



Energy Conservation, Emissions Reduction, Intelligence, Automation

Company Profile

# TECO Electric & Machinery Group



## Company Vision

Energy Conservation

Emissions Reduction

Intelligence

Automation

since 1956

Years of excellence in the  
industry sector

≈100

Affiliate companies globally

40+

Countries with business  
operation

NTD 59.4B

Revenue in 2023

14,000

Global employees

# Group Businesses

**Green  
Mechatronic  
Solution**



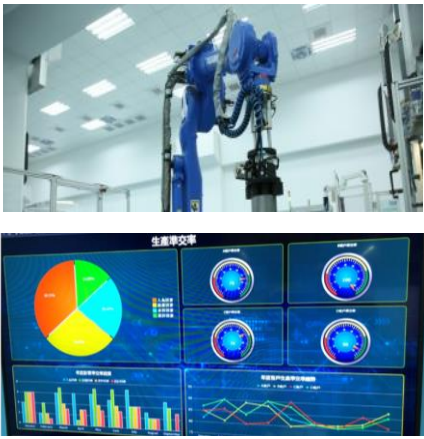
**EV Products**



**Intelligence  
Energy**



**Information  
&  
Communications  
Services**



**Energy  
Storage  
Operation  
&  
Development**



**Air  
&  
Intelligent  
Life**



**Industrial Parks  
Development  
&  
Management**



**Catering  
&  
Logistics**





# Group Business Achievements

## Green Mechatronic Solution



**No. 1 in market share of industrial motors in Taiwan**  
**Top 5 in global market share of medium to high-voltage motors**



**Top 5 in global market share of medium and small low-voltage motors**

## EV Products



**First local company to receive DMIT (designed and made in Taiwan) Qualification in Taiwan**

## Intelligence Energy



**Offshore wind farm substation: No. 1 in market share with approximately 2.5GW built/under construction**  
Equipment supplied: Gas insulated switches, medium/low-voltage distribution panels, emergency generators, air-conditioning systems



**Internet data center (IDC) EPC projects 170MW constructed**  
Track records across Southeast Asia

## Energy Storage and O&M



**Energy storage system EPC projects totaling 200MWh**

Including Taipower's Longtan Site which is Taipower's largest energy storage system



**Solar power plants projects**  
Approximately 20MW constructed

## Air & Intelligent Life



**No. 1 in market share of domestic brands** in the "All classrooms to be air conditioned-Elementary and Middle School " program  
**No. 1 in market share in Taiwan for commercial applications' water-cooled/air-cooled chillers**  
**No. 1 in market share in Taiwan for Inverter Window Air Conditioners**  
**No. 1 in market share in Taiwan for mini fridges (under 100 liters)**  
**First domestically produced - Low GWP environmentally friendly chiller (R407H)**

# Group Business Achievements

## Industrial Parks Development & Management



Subic Bay Industrial Park



Taipei Bioinnovation Park



Nangang Software Park Phase 1



Nangang Software Park Phase 3



Nangang Software Park Phase 2

## Nangang Software Park



My Phuoc Industrial Park, Vietnam



Bengaluru Industrial Park, India

**Century Development Corporation focuses mainly on industrial park development.** It works with Taipei City Government on the BOT project in Nangang Biotechnology Research Park and the Group has expanded into overseas markets with industrial park development in the Subic Bay in the Philippines, Binh Duong Province in Vietnam, and Bengaluru in India.

## Catering & Logistics



Taiwan Pelican Express is one of Taiwan's top four logistics companies  
Exclusive baggage home delivery services from Taoyuan and Songshan Airports  
Logistics services within Taipei 101  
New businesses: Low-temperature warehousing services



TECO has more than 14 catering brands **MOS Burger** ranks 2nd in Taiwan among fast food brands



# Main Global Operations



# Corporate Governance Achievements

TECO Electric & Machinery Co., Ltd. 東元電機  
Electrical Components & Equipment

## **Sustainability Yearbook Member**

S&P Global Corporate Sustainability  
Assessment (CSA) Score 2023

Member of

## **Dow Jones Sustainability Indices**

Powered by the S&P Global CSA

**MSCI**  
ESG RATINGS



CCC B BB BBB A **AA** AAA

RATING ACTION DATE: March 20, 2023

LAST REPORT UPDATE: April 03, 2023

- **Selected as a constituent of the Dow Jones Sustainability Indices (DJSI) for 4 consecutive years**
- **Included in the S&P Sustainability Yearbook for 4 consecutive years**
- **Received AA in the MSCI ESG Ratings**
- **Received the Taiwan Corporate Sustainability Awards for 10 consecutive years**
- **Top 5% of the corporate governance evaluation for 9 years**



