Evolving Energy Solutions

Panasonic Energy Co., Ltd.

Policy & External Relations

N. Nakanishi

100 Years of History

Dry batteries

1923

Industry 1st **Ni-Cd rechargeable batteries**

1964

Industry 1st **Nickel metal hydride batteries**

1989

Lithium-ion batteries for Consumer

1994

Industry 1st **Lithium-ion batteries for in-vehicle use**

2008

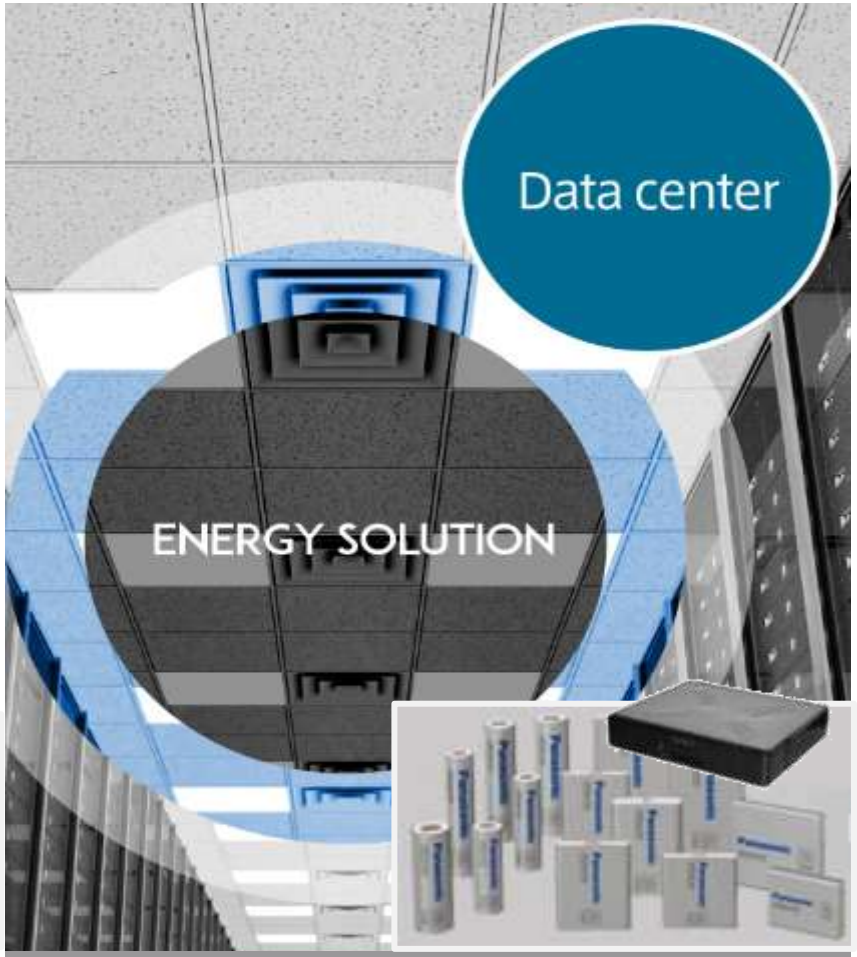
EV Battery since 2008

Experience
More than **16** yrs.

Supplied
over **15** bn cells

No Recall
*Battery related

3 Business Divisions Pursuing high space efficiency by high energy density

55%	45%	
		
Mobility Energy Business Div.	**Energy Solutions Business Div.**	**Energy Device Business Div.**

Mobility

Promoting electrification of mobility.

Life Infrastructuer / AI & Data Security

Contributing to a safe and secure social infrastructure.

