



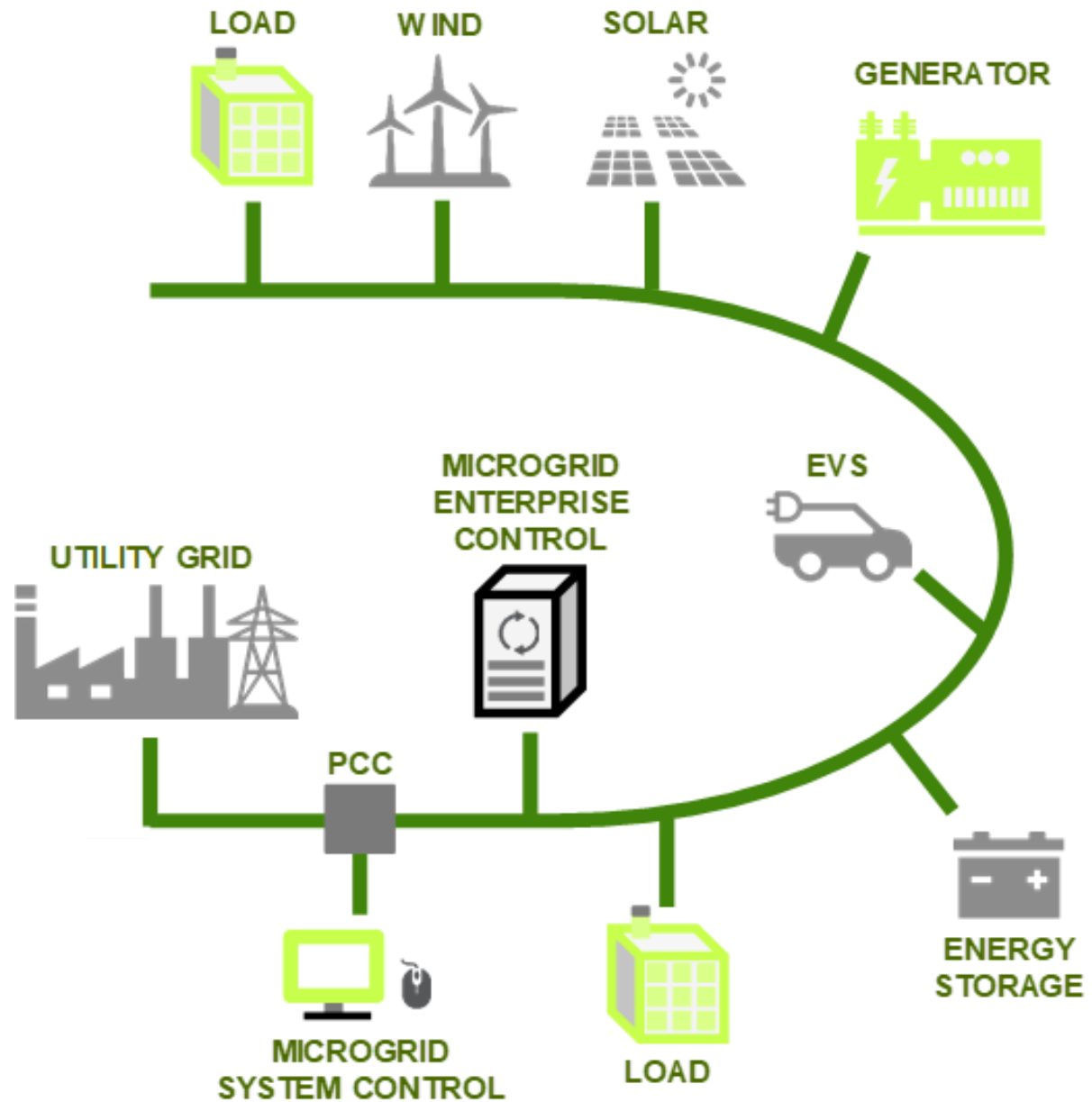
# Why Microgrids Will Take Over the World

