



We make energizing the world work\*.

An aerial night photograph of a city, likely New York City, showing a river with bridges and illuminated buildings. The image is used as a background for the presentation slide.

# Agenda

- Brief introduction to Eaton
- Drivers for Energy Storage
- Energy Storage at Eaton
- Eaton energy storage systems
- Next Steps



# Global reach with local responsiveness and support

- Headquarters: Dublin, Ireland
- Key locations in Cleveland, United States; Shanghai, China; Morges, Switzerland; São Paulo, Brazil
- Regional engineering teams to support products and custom solutions
- Customers in more than 175 countries
- More than 100,000 employees





# LOOK AROUND.

Everything we  
touch, do, or  
experience in our  
modern world is made  
**possible by power.**



### Panama Canal

Energizing the Panama Canal to take on double the traffic



### Facebook

Energizing data center as forward-thinking as Facebook itself



### Valero

Energizing a refinery to take arc flash danger out of the operation



### Schaltanlagenbau Gormanns GmbH

Energizing a potato plant to make sorting 120 tons of potatoes a one-man job



### Robinson Mine

Energizing mining with lighting as tough as the job itself



### TriRiver Health Partners

Energizing IT systems to power the transformation of healthcare



### Beijing subway


Energizing a subway system to move even faster than the speed of a growing Beijing



### PGE Salem Smart Power Center

Energizing a working smart grid for energy intelligence.





We make energizing  
the world work.

More electricity.  
More alternative energy sources.  
Ever-increasing efficiencies.

# Global Challenge



**INTEGRATION** :The share of renewable energy in global power generation will be rising to over 26% by 2020

# Global aim: Build a sustainable energy system

**CUT**

**40%**

in greenhouse gas emissions  
compared to 1990 levels

**SHARE**

**27%**

of renewable consumption

**SAVE**

**27%**

Energy savings compared  
with business as usual  
scenario

**INVESTMENT**

**€1,000,000,000,000**

needed in power generation and the grid to meet these targets



More and more people, factories, businesses connect to the grid around the world. How can I be sure **there will still be power for me** when I need it?



Renewables are good for the climate.  
But how do I access **clean energy when there is no sun or no wind?**



Fossil fuels are phasing out.  
What will be **our reliable energy supply** in the future?



Energy storage is the solution

# Eaton's legacy & energy storage

## 1911- year 1 & 106 more

Eaton precursor was Torbensen Gear and Axle Company founded in 1911.



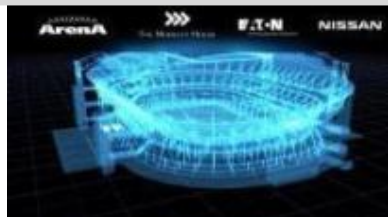
## 2016 - June – Early adopter

1st Eaton Nissan **xStorage Buildings** solution implementation at Webaxys, cloud & IT services hosting company.



## 2012 & 2013

100 years later Eaton and Nissan to lead the European funded **GreenDataNet** project. Partnership is born.



## 2016 - November

Amsterdam Arena and TMH select Eaton and Nissan to provide energy storage to the Amsterdam Arena stadium.

## 2015

Partners sign an agreement on energy storage development. Working prototype is presented.



## 2017 - May

Partnership with Manchester City FC to sell custom version of xStorage Home.

## 2016 - May

The home energy storage system xStorage Home is unveiled in London.



# A partnership of environmental excellence



By partnering with **Nissan** amongst others, we provide energy storage solutions in the full range of energy capacity.

