



Power/Full Solutions

# Tech Talk – Intelligent Battery Solutions

March 7, 2023

# Forward Looking Statements

As a reminder, we will be presenting certain forward-looking statements on this call that are based on Management's current expectations and views regarding future events and operating performance and are subject to uncertainties and changes in circumstances. Our actual results may differ materially from the forward-looking statements for a number of reasons. Our forward-looking statements are applicable only as of the date of this presentation. For a list of the factors which could affect our future results, including our earnings estimates, see forward-looking statements included in "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations," set forth in our Annual Report on Form 10-K for the fiscal year ended March 31, 2022, which was filed with the U.S. Securities and Exchange Commission.

In addition, we will also be presenting certain non-GAAP financial measures. For an explanation of the differences between the comparable GAAP financial information and the non-GAAP information, please see our company's Form 8-K which includes our press release dated February 8, 2023, which is located on our website at [www.enersys.com](http://www.enersys.com).

# Speaker Introduction



## **JOERN TINNEMEYER**

**SVP & Chief Technology Officer**

Joined EnerSys® in 2016

Responsible for global engineering, global quality, and technology development.

Primary focus of expertise includes energy storage systems, system design optimization, safety topologies and control theory.



## **MARK MATTHEWS**

**Sr. Vice President, Specialty Global**

Joined EnerSys® in 2016

Responsible for Specialty Global Line of Business which serves the Transportation, Aerospace and Defense Markets.

Over 25 years of experience in lithium cell and battery technology with a focus on increasing market share through highly engineered solutions that provided superior performance.



## **DREW ZOGBY**

**President, Energy Systems Global**

Joined EnerSys® in 2018

Responsible for Energy Systems Global Line of Business which primarily serves the Telecom Network, Broadband Cable, and Data Center Markets.

Served as Alpha Technology's President since 2008 and has over 30 years of experience in global broadband, telecommunications and renewable energy industries.



## **HAROLD VANASSE**

**Sr. Director of Marketing, Motive Power Global**

Joined EnerSys® in 2018

Leads marketing for Motive Power Global Line of Business which serves the Logistics and Warehousing Markets.

Over 26 years of experience in the material handling industry in a variety of technology, sales, and marketing leadership roles.

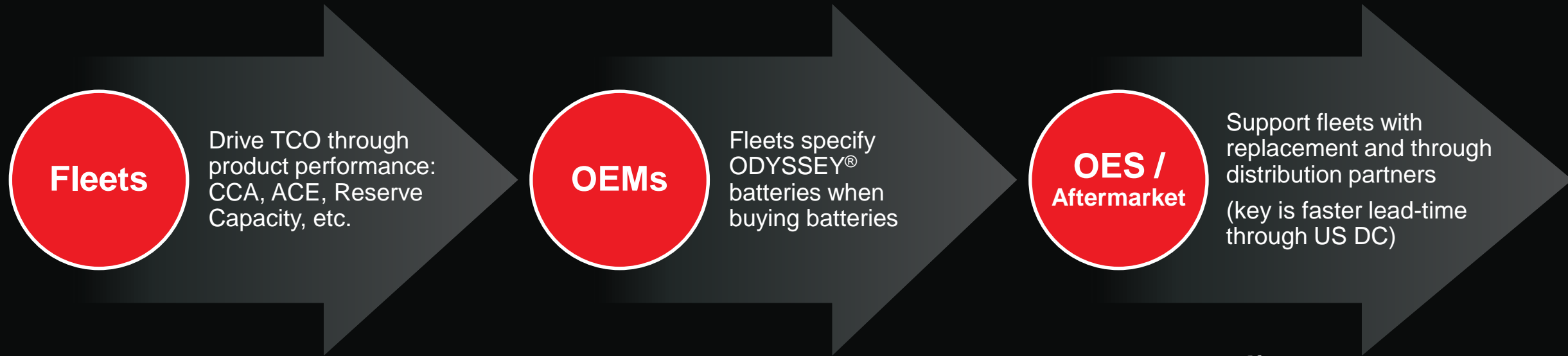
# EnerSys<sup>®</sup> Software Technology

DELIVERING PROPRIETARY INTELLIGENT BATTERY SOLUTIONS

- EnerSys's cloud enabled technology provides data analytics to help customers predict battery maintenance needs, manage energy storage systems, and optimize up-time
- ODYSSEY<sup>®</sup> CONNECT Battery Monitoring System for Specialty - Transportation
  - State of health, state of charge
- Advanced Connected Energy (ACE) Software for Energy Systems - Telecom
  - Voltage and temperature monitoring
- Wi-IQ<sup>®</sup> Battery Monitoring Device for Motive Power - Fleet management
  - 360-degree communication, advanced features for management capabilities

# Transportation Growth Strategy – HD Trucks

MAXIMIZING TOTAL COST OF OWNERSHIP



# Total Cost of Ownership:

JUST ASK A FRUGAL MASS RETAILER PRIVATE FLEET

Flooded Battery



**20**  
MONTHS

Service Life

**\$1.3**  
MILLION  
PER YEAR

Jump Starts

**\$1.06**  
MILLION  
PER YEAR

Tow-ins

**DUE TO  
BATTERY  
ISSUES**

Downtime



AGM Battery

**60**  
MONTHS

**\$5.0**  
MILLION  
SAVINGS

**\$5.3**  
MILLION  
SAVINGS

**DECREASE  
IN TCO**



Source: Data provided by customer

“By switching to the TPPL AGM product we have seen our warranty reduce by 80% when compared to other battery suppliers.”