**Peter Asmus, Research Director**  
**Guidehouse Insights**

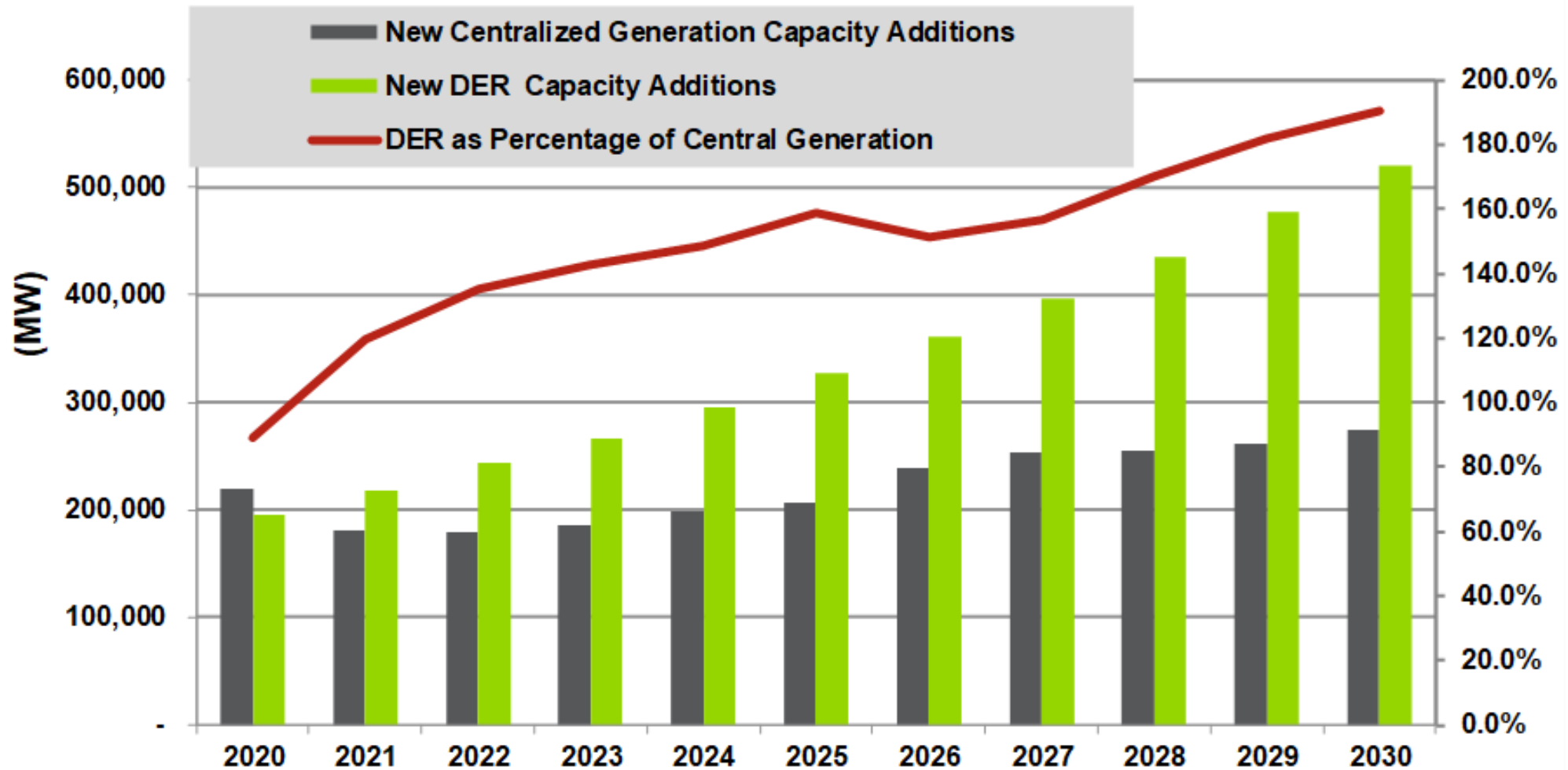
September 15, 2020



# What is a *microgrid*?



# Why Microgrids Now?



# Key drivers for microgrids

## •Reliability

*Power Outages  
Increasing*

## •Cost Declines

*Costs of Solar  
PV and Energy  
Storage  
Decreasing*

## •Disasters

*Climate  
Change,  
Terrorists,  
Wildfires,  
Earthquakes,  
Pandemics...*

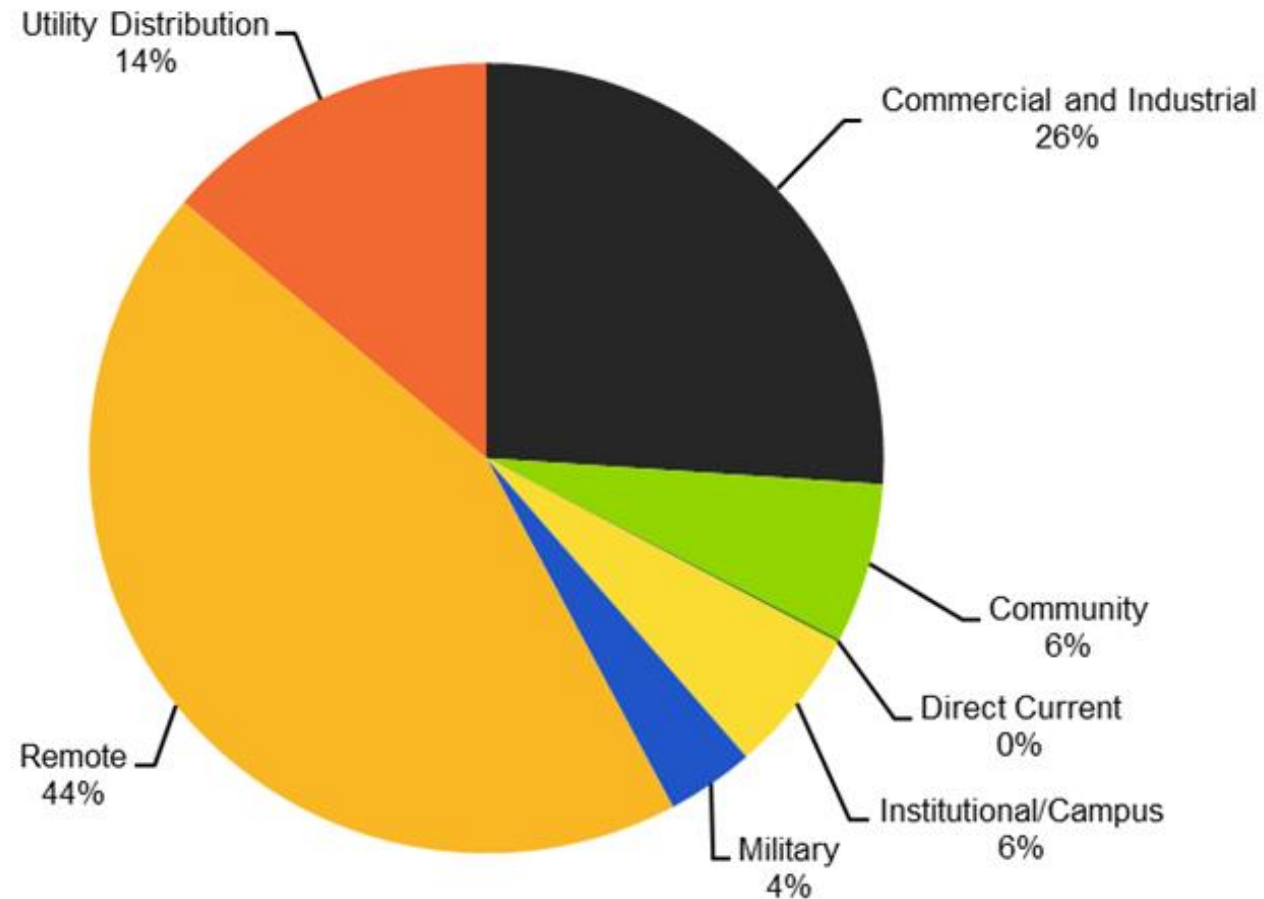