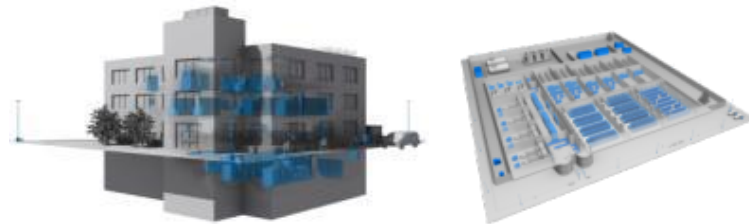
## RESIDENTIAL



## COMMERCIAL



## INDUSTRIAL



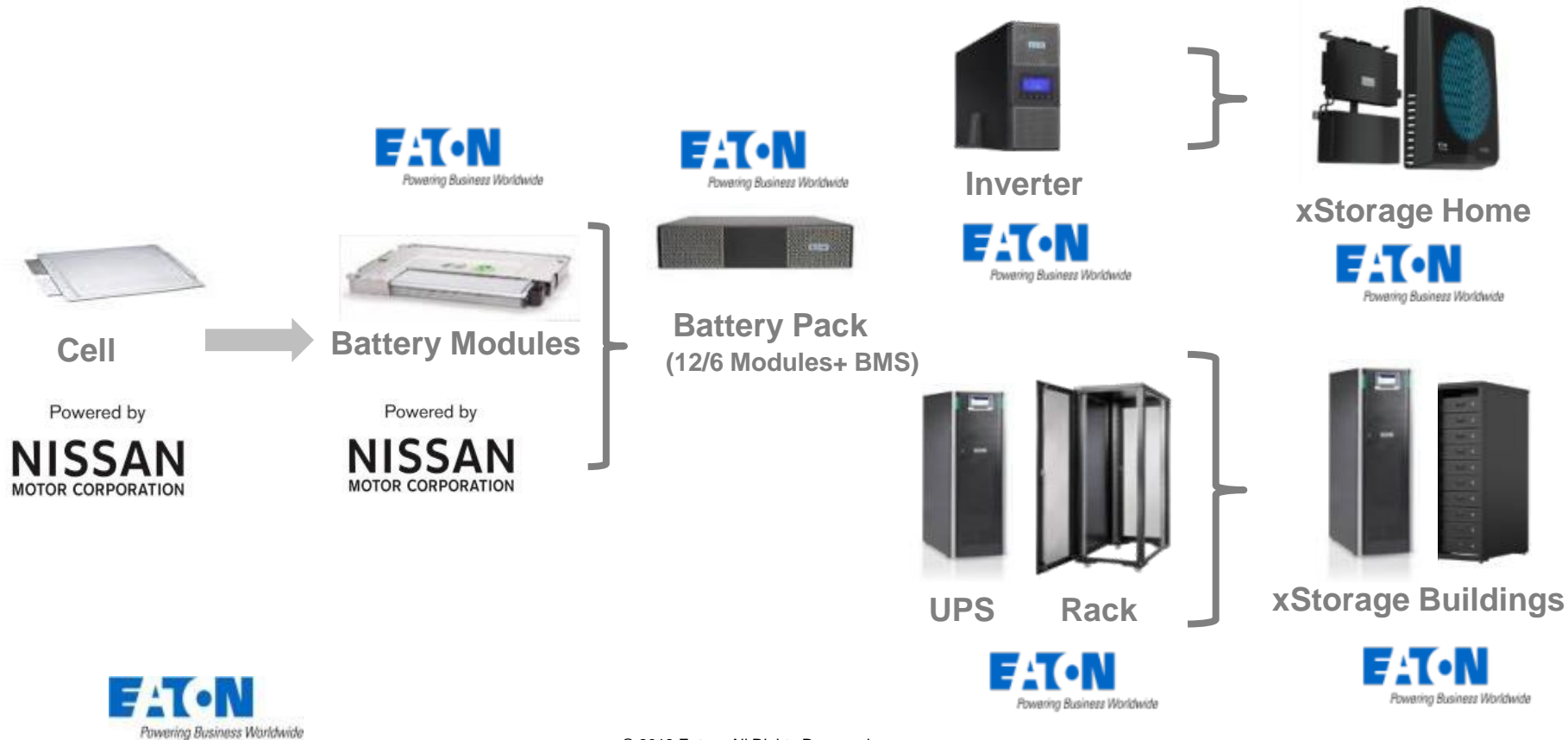
**Expertise - Reach - Dependability - Diversity - Footprint - Portfolio**

Eaton can partner with you to help you achieve substantial benefits.

