

Mining Indaba 2023



**prime planet** energy & solutions

**Green Battery for Green Transformation**

2023 Feb 7th

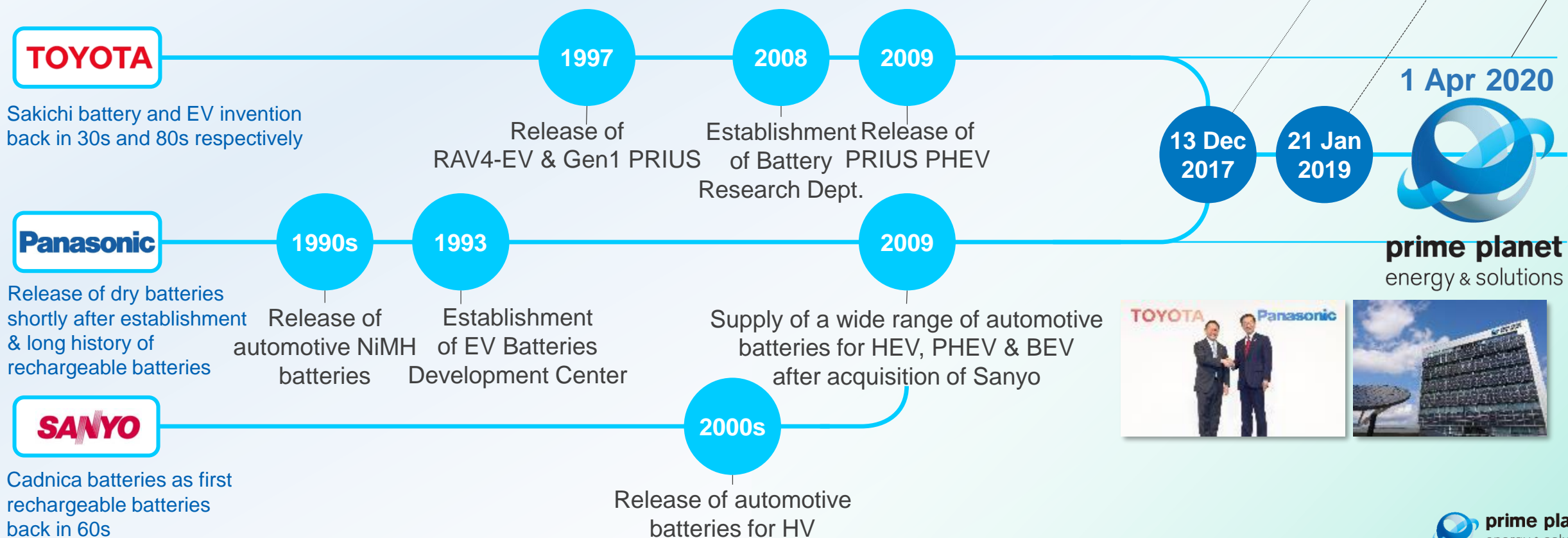
© 2022 Prime Planet Energy & Solutions, Inc.

# Establishment

'Dec 2017 **TOYOTA** **Panasonic** Started studying feasibility of JV

'Jan 2019 Agreed to establish JV

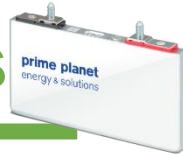
'Apr 2020 **PPES** started operation



**For HEV**  
(High-power batteries)

**11 products**

Yr.2004~



**Comprehensive Product Line-up**

**For BEV&PHEV**  
(High-capacity batteries)

**9 products**

Yr.2011~



**Actual Production**  
In terms of number of vehicles  
approx.

**1.7M**  
Yr. 2021

**Wide Customer Base**

**Toyota**

**Other Customers**



**Flexible Form of Delivery**

**Cell**



**Stack**



**Pack**



# Locations



# Vehicle Lineups with PPES Battery

5

Partnering with a variety of customers.

