



GRENGINE™

THE FUTURE OF POWER

SMART
SCALABLE
PORTABLE

GRENGINE™ SMART SWITCH

THE PERFECT ENERGY EFFICIENCY COMPANION



The Grengine™ Smart Switch is a grid-tied, non-feedback system that provides energy efficiency savings, emergency back-up power, lower energy costs and lower GHG emissions. Energy can be scaled up or down in an integrated home system, depending on your energy needs. A Grengine™ Power System can be installed at a much lower cost than a standard home solar system. And, when you add Grengine™ battery packs to the plug-and-play rack, you won't even need the assistance of a technician.

Automatic Transfer Switching Core: At the core of the Grengine™ Smart Switch is an automatic transfer switch. The switch allows for multiple generation inputs, and multiple load, or storage outputs, and uses software to switch between these sources and loads to obtain optimal efficiency.

Peak Shaving: Saving you money when it counts. The Grengine™ Smart Switch supports peak shaving, which reduces power consumption during your peak usage periods.

Back Up Power: Use stored energy during emergencies.

Time of Usage (TOU): The Grengine™ Smart Switch saves consumers money by storing energy generated during the lowest cost periods for use during other times of the day when costs are higher. It also reduces GHG emissions by using energy generated from lower emission or renewable sources, versus energy generated by “peaker” plants which typically operate on combustible fuels like natural gas or coal, which emit more GHGs.

Voltage Optimization: Voltage optimization is the controlled reduction in the voltage received by the energy consumer in order to reduce energy use, power demand, and reactive power demand. Voltage optimization also improves power quality by balancing phase voltages and filtering transients and harmonics from the energy supply.

Transformer and Load Management: By more efficiently managing load at an individual building level, the overall peak is reduced, helping to lessen or eliminate power outages. Lessening the load also helps to increase the life span of grid components, such as transformers.

