

A modern, two-story villa with large glass windows and a swimming pool in the foreground. The villa has a minimalist design with light-colored walls and a flat roof. The pool is a vibrant blue, and the sky is a clear, bright blue with some light clouds.

# “eVilla” Solutions

## Energy storage solutions for apartments, villas & large residences

eVilla is a turnkey Energy Storage Solution, developed to solve the problem of customers suffering from regular extended brownouts, blackouts, and poor power environments.

eVilla solves it all in one system, eVilla regulates both voltage and frequency to protect your home and appliances while providing you with extended runtimes from 4 to 18 consecutive hours' even if utility power is only available as little as 6 hours per 24 hours.

E24 eVilla Solution seamlessly integrate with an existing solar PV array and a generator to minimize energy costs while optimizing uptime.

S310E

**E24**<sup>TM</sup>  
BRIDGING THE ENERGY GAP

**“Finally, no  
more power  
swings or  
cuts, ever.”**





# Why eVilla?

With the exponential demographic growth and economical expansion of the planet, the growing use of electricity across all sectors, the time and resources required to upgrade the grid power capacity and the deployment of decentralized renewable energy, it is becoming harder for utilities to stabilize the availability of energy on the grid. This is creating a number of issues on both the power generation and consumption side:

## On the power generation side

On the power generation side, and to react to this instability, utilities are resorting to financial measures to either encourage or discourage consumption at given times of the day in order to attempt to keep consumption on the grid as steady as possible.

These measures include Time of Use billing (TOU), Capacity billing, and Low Power Factor Surcharges (LPFS). Other measures include the substantial decrease in renewable feed-in tariffs in some areas / countries making on-grid renewable energy generation gradually less profitable. Power demand has outgrown supply in such a large proportion that utilities are sometimes unable to avoid blackouts resulting from grid overloads. In some countries the gap between supply and demand has grown so wide, that utilities are forced to ration the availability of power through regular blackouts.

## On the consumer side

E24 technology does not only make it easy to retrofit any existing energy system, but also guarantees to bring substantial savings over any fuel based alternative while improving power quality, removing noise, and environment pollution, and limiting human intervention.

The Time of Use billing (TOU), capacity billing and gradual decrease in feed-in tariffs are making the energy bill grow higher even for those who have invested in on-grid PV and/or Wind energy. In countries where power is rationed (less than 24 hours of power per day), consumers are resorting to diesel generators that gave the following disadvantages:

- > Air and Noise Pollution
- > Special Space Required that may not be available
- > Repetitive Refuelling
- > Regular Maintenance



# Health Comes First

## Installing diesel generators in residential areas has harming effects on health:

- Irritating audible noise resulting from the engine side. respiratory system.
- Toxic Green House Gases (GHG) emissions contributing to global warming, ocean acidification, changes to plant growth and nutrition levels, smog, and ozone layer depletion.
- Toxic smokes rich in CO and CO<sub>2</sub> having a direct effect on the
- Fine-particle pollution affecting elderly people and people with emphysema, asthma, and chronic heart and lung disease.



Enjoying the pool during a power cut.

## eVilla: A New Concept

**eVilla is particularly adapted to applications of Recurrent blackouts and brownouts. It offers customers a turnkey solution to solve in one system the following issues**

### 1) eVilla Regulates Both Voltage and Frequency:

eVilla regulates the input voltage when available from 154Vac to 280Vac while keeping the load at a 220Vac sharp. Similarly, frequency is stabilized to 50Hz sharp from a range of 45Hz to 55Hz.

