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**Battelle Number(s):**

12398-E, 13664-B

Available for licensing in some  
fields

Available Technologies

## Thermoelectric Processes

### SUMMARY

PNNL's experience developing innovative thermoelectric devices such as the Thermoelectric Ambient Energy Harvester has resulted in the creation of a proprietary generic technique for making these devices, enabling a range of thermoelectric processes. What makes this fabrication process different from other commercially available and deployed methods is that it can be applied to all applications from the microwatt range to megawatts.

This invention carefully exploits the concept of putting films of advanced thermoelectric materials (TEM) onto the surface of a flexible film or substrate. These films become the scaffold of support on the film, which enables each application. Larger applications of this process may involve applying the film in a novel way to allow for longer and larger depositions, and ultimately a longer lasting energy source.

### ADVANTAGES

- \* Provides exceptionally longer lasting life than a conventional battery under normal deployment conditions.
- \* When constructed using this technique, the TEM will mostly likely outlast the application; the application will more than likely become obsolete before it wears out.
- \* Process enables a wide range of thermoelectric applications from microwatts to megawatts.

### STATE OF DEVELOPMENT & AVAILABILITY

Available for licensing in all fields except applications for powering wireless sensors.



### Technology Portfolio(s)

- » Thermoelectric

### Potential Industry Applications

- » Automotive & Transportation
- » Computers & Electronics
- » Consumer Products
- » Energy & Utilities
- » Healthcare, Pharma, Biotech & Medical
- » Manufacturing & Warehousing

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