



CADMUS



TRM Research Findings: Early Replacement and Dual Replacement in Residential HVAC Applications

August 6, 2013
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Background

- Research initiated to provide input to TRM Technical Advisory Group discussions about Residential HVAC and Early Replacement definitions
- Early Replacement (ER)
 - An ER unit replaces an older, but still working, unit. Incentives are larger by 2 to 3 times and are intended to encourage customers to take out the working unit and replace it with a unit exceeding current federal minimum standards.
- Time of Sale (TOS)
 - A TOS unit is one that is broken or doesn't currently exist (i.e. new construction). The assumed baseline meets the current federal minimum standards and incentive is used to upgrade to higher than federal minimum efficiency.
- Implications:
 - ER projects cost more but save much more energy for the first 6 years (TRM assumes remaining useful life is 6 years).



Background (continued)

- Spring TRM discussions about Residential HVAC
 - Technical Advisory Committee agreed to define when equipment should be eligible for Early Replacement (ER) versus Time of Sale (TOS) incentives
- Specific non-consensus issue:
 - What is the baseline for the second unit when both heating and cooling systems are replaced?
- Agreement on criteria for first replaced equipment:
 - If existing unit is below a certain efficiency and cost of repair is less than 20% of new baseline equipment, then it qualifies for ER
- Non-consensus on second replaced equipment
 - If second unit meets this criteria for early replacement, should it also be eligible for ER incentives?



Non-consensus Positions

1. It is standard practice for contractors to recommend dual replacement and the only reason customers do not choose to do it is they cannot afford to; therefore second unit is always TOS
2. Contractors do not always recommend dual replacement and customers have a variety of reasons to not follow-through when they do; therefore some, but not all customers, should be TOS and this should be determined through evaluation methods



Key Researchable Questions

- Is it standard practice for contractors to recommend dual replacements?
- Do customers always follow through except when they can't afford the upfront costs?