# Power Outages Linked to Climate Change: Japan



# Which microgrid market segments are the biggest?

*Microgrid Capacity by Market Segment, World Markets: 3Q 2020*



# A Deeper Dive on Three Key Market Segments

*These Segments Will be Profiled Later During This Event*

- **Remote Island Microgrids**

- Leading market in Europe; Economies of Scale a Plus

- **Military/Humanitarian Microgrids**

- U.S. historic leader; other countries now moving forward

- **Commercial & Industrial Microgrids**

- Fastest growing microgrid segment globally



# Energy-as-a-Service Microgrids

## *New Trend #1*



Montgomery County, Maryland Public Safety Center



# Modular Microgrids

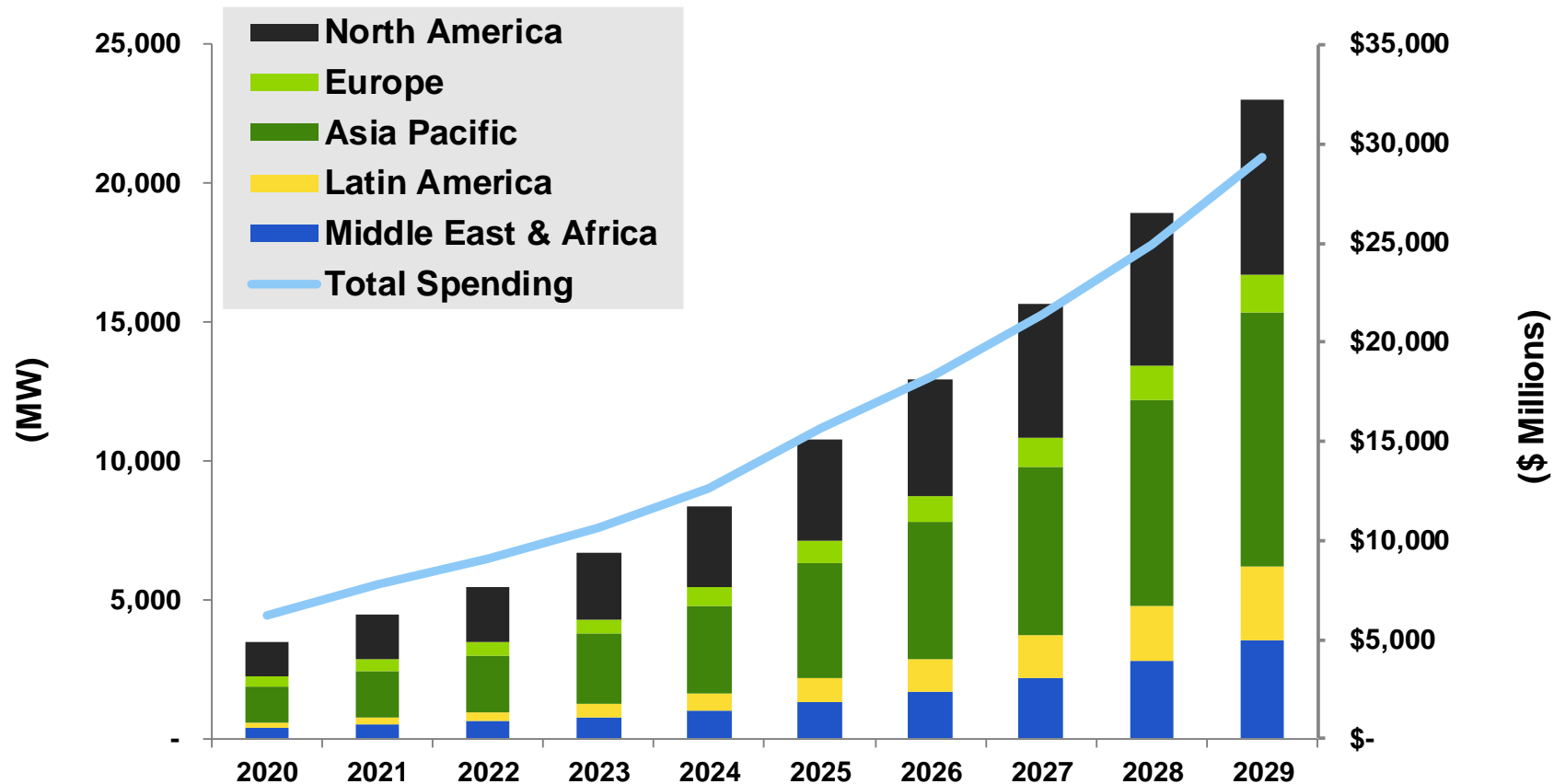
## *New Trend #2*



Fremont, California Fire Station

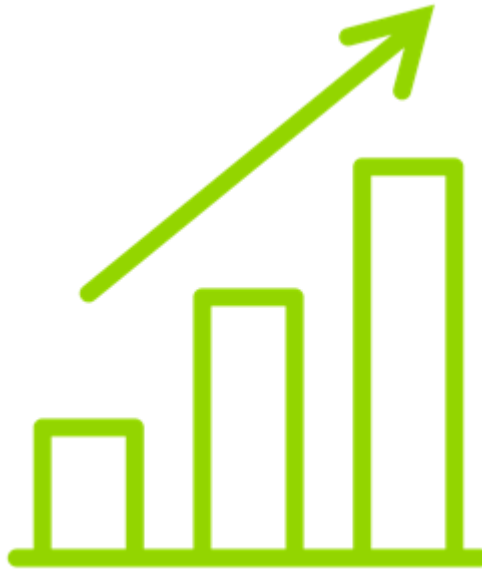
# Where are microgrids being deployed?

*Microgrid DER Capacity and Revenue by Region, World Markets: 2020-2029*



