National Defense Center for Energy and Environment

# FACT SHEET

# ARCTIC Capable Advanced Refrigerated Container (ACARCS)

## PROJECT OVERVIEW

The goal of the project is to use the mature, well developed multi-refrigerant technology found in the ARCS system and modify it for use in extreme cold weather down to -40F. The ARCS uses the multi-refrigerant capable refrigeration unit mounted on a fielded Army TRICON container and capable of using DC power from the prime mover or AC shore power for static operations. The ARCS system is capable of being stored at -60F and is operational at -25F. Some changes to the tested design are required to make the system 'cold hardened' and capable of operations down to -40F. These changes include replacement of plastic and exposed rubber components and the review and modification of parts close to their low temperature rating, like the DC/DC converter. The 'on the move' capability of the arctic capable ARCS (ACARCS) means rations and stores can be maintained from the distribution point to the tactical feeding site

## BENEFITS

The ARCS was designed as a refrigerated container system capable of operating on a wide range of refrigerants while also providing a cool-on-the-move capability in ambient environments up to 120 °F. However, by utilizing the defrost heaters that are already a part of the system, a heat-on-the-move capability can also be realized to maintain rations, water, blood and medical supplies in extreme cold weather environments. The heat/cool-on-the-move capability eliminates 'break points' providing constant and seamless support from the depot to the battlefield. The system uses proven fielded components and a standard ISO container which is well supported and transported by all Army Commands.

REPRESENTATIVE PHOTOS OF THE ACARCS IN THE ARCTIC

## PATH FORWARD

ACARCS leverages the success of the USMC refrigeration technology development and the Army's ARCS cool/heat on the move breakthroughs. The assimilation of extreme cold weather capability shall be integrated into ACARCS in FY26. Operational testing shall be executed using extreme cold weather environments and operational units in Alaska in FY27. A transition agreement with PdM-FSS has been agreed upon and staffed and the system shall transition into the TRICON Refrigerated Container System (TRCS) Program of Record upon completion of testing.

**DoD Executive Agent**

Office of the Assistant Secretary of the Army for Installations, Energy, and Environment

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