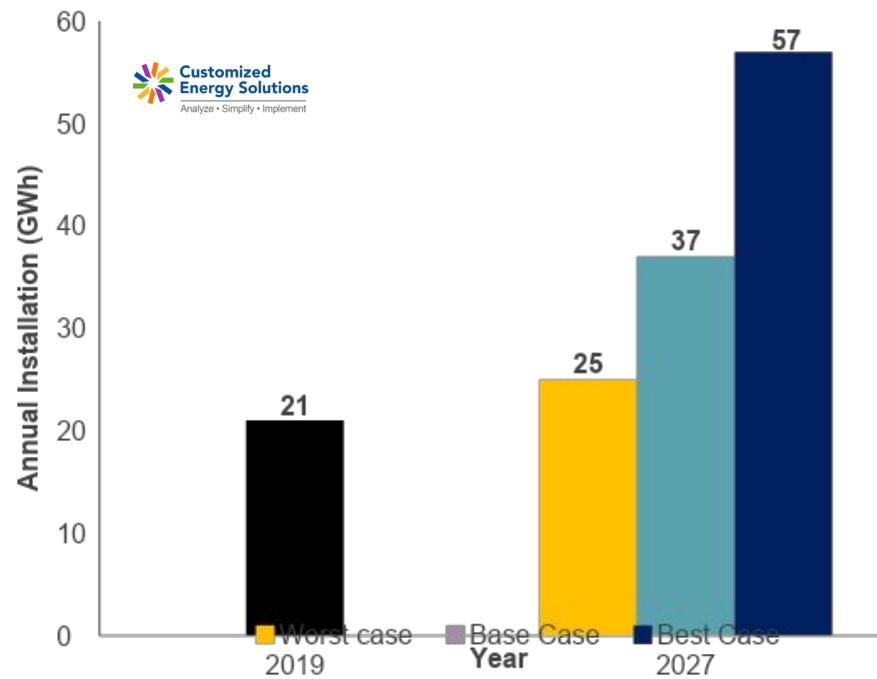


India Stationary Energy Storage Market

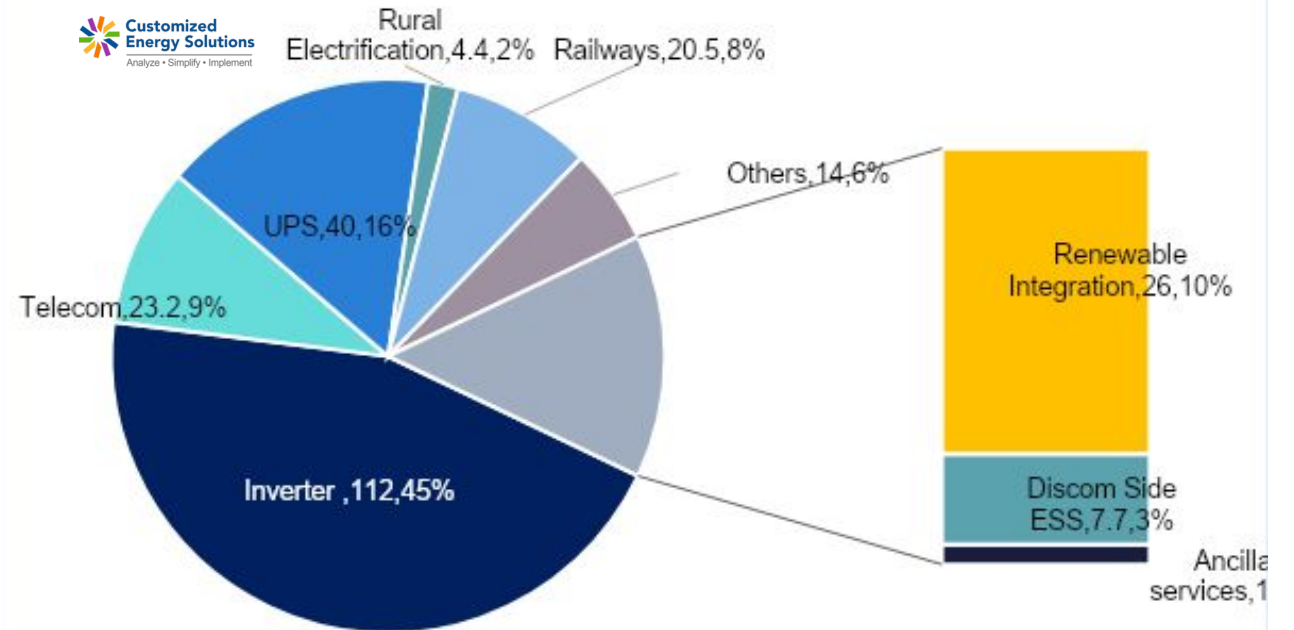
Avanthika Satheesh
Industry Research Manager
Customized Energy Solutions