# How fast is the microgrid market growing?

**Global microgrid capacity is forecasted to grow at a 23.4% compounded annual growth rate by 2029.**



# How much will the microgrid market be worth?

**DER assets deployed in  
microgrids will reach \$29.3  
*billion in value annually by 2029.***





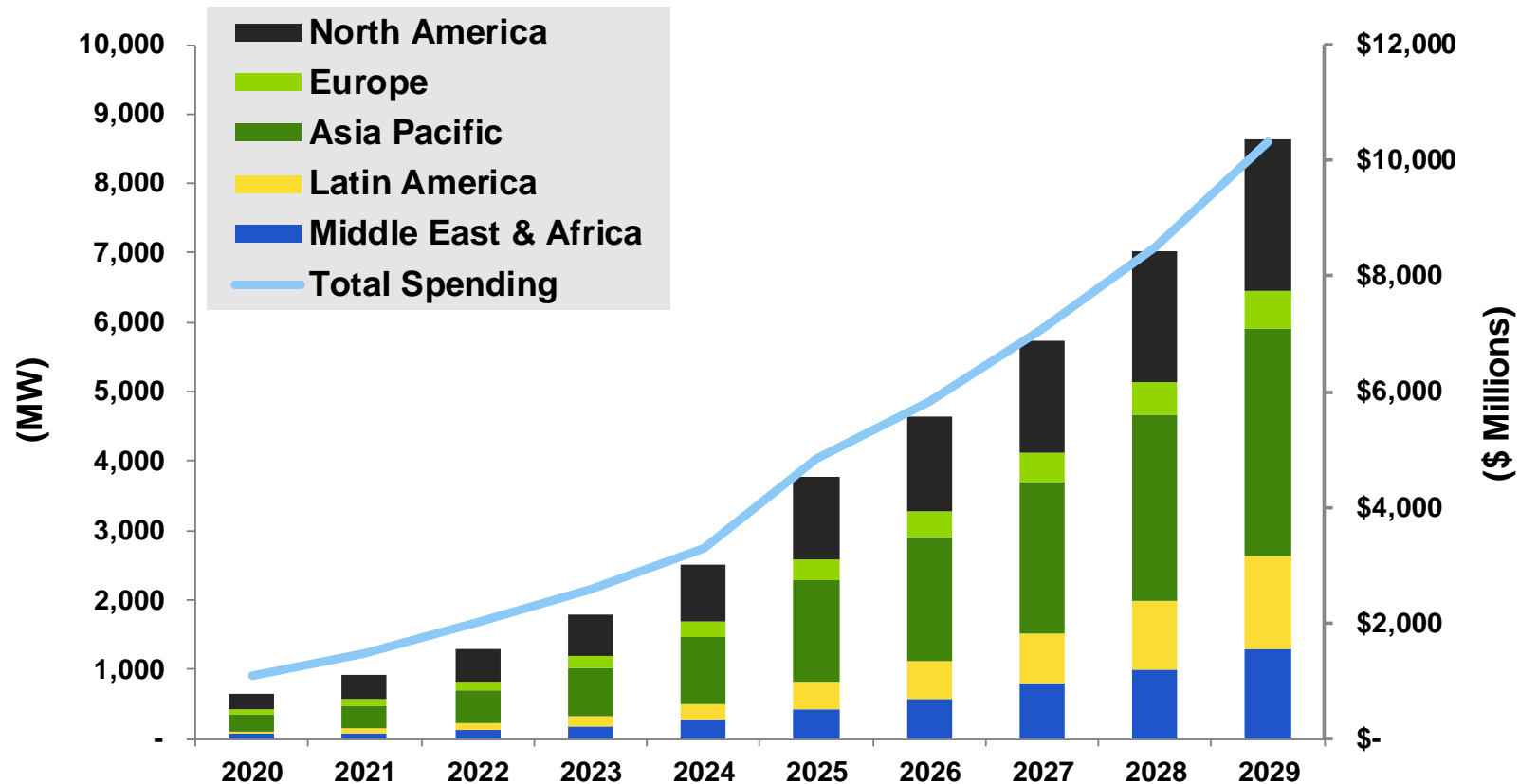
# Energy storage increases market share over time