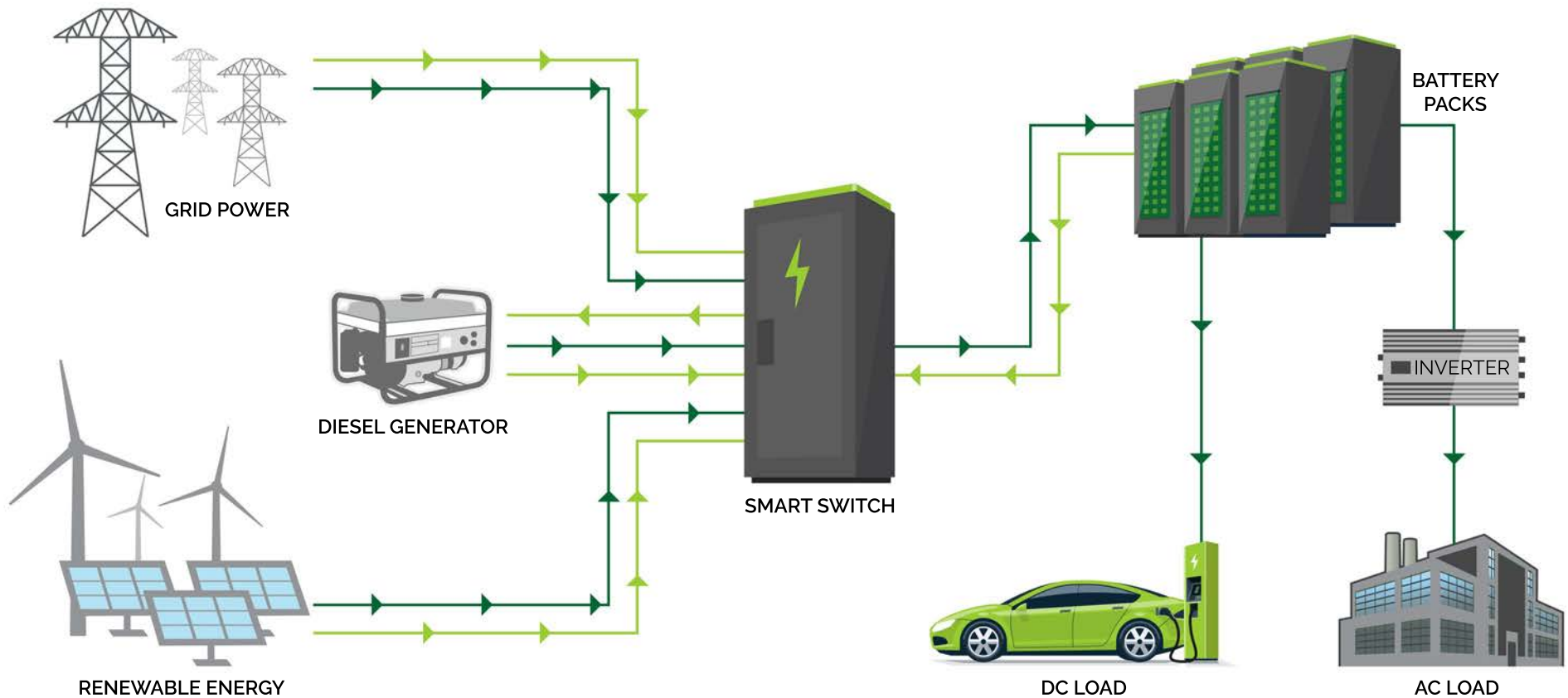
{Grengine™ Smart Switch}

Flow Diagram

{Energy Flow}



{Communication Flow}



The System Brain

The Smart Switch is the brain behind the Grengine™ Power System. At its core, the Smart Switch is an intelligent automatic transfer switching system. Using advanced algorithms, the Smart Switch decides which energy source to use, at what time, in order to maximize energy efficiency and customer savings.

The System Muscle

The muscles that drive the Grengine Power System are the plug and play battery packs. This patented system allow users to add or remove energy storage on the go, without the need of a technician; this allows users to modify their energy storage to meet their changing energy needs without costly re-engineering.