For Power Grid

For Data center

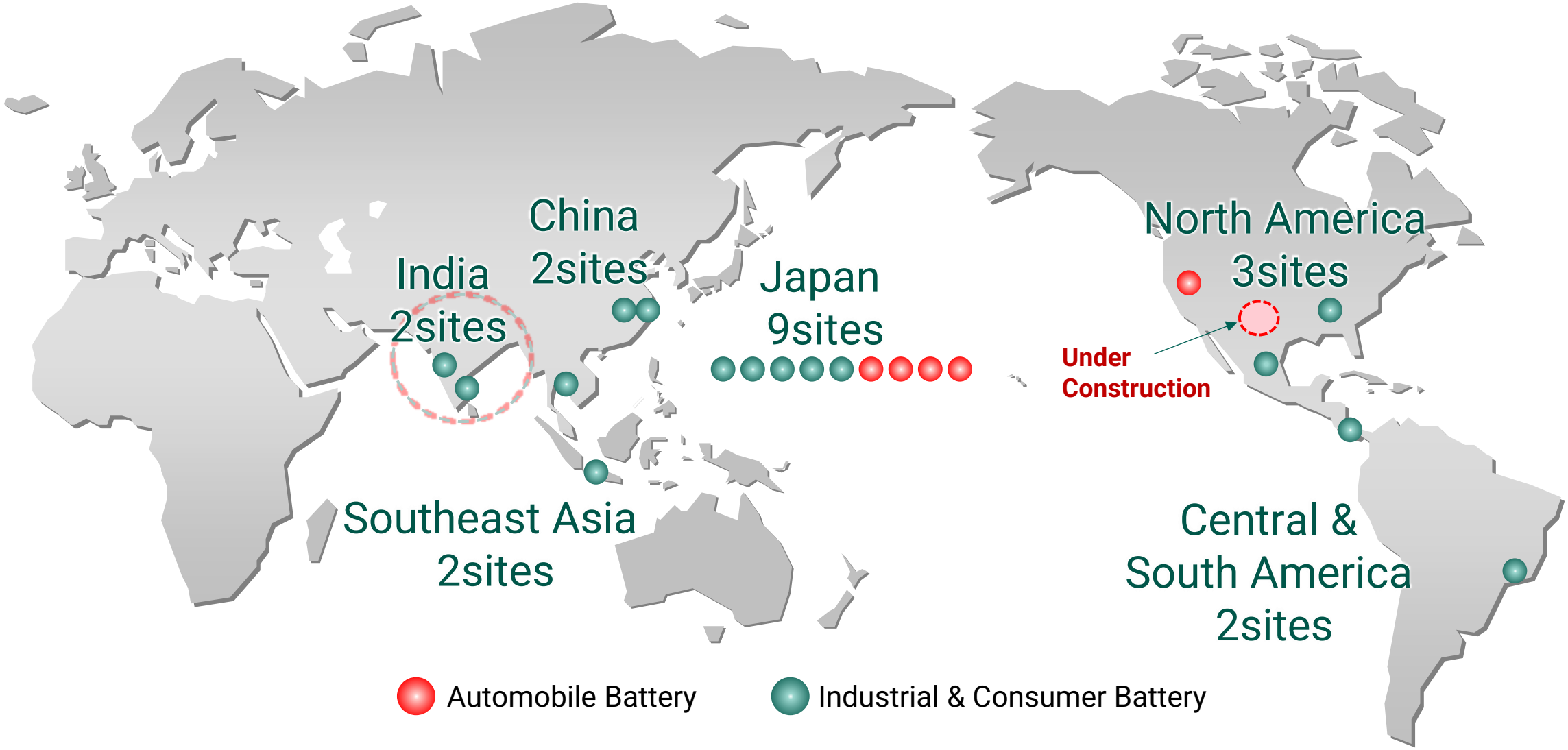
Maintaining a high share on major U.S. platformers.

Medical Health Care

Protecting American lives with safe and reliable batteries.