HEV



PHEV



BEV



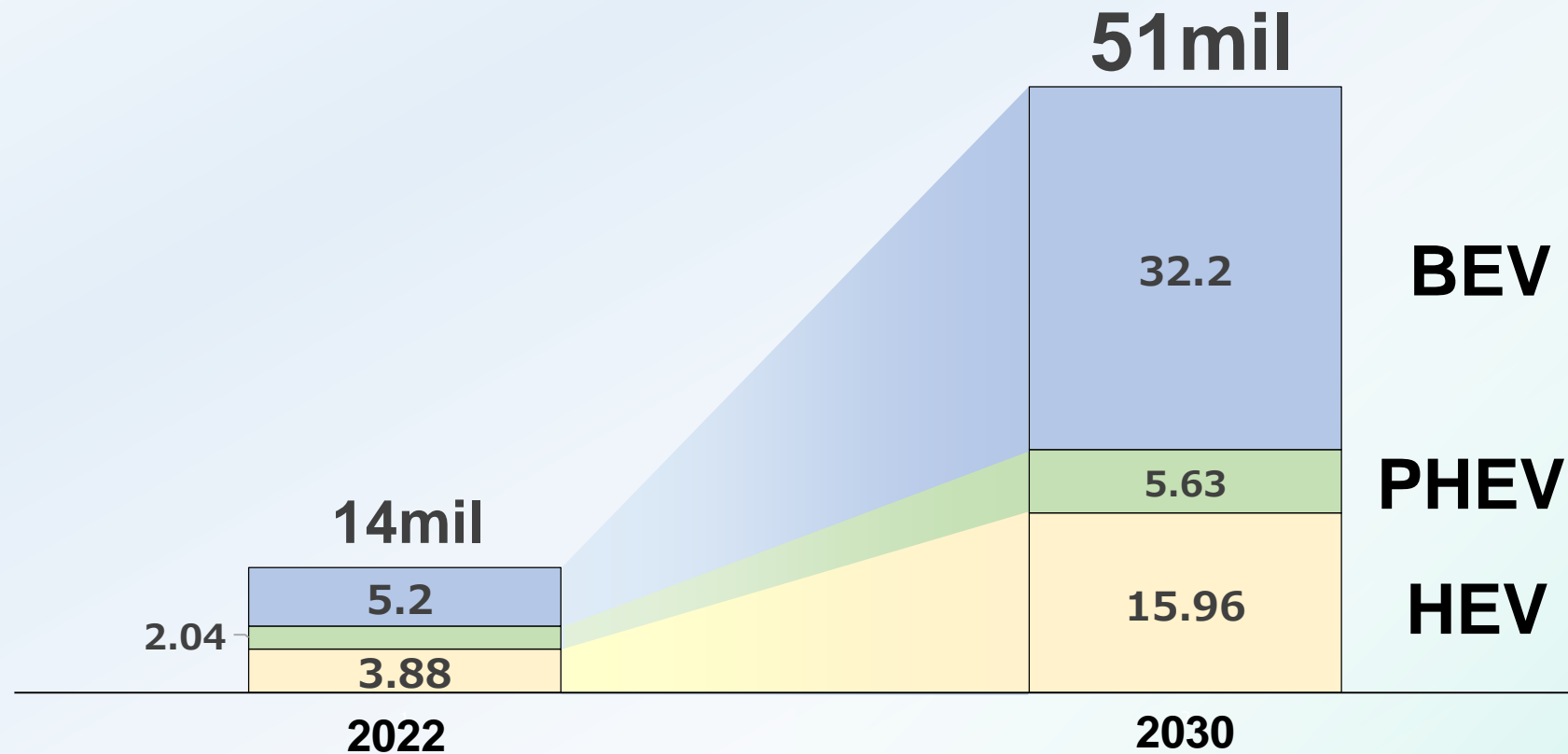
\* Not exhaustive

A pair of hands is shown holding a glowing, fiery Earth. The Earth is depicted with bright orange and yellow flames or energy emanating from its surface, set against a dark, starry background. The hands are positioned at the bottom, cupping the globe. The text "BUSINESS STRATEGY" is overlaid in white, bold, sans-serif capital letters in the center of the image.

# BUSINESS STRATEGY

# The Global xEV Market Outlook

The number of xEV will be 4-times in 2030. (CAGR 17.5%)  
Battery market shows dozens of times growth,  
driven by de-carbonization trend.