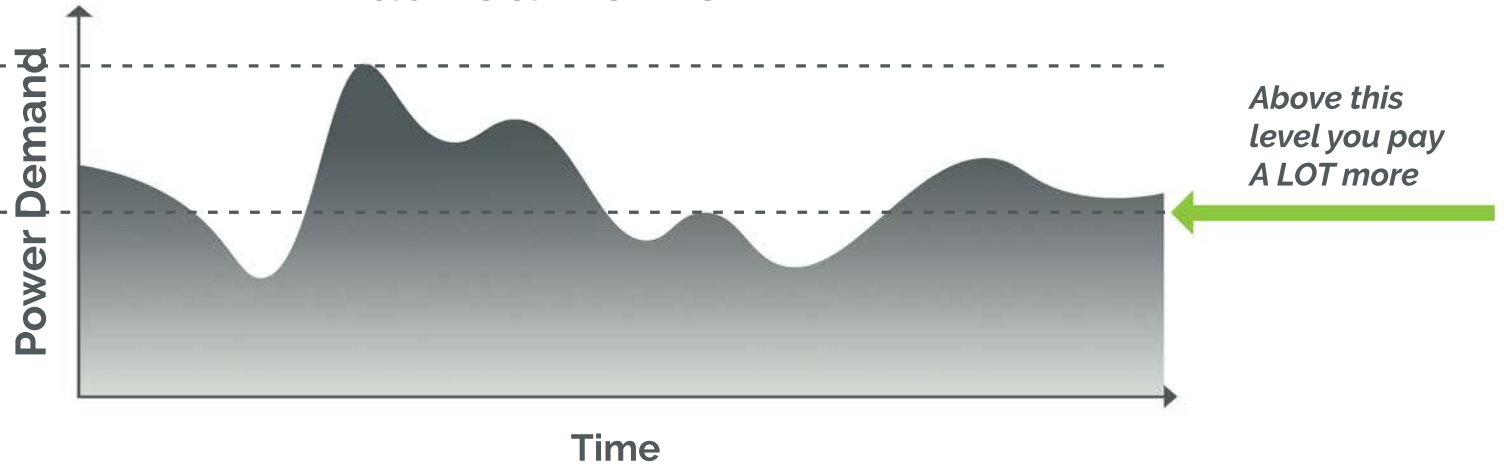
{Grenengine™ Smart Switch}

Peak Shaving

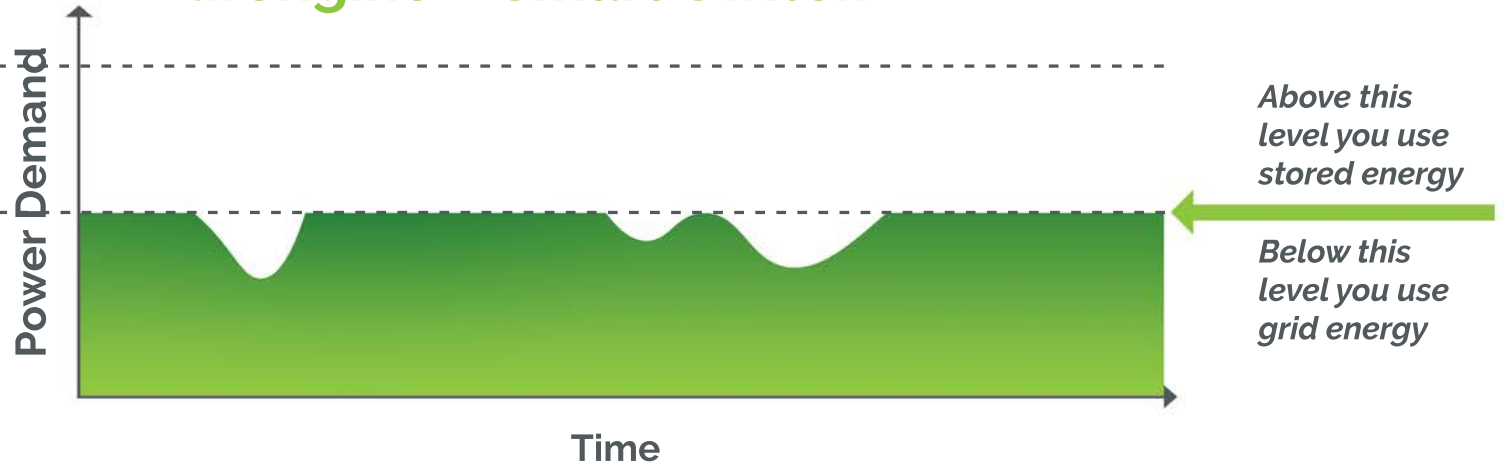
{www.grenengine.com}



What You Do Now



Grenengine™ Smart Switch



Voltage Optimization

The Grenengine™ Smart Switch also incorporates voltage optimization, a technique which typically reduces energy consumption by 5-15%.

Emergency Back-Up

The Grenengine™ Smart Switch incorporates stored energy, which can be used in the event of an emergency, so you won't get left in the dark.