-Truck OEM

**ODYSSEY**  
BATTERY

# ODYSSEY<sup>®</sup> CONNECT

BATTERY MONITORING SYSTEM

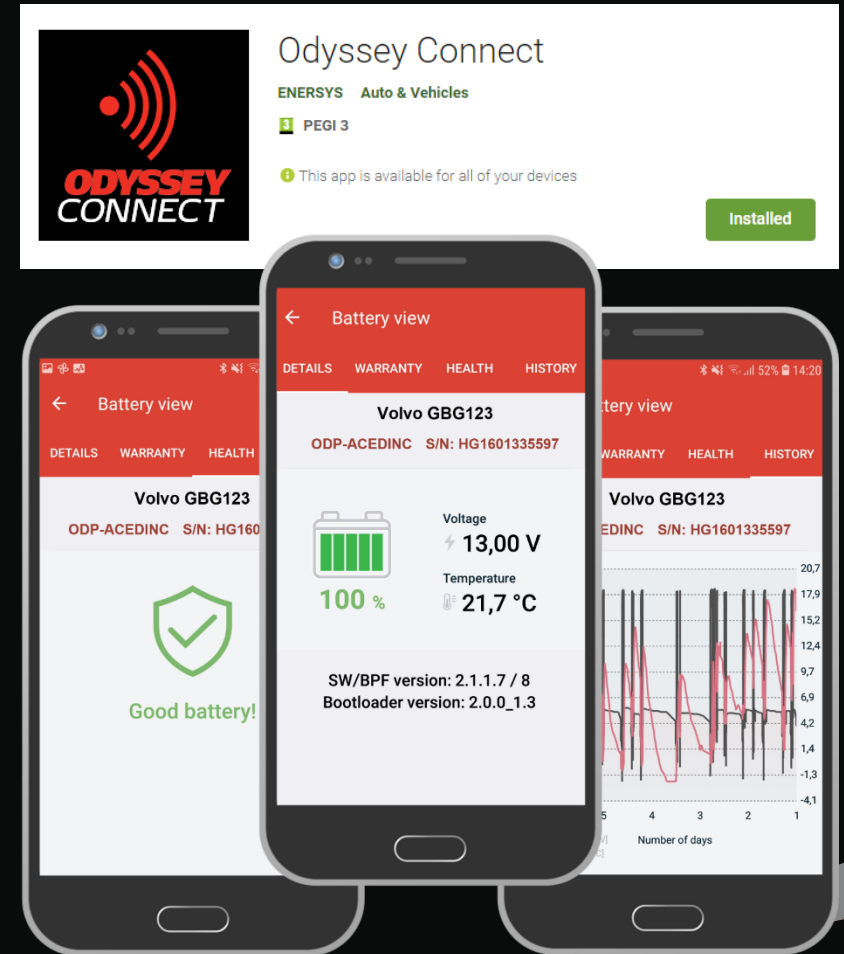
The patented 'ODYSSEY<sup>®</sup> CONNECT' BMS chip technology built into the battery allows:

- ✓ Voltage measurement
- ✓ Temperature measurement
- ✓ Recording of the battery's history
- ✓ Monitoring of the battery's state of health
- ✓ Warning and safeguard notifications
- ✓ Capture and analysis of vehicle start data