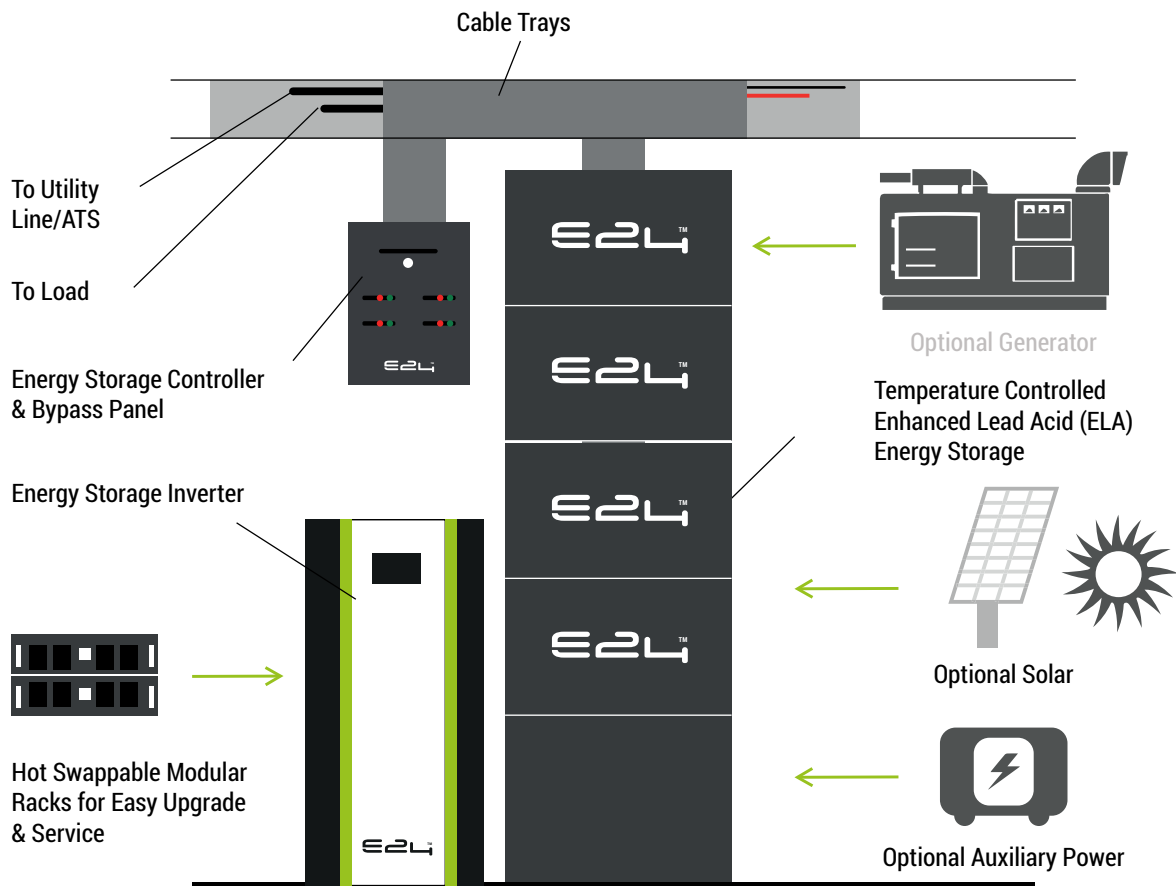
### 2) No Power Interruption During Blackouts:

When Power fails, eVilla provides uninterrupted power (0 transfer time) to your load. Your generator (if connected) will not start until your battery level is low or in the remote event where you overload the system. In this manner you avoid burning diesel, pollution and the cumbersome of frequent generator maintenance. If available, your generator remains a last resort power source that the eVilla system will start automatically if batteries are low or your consumption is beyond the capability of the eVilla system your purchased.

### 3) Integration with Solar or Wind.

eVilla is compatible with solar PV panels or wind systems. It is capable of sourcing on priority the energy from the sun and wind before using the utility source. When your batteries are full, eVilla will automatically return the portion of unused energy to the grid (if net Metering is available in your country) to reduce your utility bill.

