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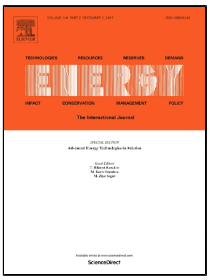

Gigawatt-hour Scale Savings on a Budget of Zero: Deep Reinforcement Learning based Optimal Control of Hot Water Systems

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Highlights

- Reinforcement learning is used to optimize energy efficiency of hot water systems
- Optimization is done based on learnt system dynamics and occupant behaviour
- No prior model or information is assumed about hot water system or occupant
- Energy efficiency gains of 20% are obtained by applying the framework to 32 houses
- No loss of user comfort is observed in a set of 5 houses fitted with extra sensors