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Pricing and inventory control strategy for a periodic-review energy buy-back system. (English) [Zbl 1346.93297](#)

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Summary: Along with the rapid development of economics and enhancement of industrialization, the power demand keeps rising and frequently creates mismatch between demand and supply in electricity. This provides miscellaneous energy buy-back programs with great opportunities. Such programs, when activated, offer certain amount of financial compensations to participants for reducing their energy consumption during peak time. They aim at encouraging participants to shift their electricity usage from peak to non-peak time, and thereby release the demand pressure during peak time. This paper considers a periodic-review joint pricing and inventory decision model under an energy buy-back program over finite planning horizons, in which the compensation levels, setup cost and additive random demand function are incorporated. The objective is to maximize a manufacturer's expected total profit. By using Veinott's conditions, it is shown that the manufacturer's optimal decision is a state dependent (s, S, P) policy under a peak market condition, or partly an (s, S, A, P) policy under the normal market condition.

Reviewer: [Reviewer \(Berlin\)](#)

MSC:

[93C95](#) Application models in control theory

[90B05](#) Inventory, storage, reservoirs

[91B24](#) Microeconomic theory (price theory and economic markets)

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additive demand function; energy buy-back program; joint pricing and inventory control; Veinott's conditions

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