Source : IHS Market "Energy Storage Device – Apr'22

# Business Forecast Towards 2030

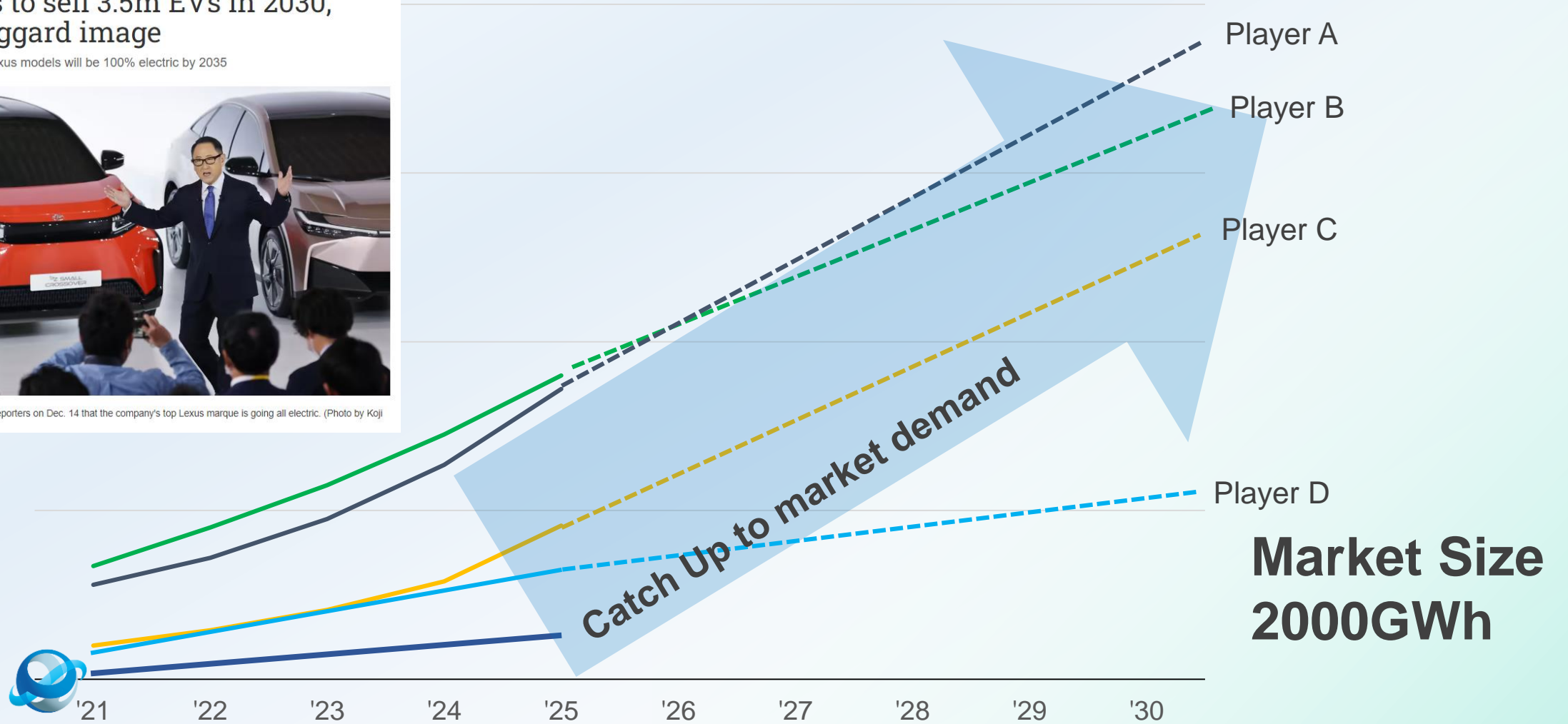
8

Toyota aims to sell 3.5m EVs in 2030, shedding laggard image

Japanese carmaker's top Lexus models will be 100% electric by 2035



Toyota Motor CEO Akio Toyoda tells reporters on Dec. 14 that the company's top Lexus marque is going all electric. (Photo by Koji Uema)



Establish certain level of market presence in 2030.

8

# Plant Locations -Expansions-

## PPES Himeji Plant



## Toyota Battery Manufacturing North Carolina



Source : Toyota Newsroom

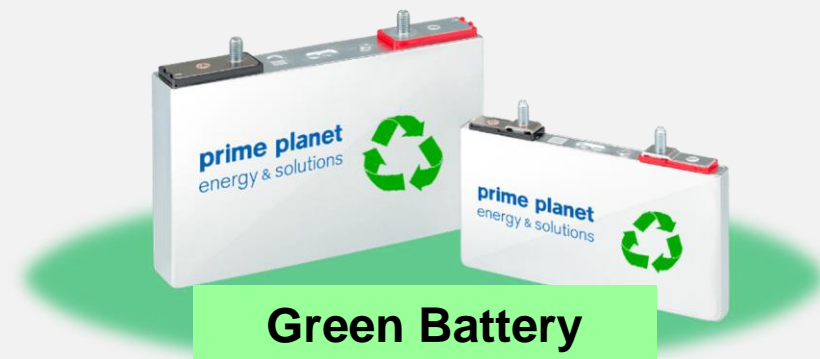
## Enhancement of Competitiveness

- ① High quality and high performance
- ② Acceleration of business speed  
(Process innovation 10x)
- ③ Speedy volume expansion and  
Cost competitiveness



## Greenization

- ① Carbon neutral
- ② Recycling system establishment
- ③ Responsible procurement
- ④ Co-existence of nature and society



## Enhancement of Competitiveness

- ① High quality and high performance
- ② Acceleration of business speed  
(Process innovation 10x)
- ③ Speedy volume expansion and  
Cost competitiveness



