Off-peak Cooling Basics

Off-peak cooling systems use electricity to freeze water in special insulated tanks that contain refrigerant-filled coils. These coils circulate ethylene or propylene glycol and a water mixture that's super chilled to well below freezing. Once the water freezes, at night when energy demand is low, it's ready to be used to cool the air the next day. This is called **charging**, and a charged off-peak cooling system takes very little energy to keep cold in stand-by mode until it's ready to be used to cool the air in an office building or home.

As the building starts to warm up during the day, the air-conditioning kicks on, and the chilled refrigerant from the off-peak cooling system keeps the building's air cool. The glycol cycles through the ice filled tanks periodically to cool back down after being exposed to the hot air, and eventually, this exchange of hot for cold melts the ice. In the evening, the system charges again, freezing the melted ice with a chiller, and preparing the system for the next hot day.

A lion's share of the savings in off-peak cooling systems comes from taking advantage of lower energy costs available at off-peak times of the day.