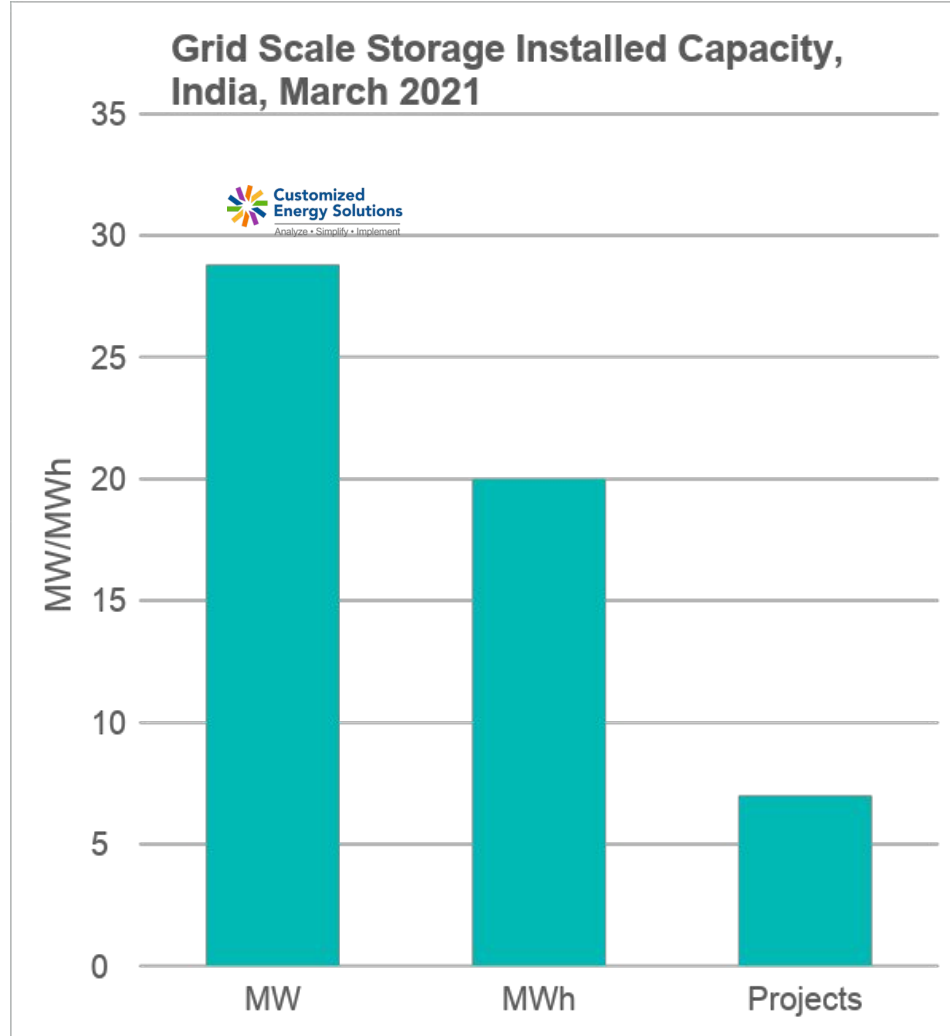
BTM segment takes up >95% of current market potential, and is driven by power reliability issues on the grid, while FTM market is driven by government policies, renewable energy targets etc.