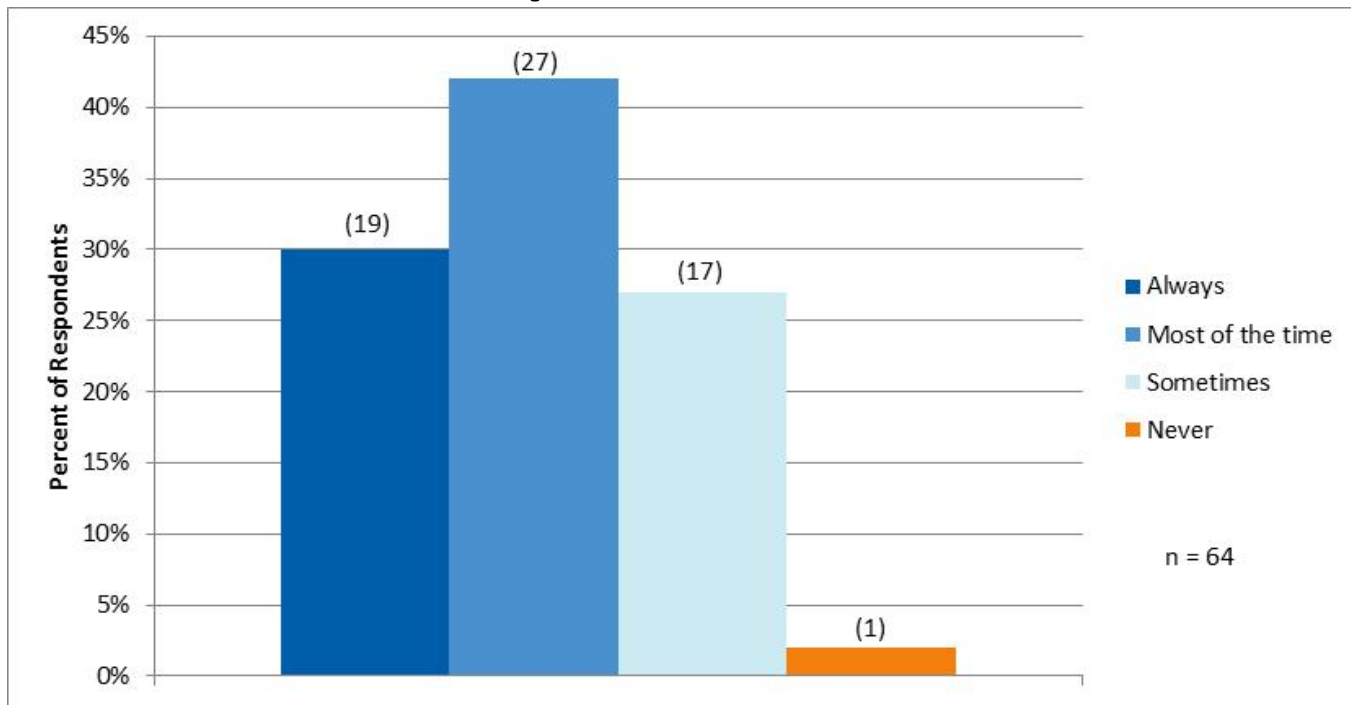
Research Approach

Leveraged planned PY5 non-active registered contractors survey

1. How often do they recommend dual replacements?
2. Reasons for recommending dual replacements?
3. Expected customer cost savings from dual replacement?
4. How often do customers follow through?
5. Reasons for not following through?
6. Expected impact of additional incentives



How often do contractors recommend dual replacements?



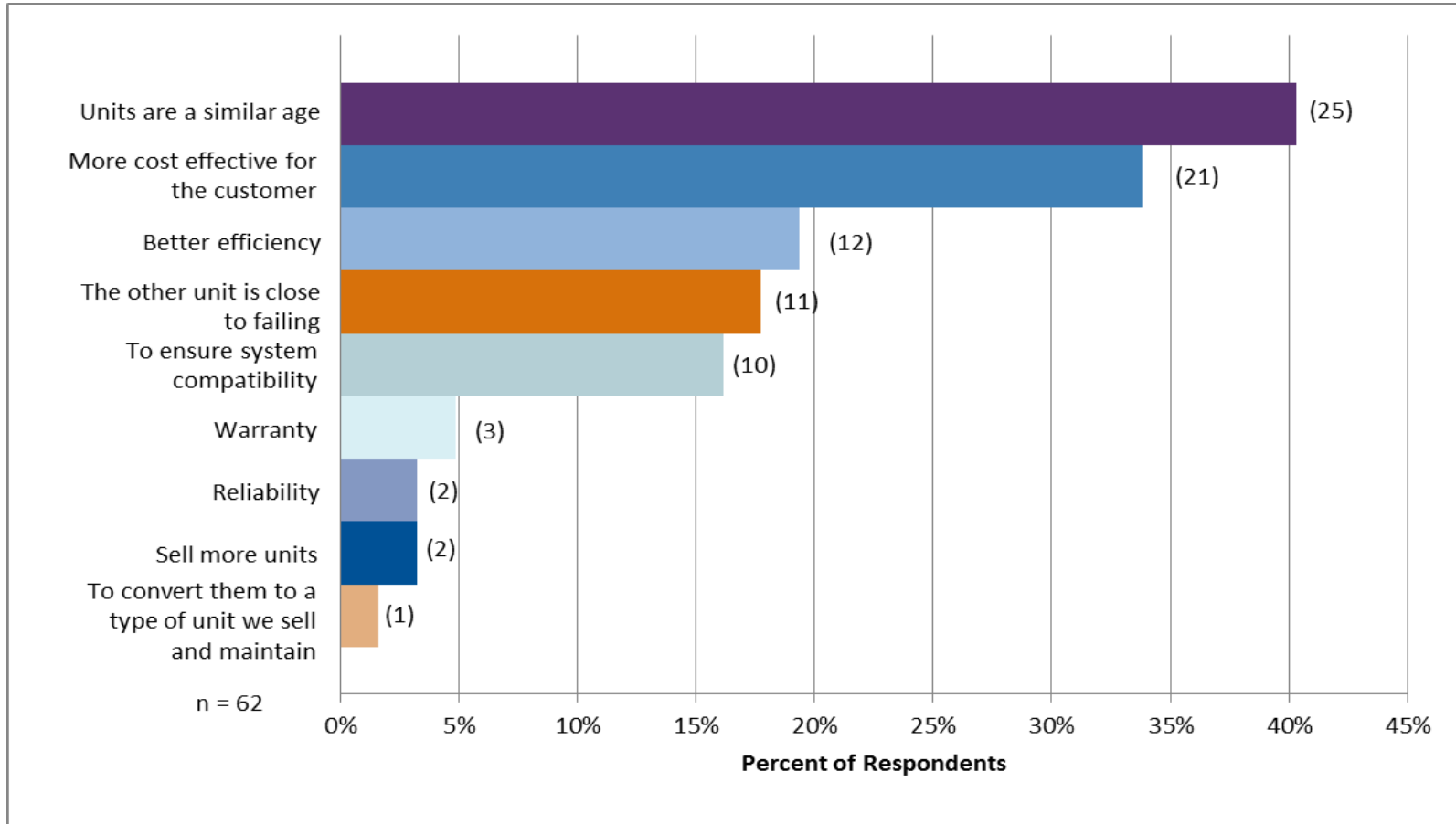
72% said “most” or “all of the time”

