CALFLEXHUB SYMPOSIUM

SEPTEMBER 24 | 8am-6pm PT

SARAH SMITH

ANGELA SANGUINETTI

CALFLEXHUB RESEARCH SPOTLIGHTS

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2024

CalFlexHub

BERKELEY LAB

STATE OF CALIFORNIA ENERGY COMMISSION

MOMENTUM

Valuation of Load Flexibility Technologies

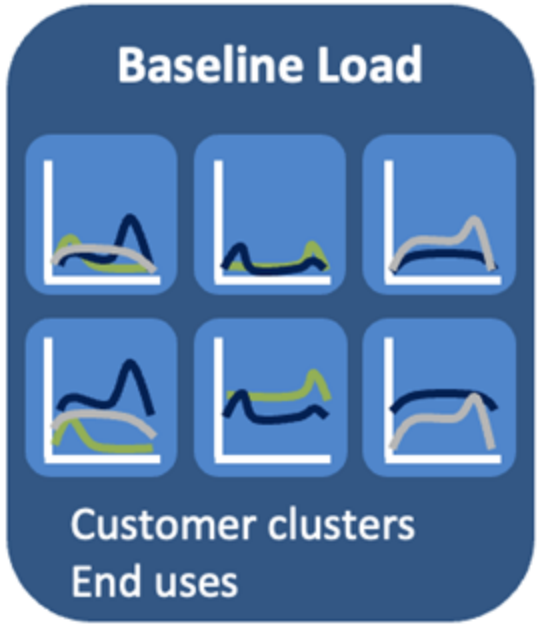
Sarah Smith, Berkeley Lab

CalFlexHub

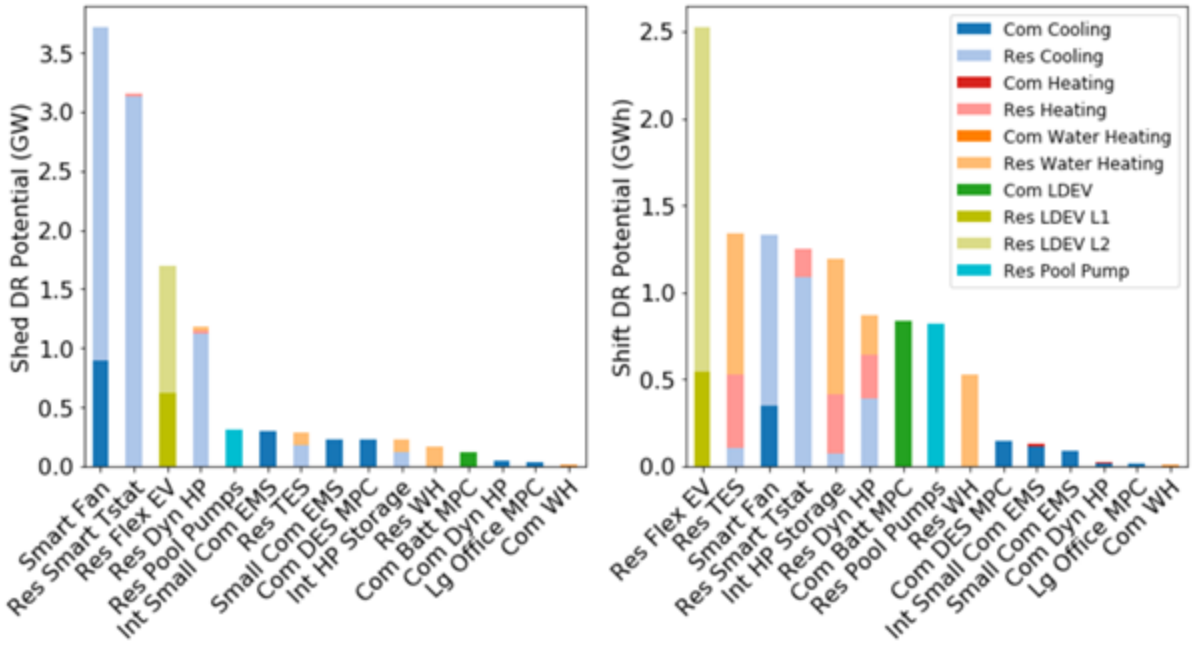
BERKELEY LAB

The **goal** is to assess the costs and benefits of load flexibility technologies to customers and the grid

