

SEMA Technology: Green Technology Applications



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Purpose

This document captures the information available from the Kinetic Art & Technology website Green Technology page in a PDF format.

The original web page is located at: <http://www.katech.com/katfiles/greentech.html>

SEMA Technology is Green Technology

Kinetic Art & Technology Corporation's SEMA Technology has many applications in green technology.

Wind Power

SEMA's industry leading efficiency makes it a natural choice for wind turbine generators. The fact that SEMA generators tend to be efficient over a broad range of speed and load makes them especially efficient for wind turbines that operate at variable speeds. The fact that they do not have cogging torque also allows wind turbines to spin in very low wind when conventional permanent magnet generators may stall. The high peak power capability of SEMA is extremely useful for handling surge loads as well.

Electric Vehicles

SEMA's industry leading efficiency makes it a natural choice for electric vehicles. The full power and efficiency of SEMA technology is available operating as a motor or as a generator. This is highly desirable for hybrid electric vehicles and full electric vehicles employing regenerative braking. SEMA machines tend to be efficient over a broad range of speed and power, which is especially advantageous in most electric vehicle applications. Also, the incredible peak power of SEMA allows for extra torque when needed, such as when a vehicle begins accelerating or when aggressive regenerative braking is needed. The fact that KAT engineers have found ways to employ the advantages of SEMA into various package options allows SEMA to be incorporated in a vehicle in many different ways.

Fuel Cell Vehicles

The power produced by a fuel cell is electric. Therefore, a SEMA motor has many of the advantage described above for electric vehicles. Unlike pure electric vehicles, fuel cell vehicles require a high power compressor to operate. SEMA's efficiency is of great advantage for such an application. In fact, KAT has demonstrated a motor specifically designed for fuel cell vehicle compressors.

Solar Power

One might not immediately think of SEMA technology when thinking of solar power. However, there are two places where SEMA technology has clear advantages. Some solar power applications incorporate devices such as Stirling engines, which convert the sun's heat into rotary motion. This in turn drives a rotary generator. The high efficiency of SEMA machines makes them a natural choice as the generator for these applications. The high peak power capability of SEMA is extremely useful for handling transient loads as well.

Many solar power applications also employ sun tracking devices. SEMA technology was originally developed for servo positioning applications. The lack of cogging torque and the very limited torque ripple makes them very accurate. SEMA's high efficiency at various operating conditions, as well as its peak torque capability, also make it an excellent choice for sun-tracking solar power applications.

Hydroelectric Generators

SEMA technology scales completely from generators for large hydroelectric power plants to the small backyard generators. SEMA's industry leading efficiency makes it a natural choice for generator applications. The fact that SEMA generators tend to be efficient over a broad range of speed and load, plus the fact that they do not have cogging torque, makes them especially useful for recovering energy at variable and low speeds, as well as variable load conditions. The high peak power capability of SEMA is extremely useful for handling peak loads.

Green Technology Generators

Whether it is a biodiesel genset powered by a renewable fuel, or an even more innovative power source, whenever a generator is needed, SEMA's industry leading efficiency makes it a natural choice. An important part of any green technology is efficiency, as well as the environmental footprint of the system. SEMA delivers. The high peak power capability of SEMA is extremely useful for handling peak loads as well.

High Efficiency Motors

Conservation is an important element of green technology. The industry leading efficiency of SEMA motors can be employed in most applications where electric motors are used today. As electric motors consume a substantial amount of the total electric energy produced in the world, transitioning to highly efficient SEMA motors can save a substantial amount of energy worldwide.

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