We converted “always, most, etc.” to percentage ranges, to calculate average response : 51-81% of time



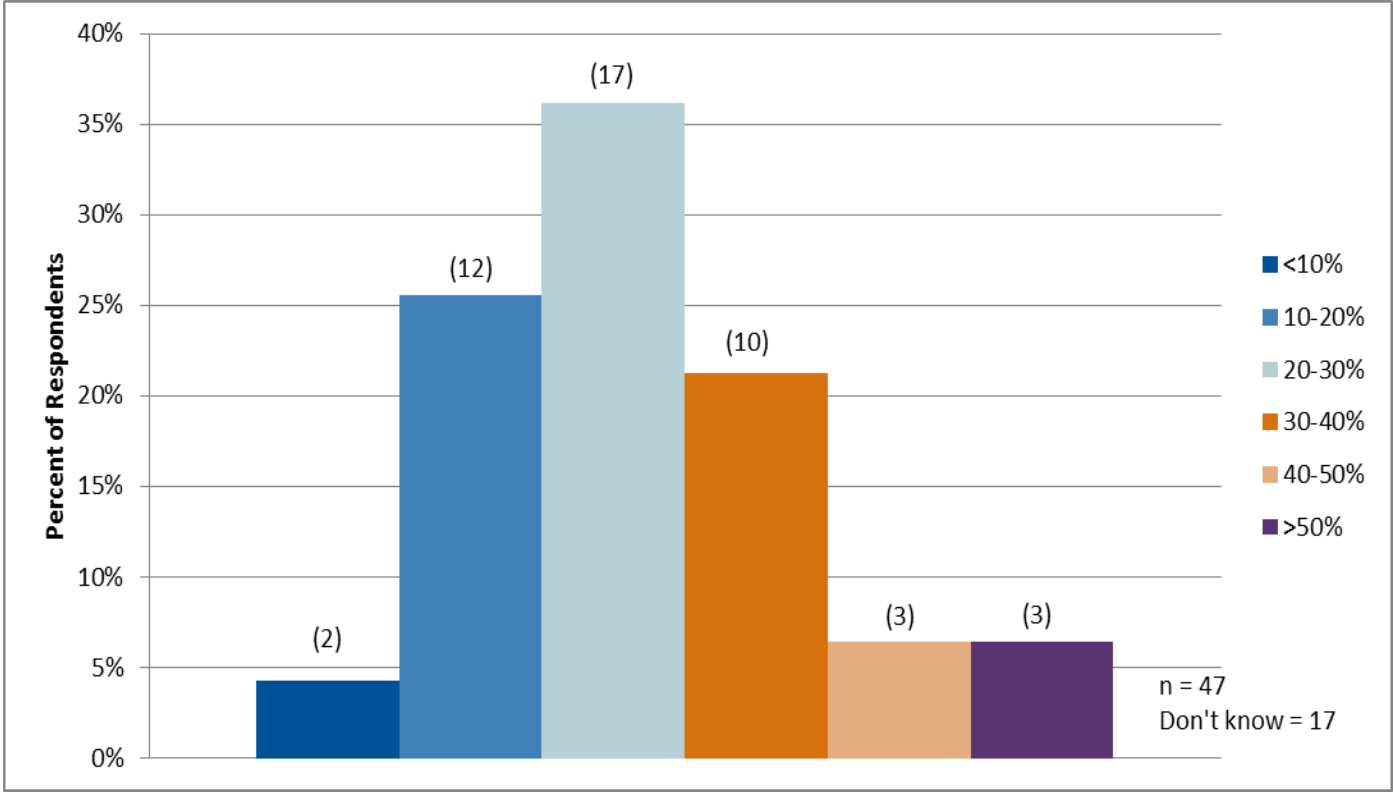


Why do they recommend it?