**Global energy storage DER market share for microgrids grows from 18.7% today to 37.5% by 2029.**

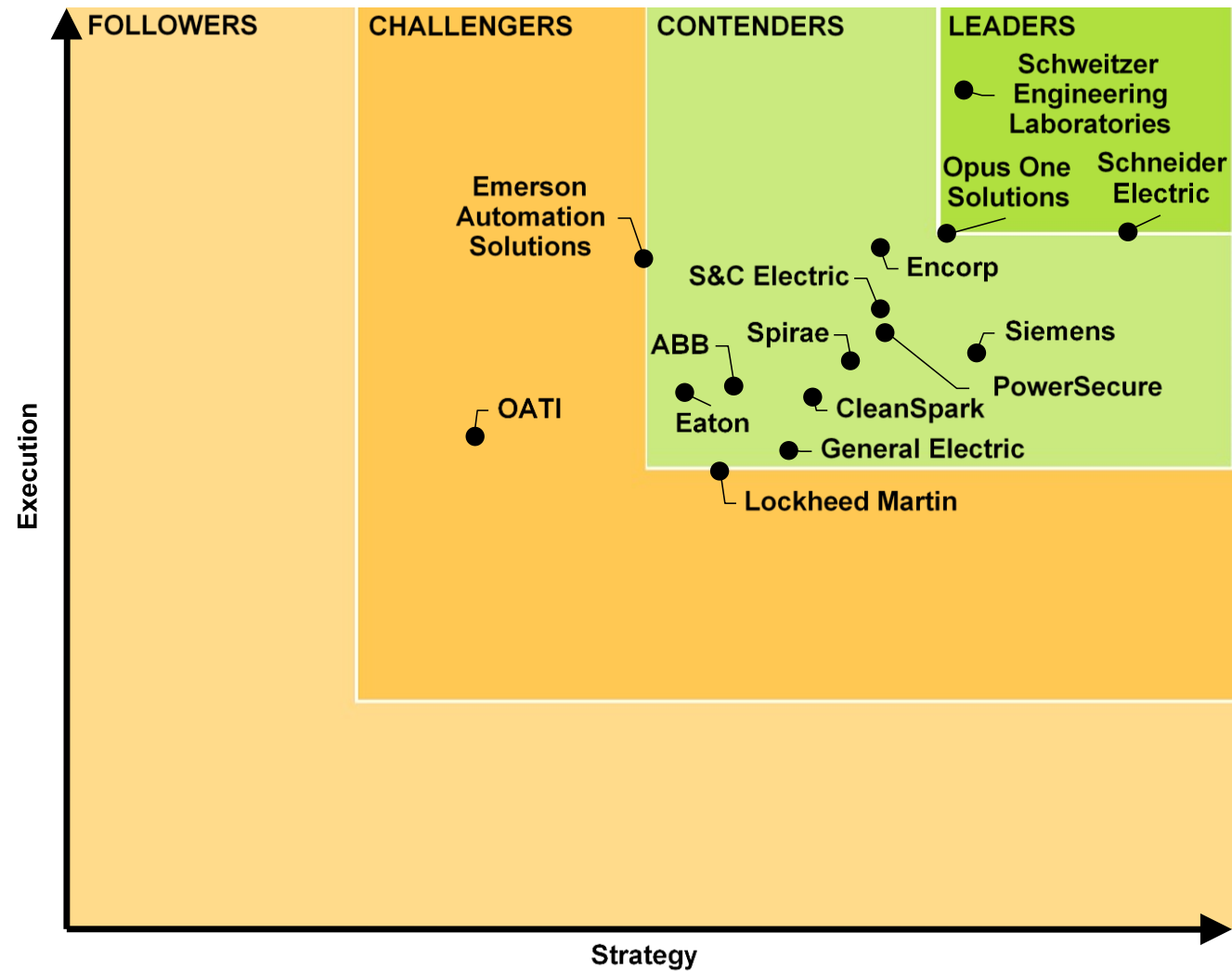


# Energy storage is enabling technology for microgrids...

*Annual Energy Storage Microgrid Capacity and Revenue,  
World Markets: 2020-2029*



# ...but digital controllers are gatekeeper to market success



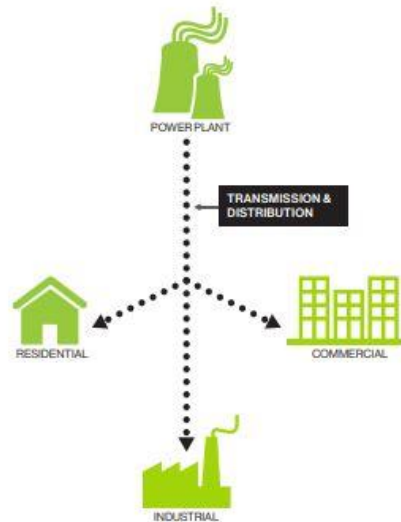
(Source: Navigant Research)

# Microgrids are part of an Emerging Energy Cloud Toolkit

The shift is underway from BIG to *small*, CENTRALIZED to *distributed*