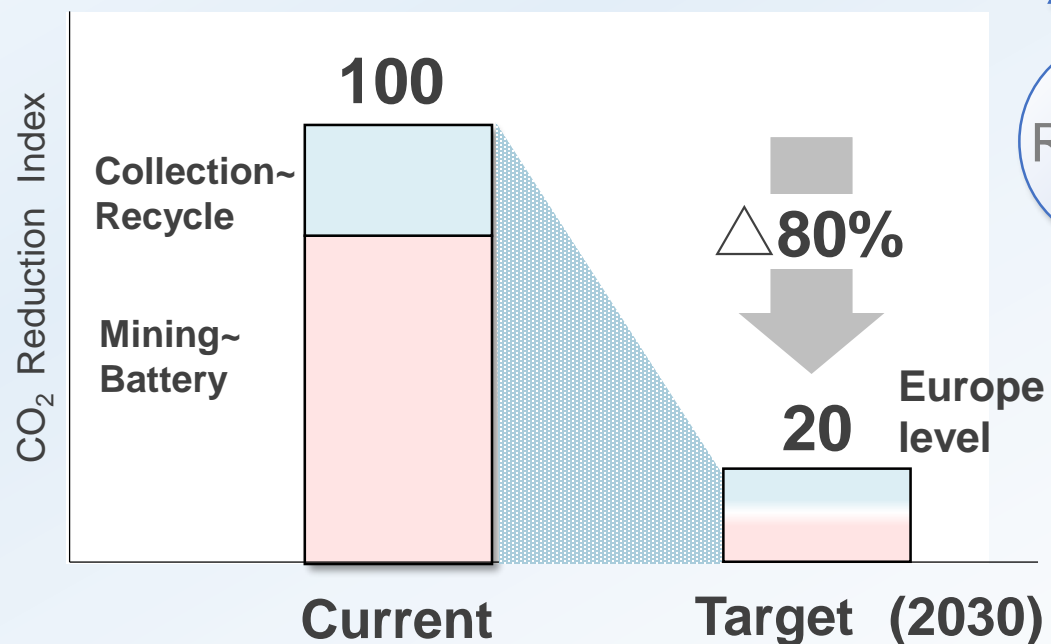
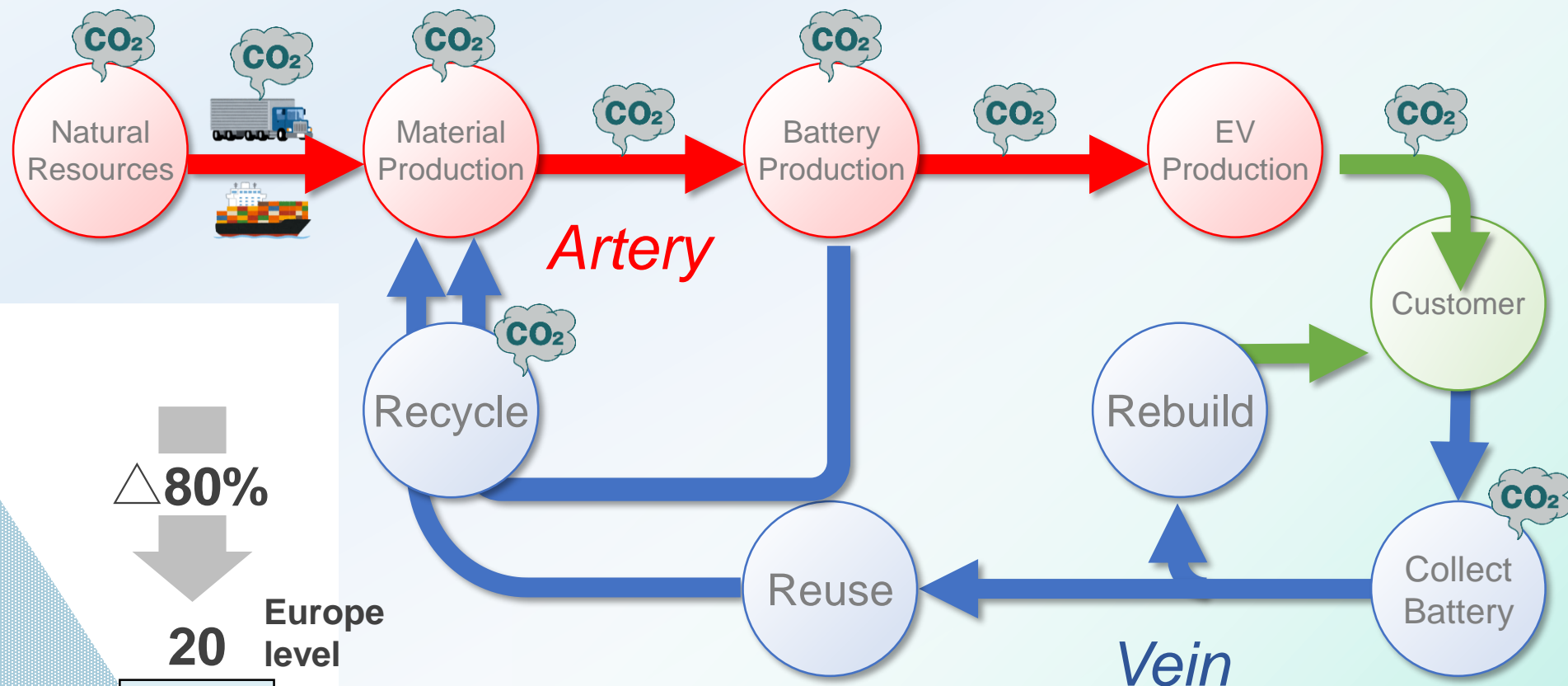
## Greenization

- ① Carbon neutral
- ② Recycling system establishment
- ③ Responsible procurement
- ④ Co-existence of nature and society