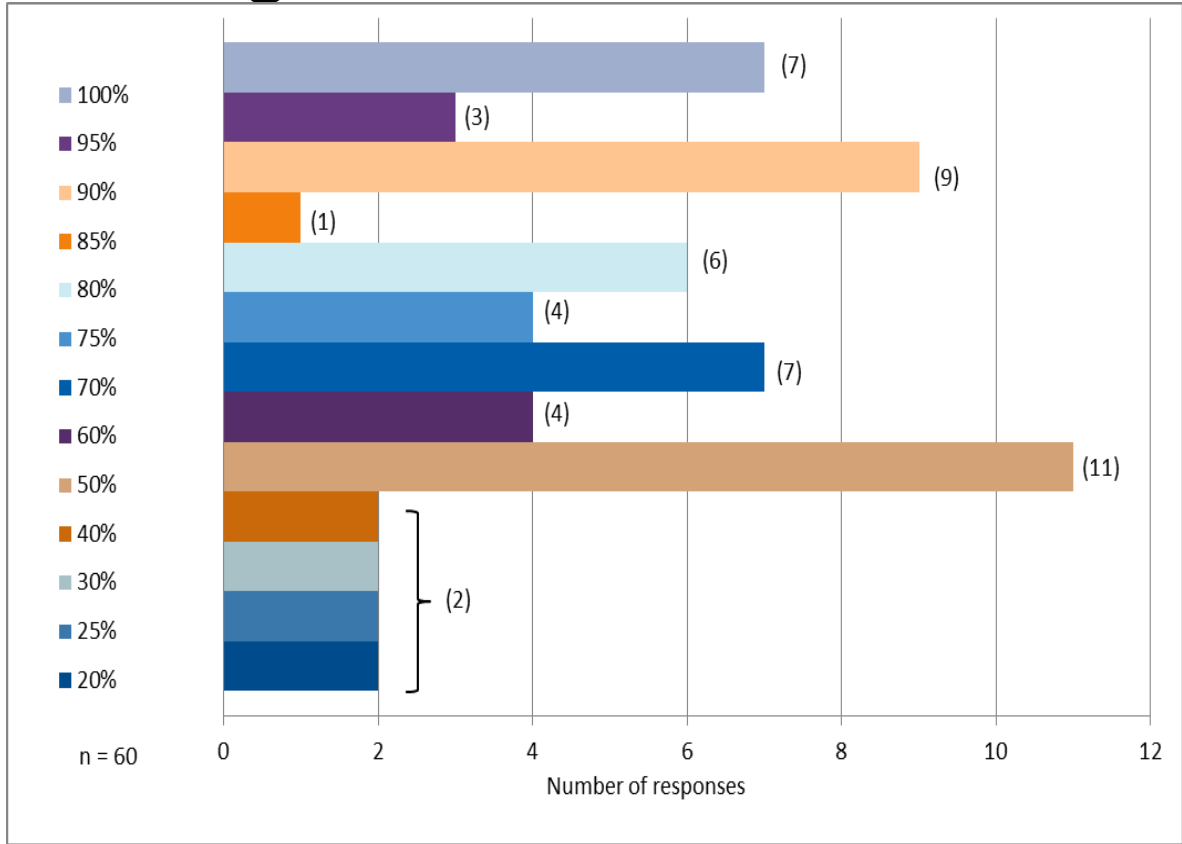
Expected customer savings from dual replacement?



Majority of contractors estimated from 10% to 30%



What percentage of time do customers follow through on recommendation?



