GreenChill Store Certification Protocol for a Commercial Refrigeration Rack with an Air Conditioning Load

For the purposes of applying for GreenChill Store Certification, the following document describes the protocol used to determine the refrigerant charge and total load of stores that have a commercial refrigeration rack with an air conditioning (A/C) load.

How to Report Your Store's Total Load (MBTU/Hr.):

As described in the GreenChill Store Certification Program Guidance, a store's total load shall include all BTUs associated with refrigeration. It **SHALL NOT** include sub-cooling, heat of rejection, pump heat, or any BTUs associated with an A/C load. Therefore, if your commercial refrigeration system includes a rack that has BTUs associated with an A/C load, these BTUs **SHALL NOT** be included in the total load calculation.

How to Adjust the Refrigerant Charge for a Given Rack:

If your store has a commercial refrigeration rack with an A/C load, you are allowed to adjust your reported refrigeration charge in order to subtract the refrigerant associated with the A/C load. To adjust your refrigeration charge, follow the steps below:

Step 1: Calculate the percent of refrigerant charge in Rack X that is used for A/C:

$$\frac{\textit{Total A/C load on Rack X (BTUs)}}{\textit{Total Rack X load (BTUs)}} = \textit{\% of refrigerant charge in Rack X used for A/C}$$

Step 2: Calculate the refrigerant charge for Rack X:

$$\textit{Total refrigerant charge in Rack X} - \left[\textit{Total refrigerant charge in Rack X} * \textit{\% of refrigerant charge in Rack X used for A/C}\right] = \textit{Rack X refrigerant charge used for commercial refrigeration}$$

Please direct any questions to GreenChill@epa.gov.