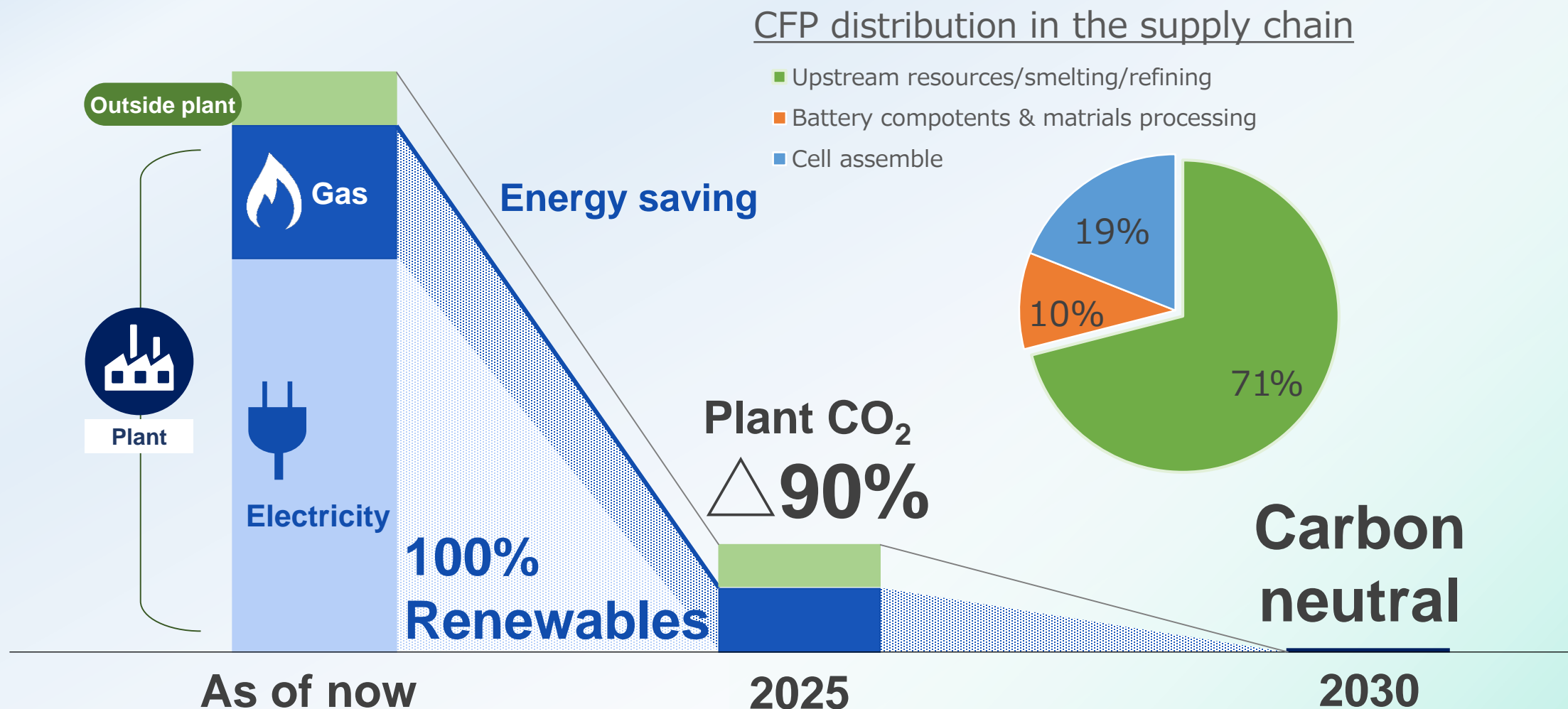
# Carbon Neutral Target (Supply Chain)

Aim to achieve 80% CO<sub>2</sub> reduction in 2030 throughout the SC.