# Cost-effective & Compact



## Comparison with Generators

### Generator

- High Operational Cost
- Air & Noise Pollution
- Continuous Maintenance
- Power Cut between utility and Generator
- Minimum 30% load
- Bulky (Fuel tank & Exhaust required)
- Continuous refuelling
- Narrow temperature operation (deration)

### eVilla

- Low Operational Cost
- Silent and nonpolluting
- No Maintenance
- Reliable
- Stable Voltage and Frequency
- No power cuts
- Can be installed anywhere
- Install Once - Replace batteries every 6 to 10 years
- Ready to be coupled with Solar PV
- Wide temperature operation

# eVilla Key Benefits

**eVilla is specifically designed for markets or areas where input power is particularly unstable and intermittent. eVilla can be connected to solar panels when available allowing you to store energy from the sun or the utility and use it later when needed. Key benefits are:**

- Lower cost operation than diesel generators
- Static system requiring no maintenance
- Wide Input voltage (180Vac to 280Vac).
- Wide Input Frequency (40 to 70Hz).
- Included technology to automatically start a generator in case of extended blackouts beyond storage capability
- Dynamically grows with your energy needs
- Noise Free
- Pollution Free
- Maintenance Free
- Unattended operation
- Can retrofit any existing solar PV array

## Key Competitive Advantages

- Rugged & Reliable:

E24 started designing energy storage Solutions since 2011. eVilla Series is built with the highest quality and are designed with large safety margins to operate within the harshest environments.

- Resilience:

eVilla Series is conceived in a manner to bypass itself in case of a failure in order to avoid disconnecting the utility supply.

- Modular & Upgradable:

eVilla is completely modular allowing you to upgrade power capacity, runtime & size of solar array.

- Plug and Play:

E24 technology is supplied in prepackaged boxes allowing a systematic assembly without using any external components.



## Who Can Benefit from eVilla?

eVilla solution best suits small apartments, small homes & small businesses requiring less than 300 Amperes per phase.

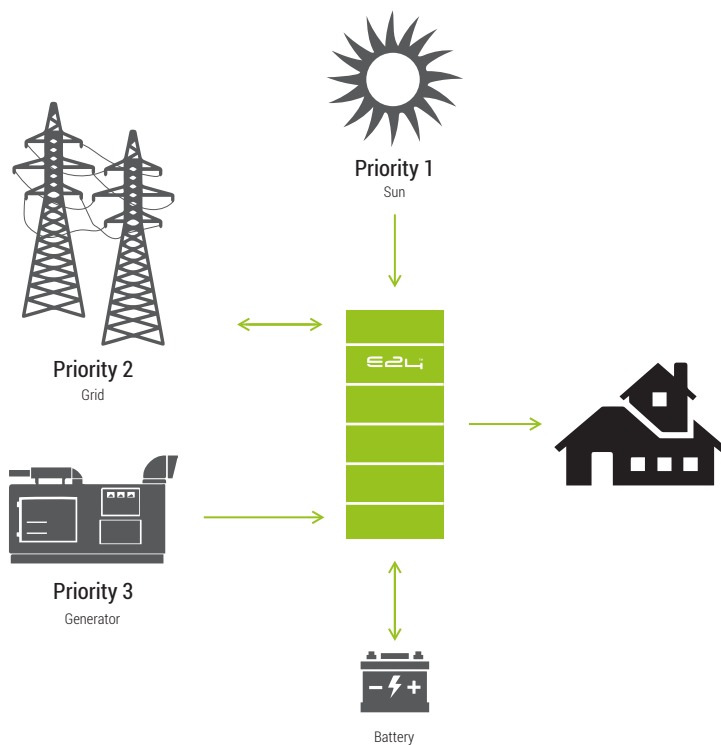


# Energy Storage Applications

E24 eVilla is optimally designed for electrical loads operating in areas or countries where the utility availability is intermittent or unstable or both.

It is always recommended to couple the eVilla solution with our solar solutions or a diesel generator in order to guaranty continuous operation.

eVilla application is ideal for loads between 1x70A to 3x300A when a minimum of 6 hours of utility power is available.



## How Does eVilla Save on Your Energy Bills?

eVilla solution collects energy from multiple energy sources according to their availability and lowest cost. The energy of the sun is typically the cheapest followed by utilities then generators. By actively selecting the cheapest available energy source eVilla is capable of averaging down the cost of energy while delaying the use of expensive diesel generators.