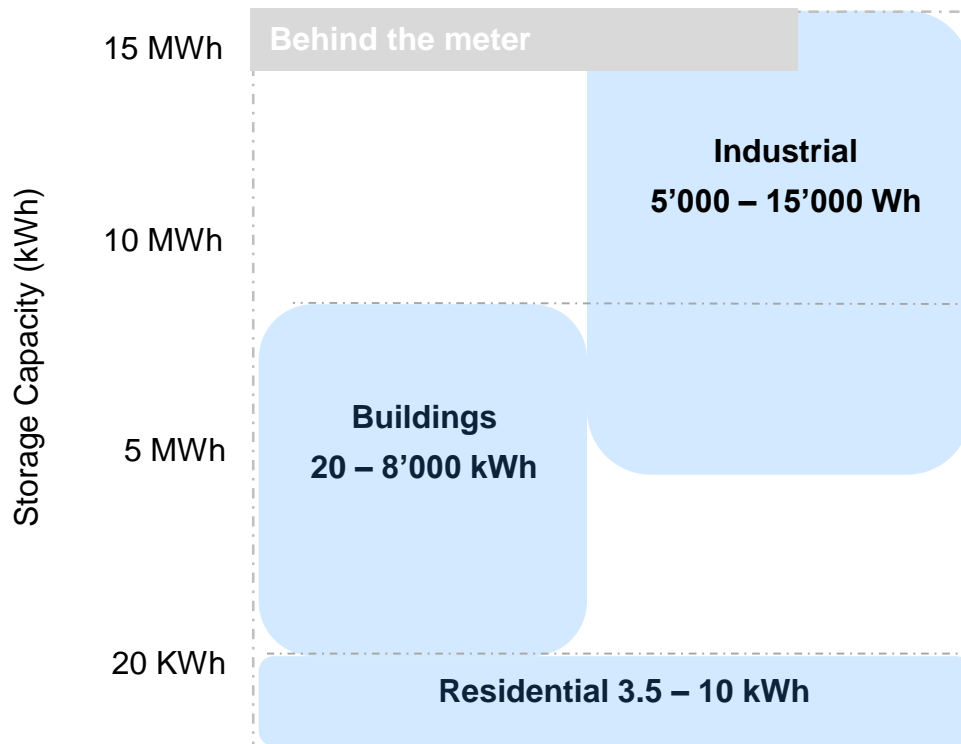




# Eaton with Nissan Technology Partnership



# Scalable solutions



Amsterdam Arena  
with xStorage Buildings  
**4MW** storage, Netherlands



Webaxys datacenter  
with xStorage Buildings  
**40kW** scalable storage  
Le Havre, France



**Home** energy storage unit  
xStorage Home available to  
utilities and homeowners

