CLAIMS:

1. A transportation refrigeration unit comprising:

an evaporator circulating a flow of refrigerant therethrough to cool a flow of supply air flowing over the evaporator;

two compressors in fluid communication with the evaporator to compress the flow of refrigerant, the two compressors configured and connected to operate in parallel with one another;

a condenser in fluid communication with the evaporator and the two compressors;

an economizer heat exchanger disposed fluidly downstream of the condenser configured to subcool a liquid refrigerant flow output from the condenser;

a suction line heat exchanger disposed fluidly downstream of the economizer heat exchanger configured to further subcool the liquid refrigerant flow output from the economizer heat exchanger via thermal energy exchange with evaporator output refrigerant flow; and

a DC power storage unit to drive at least one compressor of the two compressors, wherein a first compressor of the two compressors has a first displacement unequal to a second displacement of a second compressor of the two compressors.

2. A refrigerated cargo container comprising:

a cargo compartment; and

a transportation refrigeration unit as claimed in Claim 1 in fluid communication with the cargo compartment, wherein the evaporator circulating a flow of refrigerant therethrough cools a flow of supply air flowing from the cargo compartment over the evaporator.

3. A method of operating a transportation refrigeration unit comprising:

flowing a liquid flow of refrigerant through an evaporator;

directing a flow of supply air from a cargo compartment across the evaporator thus cooling the supply air and boiling the flow of refrigerant;

routing the flow of refrigerant from the evaporator to two compressors arranged in parallel;

injecting the flow of refrigerant into the two compressors at a compressor inlet of each compressor;

compressing the flow of refrigerant at the two compressors; and

directing the flow of refrigerant to the evaporator via a condenser;

operating at least one compressor of the two compressors via DC power from a DC power storage unit, wherein a first compressor of the two compressors has a first

displacement unequal to a second displacement of a second compressor of the two compressors;

wherein the transportation refrigeration unit comprises:

an economizer heat exchanger disposed fluidly downstream of the condenser configured to subcool a liquid refrigerant flow output from the condenser; and

a suction line heat exchanger disposed fluidly downstream of the economizer heat exchanger configured to further subcool the liquid refrigerant flow output from the economizer heat exchanger via thermal energy exchange with evaporator output refrigerant flow.

4 The method of Claim 3, further comprising:

routing a portion of the flow of refrigerant to at least one compressor of the two compressors, bypassing the evaporator; and

injecting the portion of the flow of refrigerant into at least one compressor of the two compressors at an intermediate compressor inlet disposed between the compressor inlet and the compressor outlet.

5. The method of any of Claims 3-4, further comprising stopping the flow of refrigerant through one compressor of the two compressors.