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# Protocol Refrigeration System: 8 Protocol Units

Example based on a typical 45,000 - 50,000  
sq. ft. supermarket



## Protocol System vs. Standard Parallel Rack System

8 Protocols	1 Year Savings	10 Year Savings
Electricity	\$11,000	\$110,000
R404A Lbs.	500	5,000
Lbs. of CO <sub>2</sub> (R404A + Electricity)	1,768,989.19	17,689,891.9
Cars Removed for 1 Year	166.93	1,669.3
Planting X Acres of Trees	274.63	2,746.3



## Protocol Calculations

- Below are the assumptions used to calculate Protocol HE savings:
  - 8 Protocol units in a typical supermarket with 1,600 lbs R404A
  - Compared to 3,600 lbs R404A rack with circuits
  - R404A has a GWP of 3,260 (100 yr ITH)
    - The Alliance for Responsible Atmospheric Policy. A.D. Little Report
  - 1.39 lbs CO<sub>2</sub> per KWH
  - R404A Recovery Factor is 80% at end of life (this has been equally distributed over 10 year period)
  - Average car produces 10,597 lbs of CO<sub>2</sub>
    - 13,000 miles per year 24 MPG
    - Lexington Global Warming Action Coalition Carbon Footprint Calculator
- Due to the complex nature of Protocol calculations, a special tool has been used which is too involved to be shown here. Contact Husmann for greater detail.

*While this example is typical, benefits will vary for every supermarket*