# Your Benefits



Give greater control over your energy supply and self-consumption of PV  
Help avoid peak charges  
Reduce the reliance on expensive fuels like diesel



Facilitate the wider adoption and deployment of renewable power generation



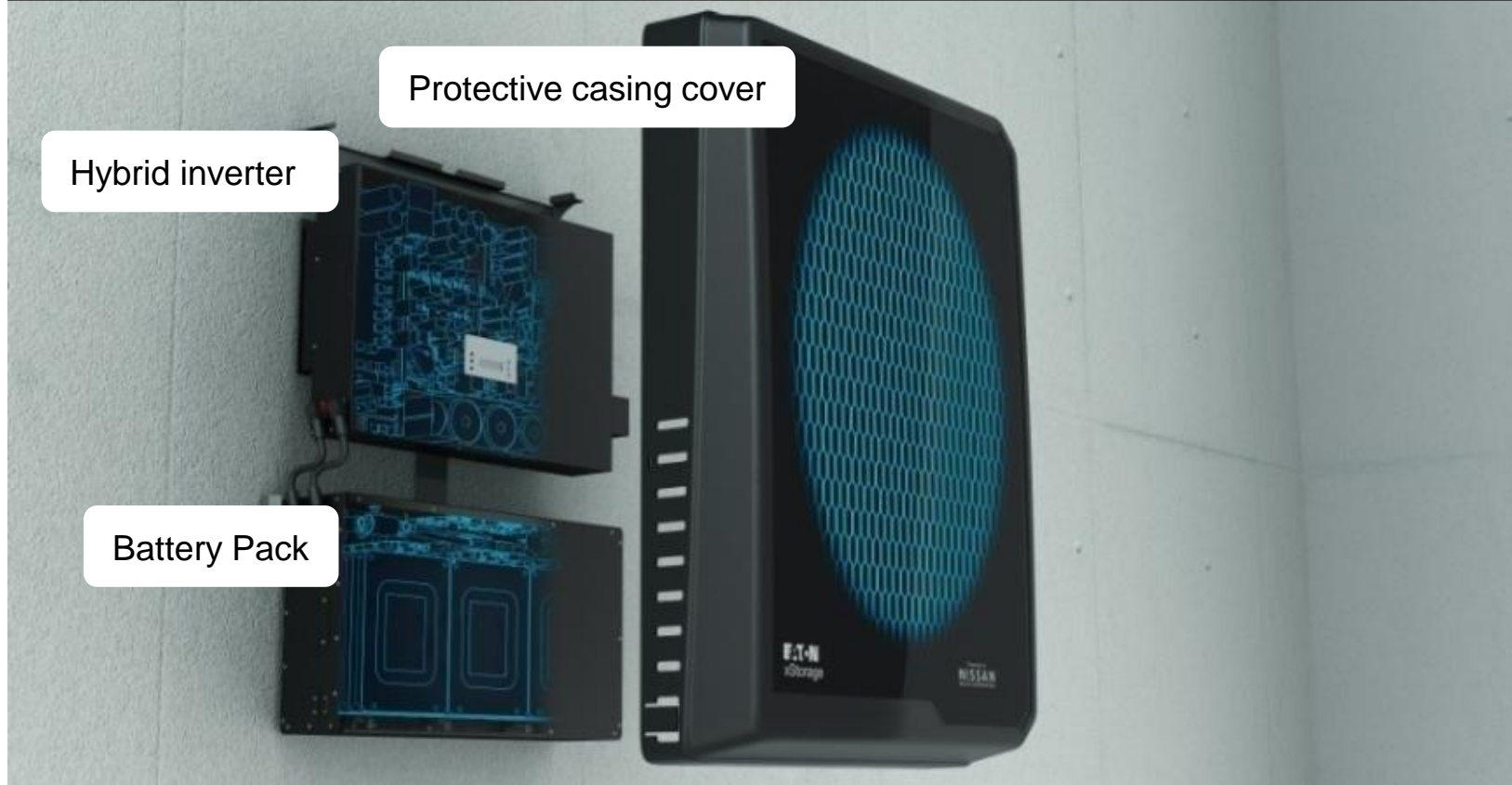
Give continuity of supply  
Enable grid stability and efficiency