Stationary Storage Annual Installation forecast, 2019 & 2027



Cumulative Stationary Energy Storage Potential, 2020-2027, India (GWh)





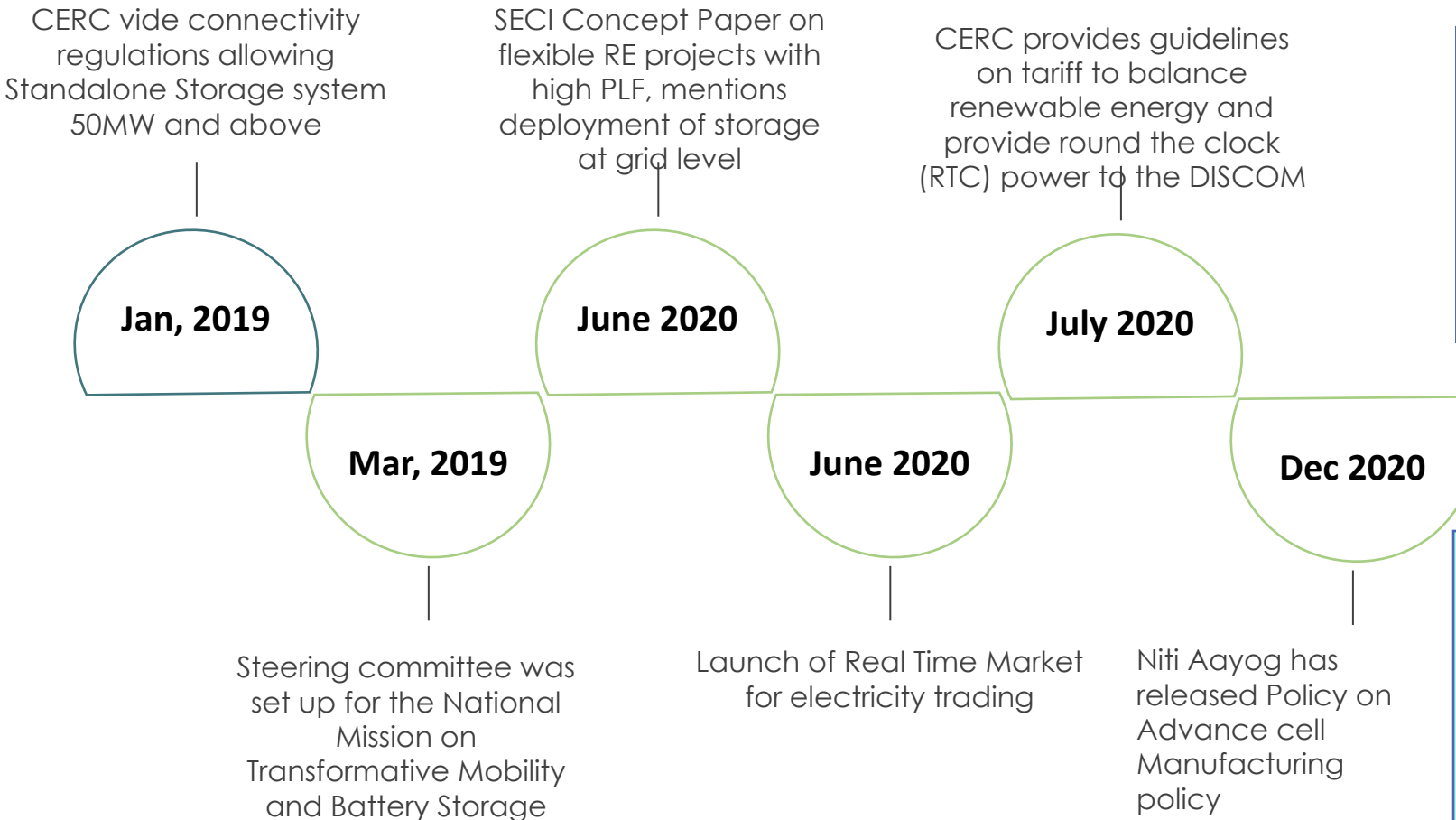
Installed capacity: The FTM energy storage market in the country is in its nascent stage. Total installed capacity stood at 28MW/20MWh as in March 2021 across 7 projects across the country at generation and distribution grid side. There is a stronger pipeline of projects which are closed and under various stages of construction accounting for 360MW/312MWh

