

ThermoVolt™

Thermal Energy Conversion using Peltier Cells

“Heat In. Power Out”

Technology

ThermoVolt™ is an innovative renewable energy system that harnesses thermal energy and converts it into electricity using Peltier cells based on the Peltier effect — a thermoelectric phenomenon where a temperature difference across two dissimilar materials generates an electric voltage. This system captures ambient or waste heat from industrial, commercial, or household environments and transforms it into usable electrical power. It integrates advanced electronic control and processing components to maximise conversion efficiency and ensure stable performance under varying thermal conditions.

Designed for sustainability and scalability, ThermoVolt™ provides a clean, fossil-free energy source suitable for powering devices, sensors, or microgrids — particularly in energy-limited or off-grid communities.

Market need

The rising costs of electricity, resource shortages, and the negative environmental impacts of fossil fuels are creating an urgent need for innovative, clean energy solutions. In countries like South Africa, where electricity prices have gone up by about 5% each year and the grid rely heavily on coal, there is an urgent need for affordable off-grid or hybrid renewable systems. Traditional thermoelectric applications mainly focus on cooling, but their ability to generate electricity from low-grade heat is still underused. This technology meets key market needs such as off-grid power solutions, recycling waste heat in industries, household energy independence, and eco-friendly alternatives to diesel generators and coal.



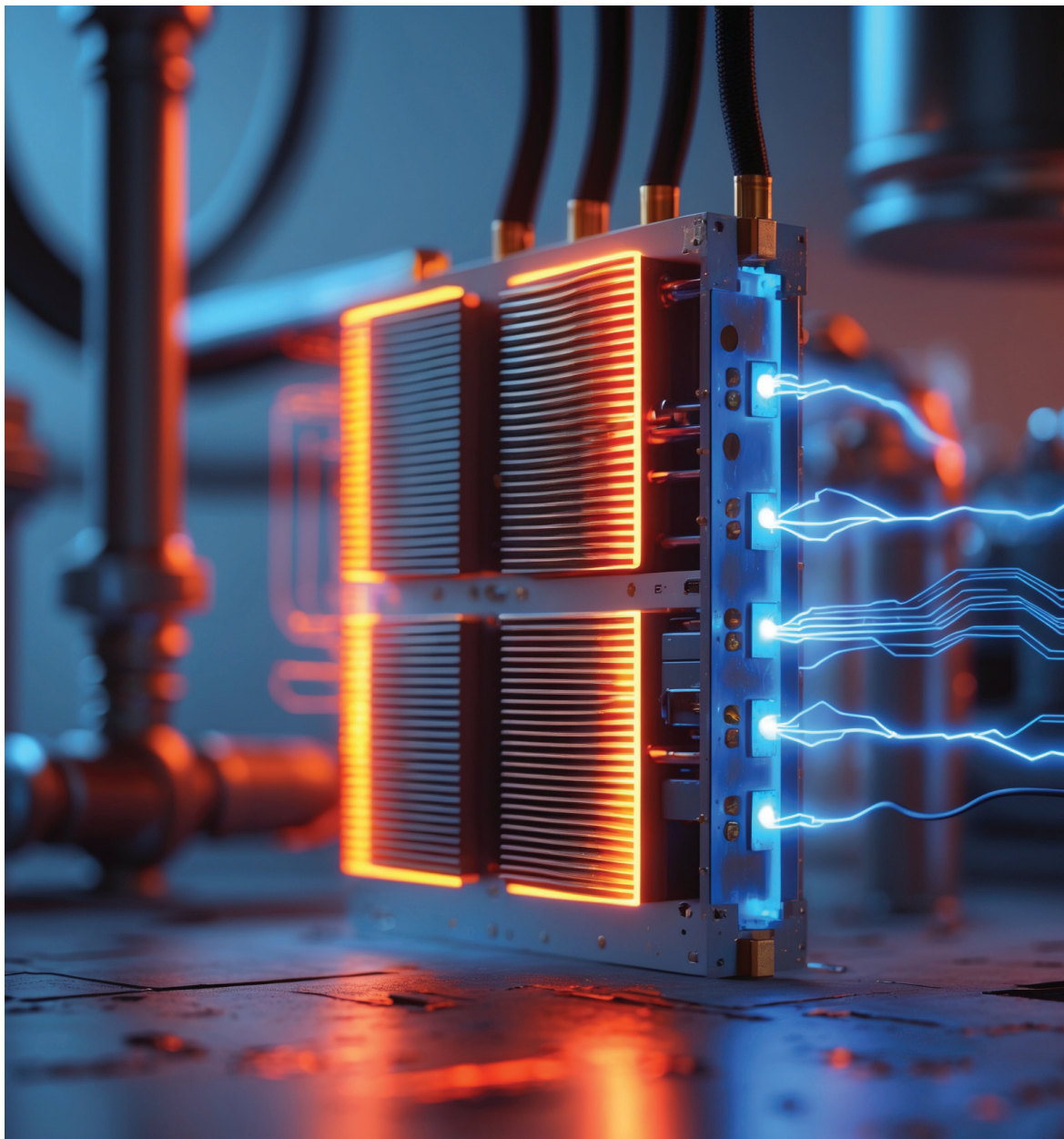
Features

- Converts ambient and waste heat directly into electricity
- Compact, modular design for scalable integration
- Zero emissions, silent operation, and low maintenance
- Enhances energy efficiency and sustainability in existing systems
- Ideal for off-grid and decentralised power applications



Benefits

- Supports climate change mitigation as there are no emissions or combustion.
- Reduces energy bills and minimises reliance on grid or fuel-based sources.
- Empowers rural, remote, or under-electrified communities.
- Integrates locally available and non-toxic materials.



Industry

Energy

Potential applications

- Waste heat recovery in industrial processes
- Energy harvesting for off-grid or low-power electronics
- Renewable power generation for remote and rural environments
- Integration into HVAC, automotive, and manufacturing systems

Creator

Prof Snyman

Stage of development

Early stage

Intellectual property

Patent Protection

Desired relationship

Co-development, Investors