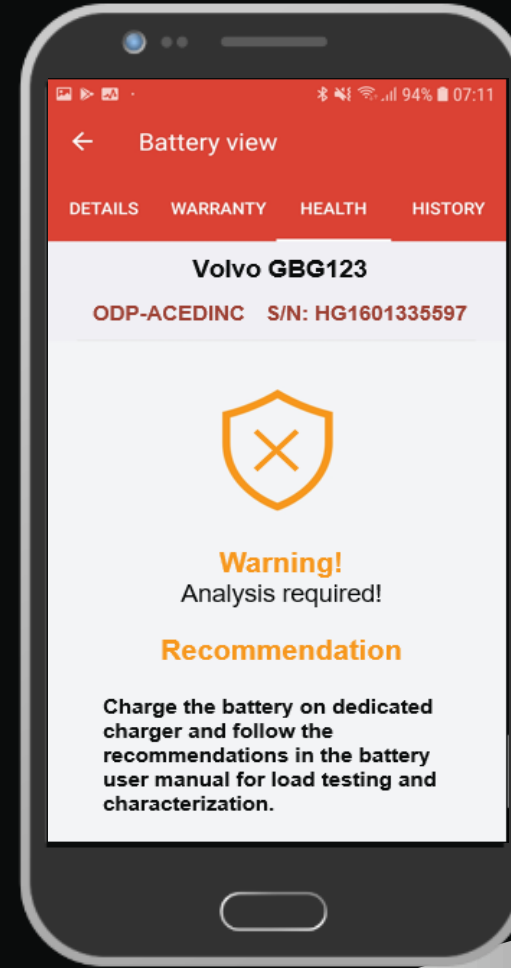
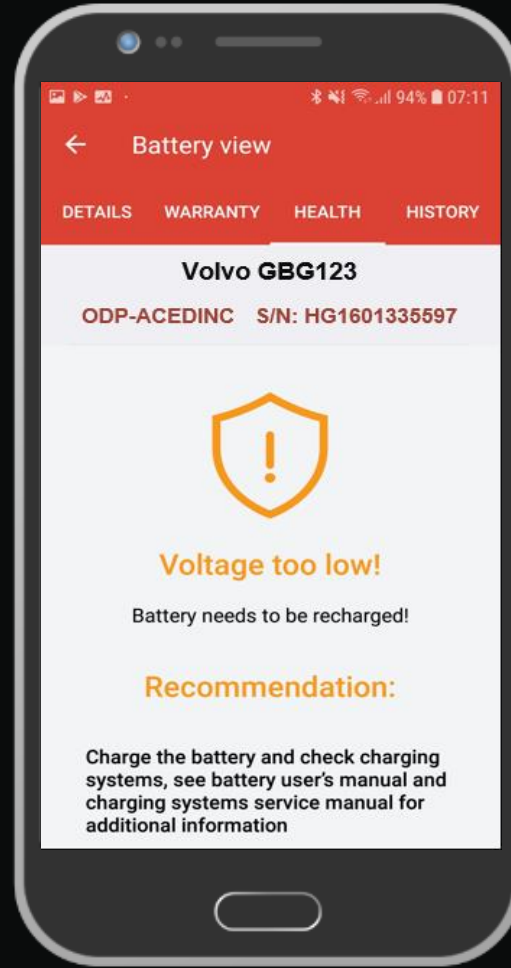
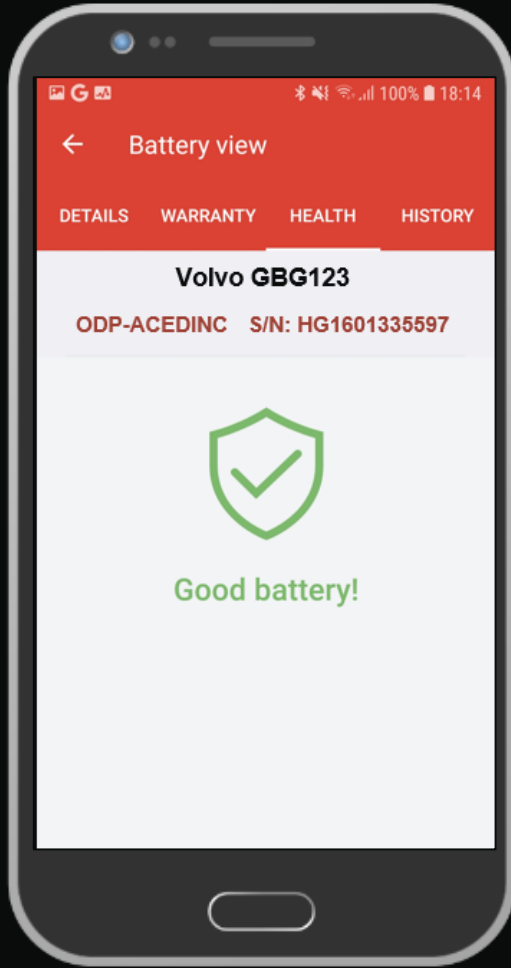
# Keeps Track of Battery Status – From Day 1

- Communicates with the battery using Bluetooth®
- Available for Apple and Android smart devices
- ODYSSEY® CONNECT information includes:
  - ✓ State-of-Health (SoH)
  - ✓ State-of-Charge (SoC)
  - ✓ Voltage & Temperature
  - ✓ Warranty guidance
  - ✓ Battery Highs & Lows
  - ✓ SoC graph (6-days)
  - ✓ V & T graph (6-days)
  - ✓ Purchase date (user input)





