

# Oasis Strives To Use Earth Friendly Technology

Thermoelectric Cooling is one **GREEN** Alternative to HFC refrigerant



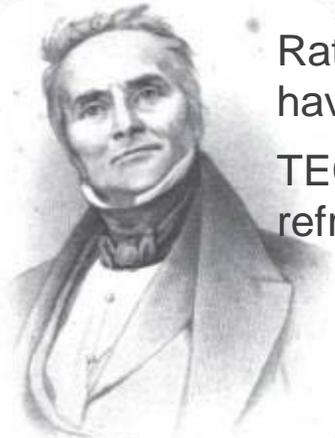
## What is thermoelectric cooling?

Thermoelectric cooling uses a solid state device that acts as a heat pump to move heat from one side of the device to the other.

The device is commonly referred to as a thermo electric cooler (TEC) and is made up of numerous pairs of semiconductors enclosed by ceramic wafers on the top and bottom.

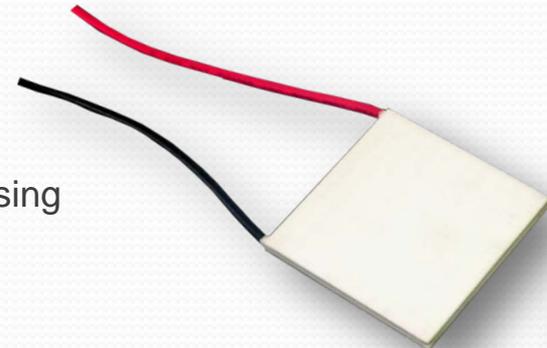
Rather than using a refrigerant gas and a compressor, TECs use only DC power and have no moving parts or complex assemblies.

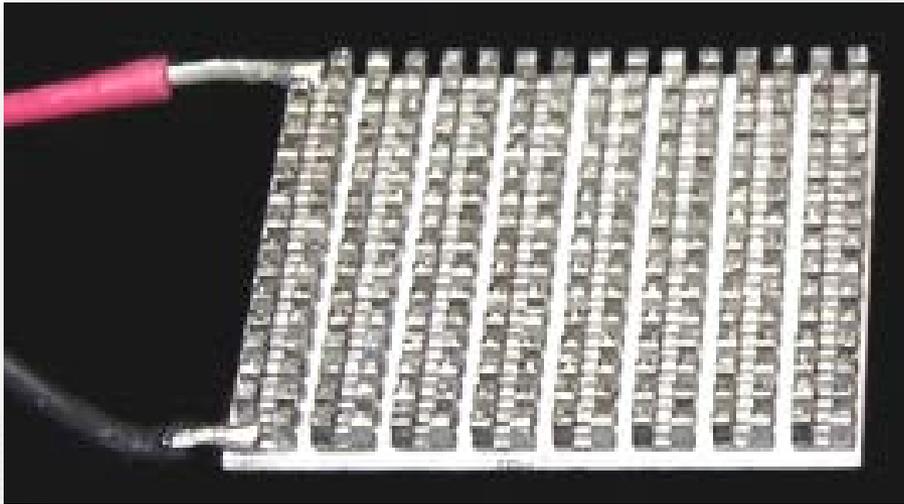
TECs are very small, light weight and rugged compared to a traditional compressor refrigeration system.



The technology was discovered by French Physicist Peltier in 1834.

TECs come in a variety of sizes. Shown here is a size that would be suitable for using in a water cooler.

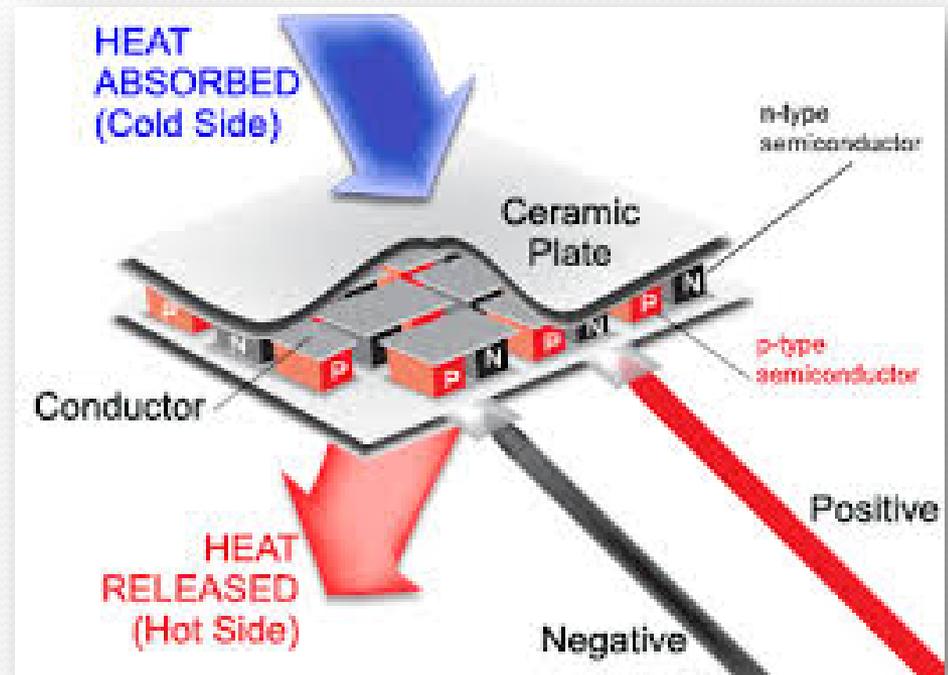




The top layer of ceramic has been removed so that the semi-conductor “cubes” can be seen.

When the DC power is supplied, the Cold side absorbs heat and moves it to the Hot side.