Major Production Bases

Global 20 Production Sites (Japan 9, Overseas 11)



Battery Must Be Safe Above All Else

Fire caused by other company's batteries













Our Definite Responsibility

Safety and redundancy

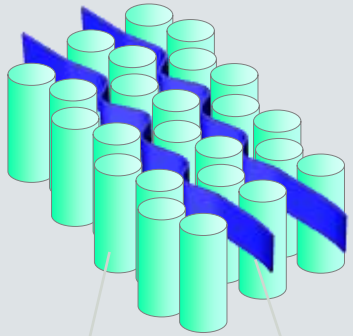
Small / High melting point of iron can

Easy to control heat flux during ignition

We won't allow burning.

Quick charging

Easy to layout side cooling



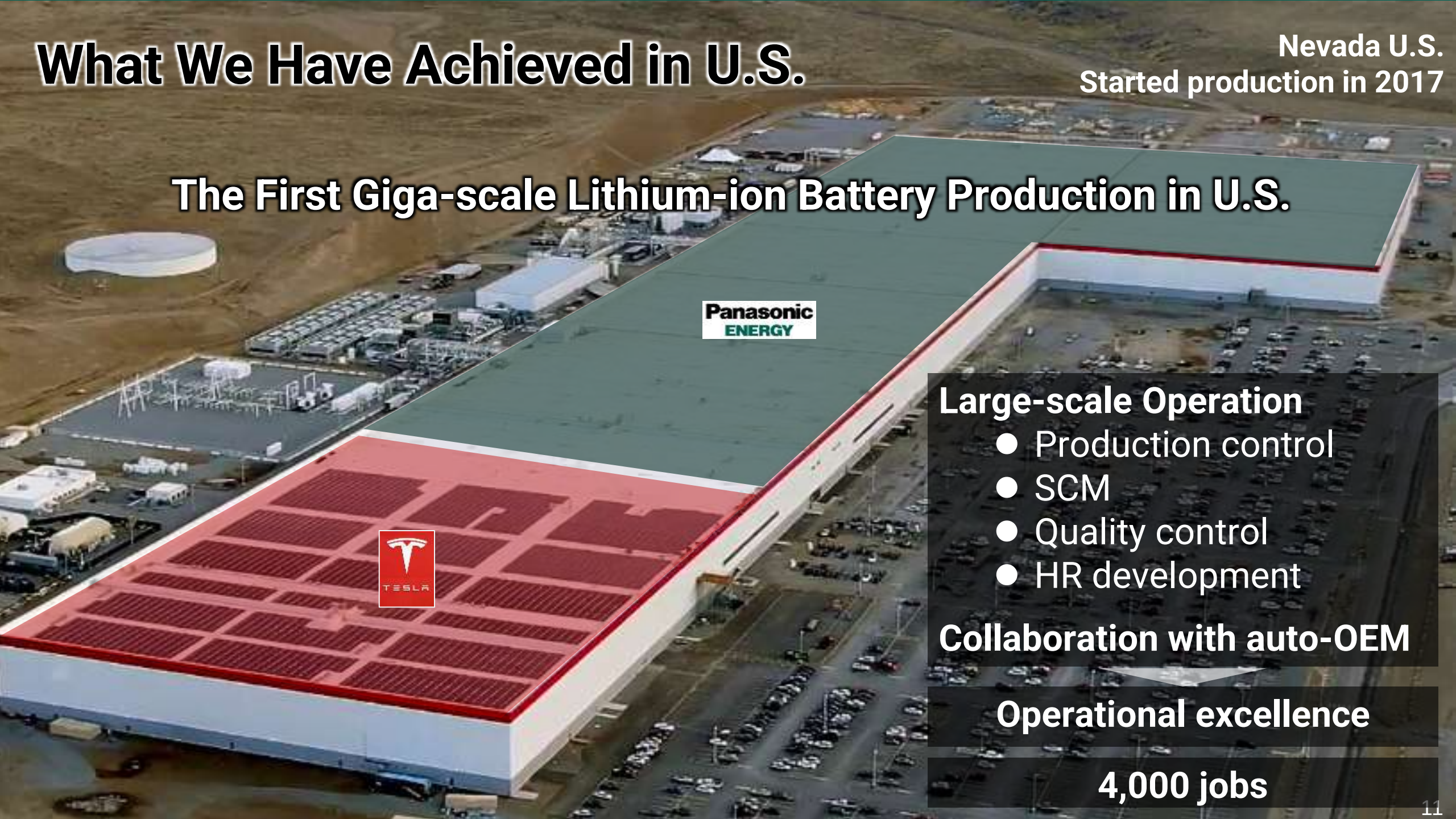
Battery Cell Cooling pipe

Must not harm, damage, or stop