# View battery health – on the go!



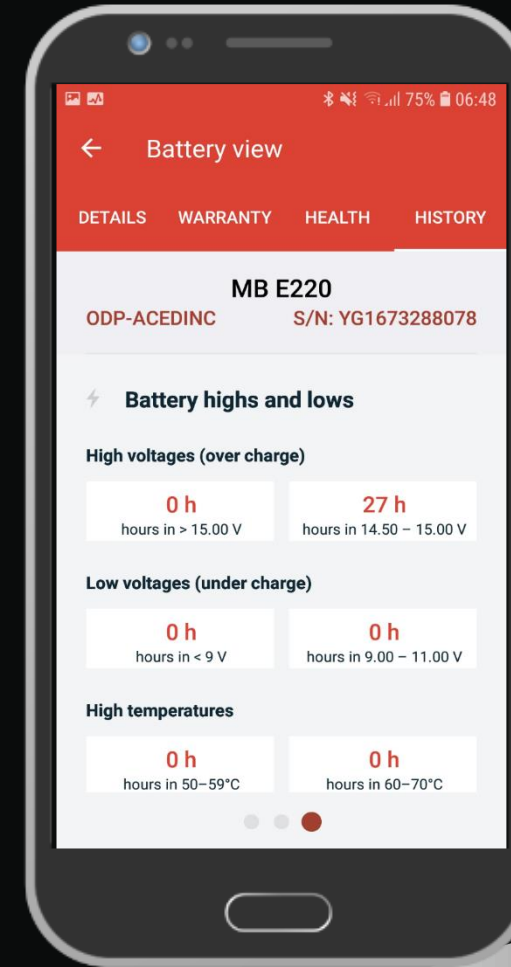
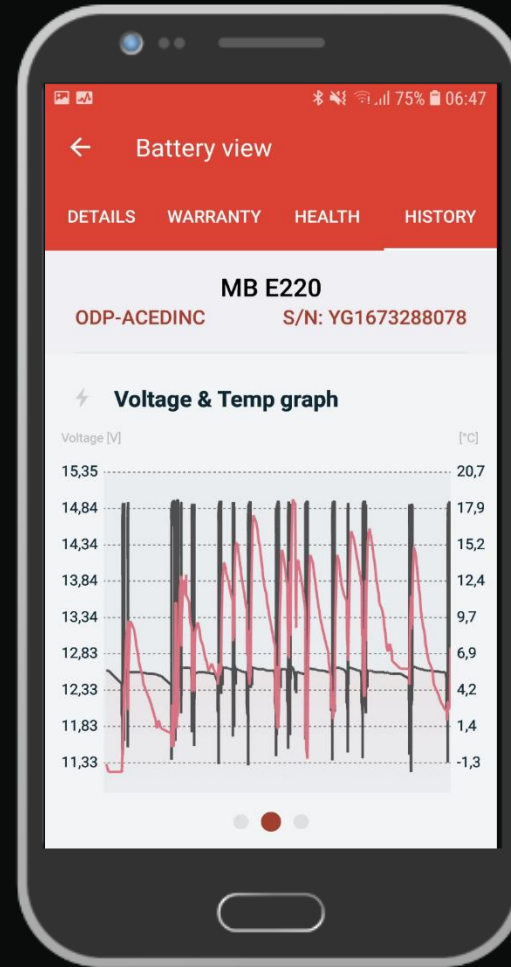
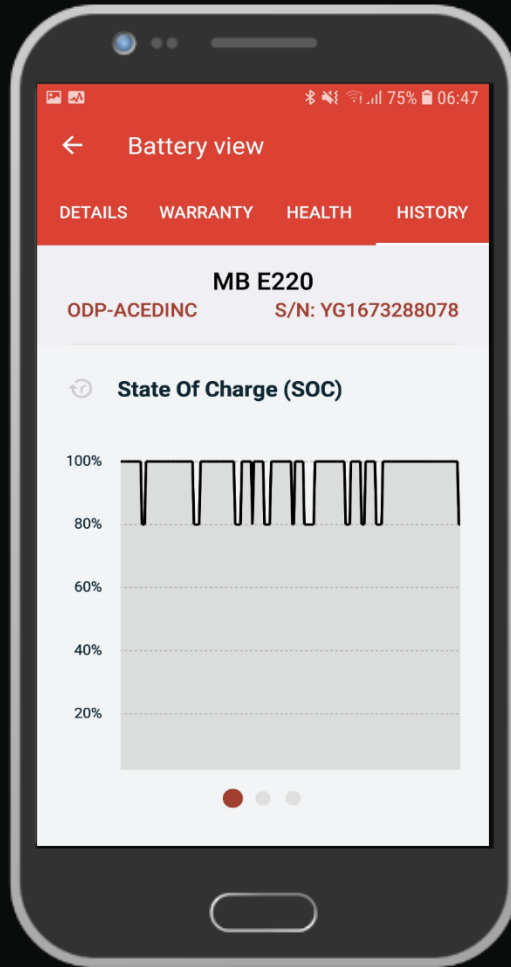
# See the Detail!

