



U.S. Department of Energy
Energy Efficiency and Renewable Energy

Tribal Energy Program Summer Internship



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DOE Program Review Meeting
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Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company,
for the United States Department of Energy under contract DE-AC04-94AL85000.





Heat Management for Energy Conversion

- Heat to electricity: thermoelectrics

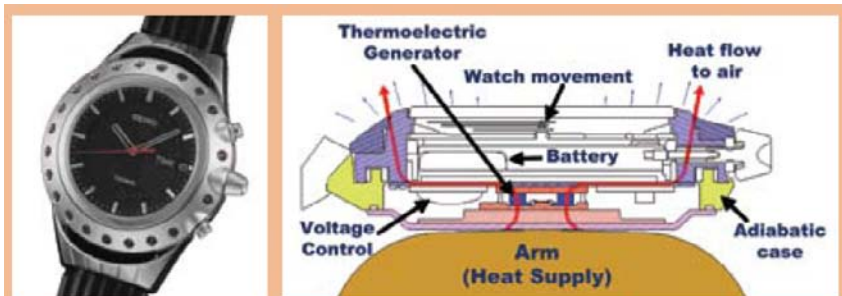


FIG. 5. Seiko Thermic, a wristwatch powered by body heat using a thermoelectric generator; (a) the watch, (b) cross-sectional diagram.¹⁴ (Copyright by Seiko Instruments Incorporated, reproduced with permission.)

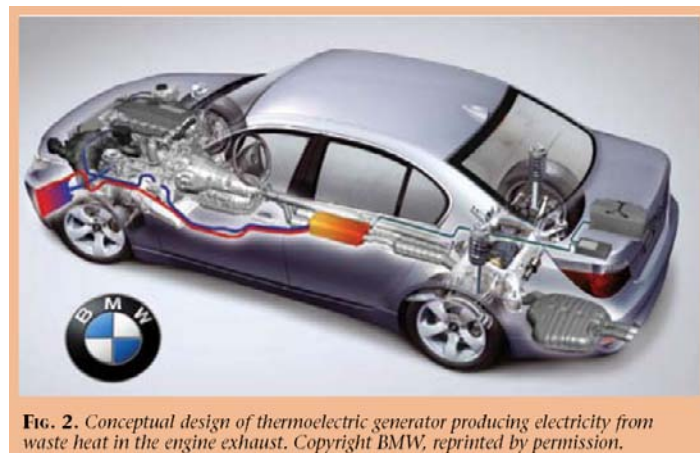
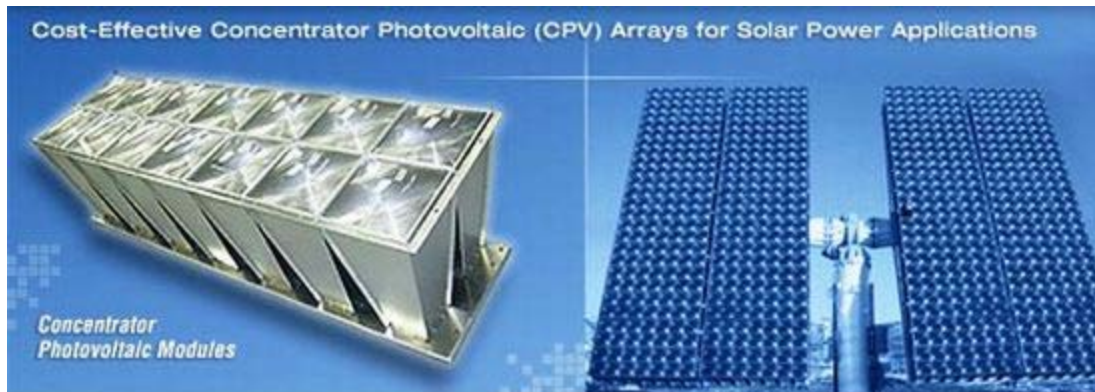
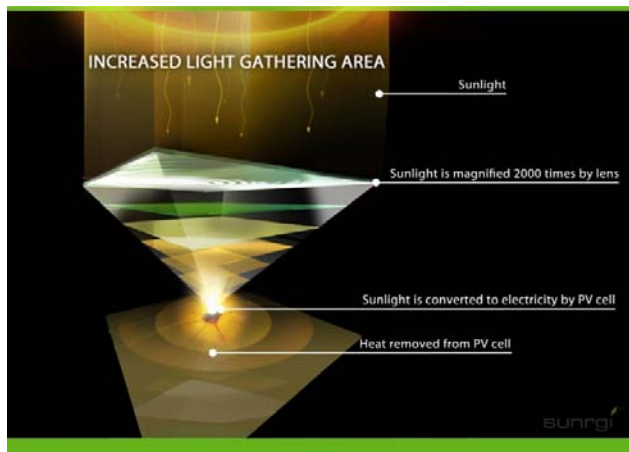