Grid Scale RE Integration: Among the various applications, grid-scale renewable integration takes up majority renewable integration takes up nearly 82% of the market by 2030. the intermittent nature of renewable power need to be amply supported with storage technology to ensure firm and reliable power supply to the grid.

Policy Support: While there is an apparent need for storage on the generation, transmission and distribution side, a lack of strong policy support is essential for the market to pick up. There are some policies at central and state level that exist that support storage, there is still much scope for improvement.

ACC Manufacturing Programme: To address the challenge associated with the local manufacturing of advanced lithium-ion battery cells, NITI Aayog has announced tender to setup Giga factories in India under which cash subsidy will be given to manufacturers through a performance link incentive scheme. This will enable local supply chain with 60%-80% value addition in the country

To support effective implementation of storage technologies, policy support is required for framing regulations, development of integration of storage with renewables and raising awareness and defining storage as a asset class alongside generation, transmission and distribution



Awaiting Approval

- Delay in Ancillary Service procurement in market mechanism
- DSM penalty implementation in several states is delayed.
- Policy on Green hydrogen and National target will be set up by government by 2021
- Inclusion of storage in each state policy is missing

Lack of Policy Framework

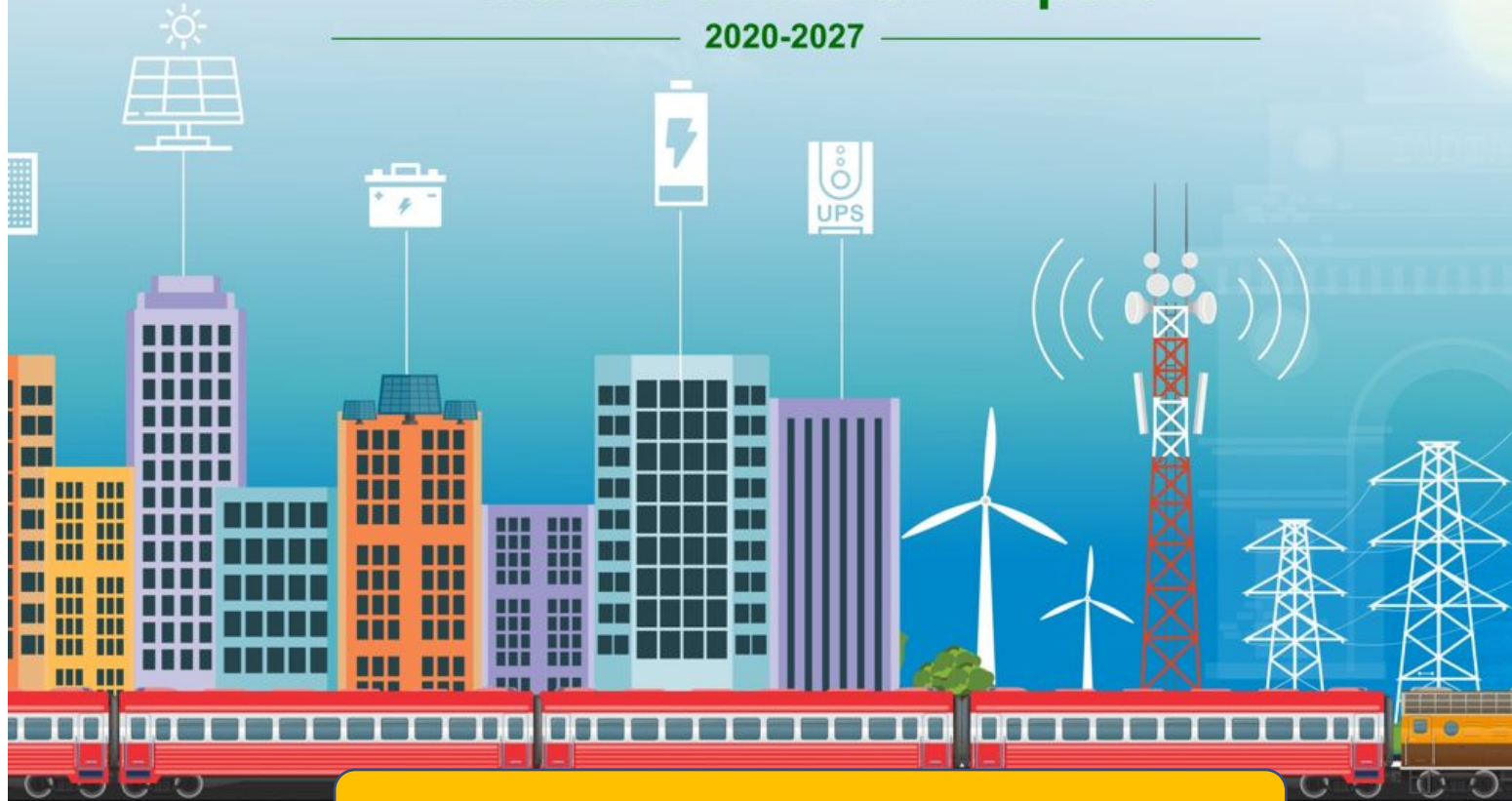
- Absence of a Storage specific policy with more clarity on Storage target by State or application and with an investment plan.
- Hybrid power policy has to come from every state.
- Framework for reuse , recycle & disposal of batteries including 2nd life usage.
- Lack of a strong TOU framework across states and consumers is necessary for ESS adoption to pick up.
- Policy for distributed ESS- RE & micro grids integration.