The history tab shows a summary of the different logs of the sensor:

- **State-of-Charge (SoC), 6-day trend graph**  
Shown in steps of 20% (10 in the future), the SoC graph shows the latest 6-days.
- **Voltage & Temperature graph**  
Today shown as a combined graph with the latest 6-days of data.
- **Battery Highs and Lows**  
If one or more results do not look right, the battery should be analyzed further.



# See the trends – **detect anomalies**



# ODYSSEY<sup>®</sup> CONNECT

BATTERY MONITORING SYSTEM

The current system is a steppingstone from individual or single string battery monitoring

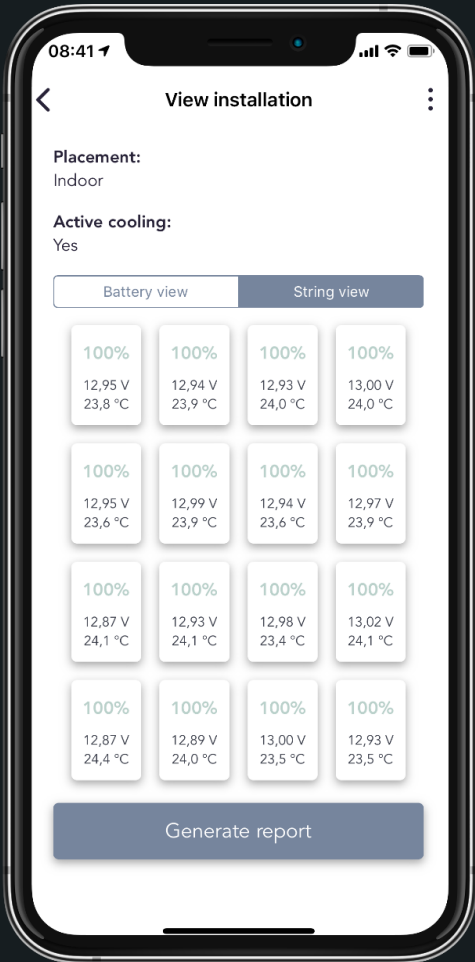
Future improvements include:

- ✓ Individual battery performance in a bank (parallel)
- ✓ CAN and telematics connections for push notifications to vehicle dashboard or fleet management systems
- ✓ Dynamic prevention of field failure without technical input



# Energy Systems – ACE

## ADVANCED CONNECTED ENERGY FOR TELECOMMUNICATIONS



- **Remote monitoring of assets:**
  - With ACE, customers can easily monitor thousands of batteries and identify sites that are underperforming—"Predictive" and "Preventative" maintenance.
  - Inventory and asset management, from warehouse to site and network.
- **On site support combined with easy integration for remote management:**
  - The wireless chip is embedded in our factory which eliminates installation wiring on site.
  - The software development kit (SDK) allows for easy integration of the ACE data into any remote management system capable of Bluetooth Low Energy (BLE) communications.
- **Secured installation using smartphone guided installation:**
  - The smartphone APP saves significant time for installers and ensures batteries, and the power system are installed correctly.
  - Automated installation reports can be generated and saved as an installation baseline.
- **Bridging the gap between Lead Acid and Lithium technologies:**
  - With ACE, customers get an embedded and affordable mass monitoring solution for Lead Acid batteries providing greater visibility into the overall system performance.

# Motive Power – E Connect™ Mobile App

BATTERY OPERATIONS MANAGEMENT

## POWER MANAGEMENT ECOSYSTEM

Predictable costs, Sustainable productivity. Profitable operations. EnerSys® Battery Operations Management programs can enable all of it. Instead of just reporting data, our programs transform data into actionable intelligence that can boost productivity, cut costs and improve operations.