The **approach** is modeling widespread future adoption of technologies, present-day costs and performance, and hypothetical price signals



Initial results: effective DR from price response, and estimated grid benefits



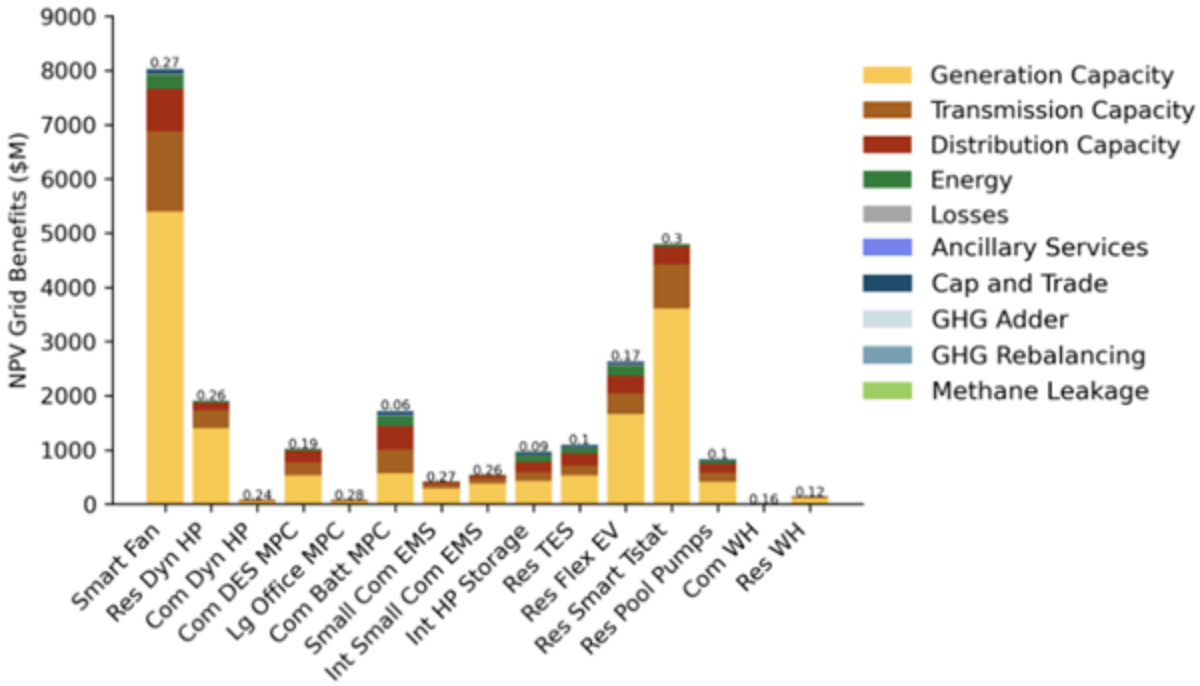
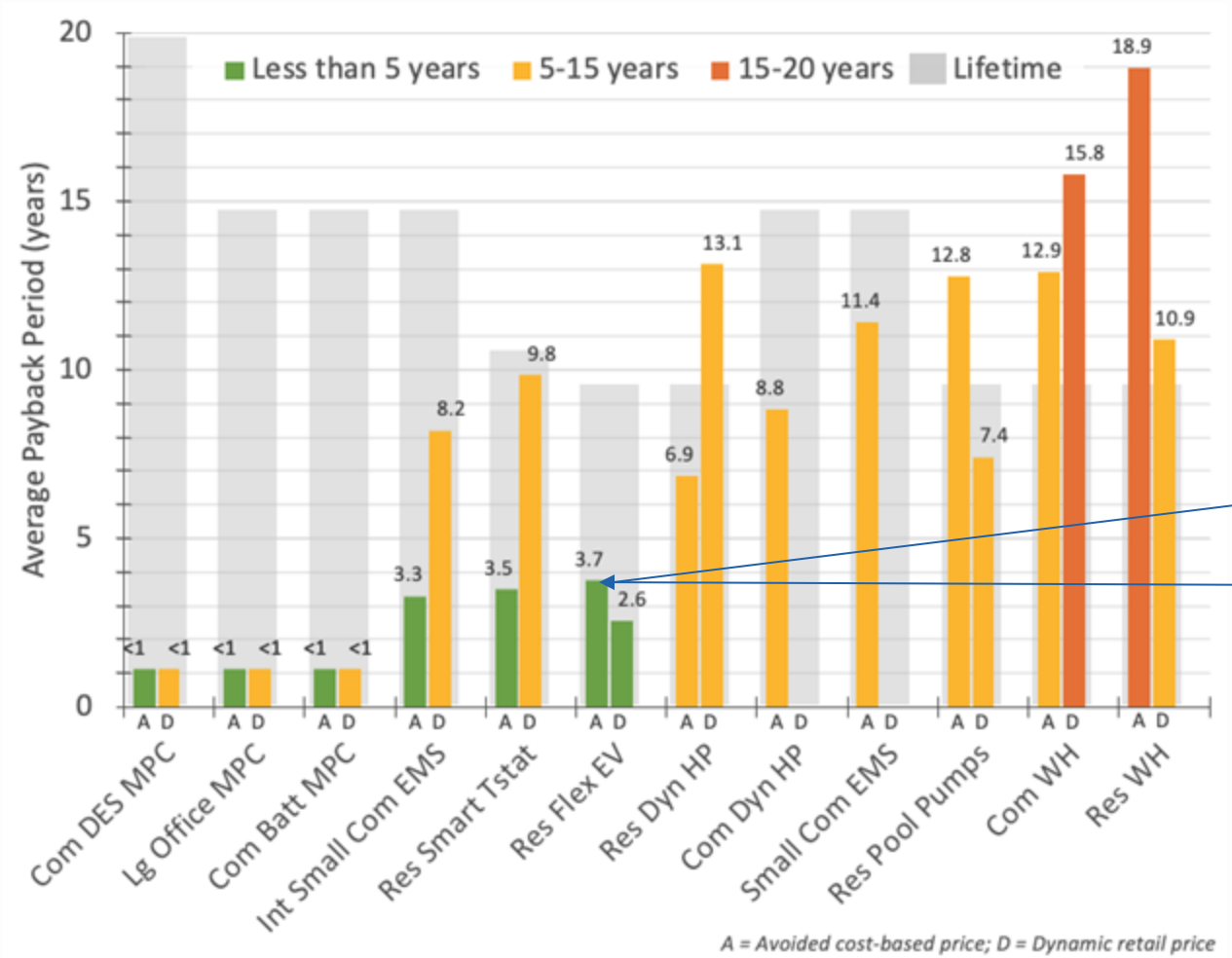