# Green Mechatronic Solution Business Group

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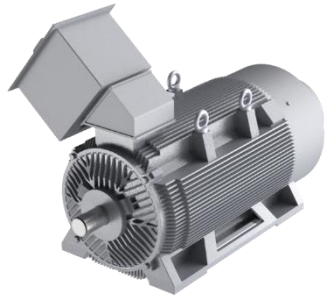


# Overview of Main Products

- **Low-Voltage Motors**



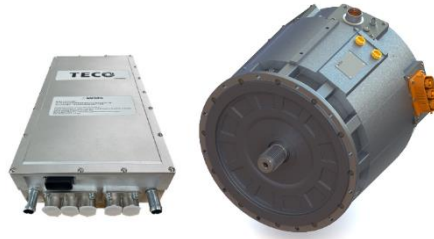
- **Medium and High Voltage Motors**



- **Reducers**



- **Electric Vehicle Motors**



- **Servo Drives**



- **Medium and High Voltage Variable Frequency Drives**



- **Low Voltage Variable Frequency Drives**



# Diverse High-Efficiency (IE5) Low-Carbon Environmentally Friendly Motor Driver Systems



## Leadership

### Only manufacturer in Taiwan:

Complete IE5 product family satisfies all application demands

## Innovation






### First in Taiwan:

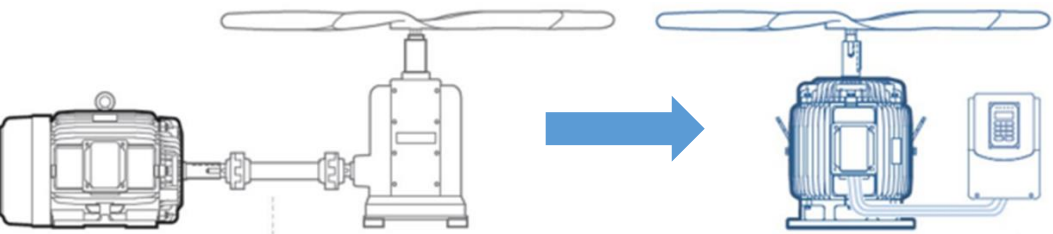
- IE5 efficiency synchronous reluctance without magnet assistance
- Not affected by sources of rare earths (strategic materials)
  - High reliability with no degaussing issues at high temperature