What We Have Achieved in U.S.

Nevada U.S.
Started production in 2017

The First Giga-scale Lithium-ion Battery Production in U.S.



Large-scale Operation

- Production control
- SCM
- Quality control
- HR development

Collaboration with auto-OEM

Operational excellence

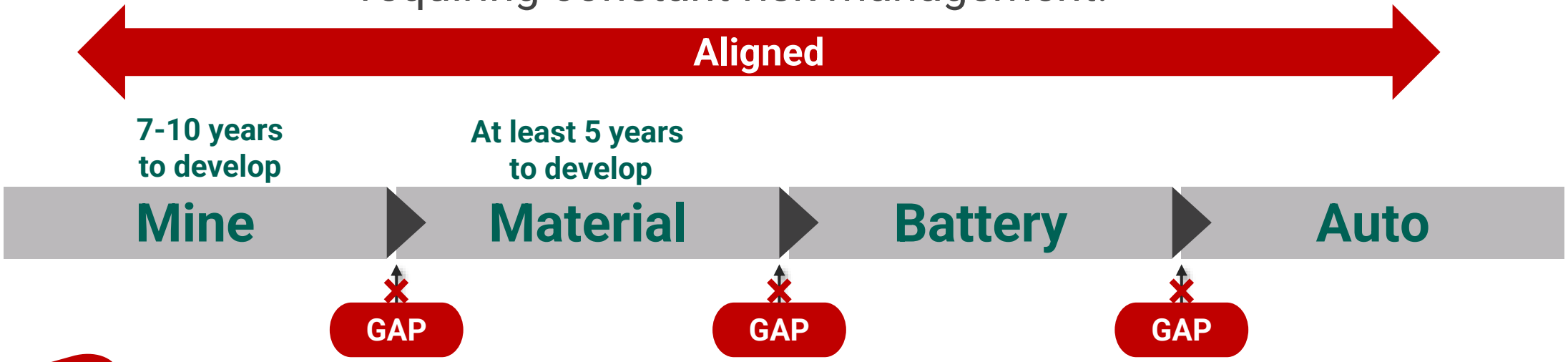
4,000 jobs

Kansas Factory

4,000 jobs

Operational Excellence in Complex Supply Chains

The battery industry involves complex supply chains and operations, requiring constant risk management.



