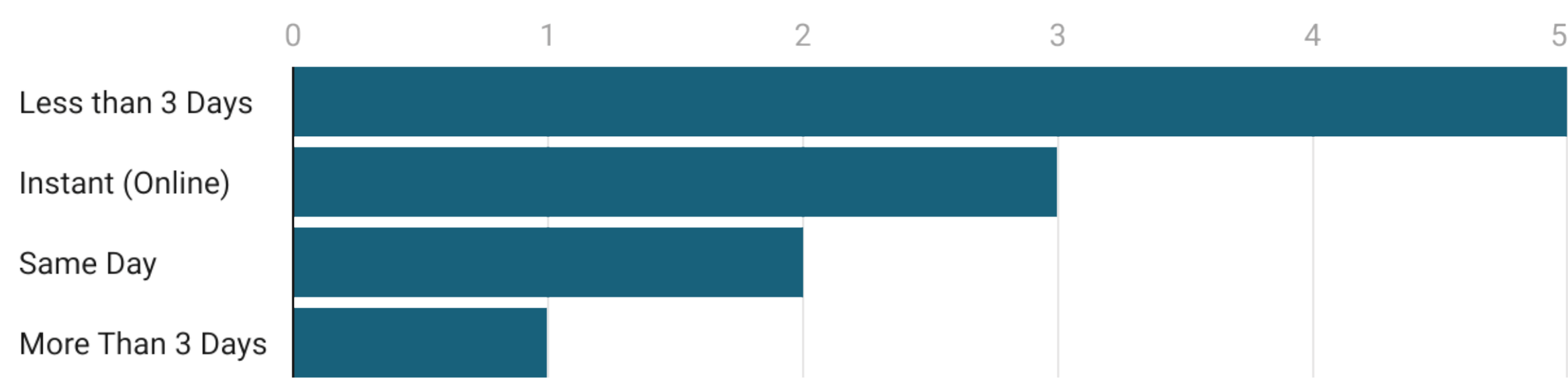


# Impacts of Permitting Processes on Zero NOx Appliance Adoption

## Typical Turnaround time for Space and Water Heating Permits



## Challenge 1: Application Process

### Challenge

- Permit applications reviewing time
- Extended permit issuance timelines can increase costs

### Solution

- Water heater and HVAC installs are routine
- Online or same day permit issuance may save costs, increasing permit compliance
- Code compliant installation information sheets can increase installation quality/efficiency

## Number of Permits Required to Replace a Gas Space or Water Heater



## Challenge 2: Number of Permits Required

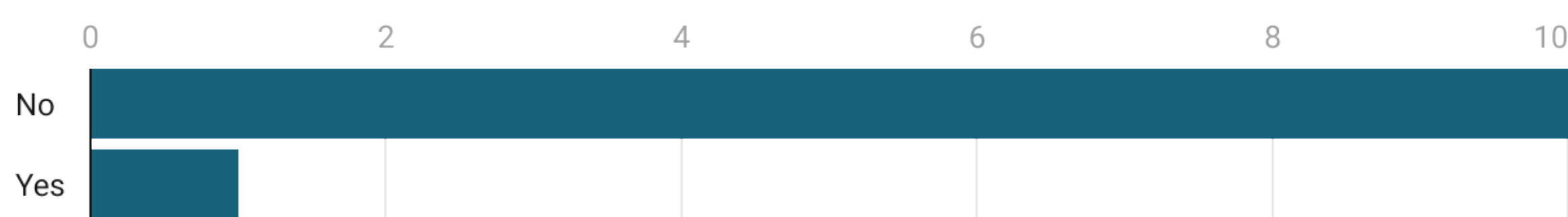
### Challenge

- Switching to Zero NOx appliances may require electrical, plumbing and even building permits
- Requiring multiple permits can increase costs/project complexity

### Solution

- Allow one multi-trade permit to decrease costs/time
- Develop a flat rate for multi-trade permits to decrease costs
- Code allows trades to perform "ancillary" work outside their designation

## Is a Plan Submittal Required for Water Heating?



## Challenge 3: Detailed Plan Required

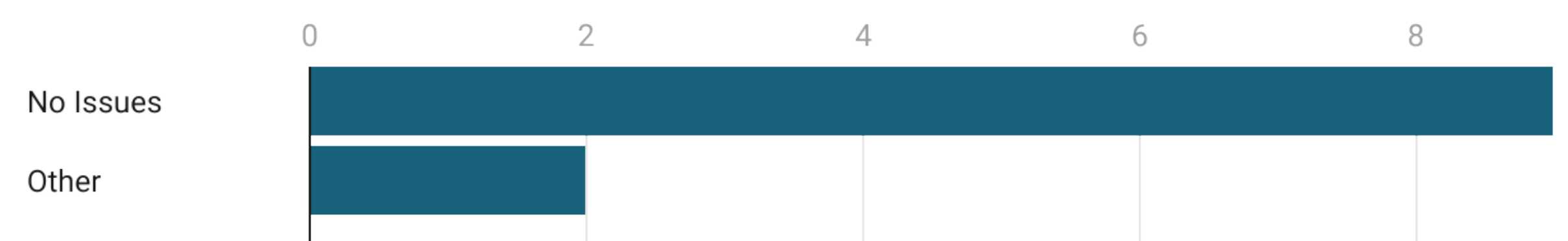
### Challenge

- Requiring complex site plans can increase level of effort
- Plan set and installation differences can cause a project to fail inspection, which can increase timelines/costs

### Solution

- Simplify plan requirements to minimize level of effort
- Minimize plan reviews to decrease level of effort
- Provide information on code compliant installations online/permit counter

## Permitting Hurdles Experienced for Space Heating Appliances



No hurdles were encountered related to noise, aesthetics, confined spaces, or condensate drains.

## Challenge 4: Noise Issues

### Challenge

- Zero NOx appliances (e.g., HP HVAC) can produce noise that may be a nuisance to homeowners/neighbors
- Noise is particularly challenging in communities with small or no setbacks (e.g., San Francisco)
- Noise ordinance/threshold compliance may be reviewed by planning departments, increasing timeline/effort

### Solution

- Develop guidelines for condenser unit installation such as screening thresholds or setback requirements
- Shift responsibility of noise ordinance/threshold review to building department
- Provide applicants with clear guidance around noise requirements

## Summary of Results

- Because heat pumps require both electrical and plumbing work, additional permits could be required. This adds costs and extends timelines.
- Some cities have difficult permit processes but many cities have very streamlined processes already which demonstrates feasibility.
- Its important to remember that the permitting process is designed to enhance safety.
- However, if too difficult, the data shows people avoid permitting altogether (very low permit rates).
- Jurisdictions have found ways to maintain safety and streamline the permit process successfully.

What permit hurdles have you experienced in your position, do they differ from what is shown here?

LACK OF COMPLIANCE DATA STATEWIDE

Inconsistencies between building departments

What solutions have you seen be effective in reducing these challenges?

LOOK INTO AHRI STANDARDS FOR NOISE FOR HVAC

Instant permit for all HPWHs with no plan check. Inspector responsible for ensuring unit installed correctly to spec.