## Low-carbon

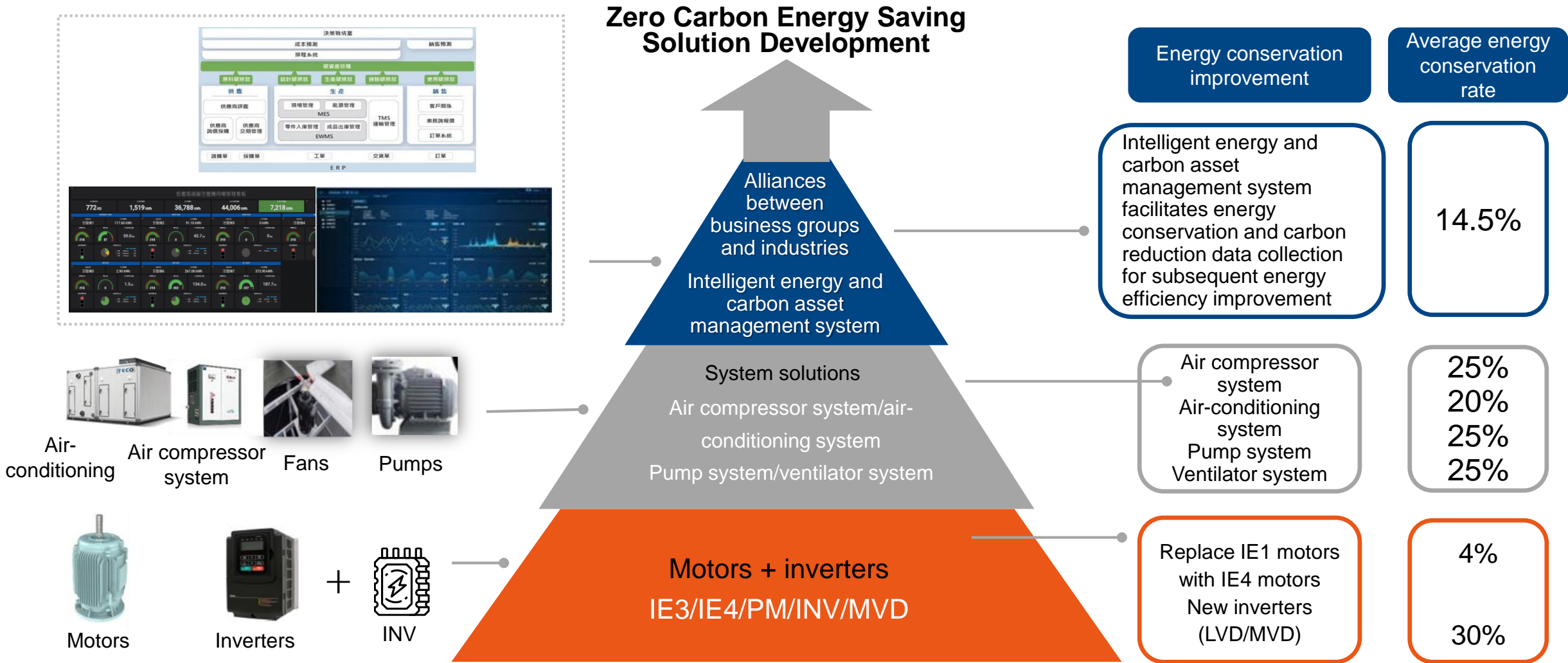
### Carbon Lite series (medium to high-voltage systems):

- Reduce product carbon footprint by 30% (power density 10% higher than average global leading brands)
- Environmental protection: Exclusive patent insulation system with 22% lower VOC emissions
  - Energy conservation: Suitable for variable frequency operations

					
IE5 efficiency	Induction motor	Synchronous reluctance motor	Permanent-magnetic motor	EC motor	Permanent magnet direct-drive system
Application areas	Industrial applications	Energy conservation applications for factories	Process equipment/factory equipment Energy conservation applications	Air conditioning and ventilation	Cooling tower



# System Energy-Saving Solutions



- ◆ Whole factory energy conservation improvements for large energy consumers in electronics and manufacturing industries and promotion of high-efficiency products
- ◆ Energy conservation promotion for Taiwanese businesses in Mainland China and Southeast Asia



# Industry Electrification Solutions



## TECO VB-skid



## TECO E-house

♦According to the U.S. government policy to support electrification, TECO Westinghouse has been actively tapping into this business opportunity. By replacing diesel engines to reduce carbon foot print, our application mainly focuses on compressors in O&G industry and the results have been promising.

# Vehicle Electrification Products

Applications

Drones

Light commercial  
vehicles

Buses, medium to large,  
commercial vehicles,  
construction vehicles

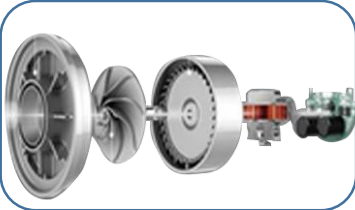
Electric boats



600~2000 tons

2000~3300 tons

TECO  
power  
system



2 in 1  
400V  
TP90/TP130



700V 250kW gear box

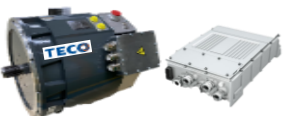


(M+I+G)



350KW+SiC  
3,000Nm~3,300 Nm  
(M+I)

T Power+250



100-250kW \_



690V 1250kW



Medium-voltage  
inverters

National Drone  
Team

DMIT



Taiwan's first **SiC High Efficiency Drive**:

Maximum efficiency  
of 99.5%

Power density  
increased by 2.5 times

# Electric vehicle charging stations produced and sold by TECO-Westinghouse Motor Company

DW-30



**Solution: 30kW wall-mounted  
charging station + foundation**

Application: School bus

DO-360



**Solution: 360kW integrated  
charging station**

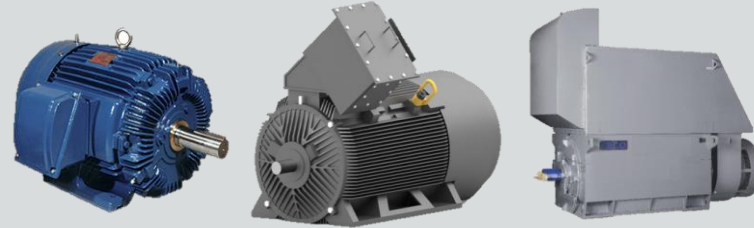
Application: Charging station





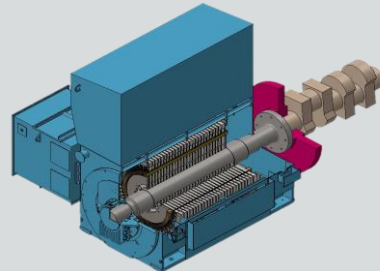
## Carbon capture, utilization and storage (CCUS)

- **Direct air capture (DAC):** Taiwan's first carbon capture motor "Carbon Cutter" Corrosion-resistant and reduces time and cost for system maintenance



1-15000hp Carbon Cutter motors

- **Disintegration after combustion:** Investment in the development of small-scale modular carbon capture equipment (capacity of 2-5 tons CO<sub>2</sub> per day) Resolves carbon emission issues of major manufacturing plants (fuel cell or natural gas power generation)
- **Hydrogen compression:** Special motor for compressors for hydrogen production and transportation to terminal hydrogen stations (H<sub>2</sub>Z)



Single-bearing hydrogen compressor motor series

# Intelligence Energy Business Group

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# Key Areas for Growth



**Onshore Substations for  
Offshore Wind Power**



**Energy Storage Systems  
Engineering**



**Internet Data Center (IDC)  
Engineering**



# Onshore Substations for Offshore Wind Power

**Built: 600 MW**  
**Building: 1844 MW**  
**Total: 2.5GW**



## Achievements

- Onshore Substation of Changfang & Xidao Offshore Wind Farms
- Onshore Substation EPC Project of China Steel Power Offshore Wind Farm
- Onshore Substation EPC Project of Hai Long Offshore Wind Farms



## 2023 Prospects

- Offshore Wind Power Phase III Onshore Substation EPC Project
- Offshore Wind Power Phase III Offshore Substation Power Equipment

# Energy Storage System EPC Project

130MW (including ongoing projects)



## Prospects:

**Completing the EPC project of energy storage system of 60MW in Taipower Longtan Substation in Q2 2023**

The Taoyuan Longtan Substation is the largest energy storage site in Taiwan, with a capacity of up to 60MW/96MWh. Once completed, it will take up 37.5% of the Taipower self-built capacity, and play a key role in stabilizing Taiwan's power supply.