# Advanced Monitoring & Control Tools



## eSolar includes an advanced cloud-based control and monitoring system

### 1) E24 Proprietary Control & Monitoring System:

E24 proprietary control software allows it to optimally control the generation of power from the solar panels in a manner to optimize power generation and energy saving.

The Control system not only logs the solar data, but also the data from the utilities, load and optional generator to include the following parameters for each phase:

- AC Voltage
- AC Frequency
- AC Currents
- AC Power
- AC Power Factor
- DC PV string Voltages
- DC PV string currents
- DC PV String Power
- DC Energy Generated per day, week, month etc...

### 2) E24 Continuous Remote Monitoring

eSolar projects are systematically connected to E24 cloud based remote monitoring system allowing E24 technical support team to perform remote monitoring on your system and take immediate preventive action in case of any anomalies. Preventive remote monitoring allows you to make sure someone is keeping a close watch over your investment.

### 3) Easy integration with Generators

In the cases where a power generator is present, it is necessary to control the production of solar energy in order to avoid reverse power feeding back the generator or operating it at very low load which causes damages. eSolar includes (as of 20KWp) the intelligence and controls for it to be able to operate safely and optimally in project that include back-up generators.

All data is recorded and history can be downloaded for analysis.



# Energy Parameters At a Glance

eVilla includes a state of the art web management tool allowing you to closely monitor the good operation of your energy solution and control energy sources and load consumption.



# E24 Quality Pledge



**E24 started designing energy storage solutions since 2011. E24 accumulated a substantial experience across diverse market segments giving it a clear market edge, experience and leadership.**

E24 designs, engineers, manufactures, assembles, tests and delivers its solutions in modular components that are easy and cost-effective to assemble on customer's premises.

E24 commissions its solutions through a network of affiliates or business partners under strict quality standards and procedures to ensure the highest optimal performance and customer's satisfaction.

E24 continuously invests in R&D and develops its own proprietary technology. Each part of the energy solution supplied is optimized to bring the highest customer value.

All solutions are designed to bring a fast and headache-less capital recovery and high return on investment.



# After Sales Service

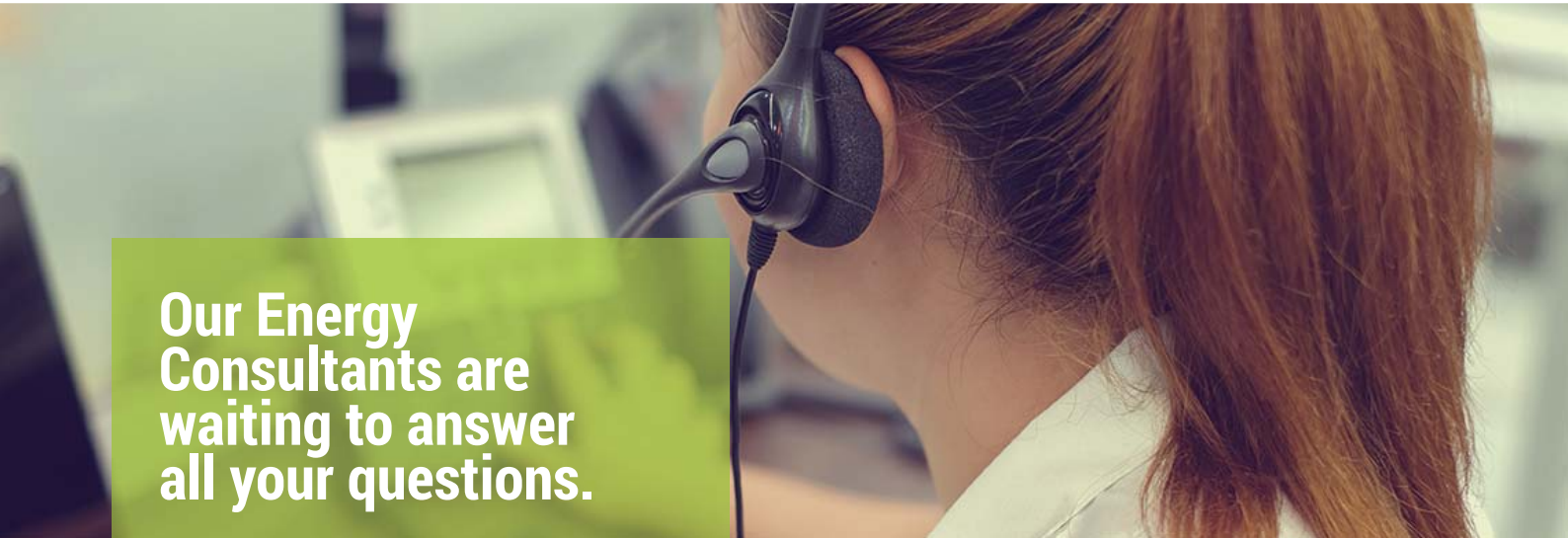
E24 provides solutions that meet and exceed customer expectations for performance, reliability and availability. E24's comprehensive service offerings ensure that when you need support, E24 is available and at a phone call or click away. With support centers and knowledgeable personnel, E24 brings an uncompromising commitment to customer satisfaction by providing:

- Comprehensive maintenance programs
- Field service
- Solutions upgrades
- Refurbishments
- E24's certified parts

This commitment ensures customers' maximum productivity, extending equipment life cycle while reducing operating costs.

E24's foundation is its people, and its culture is one where individual contributions are valued and safety is emphasized in all aspects of the business. Quality, Health, Safety and Environmental programs enable E24's employees and customers to comply with their safety system requirements, ensuring no harm to people, assets and the environment. E24 is also comprised of a diverse, dedicated and multitalented workforce working as a team committed to the common goal of delivering complete customer satisfaction. Another valuable member of this team is a group of trusted suppliers, working as business allies to form a supply chain that enhances the quality of E24's products and services. We work closely with our clients to look at all aspects of their energy related costs.

This includes, how the production process utilizes the energy, what opportunities there may be for improvements, what are the operation and maintenance costs, and what are the potential opportunities to lower overall costs. We perform energy analysis for our clients to assist them in making the optimal decisions on how to reduce their energy use and costs through the use of our solutions.



**Our Energy  
Consultants are  
waiting to answer  
all your questions.**



## Energy Storage Solution



eHome



eVilla



eBuilding



eBusiness



eFactory



eVillage



eTelecom



eGrid

## Energy Generation Solution



eSolar



eHybrid



eParking



eAgri

# E24 Comprehensive Energy Solutions Offering

While we all agree solar energy must gradually replace the fossil fuel, each one of us has specific needs and applications that must be catered for. E24 has researched extensively different market segments and developed customized and adapted solution for each segment.

E24 offers solutions that take into consideration the lifestyle or work style of its customers while making sure that security and safety come first. E24 understands that technology must be a problem solver and must integrate our lifestyle seamlessly. It is in this spirit that E24 offers targeted solutions for homes, villas, businesses, buildings, factories & villages. E24 is constantly developing solutions to further enhance the economics and lifestyle of its customers while targeting larger audiences.

**Ref Number**

### Description

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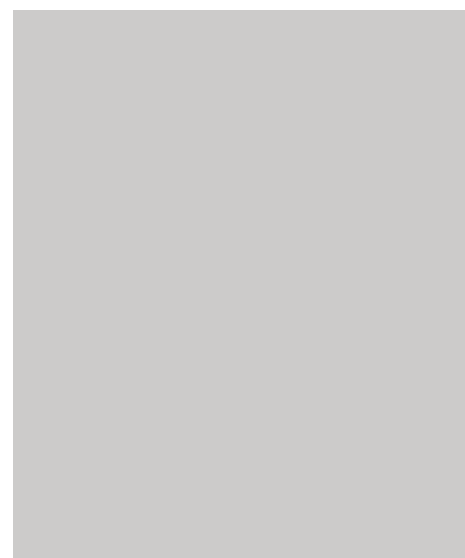
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