



di-sek

energy efficiency and smart grid

FOREWORD



Depletion of fossil fuels + growth in energy demand = higher price of electric energy in the next future

Global commitment to reduce the environmental impact of GHG and to prevent energy supply shortage has turned into a booming effect for the installation of renewable power plant worldwide

However, the more power generated from inherently intermittent sources (solar, wind) is fed into the grid, the sooner the grid will face potentially serious risks due to its physical limits!

In order to take full advantage of renewable, the energy produced by small generation plants shall be ideally consumed on site, at least until smart grids are developed



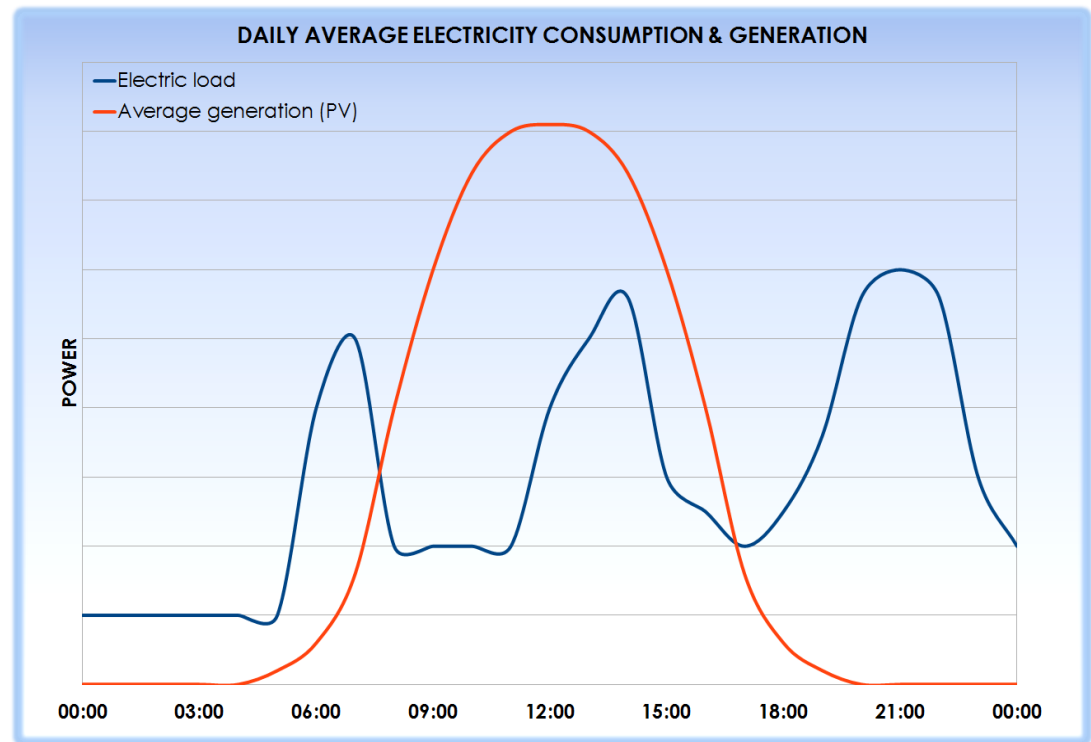
THE SITUATION TODAY



Typical PV / Wind power plants cannot track the electric household loads

Renewable energy that is not instantaneously consumed is fed into the grid.

The transmission / dispatching grid is not designed to receive power injection from household plants → remarkable losses of energy!



THE SYSTEM



Di-SEK is an **hybrid energy power station** designed to accumulate and manage the energy produced by one or more renewable sources (solar, wind or hydro) and provide it to the user whenever it is required

The renewable energy produced by Di-SEK is always consumed on site, and never fed into the grid.

The system can be applied in residential houses or commercial buildings that are either:

- already connected to the grid;
- not connected to the grid (stand-alone)



