

Refrigeration : DC vs. AC Appliance Comparison



©CLASP_Story by Design



General Comparison Facts

- Most DC appliances require less power draw per day
- DC appliances may cost more money, but there is less equipment to buy for the overall system to operate properly, therefore the total system cost is actually less expensive (see example below)
- DC appliances require less equipment and less connections, offering a lower opportunity for failure, and increasing dependable performance
- AC appliances require an inverter to operate. An inverter has a cost and constant draw of power and is not 100% efficient, so more solar and battery capacity are required compared to a DC appliance
- Because fewer batteries are required for DC appliances, the maintenance cost when they need to be replaced is much lower than for an equivalent AC system.

Price Comparison



Considering total system cost, the DC chest refrigerator / freezer is the best value

 DC Refrigerator (Phocos FR-100-B)		VS	 AC Refrigerator (Average Model)	
\$699	100 L	Refrigerator	\$198	94 L
\$63	50 W	PV Solar Panel	\$350	350 W
\$100	40 Ahr	Battery 12 Vdc	\$450	250 Ahr
\$0	N/A	Inverter	\$250	500 W
\$30	5 A	Charge Controller	\$60	20 A
<hr/> \$892 *			<hr/> \$1,308 *	

* Pricing can vary from product to product and market prices change over time. Phocos has used the following assumptions to populate real world data in this example.
 -Market pricing was obtained August, 2020. The AC refrigerator, inverter, solar panel, lead acid battery, and charge controller pricing were pulled for standard, good quality products.
 -The Phocos FR100-B data: Refrigeration setting in ECO mode, using 21 °C / 70 °F as the average regional temp., a 2 day battery backup, and opening device every hour.