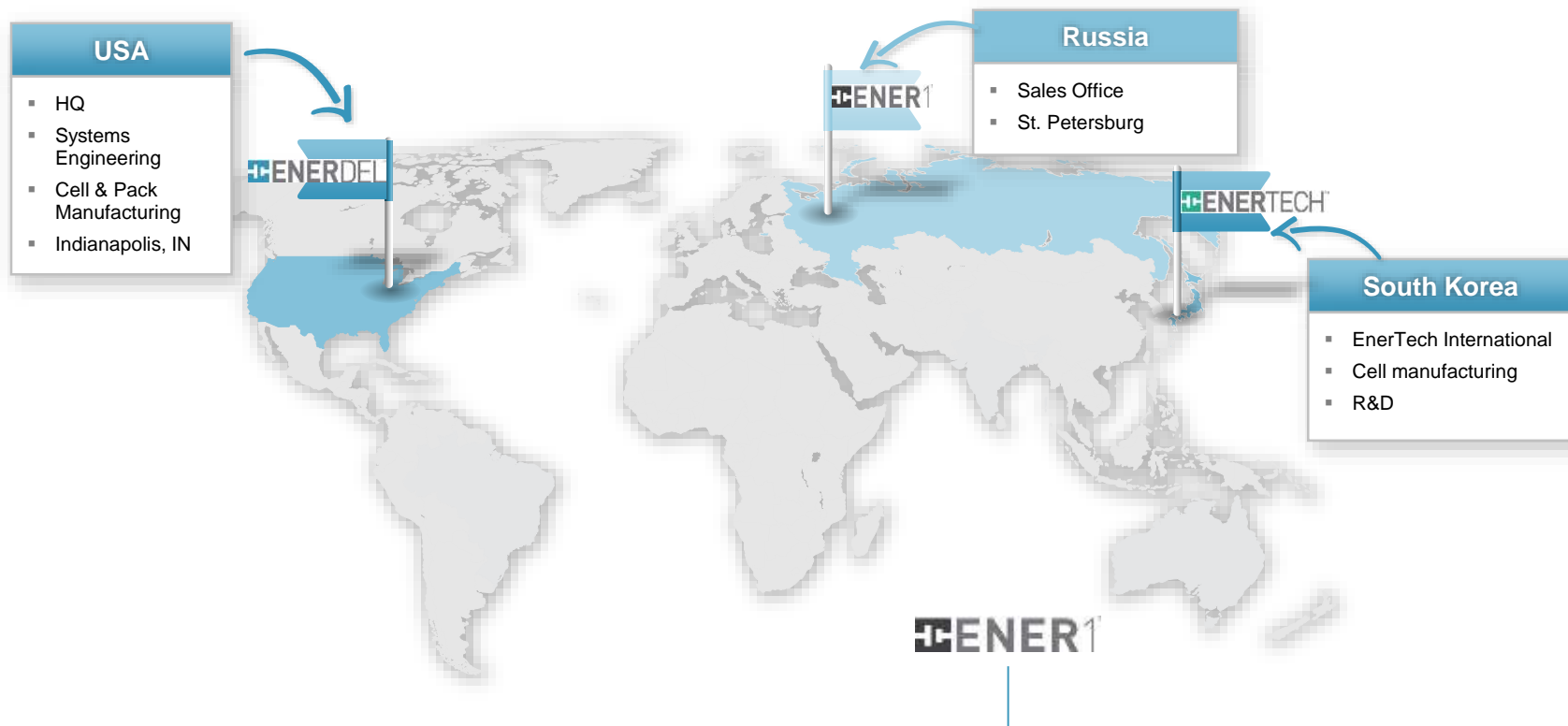


10 Annually Conference
Member Update

13 March 2019

Integrated Family of Companies with a Global Footprint



- 350 employees worldwide
- More than 11 nationalities

[\[EnerDel VIDEO\]](#)

ENERDEL

- Indianapolis HQ & manufacturing facility
- Cell manufacturing and module / pack assembly
- Large format for transportation, industrial and grid applications