WORKING SCHEME



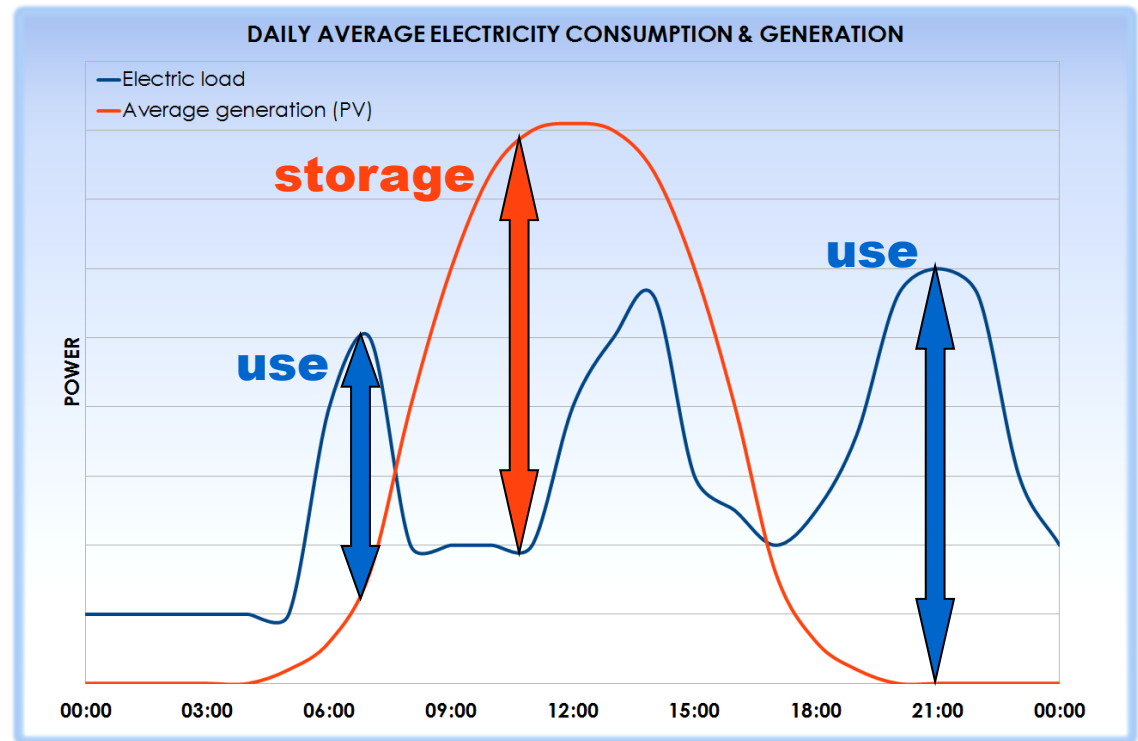
THE ADVANTAGES



The system is specifically designed to provide the typical average daily energy consumption

Renewable energy in excess is accumulated in batteries and drawn when the generation capacity is insufficient or lacking.

Di-SEK turns the grid into an energy back-up system!



MAIN FEATURES / 1



Single-phase system available in two versions:
3 kWp and 5kWp.

Equipped with a battery pack designed to provide the daily average energy consumption

Energy produced and not instantaneously consumed is accumulated in the batteries.

If the charge is full, energy is further accumulated in form of heat through an electrical sanitary water heater



MAIN FEATURES / 2



Modular: Di-SEK can provide energy to **multiple users**, or in alternative multiple systems can be connected together to a single user

Historical and statistical production data are continuously monitored and saved. The system can be remotely controlled via GSM

In case of temporary insufficient energy source, electricity is drawn from the mains grid or produced by a diesel generator with automatic starter



COMPONENTS



PHOTOVOLTAIC

Di-SEK 3: 6 X 230 Wp modules for a total of 1,38 kWp

Di-SEK 5: 9 X 230 Wp modules for a total of 2,07 kWp



WIND

1.5 kWp Horizontal or vertical axis wind turbine



HYDRO

600 W turbine with alternator (alternative to windmill)



COMPONENTS



Cabinet

Contains the electronics and batteries; the cabinet (1200x300x1600 mm) shall be placed near the main switchboard or close to the electricity meter



Diesel generator

6 kW diesel generator with automatic starter



Water Heater

Wall-hung 80 l electrical sanitary water heater with electro-mechanic thermostat



CERTIFICATIONS & WARRANTY



The system is patented and the logo is registered

Di-SEK has been tested for 2 years; working parameters have been registered

All components are CE certified

Warranty is 2 years (European law); the expected lifetime of the system is about 15-20 years, provided that the components are properly maintained



FUTURE DEVELOPMENTS & COOPERATION



The three-phase Di-SEK version for industrial use is currently developed.

Two models, having nominal power of 10 kW and 15 kW (potential generation from 10,000 to 20,000 kWh / year), will soon be available

We are looking for exclusive distributors worldwide and welcome potential partners or joint venture investors





Di-SEK

happy savings!