Item 14: Energy Efficiency and Load Flexibility in Industrial and Commercial Cold Storage Facilities - GFO-23-301

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Project Benefits and Locations

Project Benefits:

- Reduced emissions for cold storage facilities
- Improved efficiency
- Increased load flexibility capacity

Locations:

#	Applicant	Location
1	UCSB	Mira Loma
2	EPRI	South Gate
3	Nelumbo	Union City
4	Prospect Silicon Valley	Rohnert Park

University of California, Santa Barbara (UCSB)

- "Harnessing the Potential of AI in Industrial Refrigeration Systems"
- Uses Atlas platform to implement AI controls on compressors
- <u>Site</u>: Lineage
- <u>Grant</u>: $2,420,982

Photo of a freezer room

Photo of screw compressors

Source: UCSB

Electric Power Research Institute, Inc. (EPRI)

- "IndFlex – Demand Flexibility in Industrial Refrigerated Warehouse"
- Load flexibility and efficiency
- Refrigeration compressor and evaporator control system
- Integrated thermal storage
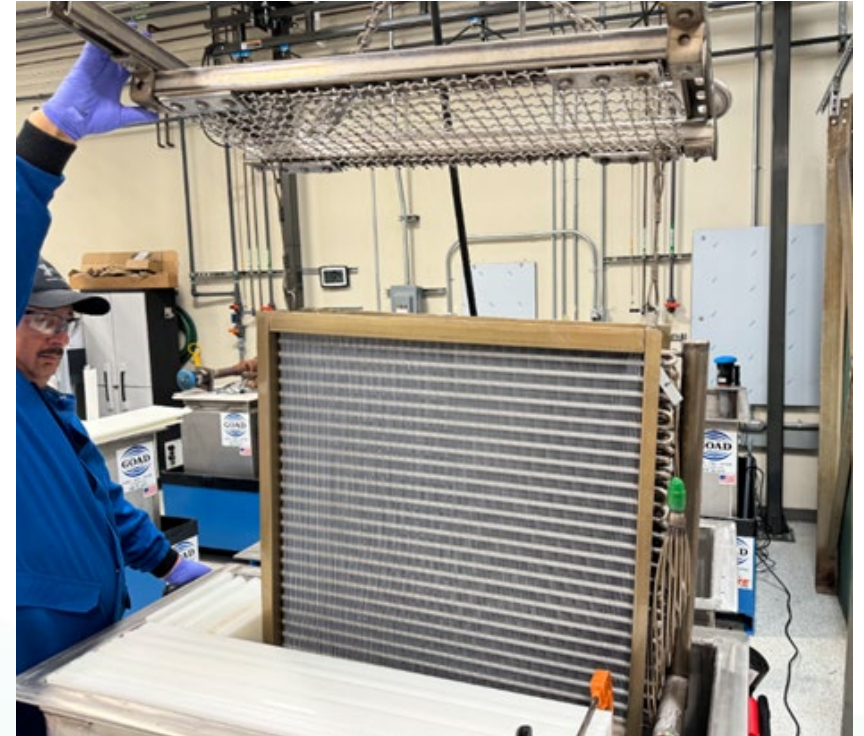- Forklift charging management
- Site: Konoike
- Grant: $2,165,928

Phase Change Material in a rack

Source: EPRI

Nelumbo Inc.

- "Demonstration & Deployment of Nelumbo's Ice-Nein® Evaporator Coating"
- Reduced defrost duration of >20%
- Improved cooling capacity of >20%
- <u>Site</u>: Daylight Foods Facility
- <u>Grant</u>: $2,910,550

Evaporator coil testing at Nelumbo's facility

Source: Nelumbo

Prospect Silicon Valley

- "Dynamic, Grid-Flexible Cold Storage Refrigeration Featuring Advanced CO2 Heat Pump, Thermal Storage, and Defrost Controls"

- CO2 heat pump integrating heat recovery and thermal storage with transfer fluids

- Thermal storage for up to 4 hours
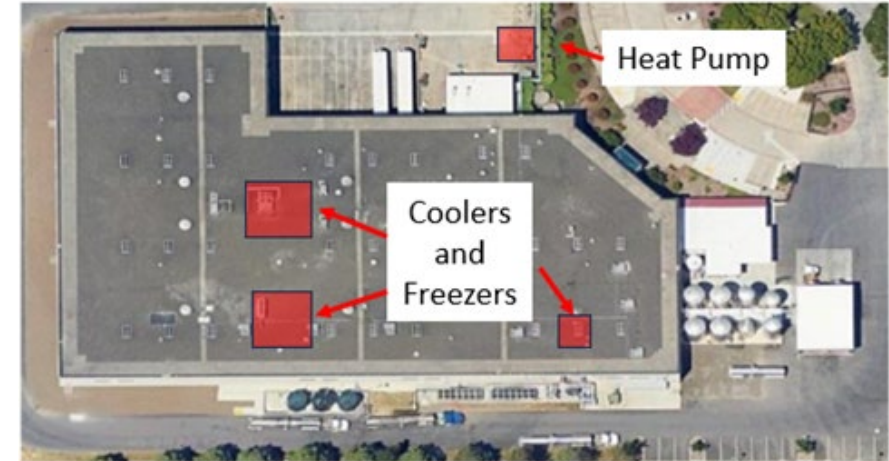
- Site: Straus Family Creamery

- Grant: $1,800,000

Photo of Straus's facility

Photo of Flow's Laboratory Testbed
Source: Prospect Silicon Valley

Staff Recommendation

- Approve grant agreements
- Adopt staff's determination that these actions are exempt from CEQA