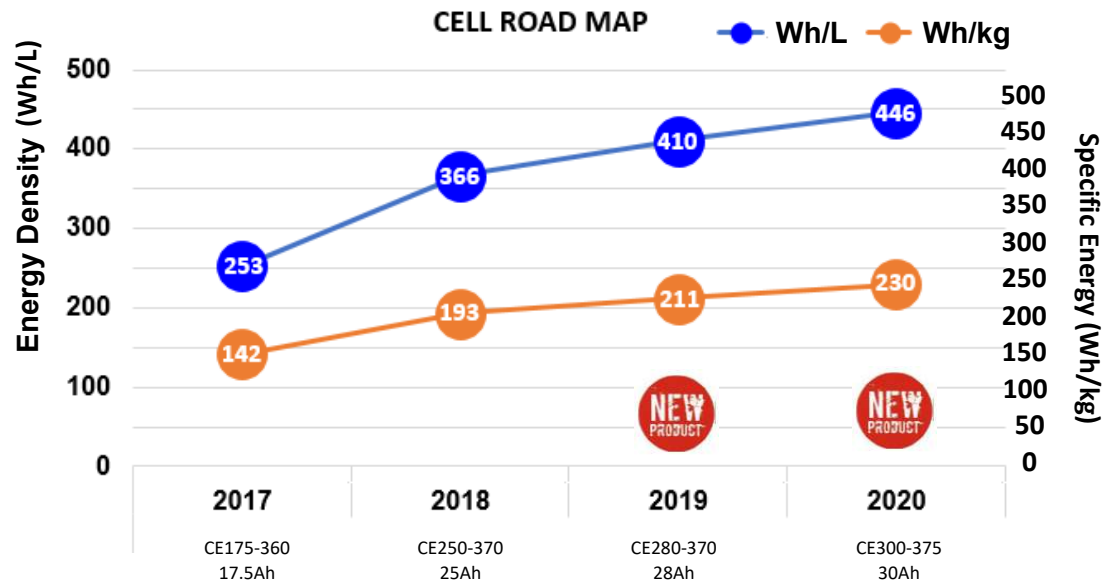
ENERTECH

- Korean supplier of large and small format Li-ion cells

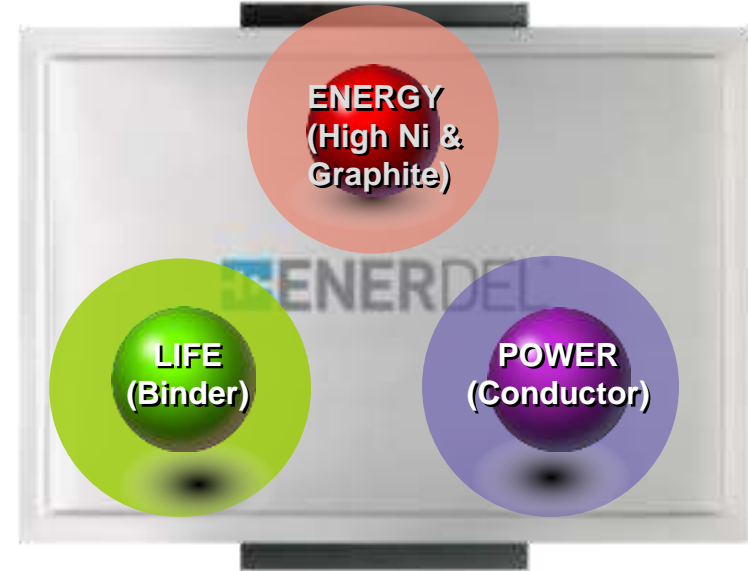
Delivering Clean Energy Systems that change the world

ENERDEL

Cell Technical Road-Map



Energy Density > 35% > 50% > 60%



EnerDel Vigor+ Packs for Hybrid Buses

PP320-738LP Vigor+ Packs

- Diesel Electric Hybrid Bus
- ~1500 packs installed since 2015
- >85 million miles of in service operation
- >20 municipalities in North America

~1500 packs installed and in operation in North America today



FLEXIBLE

HIGHLY CONFIGURABLE PACK SOLUTIONS WITH ACTIVE AIR OR LIQUID COOLING THERMAL MANAGEMENT OFFERINGS

SAFE

VIGOR SERIES PACK SOLUTIONS ARE DESIGNED WITH SYSTEM LEVEL REDUNDENCIES, MSDS AND AUTOMOTIVE STANDARDS DESIGNED USING ENERDEL'S BMS WHICH PROVIDES CONTROL, BALANCE, AND MANAGEMENT OF THE SYSTEM

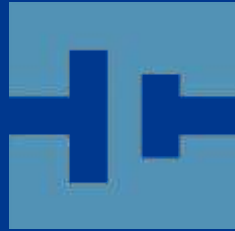
SCALABLE

THE SCALABLE DESIGN ALLOWS MULTIPLE PACKS TO BE CONNECTED IN PARALLEL TO CREATE > 220 kWh OF ENERGY



Product Specifications:			
Cell Configuration	168s2p	Cont. Discharge	100A@100-20% SOC
Cells per pack	336	Cont. Discharge	150A (10 seconds)
Max Voltage	705V	Peak Charge Power	67kW@ 80% SOC
Min Voltage	504V	Cont. Discharge Power	100kW (10 seconds)
Rated Capacity	50Ah	Peak Discharge Power	167kW (10 seconds)
Rated Energy	31.1kWh	Thermal Management	Liquid Cooled or Forced Air





MOBILE ENERGY

POWERED BY ENERDEL

FLEXIBLE

UNIVERSAL COMMUNICATION ALLOWS FOR PACK
INTEGRATION WITH A WIDE RANGE OF DISTRIBUTION EQUIPMENT

SAFE

THE UNIVERSAL DEPLOYABLE BATTERY PACK IS NAVSEA CERTIFIED MIL AIR TRANSPORT APPROVED AND IS
DESIGNED USING ENERDEL'S BMS WHICH PROVIDES CONTROL, BALANCE, AND MANAGEMENT OF THE SYSTEM

RUGGED

THE RUGGED DESIGN OF THE BATTERY PACK IS IDEAL FOR ANY MILITARY ENVIRONMENT AND IS MAN PORTABLE

SCALABLE

THE SCALABLE DESIGN ALLOWS MULTIPLE PACKS TO BE CONNECTED IN PARALLEL TO CREATE UP TO 70 kWh OF
ENERGY

Product Specifications

Max Voltage	394 V
Min Voltage	240 V
Rated Capacity	35 Ah
Useable Energy	10 kWh
Max Cont. Discharge	70 A
Max Cont. Charge	35 A



EnerDel

Energy Storage Solutions Provider

Updates

- *~1500 Hybrid bus packs in North America since 2015*
- *Continued expansion of next generation chemistry and cell product portfolio*
- *Robust Vigor pack solutions with integrated active air or liquid cooling options*
- *Product diversification into microgrid and military market segments*





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