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Advance Grid storage solution

Objective

- Energy storage has many potential benefits that could prove valuable to electricity generators/end-use consumers including comparatively reduced cost of production of energy through arbitrage and reduced maintenance on hardware.
- Charzmax is developing for widespread implementation niche technology including compressed air / Sand energy storage, flywheel technology, advanced lithium-ion batteries, advanced lead-acid batteries, and a handful of other novel battery chemistries and battery solutions.

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What is Grid storage

- Grid energy storage (also called large-scale energy storage) is a collection of methods used for energy storage on a large scale within an electrical power grid.
- Electrical energy is stored during times when electricity is plentiful and inexpensive (especially from intermittent power sources such as renewable electricity from wind power, tidal power and solar power) or when demand is low, and later returned to the grid when demand is high, and electricity prices tend to be higher.

Grid Storage Market in India

- The battery energy storage system market is estimated to be at USD 3.10 billion (25,776 Cr)by the end of this year and is projected to reach USD 5.27 billion (43,820 Cr) in the next five years, registering a CAGR of over 11.20% during the forecast period.
- the growth of the India battery energy storage systems (BESS) market in the studied period. Nevertheless, technological advancements in new battery technologies to store energy and India's target to reach around 500 GW of renewable capacity by 2030 will likely create lucrative growth opportunities for the India BESS market during the forecast period.
- Source: https://www.mordorintelligence.com/industry-reports/india-battery-energy-storage-systems-market

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Problem Statement

- Typical Peak hour energy shortage and black outs
- Off-grid renewable power sources typically use battery energy storage systems to provide power when there is no sun or wind; however, battery storage can only provide a few hours of capacity due to their prohibitive cost.
- Therefore, diesel generators are still heavily used in the event of no sun or wind for more than an overnight period

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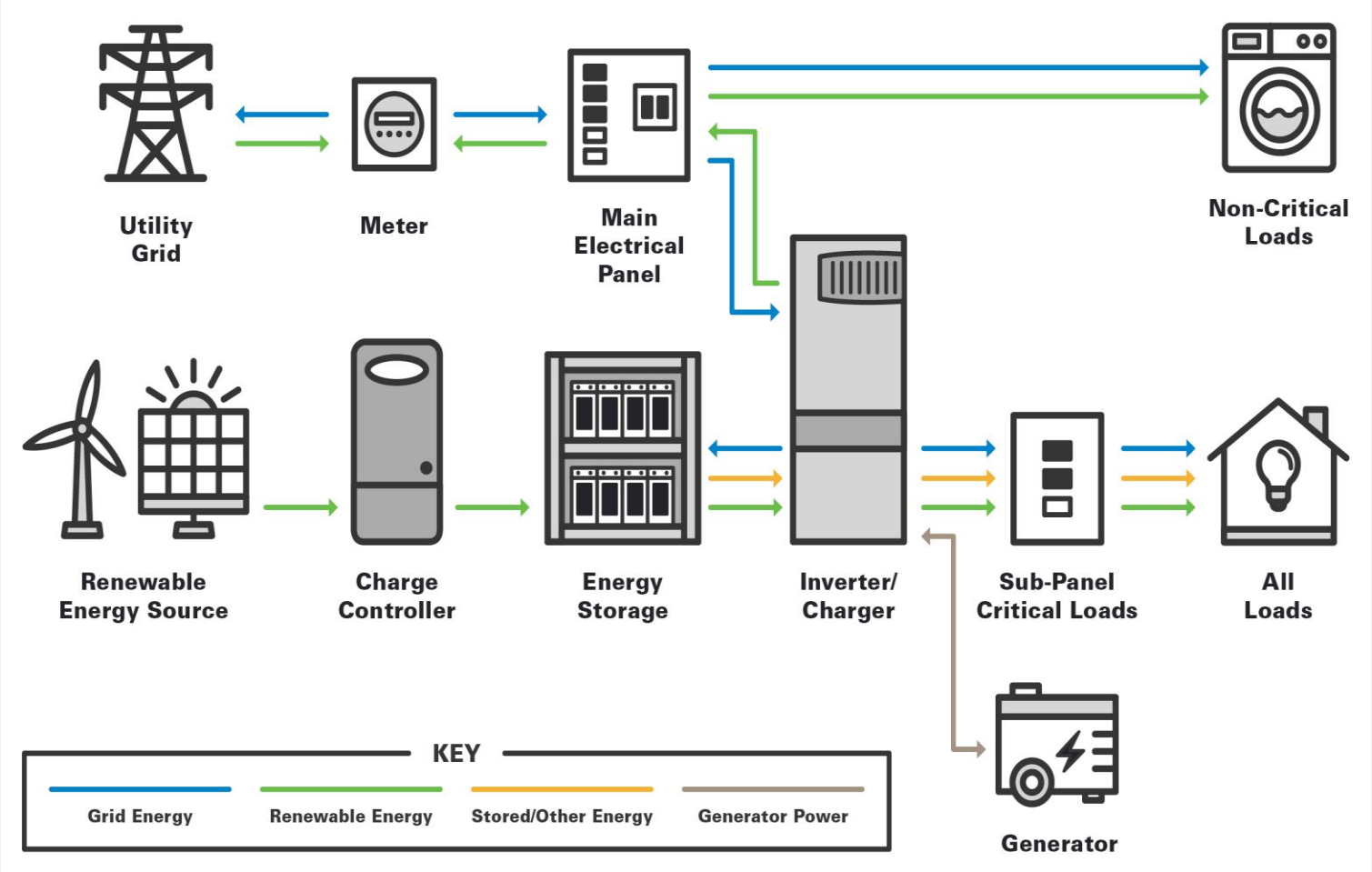
Our Solution



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Our Portfolios

Class	Group A	Group B
Class1	25 kW	50kW
Class 2	50kW	100kW
Class 3	75kW	250 kW

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Cost benefit Factors

Capital cost or plant financial carrying charges
a. Storage System footprint and space requirements (Energy and Power density).
b. BESS (batteries, power converters, etc.)
c. Facility infrastructure (communications and control, environmental control, grid interconnection, etc.)
2. Total operating cost:
a. Cost for charging the system
b. Labor associated with plant operation
c. Plant maintenance
d. Replacement and repair cost
e. Decommissioning and disposal cost

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Applications

- **Energy Arbitrage.**
- **Flexible Peaking Resource/Resource Adequacy**
- **Frequency Regulation**
- **Reserve Capacity (Spin/Non-Spin)**
- **Voltage Support**
- **Black Start**
- **Transmission & Distribution Deferral**

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Thank you

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