{Grenge™ Smart Switch}

Time of Use Management

{www.grenge.com}

What You Do Now



Grenge™ Smart Switch



Voltage Optimization

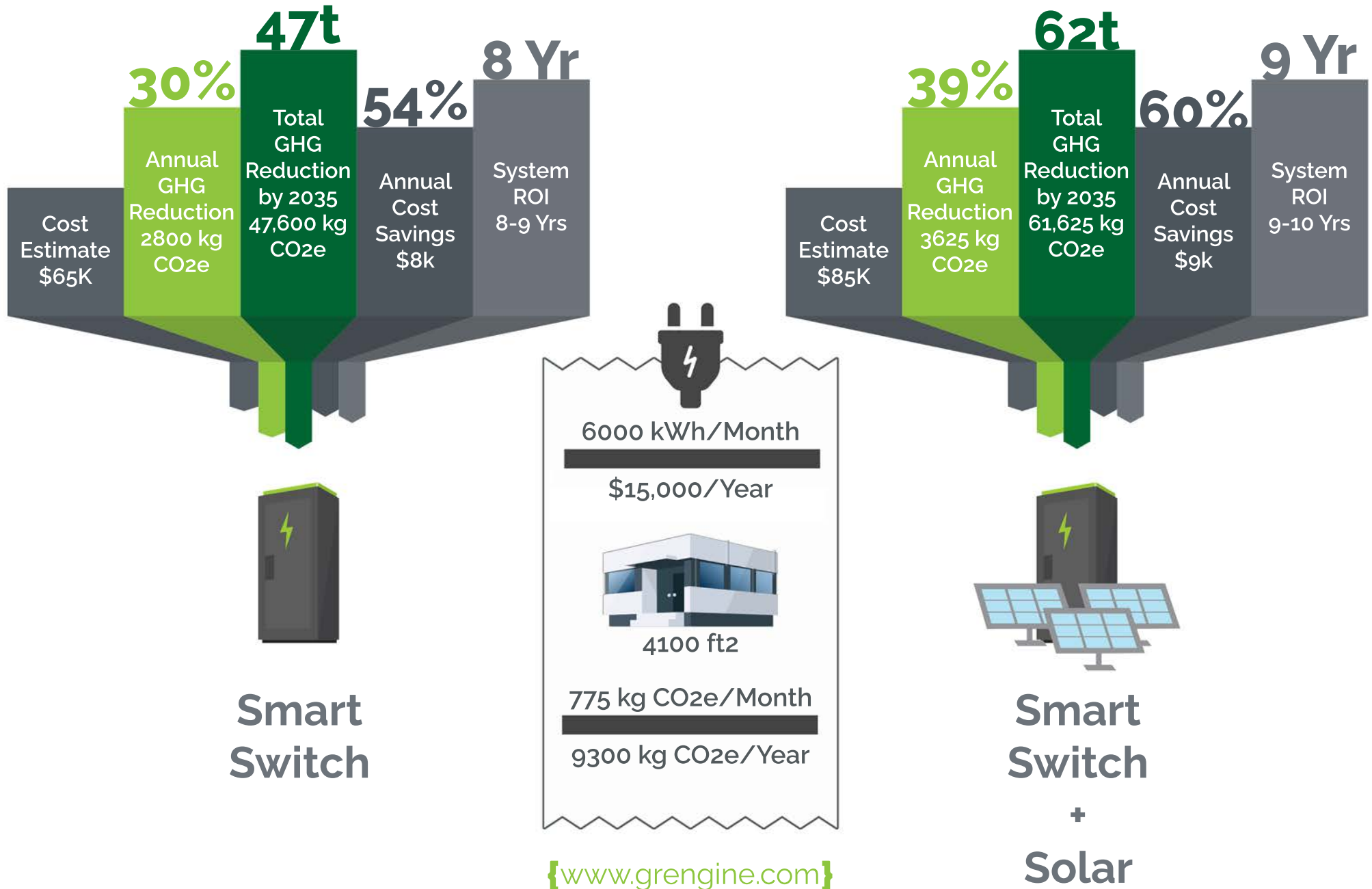
The Grenge™ Smart Switch also incorporates voltage optimization, a technique which typically reduces energy consumption by 5-15%.

Emergency Back-Up

The Grenge™ Smart Switch incorporates stored energy, which can be used in the event of an emergency, so you won't get left in the dark.

{Grengine™ Smart Switch}

Small Commercial, Ontario Example



{ABOUT}

Growing Greener Innovations

At Growing Greener Innovations, we specialize in clean energy solutions. Our Grengine™ Power System is a plug-and-play solution which allows individuals to create microgrids of any size, anywhere, without the need of a technician. This zero emission, silent, lithium-ion solution is scalable, which means it can provide power to individuals, households, or whole communities. The Grengine™ Power System is designed to be independent of the grid, providing clean power wherever and whenever you need it.

The Grengine™ Power System is a patented modular energy storage system, which allows individuals and communities to cost-effectively determine and meet their own power needs, while still caring for the environment and their financial security.



Yaron Etzion
yaron.etzion@growinggreener.ca
Toll Free: +1-888-400-1383