32% say customer likely to follow-through at least 90% of the time
Average response: 69%



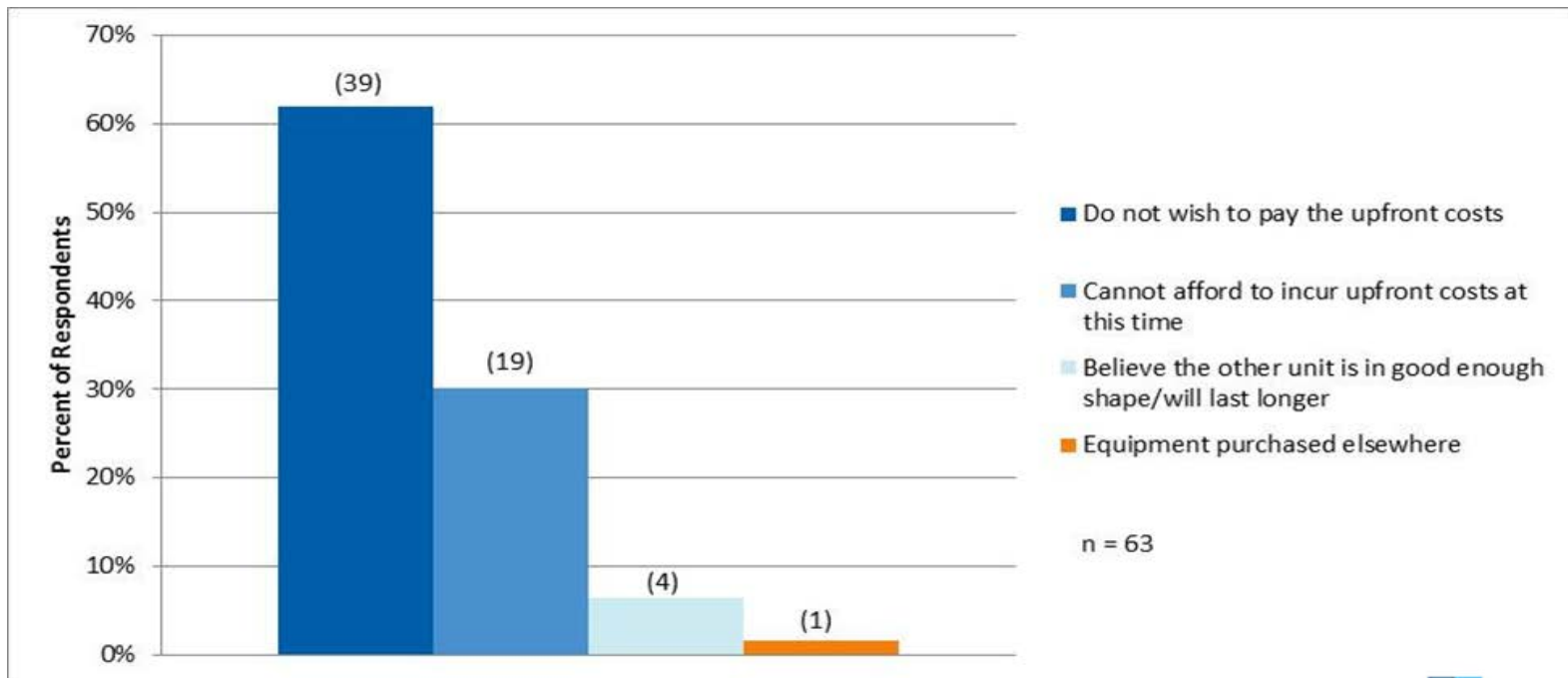
Average Standard Market Practice (freeridership)

- Percent offered by contractors times percent accepted by customers:
 - 42% to 62% of the time
- Contractor perception of change with added incentives:
 - \$500: 0.5% to 8.6% decrease in freeridership
 - \$1000: 6.4% to 18.1% decrease in freeridership



Contractor perception: why customers do not follow through

- 62% Say they do not wish to pay the upfront costs
- 30% Say they cannot afford to incur upfront costs at this time





Conclusions

- Is it standard practice for contractors to recommend dual replacements?
 - While contractors suggest dual replacement the majority of the time (51-81%, on average), it is not all the time.
- Do customers always follow through except when they can't afford the upfront costs?
 - Based on contractor perception, the overriding reason customers do not follow-through is cost, either choosing not to spend the amount (62%), or being unable to afford it at that time (30%).



Next Steps

Technical Advisory Committee and VEIC can consider this research in the next TRM revision.