# Internet Data Center (IDC) Engineering

**Built: 170MW**

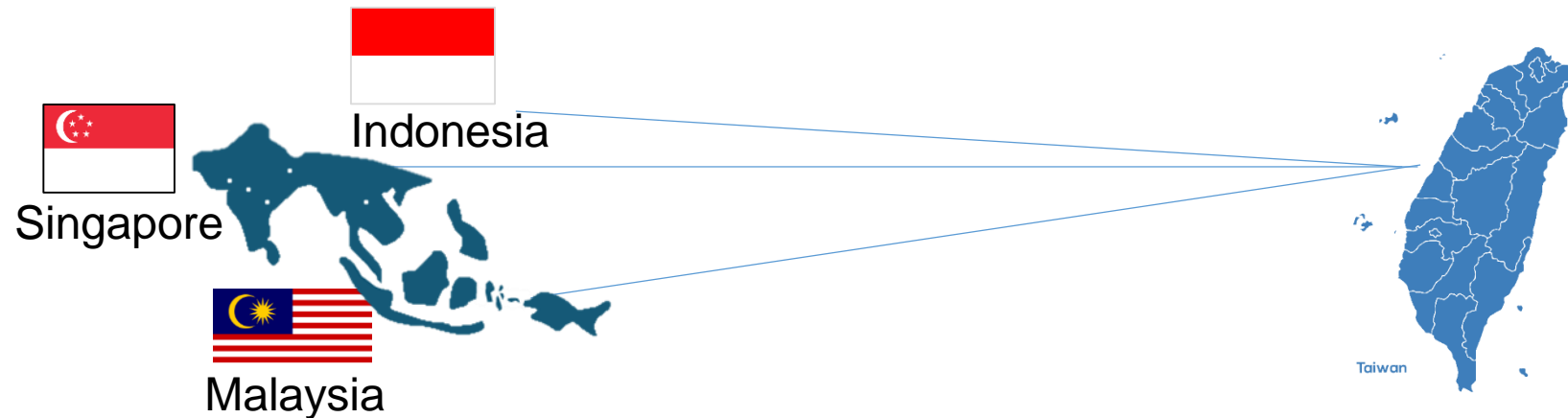


## **Integrate with affiliated companies and work with cloud service providers**

Become a strategic alliance partner with telecommunication companies and cloud providers, and take the opportunity to cooperate with overseas affiliated companies to internationalize our IDC engineering business, and develop power engineering and products based on fiber optic engineering.

## **Strengthen EPC & management abilities**

Considering the changing nature of international companies (such as IPT), and emerging forms of construction such as modularization and standardization, TECO's engineering advantage and the growing IDC team are well-positioned for EPC management.





## DC 1000/1500V



MCCB



MCB



DS



SPD



FUSE



Isolating  
switch

## AC 380~1000V



MCCB



ACB



VCB



Multi-functional  
distribution box

## Generator 20-3000kW



## PCS 250~1500kW



Isolating switch

## Schneider Electric



Inverters



EVC



CVS



TVS

## UPS/high-voltage power products



Uninterruptible  
power supply  
system (UPS)



Automatic  
transfer switch  
(ATS)



GIS 161KV

# Air and Intelligent Life Business Group

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# Wide Range of Air-Conditioning Products



**Frozen system**



**Direct Expansion Air Conditioning Unit**



**chiller system**



# Air-Conditioning System Solution—One-Stop Service

TECO Advantages Full product range to satisfy different requirements

## Energy-saving Water-cooled chiller options

### Technical characteristics

#### Magnetic bearing centrifugal chiller (flagship product)

Electromagnetic suspension

#### Centrifuge series

Permanent magnet  
variable-frequency  
centrifuge

AC variable-frequency centrifuge

Fixed-frequency centrifuge

#### Rotary-screw compressor series

Variable-  
frequency  
flooded chiller

Flooded chiller

Dry

### Market demand

IPLV  
up to 11.5

**Maglev**

Optimal energy conservation  
with 10% load reduction

High IPLV of 10.8

**High Efficiency**

Optimal energy conservation  
with 10% load reduction

High IPLV of 8.5

Energy Conservation  
(compared to fixed-frequency units)

High IPLV of 7.0-7.9

Energy Conservation  
(compared to  
rotary-screw units)

IPLV 6.5~7.0  
value series

Energy conservation  
for fluctuating loads

IPLV 5.8~6.5

Energy  
Conservation  
(compared to  
dry coolers)

IPLV 5.0~5.5

Economic

## Product Combinations

### Highest Efficiency

Comply with green building standards  
maglev centrifuge + variable-frequency peripheral system:  
0.58 kW/RT

### Maximum Synergy

Good value for money  
maglev centrifuge + variable-frequency flooded + peripheral  
system: 0.66 kW/RT

### Basic Capacity

Low entry costs  
flooded + fixed-frequency peripheral system: 0.98 kW/RT

Our collections covers various models and capability, suitable for different fields or needs, with high energy conservation, maximum synergy, and the lowest cost of installation. We also provide health diagnosis system, as well as one-stop system integration services such as visualization of electricity management and indoor air quality monitoring.