FIG. 2. Conceptual design of thermoelectric generator producing electricity from waste heat in the engine exhaust. Copyright BMW, reprinted by permission.

- Sunlight to electricity: concentrated PV





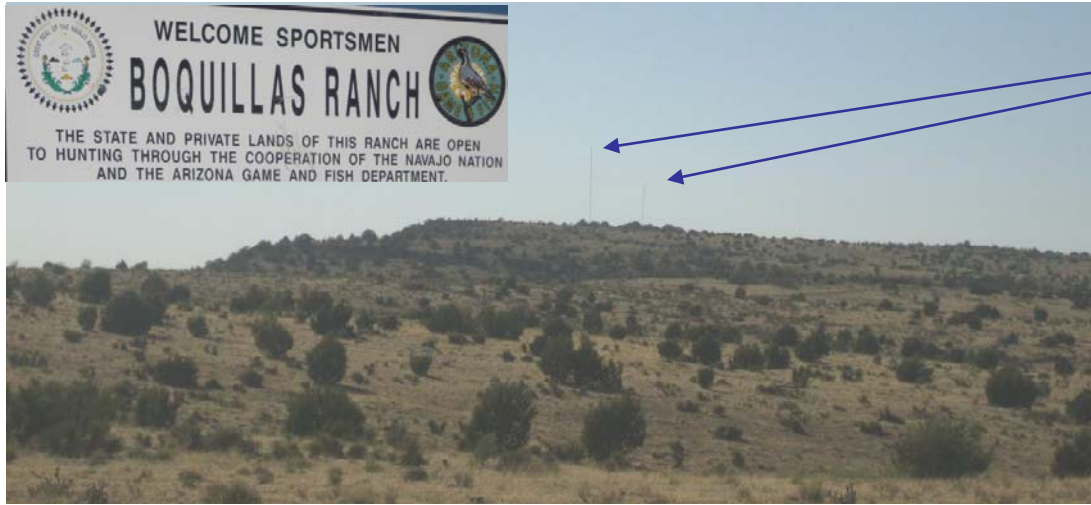
Solar/Wind hybrid - Kayenta, AZ with NTUA

Systems power rural areas

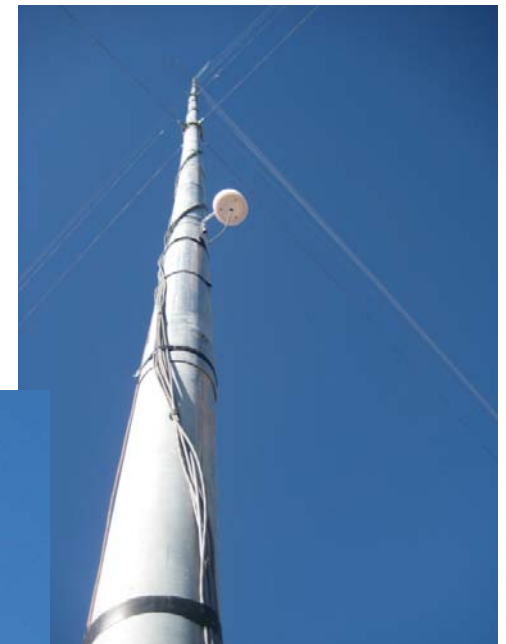




Wind Potential – Aubrey Cliffs, AZ with NTUA



Met towers test wind potential





Sustainable Building Materials in Peach Springs, AZ



Recyclable materials



Earthship



flexcrete



light tube



Grand Canyon South Rim



Renewable energy
powers tourism



Ecotourism - Ramona, CA

Developing off-grid
reservation





PV Theory & Hands-on Workshop, Hotevilla, AZ