# Carbon Neutral Target (In-house)

Energy saving and use of renewable energy to reduce in-house CO<sub>2</sub>



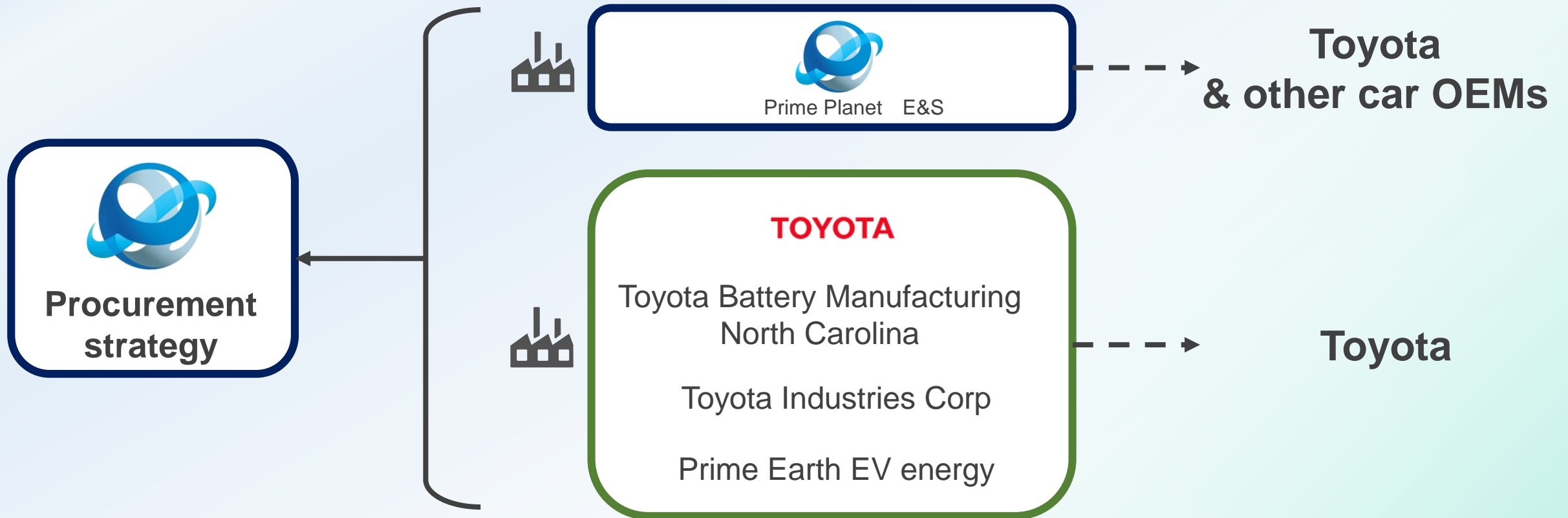


# BATTERY RAW MATERIALS

# Battery Metal Team Newly Assigned

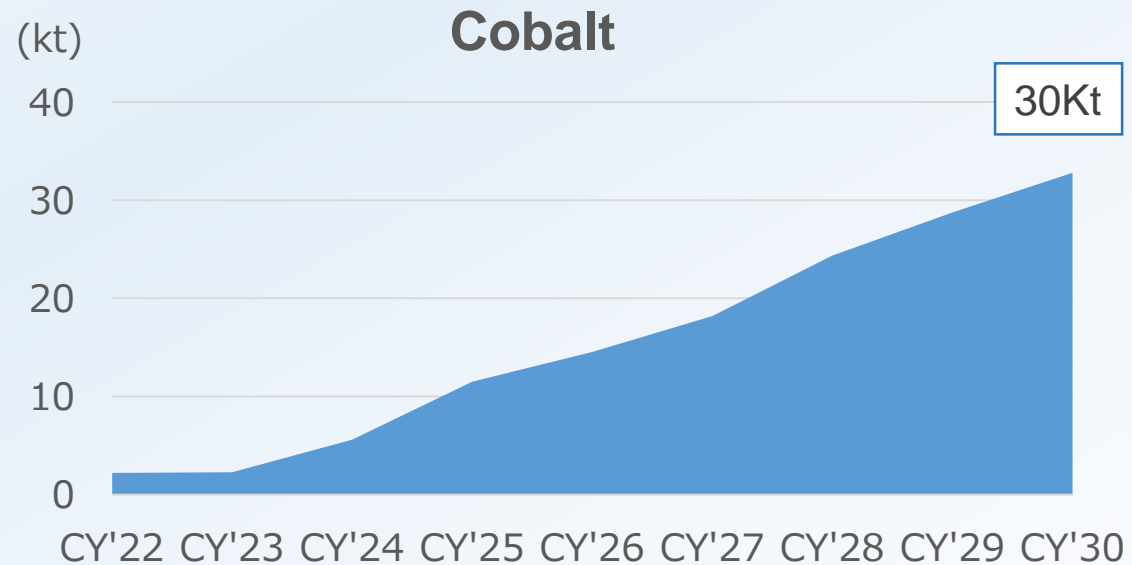
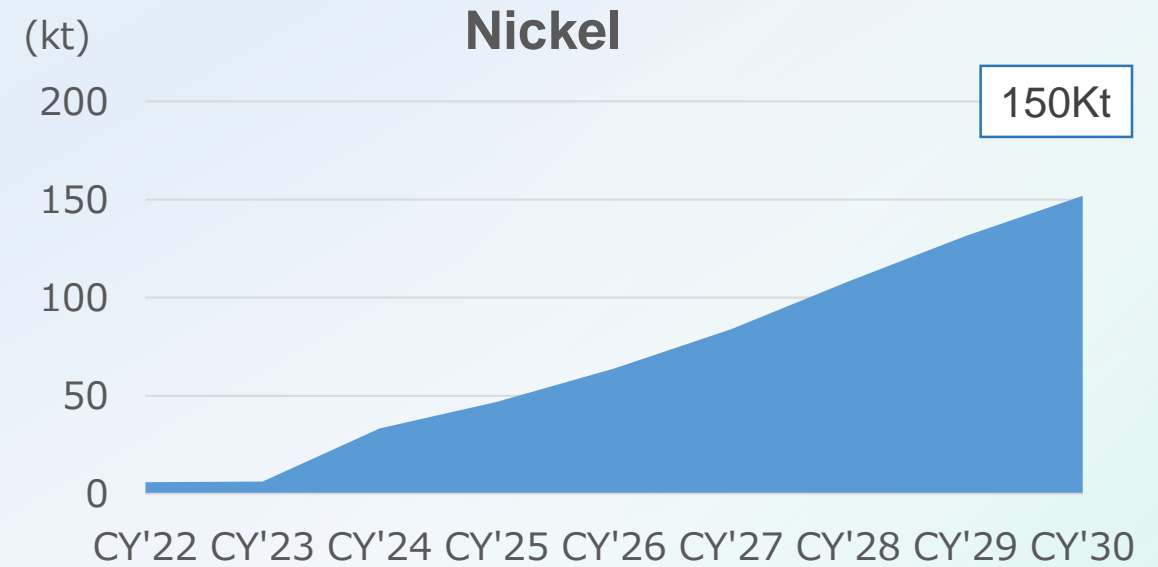
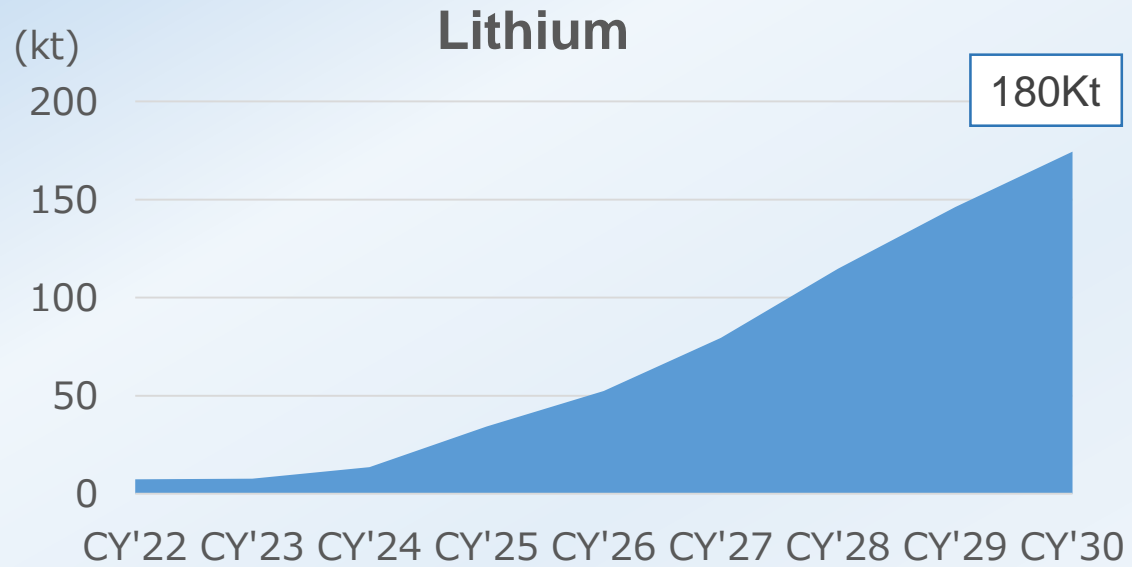
15

