



**VEDANTAESS**

*DELIVERING ON THE PROMISE OF FLEXIBLE ENERGY STORAGE*

VedantaESS Ltda.

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# Challenges to Electricity Markets in Latin America

- Access to electricity (isolated microgrids), Brazil Operates more than 2000 diesel generators in isolated grids today in the greater Amazon Region alone.
- Renewable energy integration (increased renewable penetration on the grid) increases the need for longer duration storage as peaks start shifting to early morning and evening periods) The peak generation is during the day, for both wind and solar.
- Energy resiliency for industrials and large commercial establishments – storage addresses poor power reliability and offers option to mitigate high costs to run/maintain diesel gen sets
- Energy cost reductions for industrials/commercials



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**Weak infrastructure  
(T&D Deferral)**



**Supplement the grid  
with renewable  
generation "GD" or  
"DG as we english  
speakers know it."**



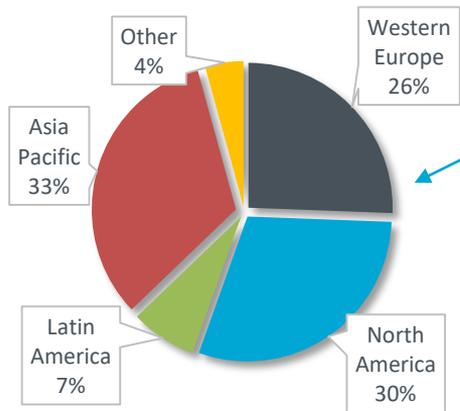
**Replace existing diesel  
gens sets with lower cost  
hybrid isolated micro  
grids**



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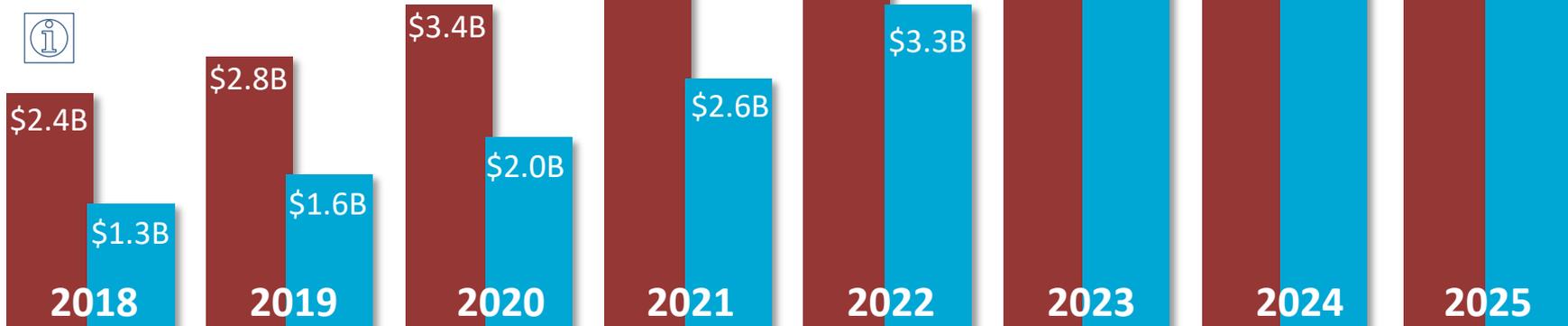
# LONG DURATION ENERGY STORAGE MARKET FORECAST

Market Size (\$Billion)



