

## Energy Efficiency System Design Strategies: Refrigeration Low Charge Multi-Plex with Evaporative Condenser

**Strategy:** Multiplex refrigeration with evaporative condensers and control systems that limit the amount of refrigerant recharge for the multiplex operation.

**Relevant Store Scale/Type:** S,M,L/New, Adapted and Existing. Can be done fairly easily as part of an existing store retrofit. Small stores are more likely to use air cooled systems.

### Initial Cost:

1. Cost of control systems.
2. Evaporative condensers have a higher first cost than air-cooled condensers.

### Return on Investment:

1. Lowest first-cost premium for refrigeration systems, yielding the fastest payback.
2. Energy savings in the 10-11% range annually as compared to conventional multiplex systems and 5-6% range when compared to air-cooled low charge multiplex systems.

### Operator Benefits:

1. Energy savings.
2. Reduction in the amount of refrigerant by 1/3.

### Technical Considerations:

1. Liquid controls save additional energy by lowering condensing temperatures.
2. Will require more maintenance than conventional air-cooled multi-plex systems.

### Product/Manufacturer Suggestions, Resources & Examples:

Refrigeration Technologies Studies:

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