PPES set up a team for battery metal procurement strategy, and will also look after all the future demand from Toyota Group.



# Our Demand Forecast

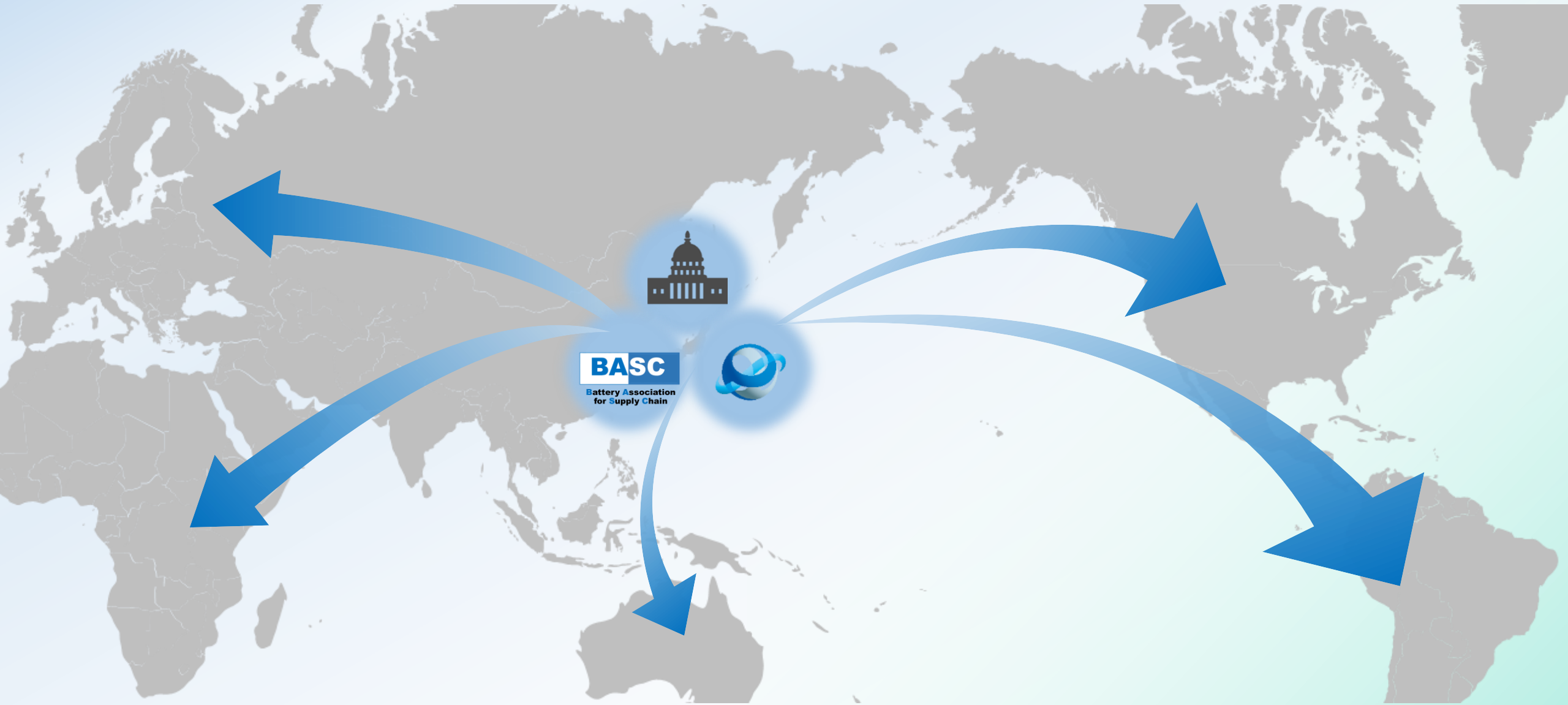
16



**Significant volume yet to be secured.**

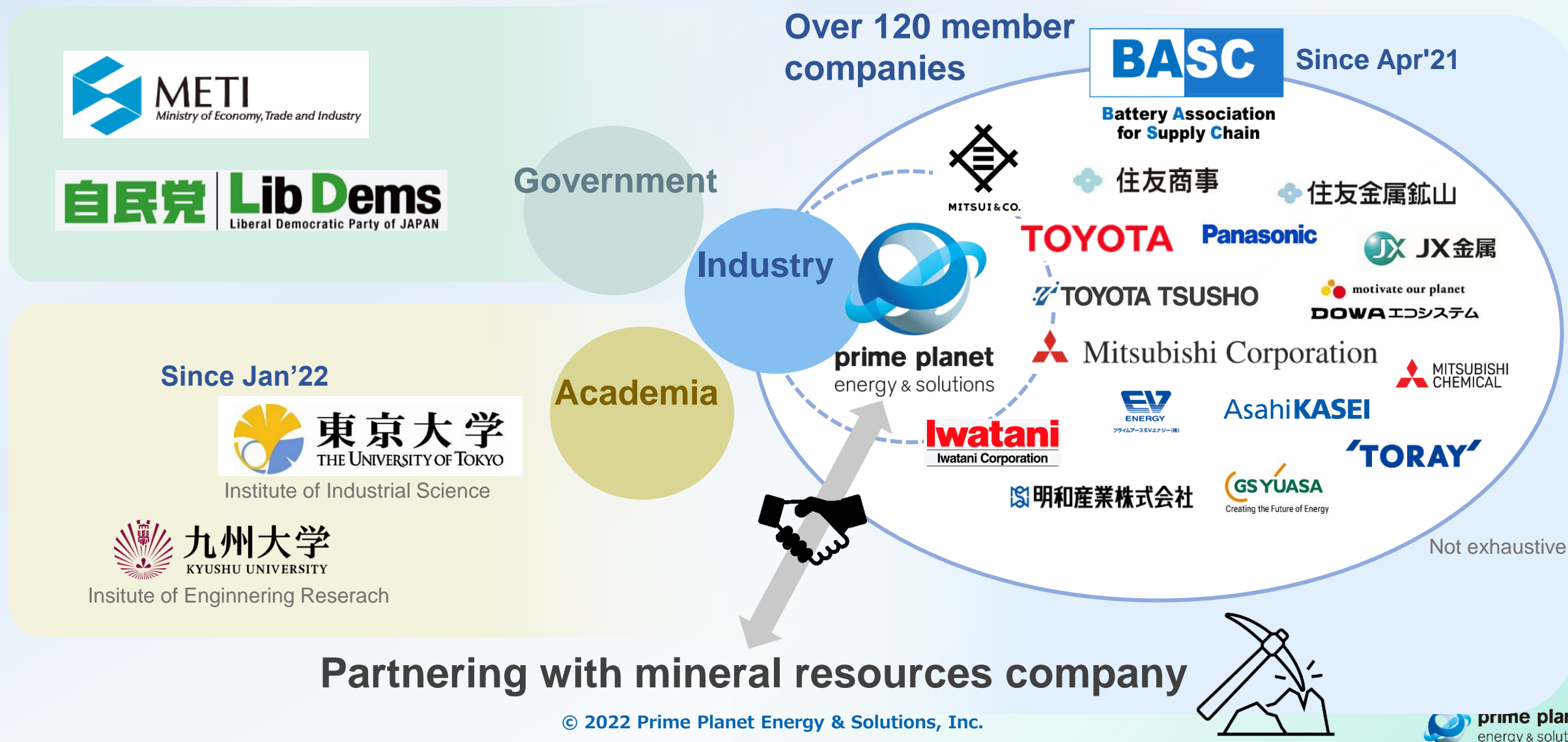
# How Do We Approach Raw Materials\*?

17



\* lithium, nickel, cobalt, manganese, graphite

# Collaboration for strengthening competitiveness



# Not Even Halfway, More to Go...



## MoU with BHP



Source : Reuter

# Still a Huge Gap between SC

We'd like to cover the gap as actual user of raw materials.

## Mining

"Long L/T"

"Push production"

"No guarantee on SoP"

"Variation in quality"