The hot Side is cooled by a heat sink and fan.



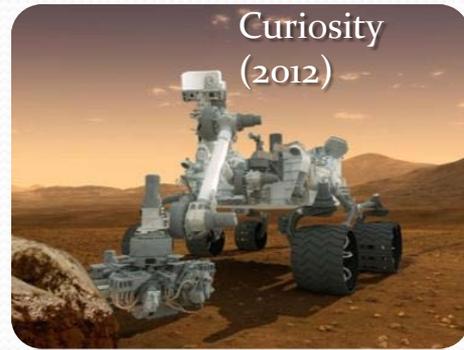
# Surprising Uses for TECs



Used in submarines for quiet A/C



Plutonium Reactor used as a heat source to heat **TE chips for power generation in space**—used by **NASA** on Apollo, Pioneer, Viking, Voyager, Galileo, Cassini and Curiosity



Oil burning lamp powering a radio using a TE generator (1948)



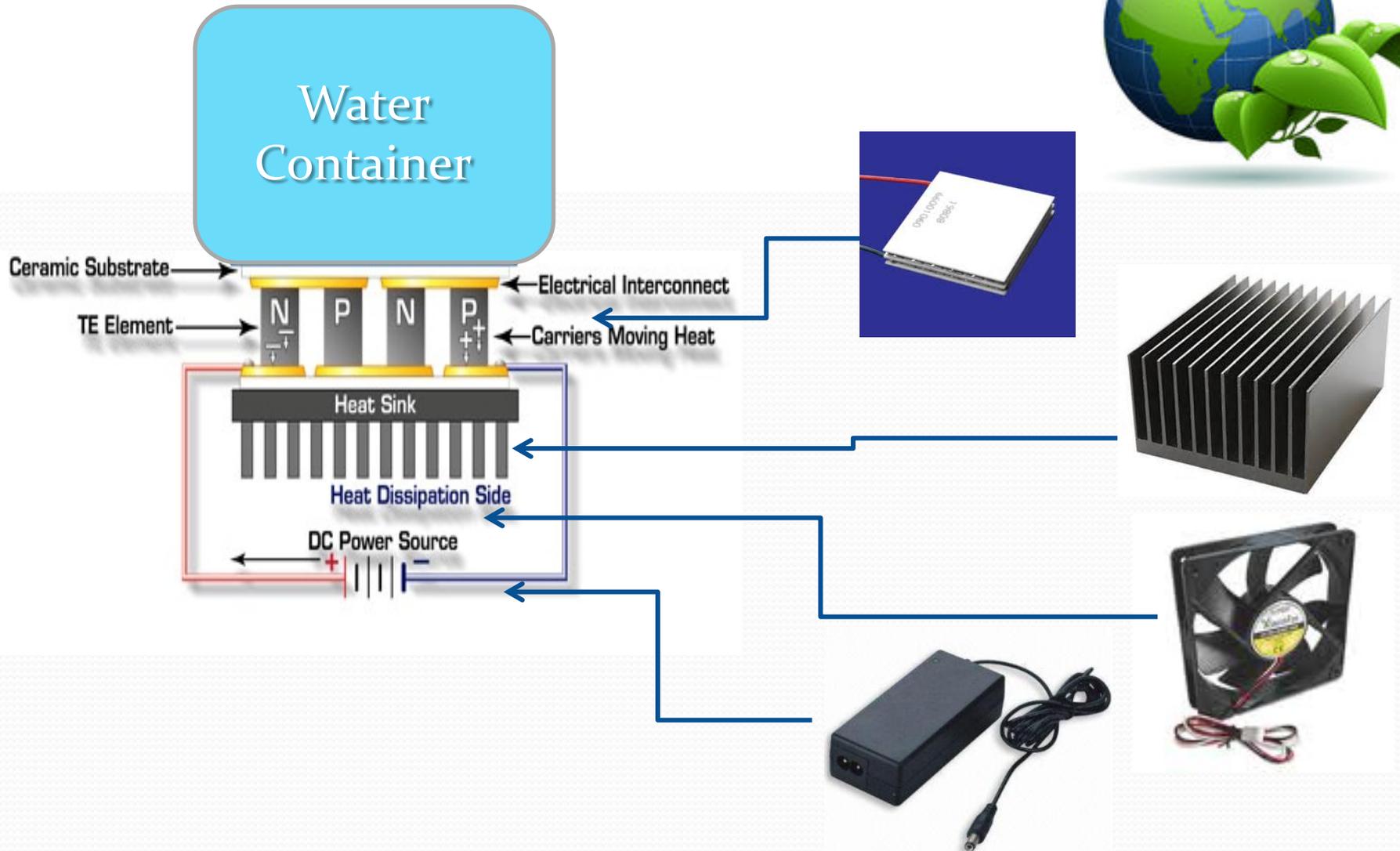
**Cooling and Power Generation**  
Westinghouse, GE Bell, Universities and National Laboratories focused time and resources on TE

**More powerful and more efficient TECs are available** and an influx of new products have come to consumers

Cooled/Heated car seats



# What's in a thermoelectric water cooler?

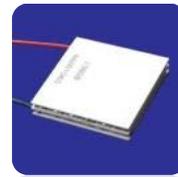


# Benefits of Thermoelectric Cooling

- **ZERO** Ozone Depletion & **ZERO** Global Warming impact
- **Commercial capacity chilling** without a compressor
- Simplified Assembly and Service—**No certifications needed**



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SAVES



- **Rugged**—no refrigerant leaks
- **No gas/flammable gas** – No specialized equipment
- 25% lighter than compressor systems—**reduces transport costs and damage claims**
- **Easy disposal**, no EPA Standards
- **Unlimited design flexibility**

