

POWERGENIE™ Technology Overview

Potential Benefits and Features:

- POWERGENIE is an electrical generator technology capable of becoming a permanent source of continuous electrical power.
- POWERGENIE technology can be engineered across a wide range of sizes, from large power plants to the needs of a microchip.
- Miniature POWERGENIE generators are adaptable as permanent power sources for personal media devices such as cell phones and PDA's, in the same form factor as conventional batteries.
- Small POWERGENIE generators can be adapted to power personal devices such as laptop computers.
- Medium scale POWERGENIE generators have the potential to permanently replace gasoline and diesel generators, as well as solar-power (photovoltaic) sources.
- Large POWERGENIE generators can be designed to power electric cars, with a generator unit in the space of an engine and gas tank.
- Megawatt scale POWERGENIE generators are anticipated to produce quantities of electricity limited only by the size of the installation.
- POWERGENIE can be adapted to produce DC, AC, or multi-phase AC power such as the 3-phase AC utilized in power line transmission.
- POWERGENIE generators can be produced with a cell-like topology, rendering the collective generator fault-tolerant. Unanticipated failure of individual generator cells will not disable the power source.
- POWERGENIE needs only abundant, inexpensive raw materials. No precious resources are required. POWERGENIE promises economical mass-production.
- POWERGENIE electrical power sources can be silent in operation.
- POWERGENIE power sources will be safe; mobile, environmentally friendly, and pollution-free.
- POWERGENIE has no rotating parts, such as bearings to wear out and requires no periodic maintenance or replacement schedules.
- POWERGENIE technology holds promise as a truly innovative substitute for conventional utility fuel sources including coal, natural gas, and nuclear fission, at a significant savings in operating cost, safety, and environmental impact to both suppliers and consumers.
- Hydropower dams can likely be removed, restoring natural water flow and habitat of natural species such as wild river salmon.
- POWERGENIE technology could eventually render the established power grid and distribution scheme, obsolete.

Development Challenges:

- Development to date includes substantial hardware-based experimentation and performance characterization.

- Computers are able to accurately model and refine the complex physics involved, using commercially available software.
- Effort is underway at MPI to evaluate and refine future candidate POWERGENIE electrical generator structures using computer-modeling.
- Computer modeling / optimization of design parameters can reduce development time and expense.
- Computer modeling / optimization carries its own time and capital requirements. Simulation software is a powerful tool for guiding the physical development process.

Experimental Status:

- Over-unity energy transfer and positive feedback can presently be demonstrated by means of physical prototypes.
- Present physical prototypes are early stage. The total efficiency is low.
- The low total efficiency results from tradeoffs made due to limitations in research budget, not limitations in the technology.
- Efficiency can be improved ~10X via computer optimization and appropriate physical hardware.
- The automated test-and-measurement system at the MPI laboratory allows rapid, high-accuracy acquisition and characterization of detailed test data from all experimental POWERGENIE prototypes.
- Early POWERGENIE prototypes were of "miniature" and "cell topology" scale as defined above.
- Next-generation POWERGENIE prototypes were of small to medium scale, as defined above, and represent significant advances in the art.
- Self-powered Third and Fourth generation POWERGENIE generator prototypes are now under construction, for upcoming demonstration.

Intellectual Property Status:

- Detailed principles of POWERGENIE over-unity generator technology are proprietary and subject to nondisclosure agreement.
- MPI has a patent application pending. Additional patent applications, covering various varieties of POWERGENIE, are in preparation.

Energy Source:

- The source of electrical energy delivered by POWERGENIE is not yet identified. Experiments to date indicate that over unity operation can be obtained by POWERGENIE with achievable improvements in efficiency of components.
- POWERGENIE is clearly converting a previously un-commercialized, renewable, abundant and pollution-free energy resource.