BATTERY MONITORING DEVICE



MODULAR CHARGING TECHNOLOGY



SMART BATTERY DASHBOARD

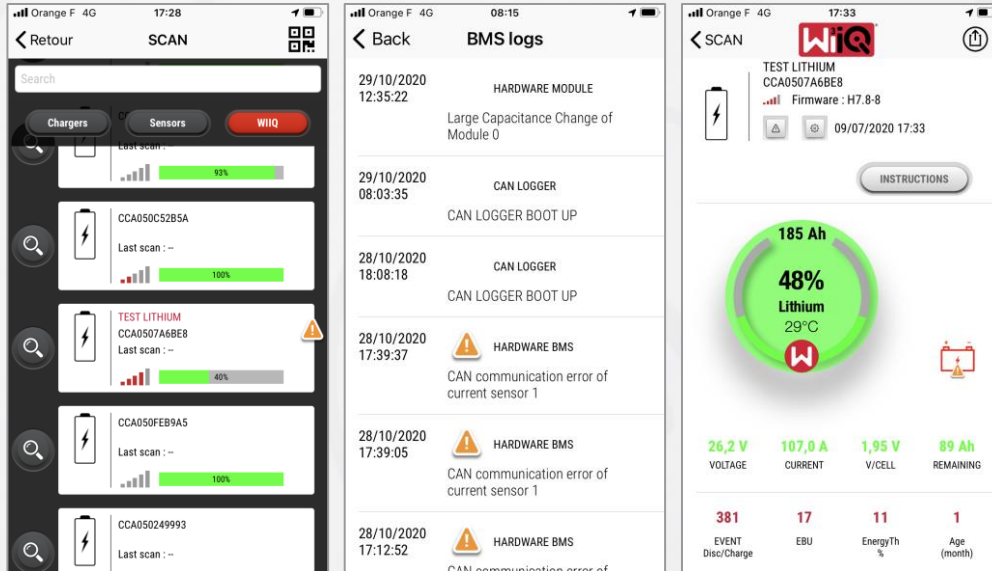


BATTERY OPERATIONS MANAGEMENT SYSTEM

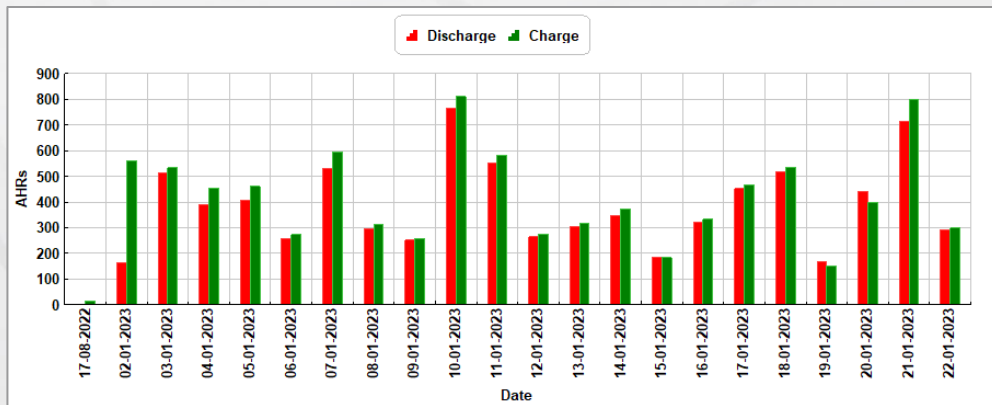


# Features & Benefits

## E CONNECT™ MOBILE APP



- Control and optimize the charge process via Wireless or CANBus communication
- Get access via CANOpen to your truck for SoC/SoH to guide the user and optimize performance
- Check the status of all your batteries across your operation
- Generates status alarms, automated dashboards & reports
- Detailed reports and history charts
- Remote reporting via cloud-based Xinx™ Software
- Reduce costs: Reduce asset inventory, asset replacement costs, and maintenance costs
- Increase productivity: Eliminate low performing assets, battery change labor, and lift downtime
- Improve buying decisions: Properly forecast budgets based on fleet reports





# Maximize Runtime

WI-IQ<sup>®</sup> TO TRUCK-IQ<sup>™</sup> TO THE OPERATOR

### Battery Details

054  
07/11/2018 10:20

80%  
REMAINING TIME  
05H10  
25°C

Type	25.2V4.6KWh
Discharge kWh	460 kWh
Discharge Time	360h
SoH	100%
Battery ONLINE	
EBU	125

Type: Battery Voltage & Power  
 Total discharge kWh since the start  
 Total discharge time since the start  
 Battery State of health  
 Battery status: ON/Off & Error codes  
 EBU: Equivalent Battery Unit  
 Number of times 80% batt cap was used

### Truck Information

054  
07/11/2018 10:20

80%  
REMAINING TIME  
05H10  
25°C

Truck worked time	1020 H
Overload discharge	500A
Overload charge	460A

Truck hour meter  
 | Max discharge  
 SoC and  $T_{batt}$   
 | regen

### Cycle/Trip Details

054  
07/11/2018 10:20

80%  
REMAINING TIME  
05H10  
25°C

Voltage	26.6V
Current	100.0A
Consumption	0.75kWh/h
Discharge	0.92 kWh
UCell	3.802/3.810 V
Temperature Cell	24°C/25°C

Real time Battery Voltage  
 Real time current  
 Average consumption (trip)  
 Discharged kWh (trip)  
 $V_{Cell}$  min and max  
 $T_{Cell}$  min and max