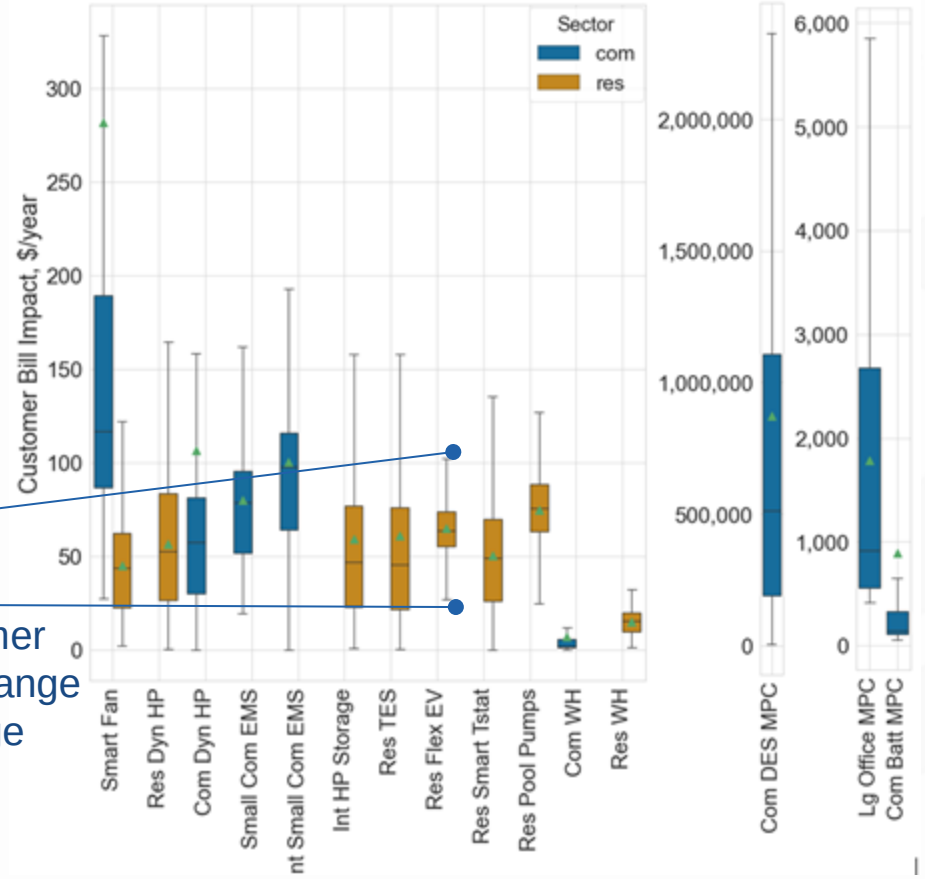
Figure 2. Event-based shed (left) and shift (right) potentials for each technology as the theoretical maximum that could be achieved with 100% adoption and enrollment.