Bottle Neck

Dependence on resource-rich countries

Chokepoint

- Export Control
- Additional Tariff

Barrier

Financing

Technology

Shortage

Human Resource

Manufacturing Capability

Aligned

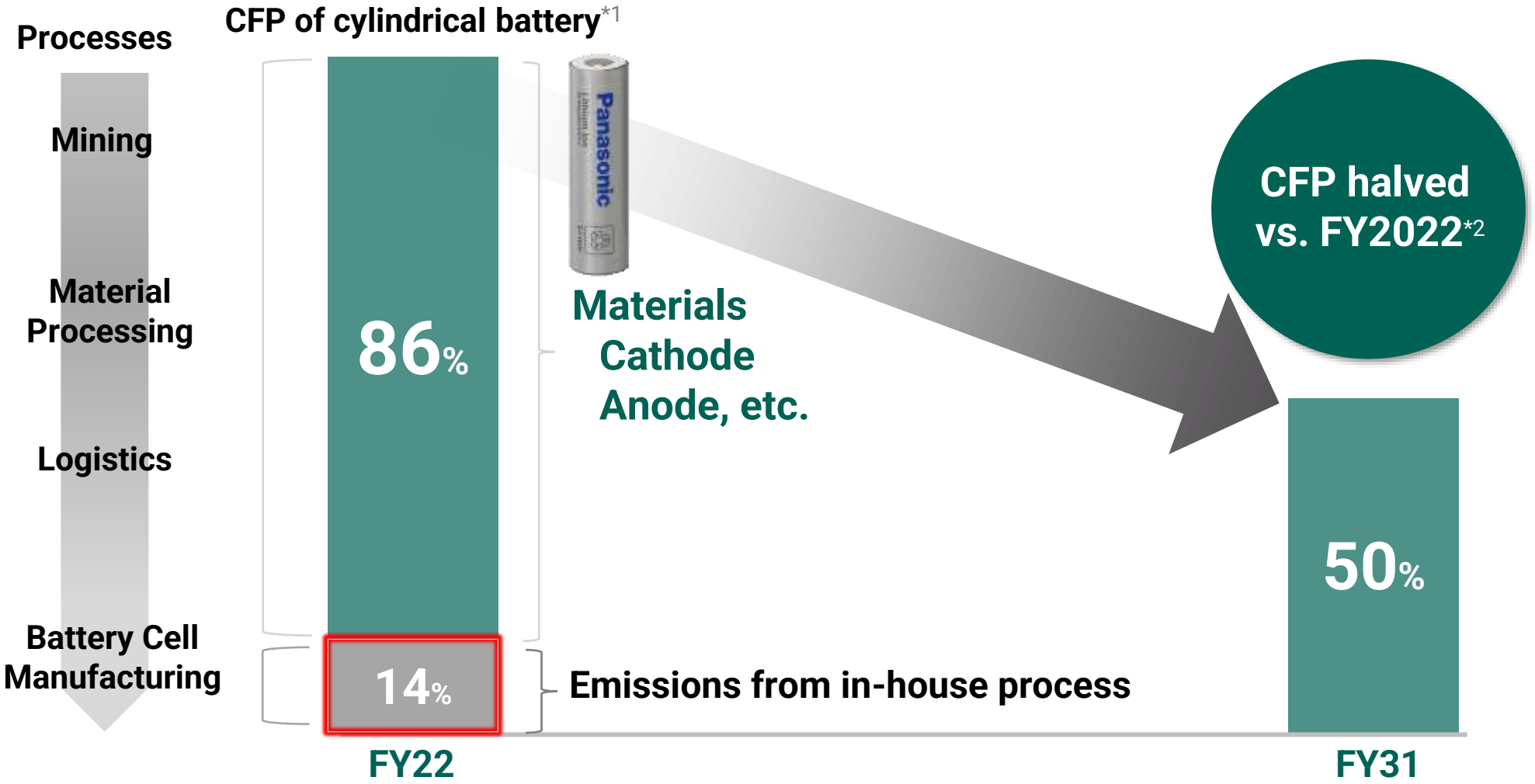
Government Policy

Regulations

Private Investment

CFP(Carbon Footprint) Reduction Plan

Halve CFP throughout the supply chain.



*1:Panasonic estimation from Li-ion batteries for EVs produced at the North American facility *2: CFP per battery capacity

Partnerships with Resource Companies

Active use of **low-CFP** materials and **recycled materials** to reduce CFP throughout the product life cycle.