Total Available Market Size  
Served A M – 4+ hrs, ex-residential

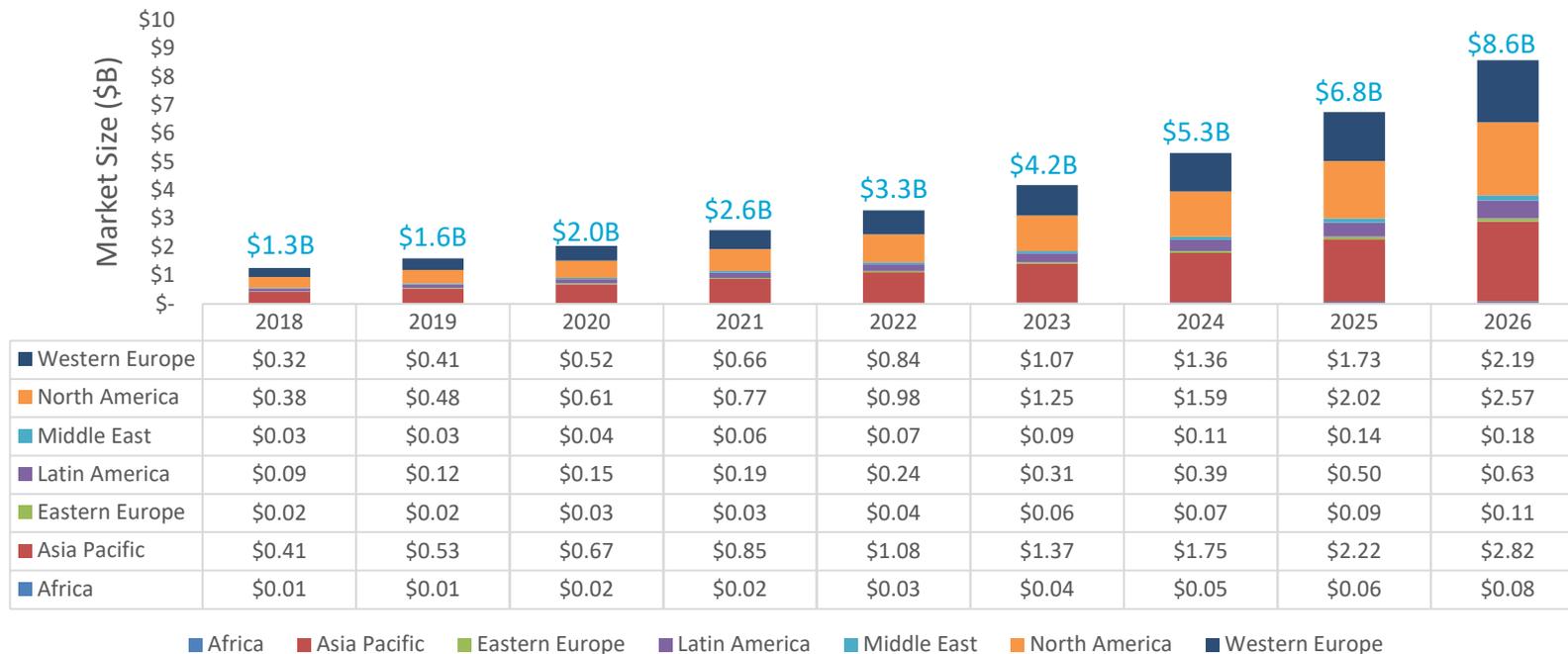
CAGR = 23%





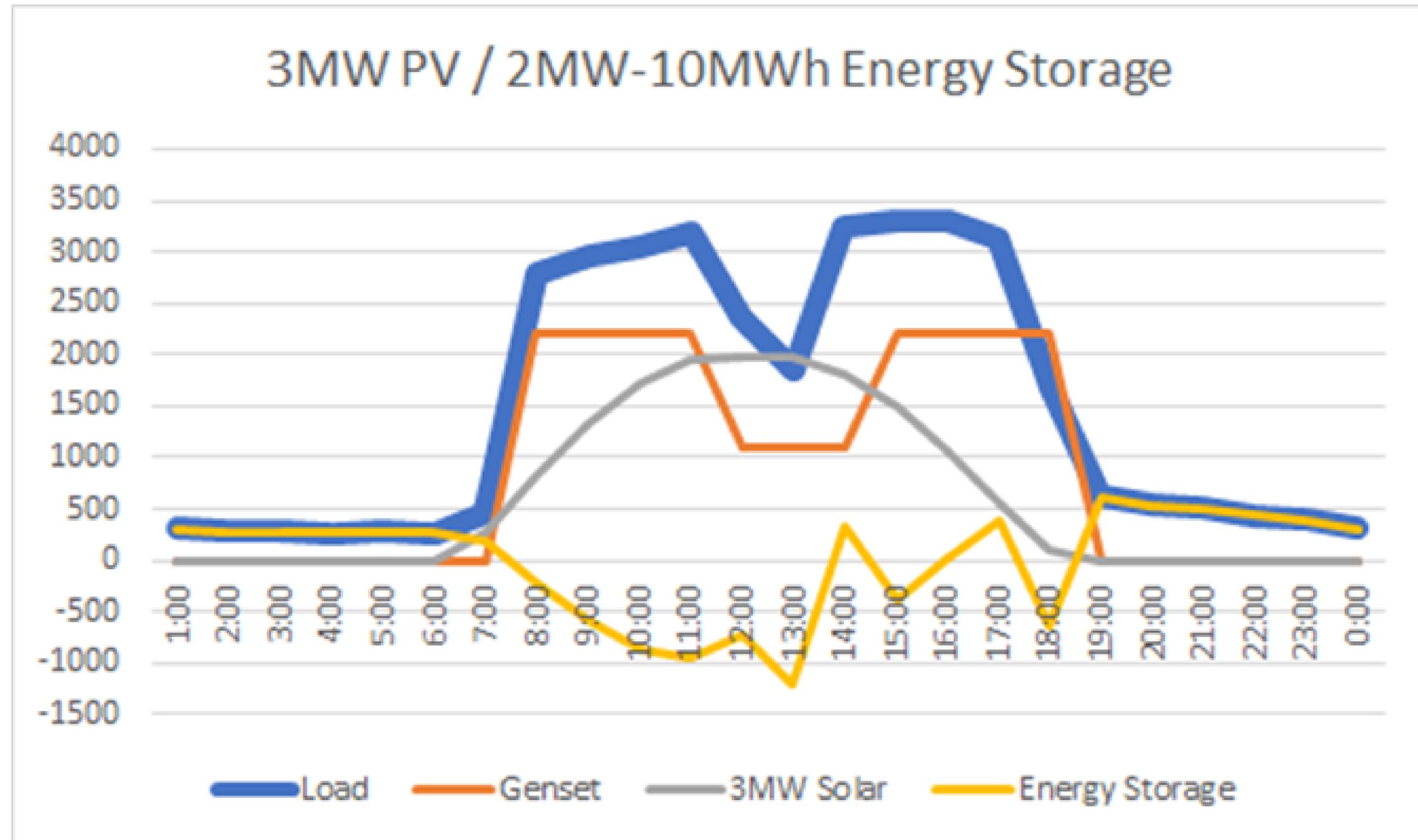
# Market Analysis - 10 Year Served Addressable Market

## Energy Storage Long Duration Market





## VEDANTA ESS Hybrid Diesel Grid proposed in Latin America





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## ESS SPOTLIGHT INSTALLATIONS



### UCSD Microgrid

400kWh  
Microgrid

Operational Q2 2017



### US Army Corps

225kWh  
Off-grid/Renewables

Operational Q2 2016



### DNV-GL

400kWh  
Renewable Integration

Operational Q2 2017



### Stone Edge Farms

60 kWh  
Microgrid/Renewables

Operational Q1 2015

Additional 2.4MWh currently under production for delivery in North America, Latin America and Western Europe



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