## Past

### Traditional Power Grid



Central, One-Way Power System, focused on Safe, Reliable and Affordable power

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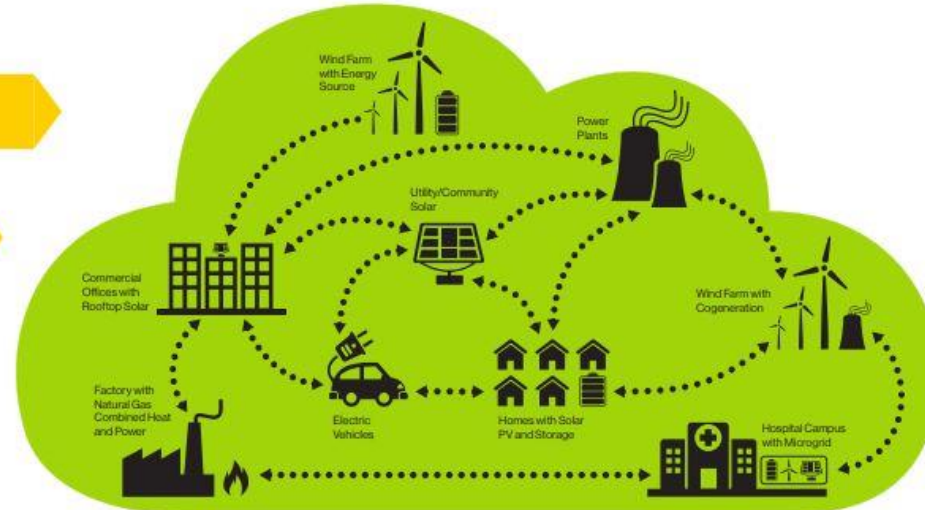
## Emerging

### The Energy Cloud

Market Demand

Technology Innovation

Policy & Regulation



Distributed, Cleaner, Two-Way Power Flows, Mobile energy resources, new digital Energy Cloud platforms

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# **Be a Part of the Next Big Thing – Microgrids!**

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