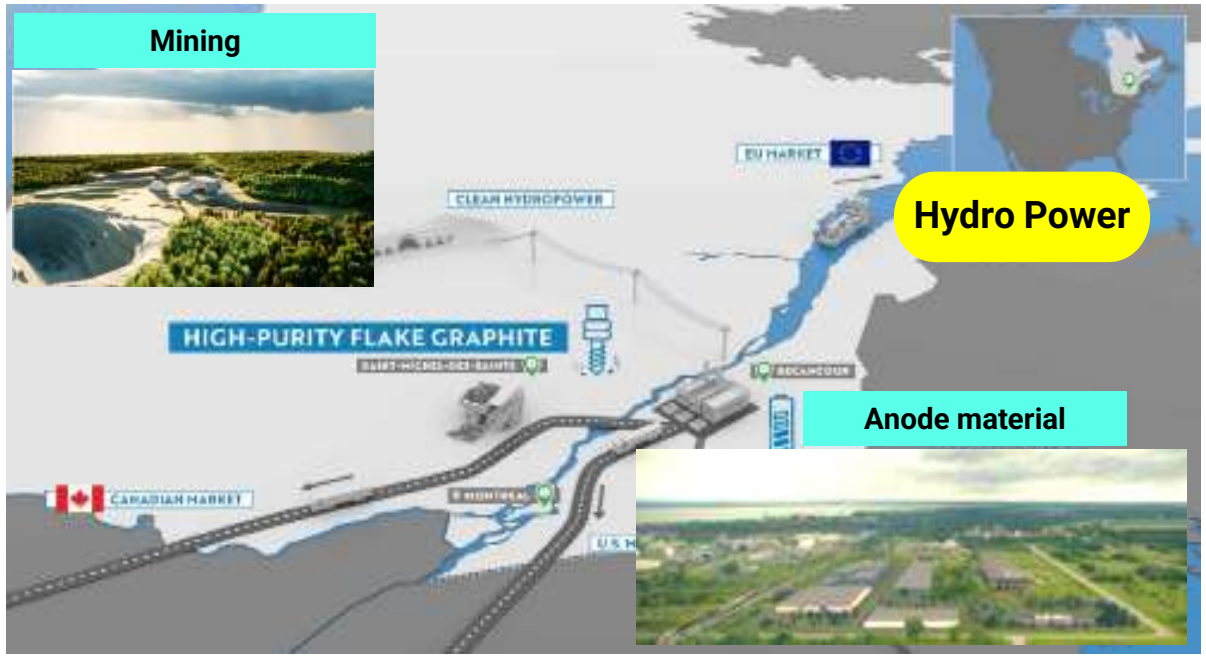
Supply chain with low environmental impact

Resource circulation (recycling)

Low CFP Material

Redwood Press Released Nov./2022

NMG Press Released Oct./2022



Establish Next-gen R&D Bases

We commit to accelerate our innovation to keep our technology leader position in battery industry.

Manufacturing Method 2024～

- Develop new production machineries.
- Invent new manufacturing method.

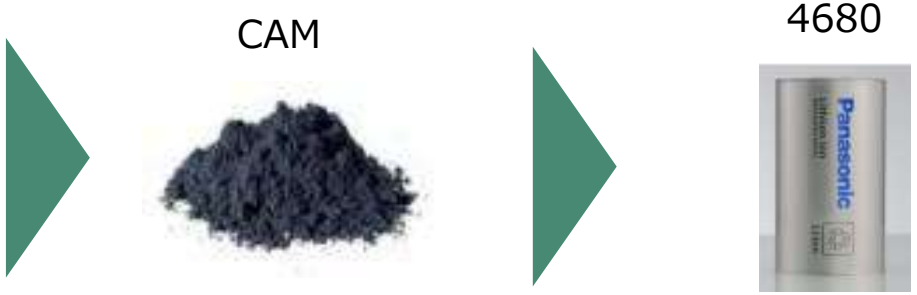
Opened Apr 2024

Battery Cell 2025～

- Centralize Cell development.
- Next-gen material / Process development.

Opened Apr 2025

In-house Production of CAM



World Largest Battery Association

BASC

Battery Association for Supply Chain

Established : April 1, 2021
Chair : Kazuo TADANOBU
CEO, Panasonic Energy
Members : **238** Companies

Panasonic ENERGY

Energy that changes the future.