### Active Warning & Alert

054  
07/11/2018 10:20

GO TO CHARGE

11/07/2018 08:54  
State of charge critical







**EnerSys**<sup>®</sup>

*Power/Full Solutions*

# Q & A

# Appendix

# EnerSys at a Glance (NYSE: ENS)

LEADING PROVIDER OF DIFFERENTIATED ENERGY SOLUTIONS

**\$3.4bn<sup>2</sup>**

Sales

**7.9%<sup>2</sup>**

Adj. Op. Earnings<sup>1</sup> Margin

**\$4.47<sup>2</sup>**

Adj. Diluted EPS<sup>1</sup>

**~11.4k<sup>2</sup>**

Total Employees

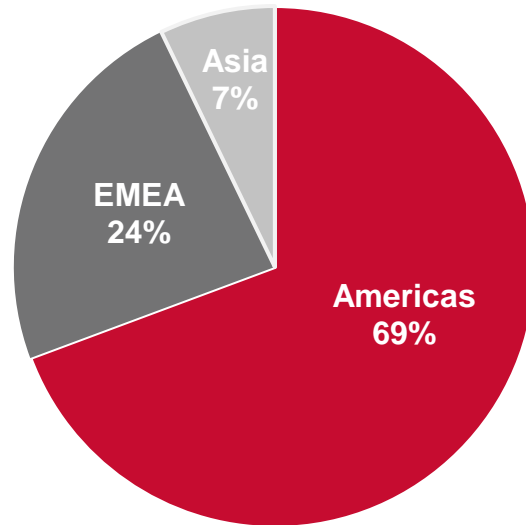
**10k+<sup>2</sup>**

Customers

**22%<sup>2</sup>**

Market Share<sup>3</sup>

## FY'22 SALES BY GEOGRAPHY



## GLOBAL FACILITY BASE<sup>4</sup>



1) Non-GAAP measure. Please refer to appendix for reconciliation.

2) FY'22, year end March 31, 2022

3) Source: BCI, Eurobat industry reports and management estimates based on the markets where EnerSys participates. Market size and share are for batteries and chargers only. It excludes power solution and services to broadband, telecom and other markets, and the aerospace & defense and cabinet enclosures markets (each estimated at \$1 to \$2 billion).

4) Represents geographies with EnerSys manufacturing and distribution centers

# Technology Driven Portfolio Transformation

## 2010

- Traditional lead acid battery company
- Narrow set of end markets
- Limited scale

## 2022

- Integrated technology solutions across energy storage, power & electronics, and software & services
- Broad exposure to a wide range of end markets with secular growth trends
- Enhanced scale

## Growth Opportunities

- Expand capacity for premium products
  - Grow **Motive Power maintenance-free** solutions
  - Increase **Transportation market share**
- Leverage **5G and other megatrends** with proprietary technologies
  - Small Cell build out
  - Battery management and software platforms
  - Fast Charge & Storage launch
- Reduce costs through **EOS** and volume leverage

## Transformed Through Strategic Initiatives and Disciplined M&A

### Strategic Initiatives

- ✓ Expansion of TPPL product line
- ✓ Launched lithium platform
- ✓ End market / product diversification

### M&A



2010



2013



2015



2018



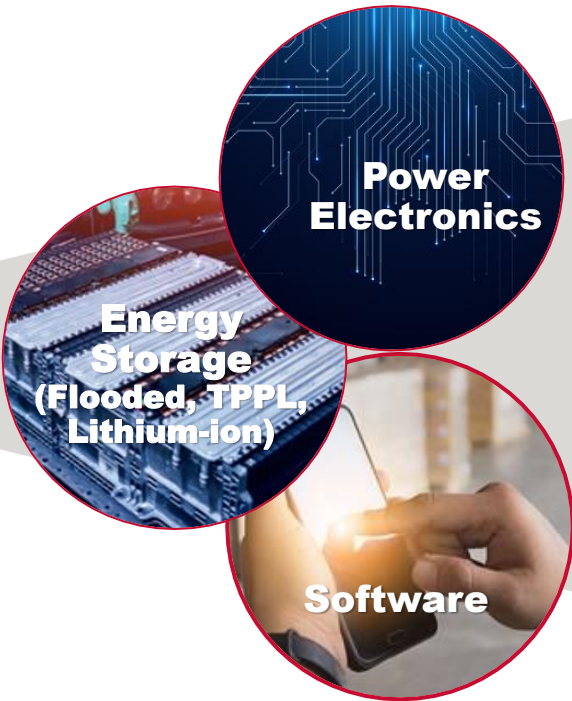
2019

# Leveraging Our Platforms Across All Segments

## 3 Core Technology Platforms

## 3 Business Segments

## 8 End Markets



- Telecom Networks
- Broadband Cable
- Industrial Power and Utilities
- Renewable Energy
- Data Centers
- Logistics and Warehousing
- Aerospace & Defense
- Transportation

# Technology to Meet Customer Needs

## Lithium-ion

- Maintenance-free, longer cycle life, fastest charge rate
- Innovative safety technology
- Ideal for use cases requiring high power density / long life and heavy-duty applications

## TPPL

- Virtually maintenance free
- Ideal for light-to-medium applications

## Flooded

- Ideal for industrial / harsh environment applications

**Energy Storage**

**EnerSys**

**Software**

- Edge computing, efficient data collection to the cloud
- Asset management software
- App support to manage health of assets
- Fleet management – automated service notifications
- Smart batteries

**Power Electronics**

- Advanced, high efficiency power conversion
- High voltage power transfer with power line communication for 5G small cells
- Wireless power transfer for automated warehouses
- Fast chargers for electric vehicles