"Need LT commitment from users"



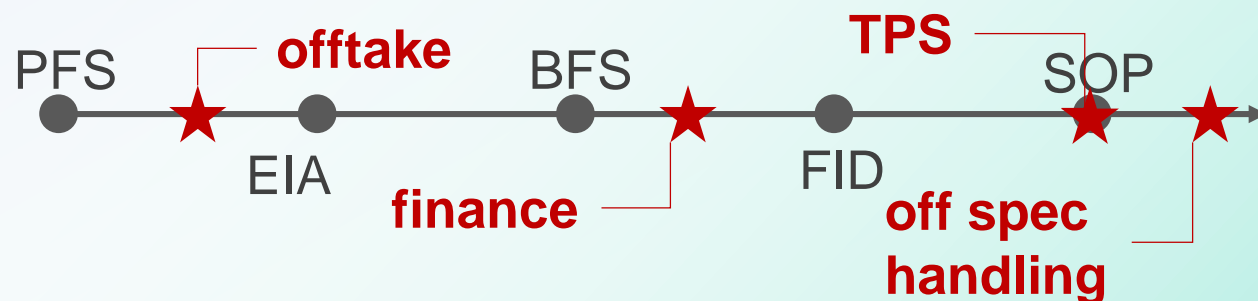
"JIT delivery"

"Want competitive price"

"No variation in quality"

Volume  
Quality  
L/T

PPES will have solutions



# Green Battery for Green Transformation

21

We'd like to pursue GX by GB together with African countries



**prime planet**  
energy & solutions

Still a long way to go but  
we can go far and reach there together!



**Let's work together to save the precious planet**



**prime planet**  
energy & solutions



For inquiry, please contact

***Tsutomu Aoki***

*Vice Presedent, Battery Metal Resource Department*

〈[tsutomu\\_aoki@p2enesol.com](mailto:tsutomu_aoki@p2enesol.com)〉

2020年10月27日