

Tankless Water Heaters: Do They Really Work?

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Context

- **Domestic Water Heating is the next big residential energy in efficiency.**
 - Space heating loads are being reduced
 - Largest peak load in almost all homes is water heating
 - Annual water heating load is larger than annual space heating load in many homes
 - Most DHW equipment is inefficiency 50-60%

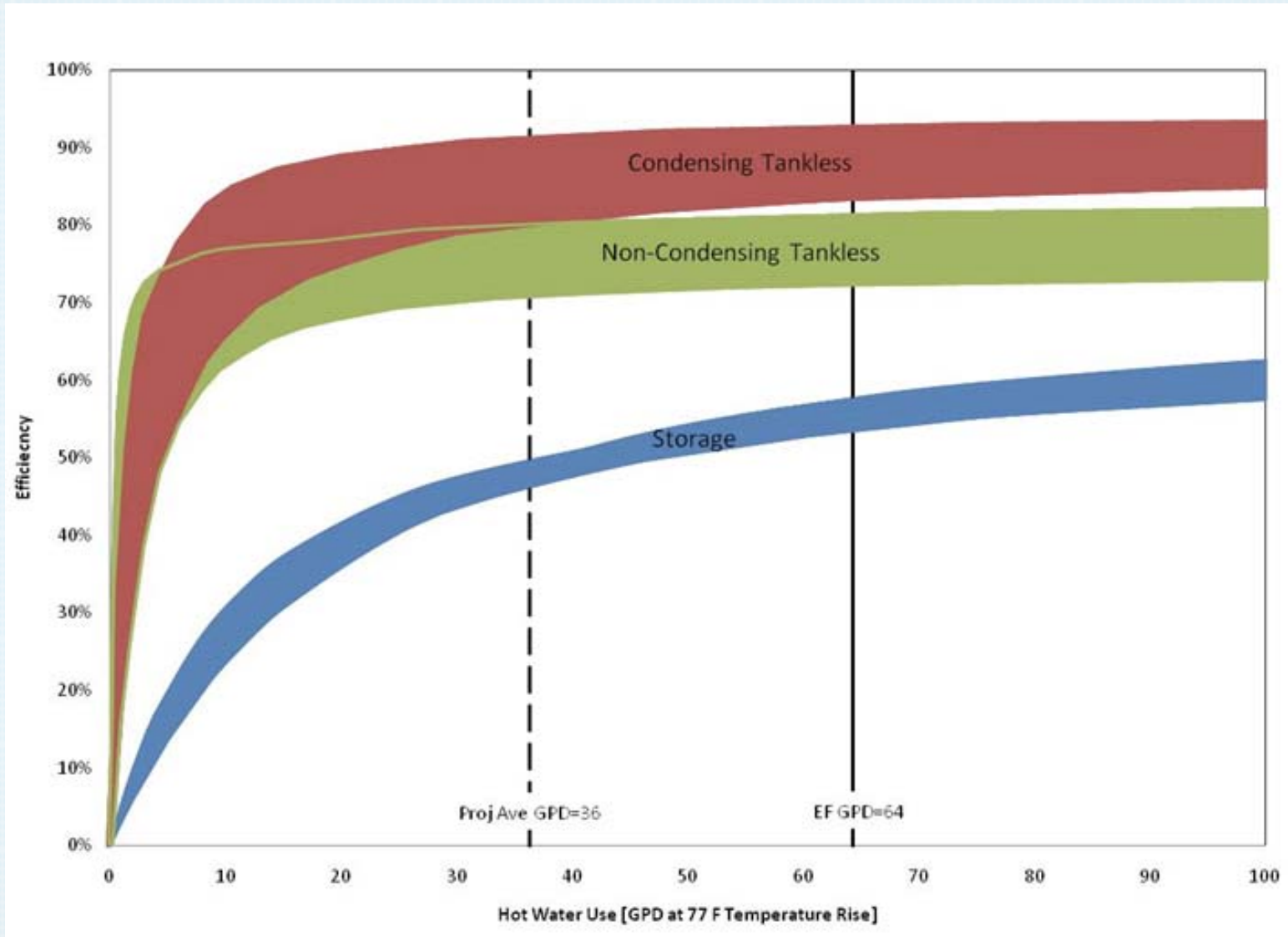
Technical Approach

- **TWHs and condensing TWHs have significant energy savings potential**
 - Do these ratings relate to real world performance?
 - How do TWHs compare to standard water heaters?
 - What performance/install issues do they have?
- **10 home 26 water heater alternating mode field study was conducted**

Recommended Guidance

- **In situations where economics are favorable TWHs are strongly recommended**
 - TWHs had acceptable performance for all homeowners (10 site study)
 - TWHs did not increase daily hot water usage in any of the homes
 - TWHs had significant energy savings 25-75% of DHW bills

Recommended Guidance



Paybacks for Non-Condensing Tankless Water Heater

	Incremental Cost		
Load	\$500	\$750	\$1,000
Small (24 GPD)	10	16	21
Medium (48 GPD)	9	13	17
Large (64 GPD)	7	10	13
Very Large (90 GPD)	6	9	12

↑ PV required ↑ w construction ↑ end retrofit
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Paybacks for Condensing Tankless Water Heater

	Incremental Cost		
Load	\$500	\$750	\$1,000
Small (24 GPD)	10	15	20
Medium (48 GPD)	7	11	15
Large (64 GPD)	5	8	11
Very Large (90 GPD)	5	7	9

Market Readiness

- **High installation costs in some situations**
 - Increasing gas line size
 - Increasing gas meter size
 - Difficult venting
- **Reduced incremental cost**
 - New construction
 - Power vent appliance required for safety

- **PROS**

- High efficiency water heating
- Combustion safety
- No running out of hot water
- No increased water usage

- **CONS**

- Wide range of retrofit installation costs
- Occupant use adjustments
- Hot water delivery time delay
- Small buffer tanks reduce daily efficiencies significantly (15-25% reduction in efficiency at 50 GPD)