

NON-INVASIVE ENERGY METER

US Pat. No.: 6,960,017

Technology Readiness Level: 5

Key components have been tested in a relevant environment

Sandia has developed an energy monitoring device that measures energy from liquid flow systems (e.g., solar systems) using a simple technique that senses when the system is running and then estimates the BTU energy production. Current energy meters must be installed into the system to measure how much energy the system is producing or losing. This involves cutting pipes, installing thermal wells, and flow meters, and/or connecting sensors to pump motors in the system. This often requires licensed contractors and many solar systems are too small and the value of the energy they collect is not sufficient to justify a commercially available BTU meter.



The Sandia metering system can be installed on a system without cutting any pipes or connecting to any electrical systems. The invention is completely portable and can be installed without disturbing the system or engaging a contractor or other personnel. The Sandia system is useful for both fixed and variable flow systems and is especially useful for systems in which the first and second conduit segments comprise an inlet to and an outlet of a solar energy system.

TECHNICAL BENEFITS

- Non-invasive meter can be installed without cutting pipes or connecting to any electrical systems
- Completely portable
- Can be installed without disturbing the system or engaging a contractor
- Useful for both fixed and variable flow systems
- Simple technique for measuring energy that senses when the system is running
- Estimates BTU production

INDUSTRIES & APPLICATIONS

- Fixed and variable liquid flow systems (e.g., solar systems)
- Energy measurement