

SUPPLY CHAIN INSIGHTS

EARTH MONTH EDITION

HEAT PUMP SYSTEMS HELP MEET HOT WATER DECARBONIZATION

Heat pump systems offer a practical solution for achieving hot water decarbonization goals amid the pressing need to transition to sustainable energy sources. While conventional heat pumps face challenges in producing high hot water temperatures, advancements in commercial and industrial solutions such as the use of CO2 refrigerants, show promise. However, addressing temperature limitations and optimizing system configurations are crucial for effective implementation.

TRENDS

DECARBONIZATION IMPORTANCE

- » Heating and cooling contribute significantly to global energy consumption and carbon emissions. Heat pumps powered by low-carbon electricity are a practical solution to reduce heating costs and CO2 emissions, aiding in grid balance.

HEAT PUMP CHALLENGES

- » Most conventional heat pumps have limitations in producing high hot water temperatures (up to 140°F), which can be challenging for buildings designed for higher temperatures. Lower temperatures can affect efficiency and hot water recovery time, necessitating supplemental heating systems.

COMMERCIAL AND INDUSTRIAL HEAT PUMP SOLUTIONS

- » Various types of air-to-water and water-to-water heat pumps are available for commercial and industrial applications. These systems can produce hot water temperatures ranging from 140°F to 180°F, with some utilizing CO2 refrigerants to reduce reliance on backup heating. Compound designs and advanced technologies enable operation at lower ambient conditions and higher efficiency.



Overall, heat pump systems offer a promising avenue for meeting hot water decarbonization goals, but considerations such as temperature limitations and system configurations must be addressed for effective implementation.

OUR SUBJECT MATTER EXPERT



ANDY VEZOS
SUPPLY CHAIN STRATEGIC SOURCING MANAGER
MECHANICAL PRODUCTS

As the subject matter expert for core mechanical products and systems, Andy draws on his 34 years of technical experience for sound knowledge of various construction methods and installation practices, as well as his broad understanding of a wide spectrum of related mechanical materials and equipment.

Andy's role includes evaluating mechanical design criteria and offering alternate solutions & producing project specific equipment scopes. Evaluations include: Demand Planning, Equipment Life Cycle Cost Analysis, LEED Studies, Decarbonization Strategies and Constructability Reviews.

DEMAND PLANNING

- » **Proactive Communication:** Early and continuous dialogue with manufacturers about project requirements and milestones, including delivery, storage requirements, start-up, commissioning, and maintenance support needs, ensures alignment and identifies potential challenges/pushouts before they impact the project.
- » **Vendor Capacity Evaluation:** Assessing a manufacturer's production capacity, project backlog, and recent performance is crucial to ensure they can meet project demands without compromising on delivery timelines. Vendors should also be evaluated on their ability to provide comprehensive project support and equipment support services (e.g., design-assist, preventative maintenance, trained/familiarized technicians) to ensure a thorough approach to project execution and delivery.
- » **Critical Path Components and Clear-to-Build/Assemble:** Identifying critical path components for each piece of equipment enables targeted risk management strategies (ex., acquiring relays or coordinating delivery for relay delivery, post equipment arrival).



NAFIS FRY
SUPPLY CHAIN PLANNING MANAGER



SPURTHI RAJ NAGARAJ
SUPPLY CHAIN COORDINATOR

MECHANICAL PRODUCTS

- » **Smart Technology Integration:** The adoption of smart thermostats, IoT devices, and building automation systems to enhance HVAC system control, monitoring, and maintenance. This allows for remote access, predictive maintenance, and improved energy management.
- » **Remote Monitoring and Diagnostics:** Advancements in remote monitoring and diagnostics technologies enable HVAC professionals to remotely track system performance, identify issues early, and provide proactive maintenance, reducing downtime and service costs.
- » **Training and Skilled Labor:** The skilled work force is aging out and retiring. Vendors are addressing this shortage of skilled HVAC technicians through increased training programs, apprenticeships, and efforts to attract younger generations to the field.



MIKE FIERRO
SUPPLY CHAIN PRODUCT MANAGER
MECHANICAL PRODUCTS

ELECTRICAL PRODUCTS

- » The High Voltage transformer market is experiencing very long lead times of up to 36-60 months. The demand for peak power through the electrical grid has put a major strain on the electric utility companies to increase peak demand power supply. Utility companies have bought up most slots with High and Medium Voltage transformer vendors.
- » The utility power shortage is causing the market to look at alternative solutions. Turbine purchases and rentals are in high demand to provide the power required until the utility has the capacity. Gas generator demand is also high and being deployed in microgrid applications.
- » The diesel generator market demand in the data center space continues to be very strong. Lead times for 2mW and up have pushed out to 120-130 weeks. In addition, manufacturers have announced a price increase of approximately 5-8%.



STEVE WOODS
SUPPLY CHAIN PRODUCT MANAGER
ELECTRICAL PRODUCTS



SCOTT PENGITORE
SUPPLY CHAIN PRODUCT MANAGER
ELECTRICAL PRODUCTS

FINISHED PRODUCTS

- » Congestion is anticipated along the eastern seaboard for container traffic originating from Europe as a result of the incident.
- » Manufacturers are enhancing internal account management and support positions, the goal to be more connected to the construction process and be active in supply chain management to head off any issues.
- » Connectivity between distribution centers is adding extra flexibility and enhanced delivery capabilities to the supply chain and allowing single order fulfillment to be comprised of multiple locations.



NATE GOLDMAN
SUPPLY CHAIN STRATEGIC SOURCING MANAGER
FINISHED PRODUCTS



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