



United States Cold Storage Earns Significant Payments in PJM's Synchronized Reserves Market

United States Cold Storage is a leading cold storage logistics company which aims to advance, innovate, and serve companies seeking the best service, facilities, and logistics in the cold chain industry. Originally founded in 1899, the company has its headquarters in Camden, New Jersey, with 43 cold storage facilities located throughout the continental United States.

As a large energy user, US Cold Storage is a great candidate for demand response (DR). Mike Lynch, Vice President of Engineering at United States Cold Storage, first started working with Enel to enroll in demand response programs 15 years ago, and remains happy after his decade and a half of experience with Enel.

"I'd definitely recommend Enel," Lynch said. "I have a good relationship with my Enel team. We've set a goal of generating \$1 million dollars in demand response revenue and we're knocking on the door—I'm hoping we'll hit it in the next year or two."



CASE STUDY



Industry
Cold Storage



Location
Two facilities in Illinois



Program
PJM Synchronized Reserve Market



DR Strategy
Reduce connected load of refrigeration equipment



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—**Jim Duffy**, Regional Chief Engineer for United States Cold Storage’s central region

How DR Works

Demand response programs provide payments to energy users that agree to reduce their energy demand during times of grid stress. There are a wide variety of programs available across America with different requirements—some, for instance, require faster response times when energy users are asked to curtail energy use.

Synchronized Reserve Market: A Lucrative Opportunity

As demand response programs have increased throughout the United States, US Cold Storage has continued to enroll in new programs. Jim Duffy, Regional Chief Engineer for United States Cold Storage’s central region, said Enel’s team has been very comprehensive in keeping them on top of all possible opportunities.

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Recently, two warehouses in Illinois joined a “fast” demand response program called the Synchronized Reserve Market (SRM). SRM supports the PJM electric grid during unexpected system disruptions that only last for a short period of time, such as unplanned generator outages or spikes in energy demand. SRM events last 9 minutes on average, and no more than 30.

These sudden disruptions to the grid require participating sites reduce their demand from the grid within 10 minutes of being notified. In return, participants can earn significant payments for helping to stabilize the grid during these critical periods.

These two Illinois facilities already participated in some demand response, but Duffy said they decided to enroll in Synchronized Reserves when they saw the large earnings potential.

How US Cold Storage Responds to a Synchronized Reserves Event

When a demand response event occurs and they have to turn down their electricity usage, US Cold Storage is notified by text and email, and they also have a strobe light that automatically turns on in their warehouse.

They then focus primarily on reducing the connected load of refrigeration equipment, which Duffy notes is about 80% of their energy usage, while continuously monitoring room temperatures. Because there are so many frozen products in the freezers, there is large thermal inertia—a decrease in refrigeration for the length of an SRM event has no significant effect on the temperature in the freezers.

Much of these processes are automated—US Cold Storage has put in place capabilities to automatically shut down certain systems, and different facilities adjust these processes to fit their circumstances.

Recommending Sync Reserves

Duffy has found SRM to be a simple program, and one that’s helpful to their bottom line. In fact, he’s been very surprised that participation isn’t far more widespread.

“These programs are out there to help you save substantial amounts of money,” Duffy said. “To me it’s surprising that participation is not greater across the industrial sector. It’s not an extremely difficult thing to do—in our industry especially—to participate.”