6th Edition

India Stationary Energy Storage Market Overview Report

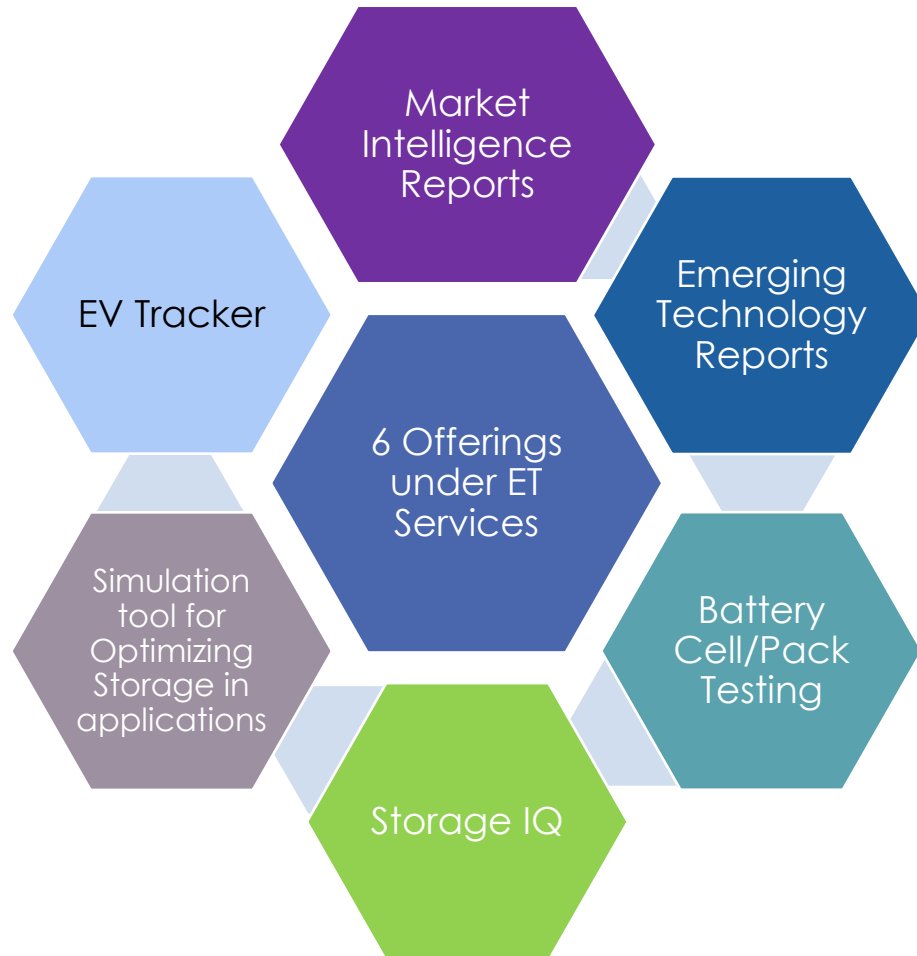
2020-2027



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Scope of Report

- Market Segments
 - Grid RE Integration
 - Discom side ESS
 - Ancillary services
 - T&D Deferral
- BTM Markets- Inverters, UPS, Telecom, Microgrids, Thermal Energy Storage Railways
- Central and State Level Policies
- Market Sizing and Forecast till 2027
- Key Stakeholders in the Value Chain
- Market share of present BTM Market segments
- Case Studies



Benefit to Customers?

- Bundled services offer higher value addition compared to single report as some of the deliverables are monthly or quarterly.
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Market Intelligence Reports (Annual)

CES offers annual reports on Emerging technology markets in **India**.

- ❖ Electric Vehicles, Batteries and Components
- ❖ EV Charging Infrastructure Market
- ❖ Front-of-meter Stationary Energy Storage market
- ❖ Behind-the-meter Stationary Energy Storage Market
- ❖ Thermal Energy Storage market

Emerging Technology Review Reports (Annual)

- These Reports cover all major technologies in stationary storage and Electric vehicle space which are currently commercially available or in the final development stage.
- ❖ Emerging Tech Review Report on Stationary Applications
- ❖ Emerging Tech review Report on E-mobility

Storage IQ (Monthly)

- This is a monthly issue from CES intended to inform the subscribers of the latest news and updates in the storage, Electric vehicle and Ev charging markets in **India**. Following information is covered in the Storage IQ