Technologies with largest customer bases tend to offer greater grid potential and savings.

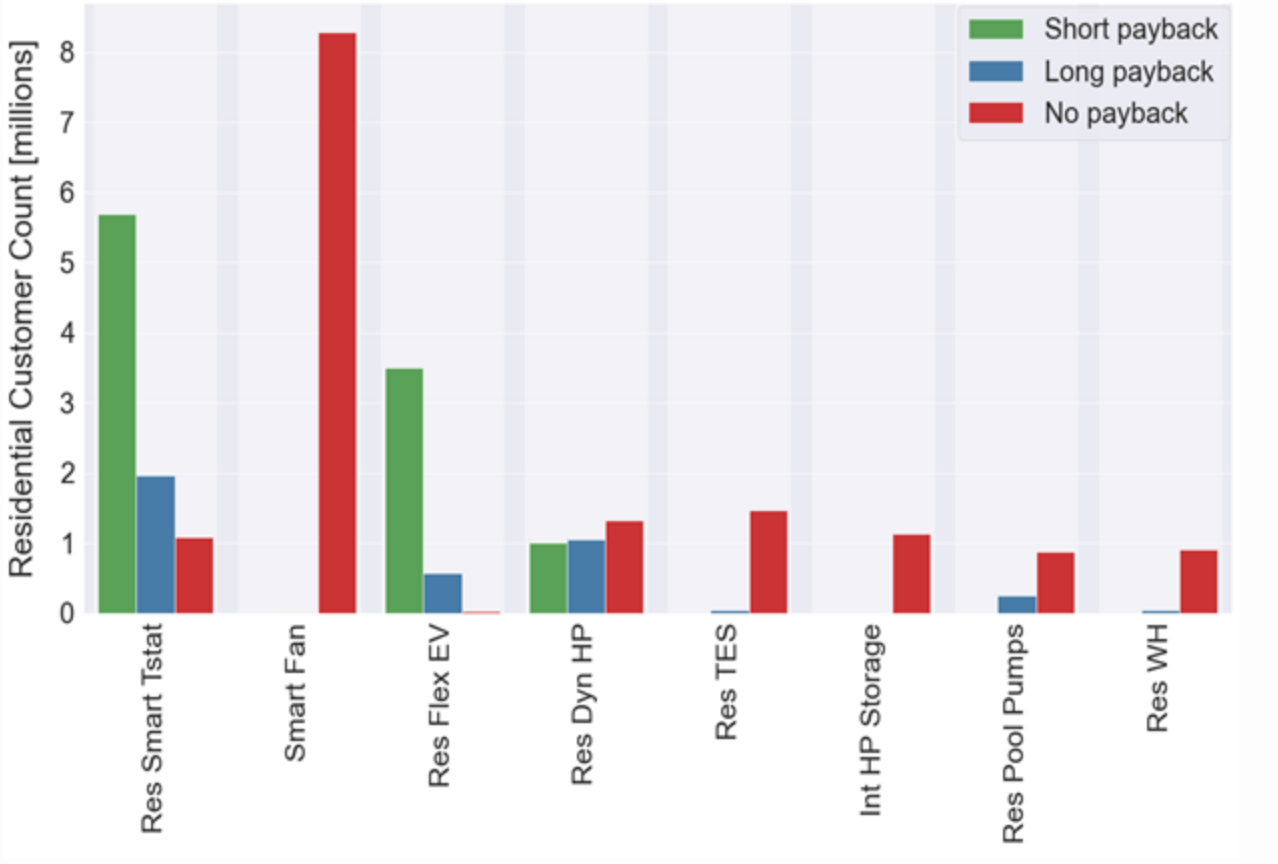
Initial results: customer value payback period