# Refrigeration and Freezer Technologies

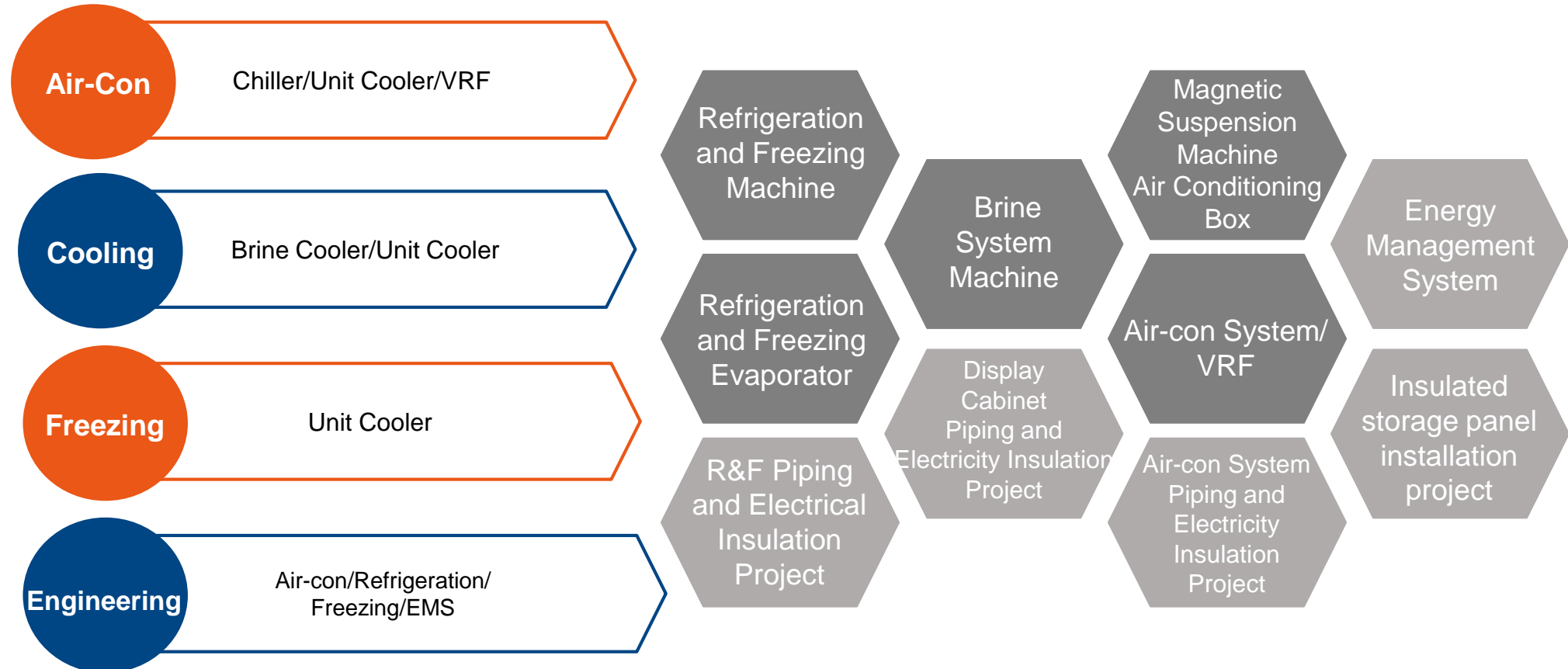


food warehouses/  
agriculture and  
fisheries  
associations

food processing/  
low-temperature  
factories

logistics centers/  
low-temperature  
transfer station

Supermarkets/  
convenience stores



# New Business—Energy Storage Business Development Division

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# PV Power Plants and Battery Energy Storage Systems



## **New target sites**

The Company focuses mainly on large-scale ground-based PV systems (Land usage) as well as aquaculture and rooftop sites.

## **Focus on PV+BESS and microgrids**

20MW solar power plants has been constructed

Energy storage system turnkey projects totaling 200MWh

## **PV+BESS site** (PV system + Battery energy storage system)

Creation of one of Taiwan's first few PV and BESS projects (6MW)

Implement time shift for the use of electrical energy to store solar energy during the day for use in the evening



## **Microgrid construction** (EMS + PV system + energy storage system)

TECO developed its own on-site energy management system to integrate electrical energy from different sources (Including the battery energy storage system); it dispatches electricity, adjusts Power frequency, stabilizes voltage dips and spikes, and prevents equipment damage



Energy Conservation, Emissions Reduction, Intelligence, Automation

# TECO — Your Partner for Net Zero and Sustainability

TECO Group