- ❖ Policy/regulations/ Important dates and meetings
- ❖ Status of all tenders and ongoing projects
- ❖ Battery raw material price trends
- ❖ IEX price trends
- ❖ Other critical Industry news

Battery Cell and Pack Testing Service

- CES performs battery cell and pack testing services to the customers.
- ❖ **Claim Validation tests** : Companies that are planning to invest or build own products can approach us to get the battery cells tested to validate the claims on cycle life, energy density, efficiency etc, as per technical specification sheet.
- ❖ **Application Customized tests**: The cells are tested in customized test conditions to analyse the performance of the cell/pack.

Electric Vehicle Tracker (Quarterly)

- The analysts in the ET team work hard to capture quarterly market data from various companies across the EV value chain in **India** on a quarterly basis. Data is primarily collected from the following sectors:
 - ❖ Electric vehicle OEMs
 - ❖ EV charging infrastructure suppliers and Charge service providers
 - ❖ EV battery OEMs
 - ❖ EV component suppliers

Simulation Tool for Microgrids

- CES has an inhouse simulation tool called **CoMETS Competitive Markets Evaluation Tools for Storage. CoMETS -MICROGRIDS** is a model that help technology and project developers evaluate and optimize energy storage resources for grid-connected and behind-the-meter storage applications. .
- This is ideal for estimating business case of storage in various applications.

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