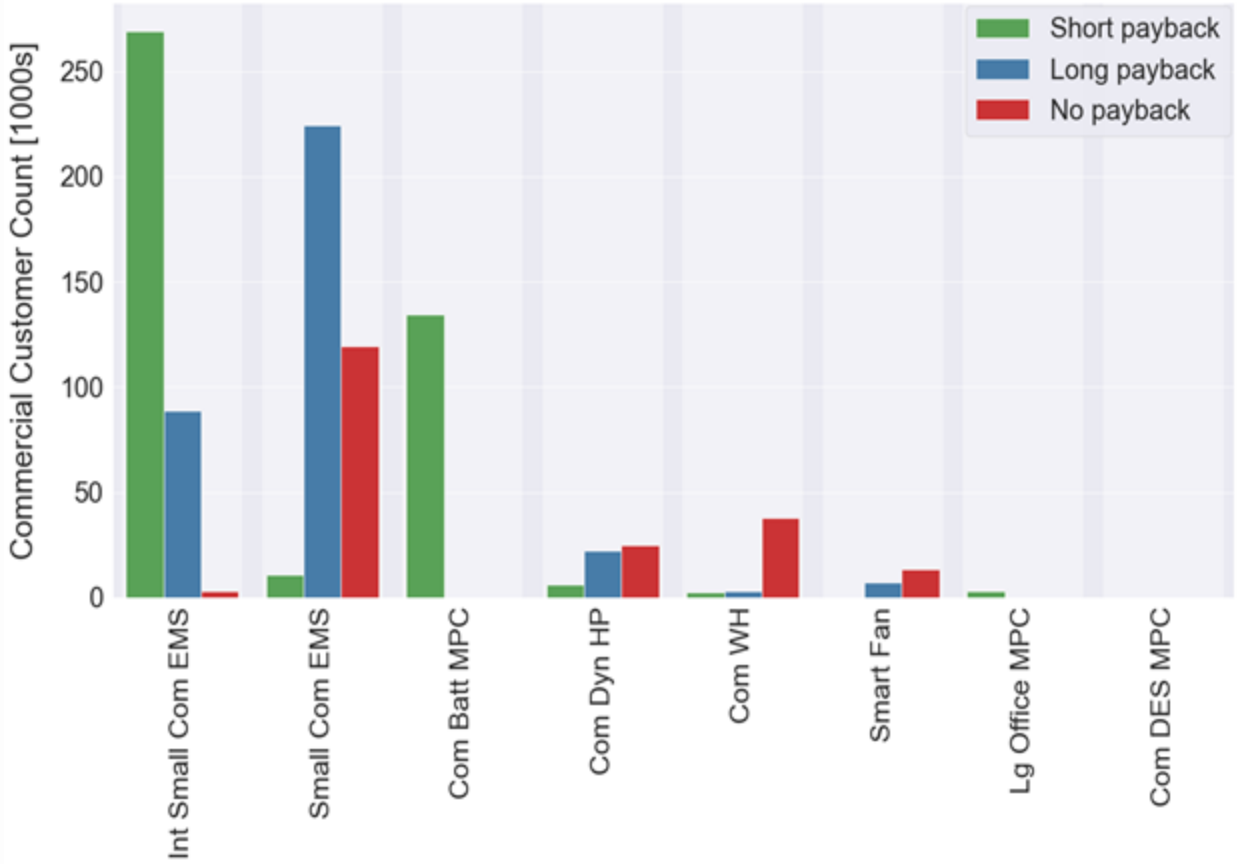


customer base range average

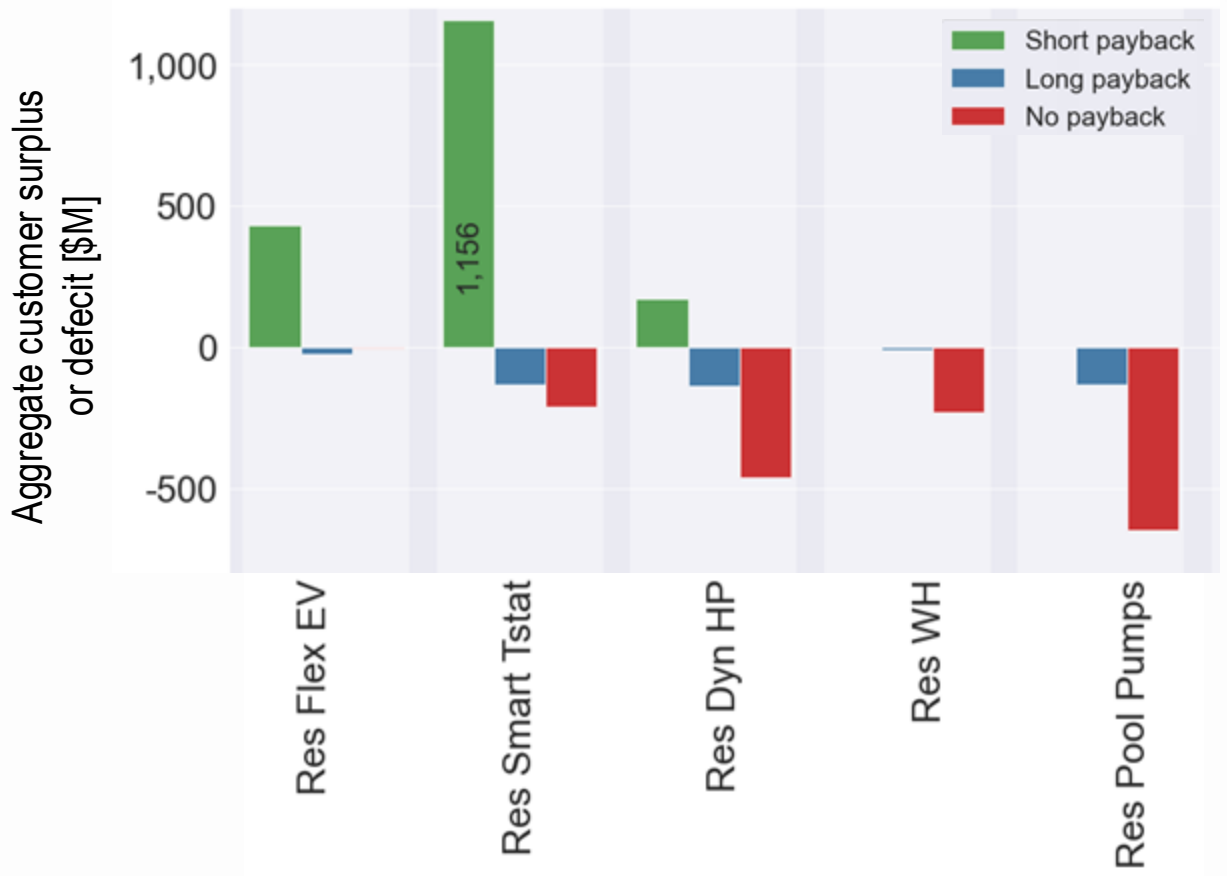


Deeper insights: segmenting the customer base by expected payback period

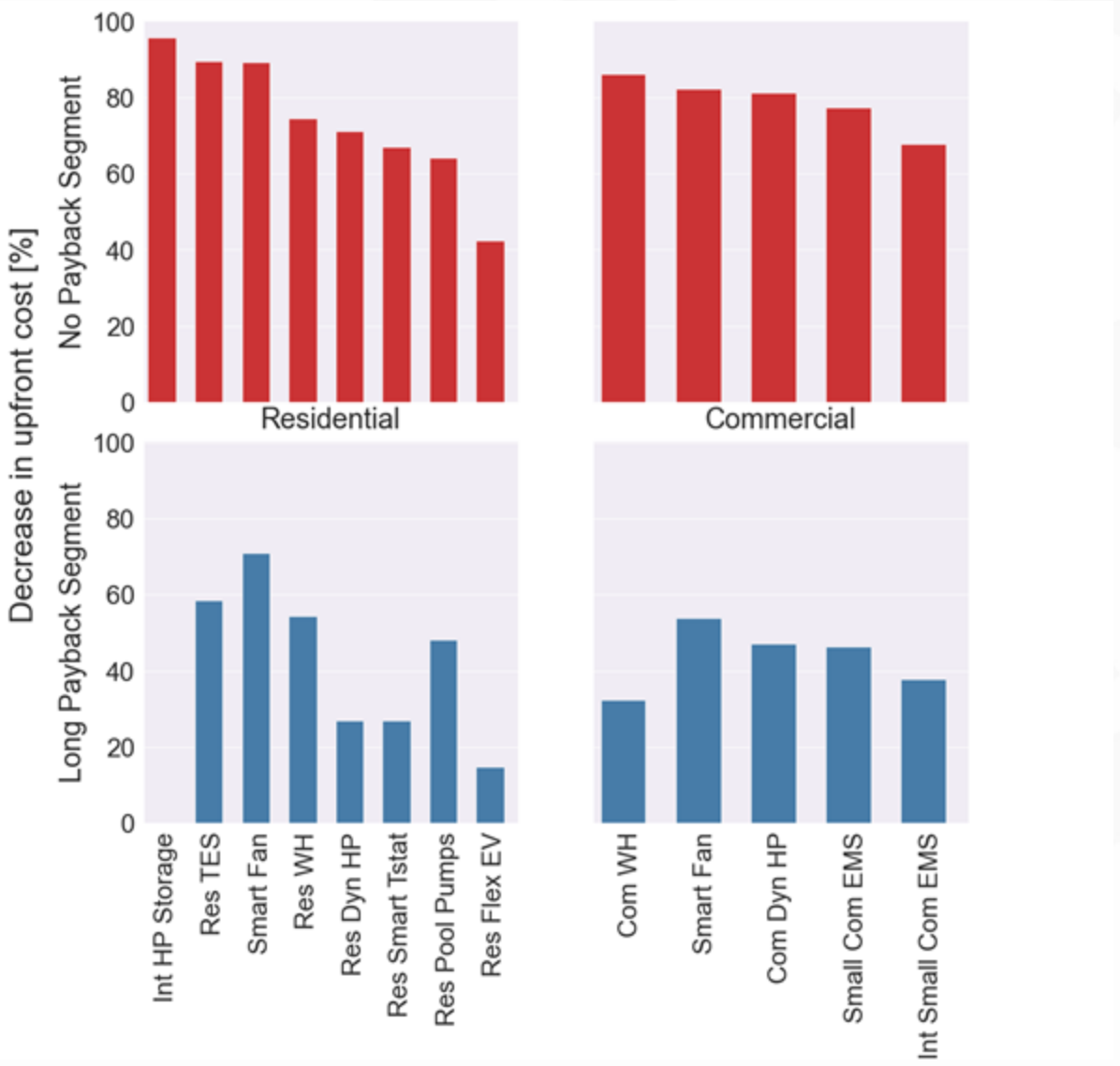




Deeper insights: customer surplus and deficit; could inform program design