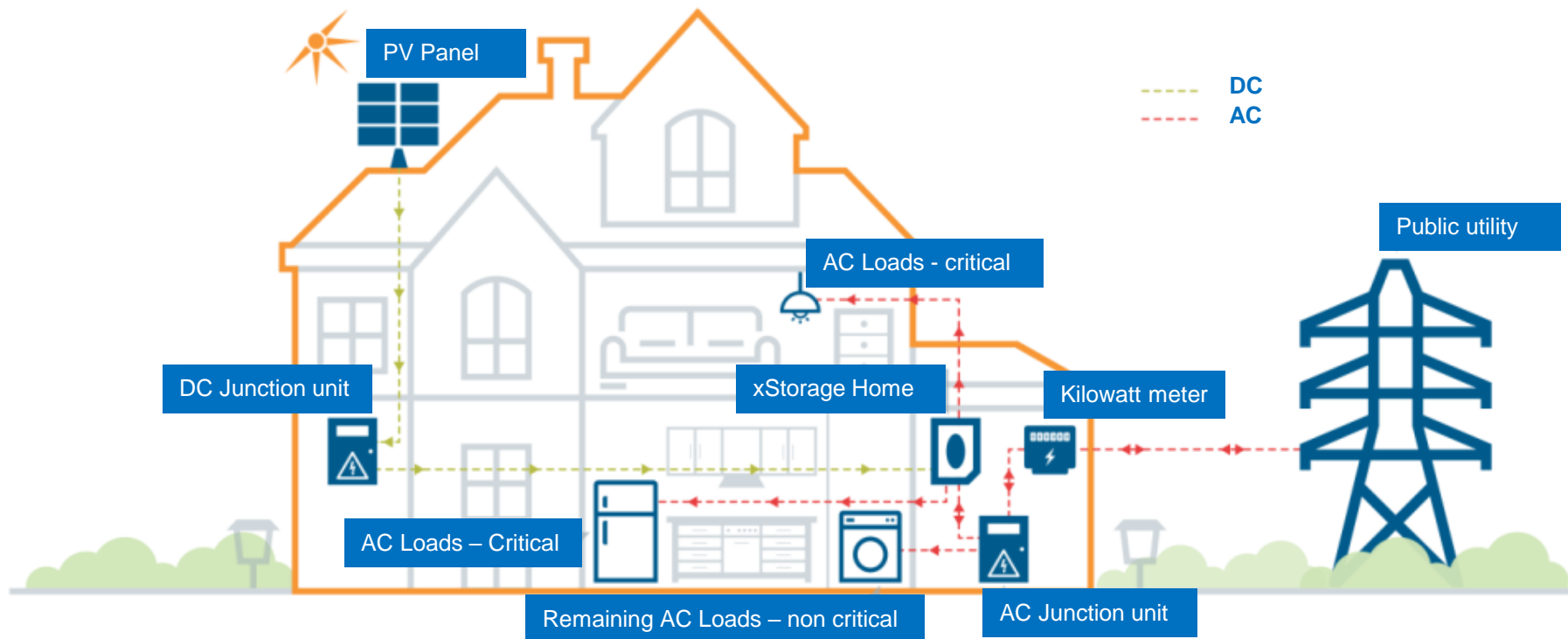
Safe technology  
Customer Service



# The xStorage Home system



# Residential installation with xStorage Home

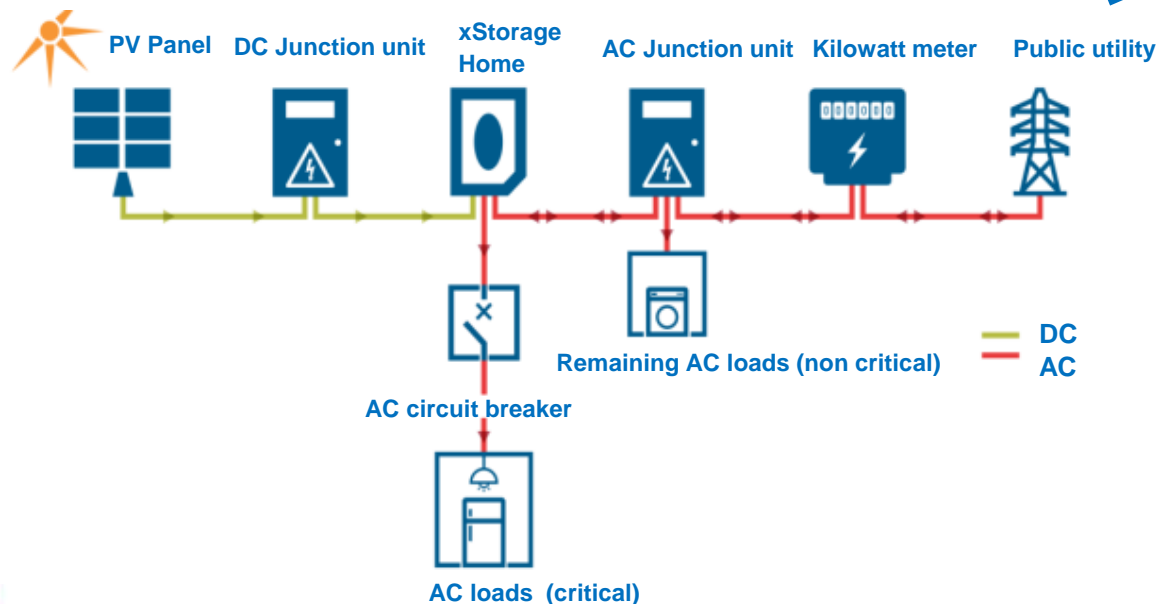


# Residential installation with xStorage Home - Benefits

Maximize use of energy from PV

Store energy when energy cost is low/  
use energy stored when cost of energy is high

Sell energy stored in batteries to grid operators/ aggregators






# xStorage Home – Product range

Modular offer – combinations of inverter size and batteries



Storage Capacity (kWh)	7.5 kWh	7.5 kWh	7.5kWh
	6 kWh	6 kWh	6 kWh
	4.2 kWh 2nd life battery	4.2 kWh 2nd life battery	4.2 kWh 2nd life battery
	3.6KW	4.6KW	6KW
Inverter Power (kW)			

# Energy storage for Commercial and Industrial Buildings: Improve resiliency and sustainability



Eaton is partnering with its customers to:

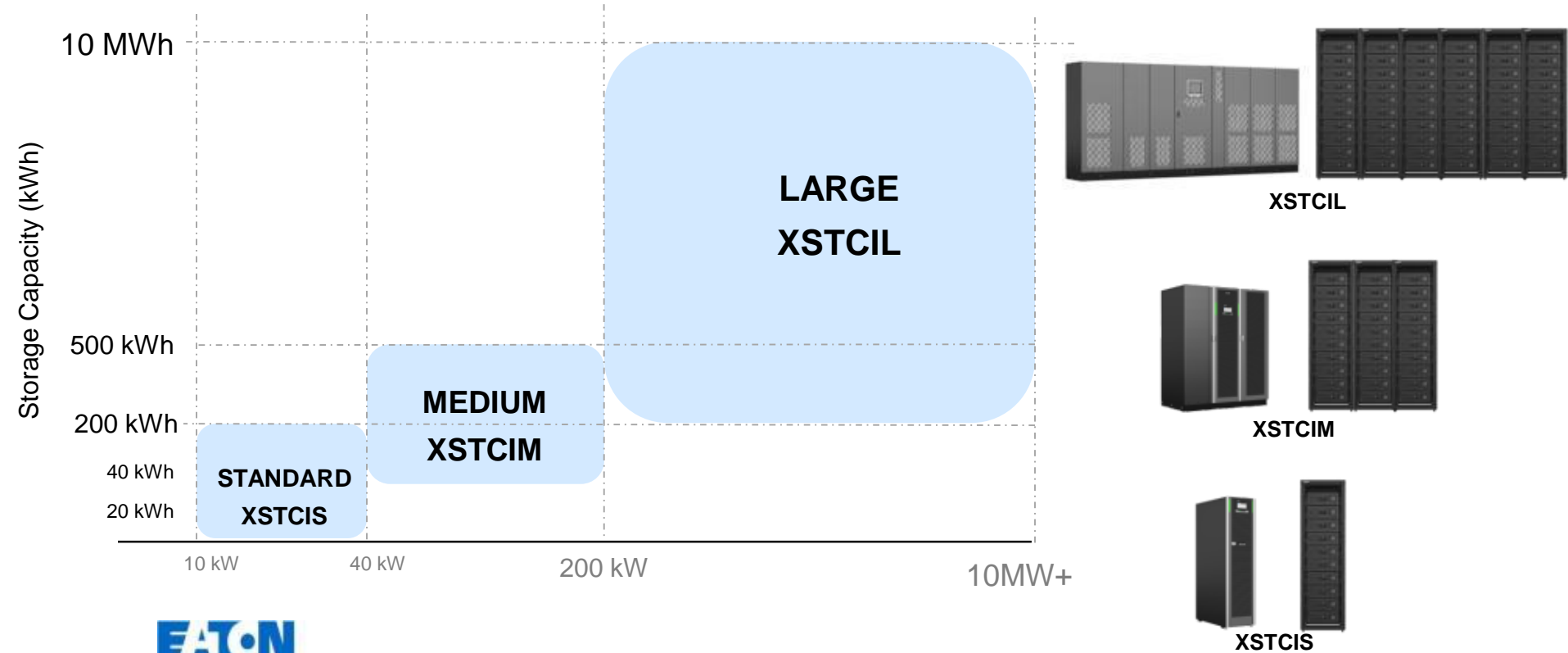
- Improve resiliency and ensure business continuity
- Optimize energy bills and operational expenses
- Defer investment
- Enhance green credentials

# The xStorage Buildings system



Racked solution: Up 96kWh per rack

# The xStorage Buildings system – Range Overview





# Solution support eco - system

## Management and design

**Project management** and **design engineering** to make sure our solution fits your infrastructure needs

## Full product portfolio

A **complete portfolio** of products to integrate energy storage solution into your power distribution architecture

## Financial study & financing

Support for **financial study** and financing if needed

# We have been selected...

## Amsterdam Arena project



During matches, sporting fixtures, or concerts, a stadium or an arena's demand for electricity typically ramps by several megawatts over a matter of hours, in order to power large loads like lighting, catering and broadcasting equipment.

Many stadiums operate large events with their critical load supported by generators.

Eaton's Energy Storage System is designed to

- reduce the use of generators and provide clean and dependable energy on event day.
- support reduced energy costs by minimizing peak demand charges
- improve network stability
- reduce infrastructure costs while providing critical system power requirements

# Taking the next step

## We can help you with:

- Determining the optimal energy storage package to meet your specific needs
- Installing proven technology backed up by Eaton Service capabilities
- Reducing your risk as the energy picture continues to change in the coming years.



*Powering Business Worldwide*

[Eaton.com/xstorage](https://Eaton.com/xstorage)