Differentiated platforms with enhanced vertical capabilities to deliver the right solutions for our customers

# Technology Advancements

POWERING THE FUTURE, EVERYWHERE FOR EVERYONE

## CPUC Network Powering Program



Advancing both TPPL and Lithium modules

## Specialty Batteries

### ARTEMIS I



Making history with specialty solutions

## Wireless Chargers



Maintenance-free\* batteries & wireless solutions

## Fast Charge & Storage



Upgraded on-site demo installed

## TouchSafe



Strategic collaboration to facilitate 5G small cell radios



Power/Full Solutions

# Non-GAAP Reconciliations



# Non-GAAP Reconciliation

## FY'22 ADJUSTED OPERATING EARNINGS

	Twelve months ended			
	(\$ millions)			
	March 31, 2022			
	Energy Systems	Motive Power	Specialty	Total
<b>Net Sales</b>	\$ 1,536.6	\$ 1,361.2	\$ 459.5	\$ 3,357.3
<b>Operating Earnings</b>	\$ 15.1	\$ 146.5	\$ 44.6	\$ 206.2
Inventory adjustment relating to exit activities	0.2	2.4	—	2.6
Restructuring and other exit charges	2.8	17.1	(1.1)	18.8
Impairment of indefinite-lived intangibles	0.5	0.7	—	1.2
Loss on assets held for sale	—	3.0	—	3.0
Amortization of identified intangible assets from recent acquisitions	23.6	—	1.8	25.4
Other	5.1	1.0	0.3	6.4
<b>Adjusted Operating Earnings</b>	\$ 47.3	\$ 170.7	\$ 45.6	\$ 263.6

# Non-GAAP Reconciliation

## FY'22 ADJUSTED DILUTED EPS

	Twelve months ended	
	<i>(in millions, except share and per share amounts)</i>	
	March 31, 2022	March 31, 2021
<b>Net Earnings reconciliation</b>		
As reported Net Earnings	\$ 143.9	\$ 143.3
Non-GAAP adjustments:		
Inventory adjustment relating to exit activities	2.6 (1)	—
Restructuring and other exit charges	18.8 (1)	40.4 (1)
Impairment of indefinite-lived intangibles	1.2 (2)	—
Loss on assets held for sale	3.0 (3)	—
Amortization of identified intangible assets from recent acquisitions	25.4 (4)	25.3 (4)
Acquisition activity expense	—	0.3 (5)
Other	6.4 (6)	1.8 (6)
Purchase accounting related tax	—	2.2
Income tax effect of above non-GAAP adjustments	(10.3)	(17.3)
Swiss Tax Reform	\$ —	\$ (1.9)
<b>Non-GAAP adjusted Net Earnings</b>	<b>\$ 191.0</b>	<b>\$ 194.1</b>
<b>Outstanding shares used in per share calculations</b>		
Basic	42,106,337	42,548,449
Diluted	42,783,373	43,224,403
<b>Non-GAAP adjusted Net Earnings per share:</b>		
Basic	\$ 4.54	\$ 4.56
Diluted	\$ 4.47	\$ 4.49
<b>Reported Net Earnings (Loss) per share:</b>		
Basic	\$ 3.42	\$ 3.37
Diluted	\$ 3.36	\$ 3.32
<b>Dividends per common share</b>	<b>\$ 0.70</b>	<b>\$ 0.70</b>

# Non-GAAP Reconciliation

## FY'22 ADJUSTED DILUTED EPS (CONTINUED)

The following table provides the line of business allocation of the non-GAAP adjustments shown in the reconciliation above:

	Twelve months ended	
	(\$ millions)	
	March 31, 2022	March 31, 2021
	Pre-tax	Pre-tax
(1) Inventory adjustment relating to exit activities - Energy Systems	0.2	—
(1) Inventory adjustment relating to exit activities - Motive Power	2.4	—
(1) Restructuring and other exit charges - Energy Systems	2.8	3.1
(1) Restructuring and other exit charges - Motive Power	17.1	36.9
(1) Restructuring and other exit charges - Specialty	(1.1)	0.4
(2) Impairment of indefinite-lived intangibles - Energy Systems	0.5	—
(2) Impairment of indefinite-lived intangibles - Motive	0.7	—
(3) Loss on assets held for sale - Motive	3.0	—
(4) Amortization of identified intangible assets from recent acquisitions - Energy Systems	23.6	23.5
(4) Amortization of identified intangible assets from recent acquisitions - Specialty	1.8	1.8
(5) Acquisition activity expense - Energy Systems	—	0.2
(5) Acquisition activity expense - Specialty	—	0.1
(6) Other - Energy Systems	5.1	1.5
(6) Other - Motive	1.0	0.3
(6) Other - Specialty	0.3	—
Total Non-GAAP adjustments	\$ 57.4	\$ 67.8



# Thank you.

For more information visit  
us at [enersys.com](https://www.enersys.com)

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