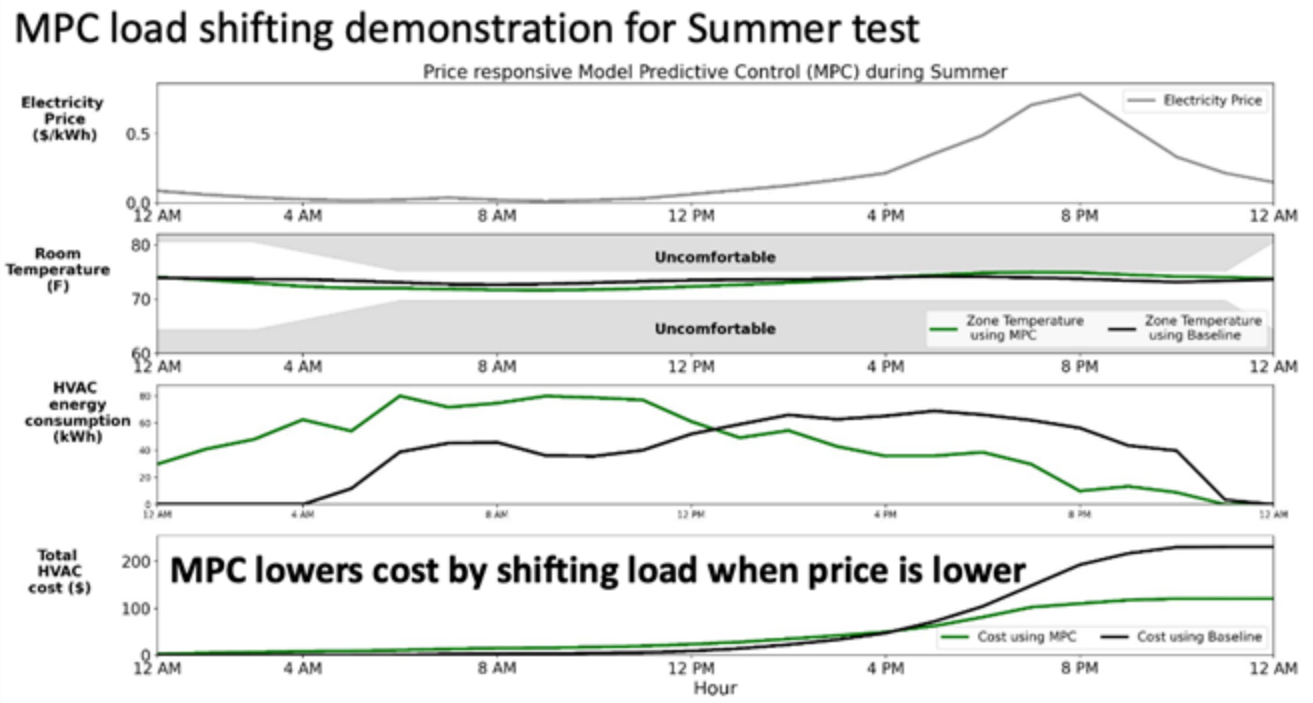


Deeper insights: cost reduction required to hit 5-year payback



Ongoing analysis to update and refine modeling assumptions

- **Smart Fans** are estimated to be much lower-cost than the estimates given in Year 1
- **Large Office MPC** is being considered over a much larger customer base, and a longer shift window, but at higher costs than originally modeled
- **Water heater** costs are being updated, and simulation models are being used to cross-check the flexibility modeling and bill savings analyzed
- And more!



Thank you!

Contact: sjsmith@lbl.gov