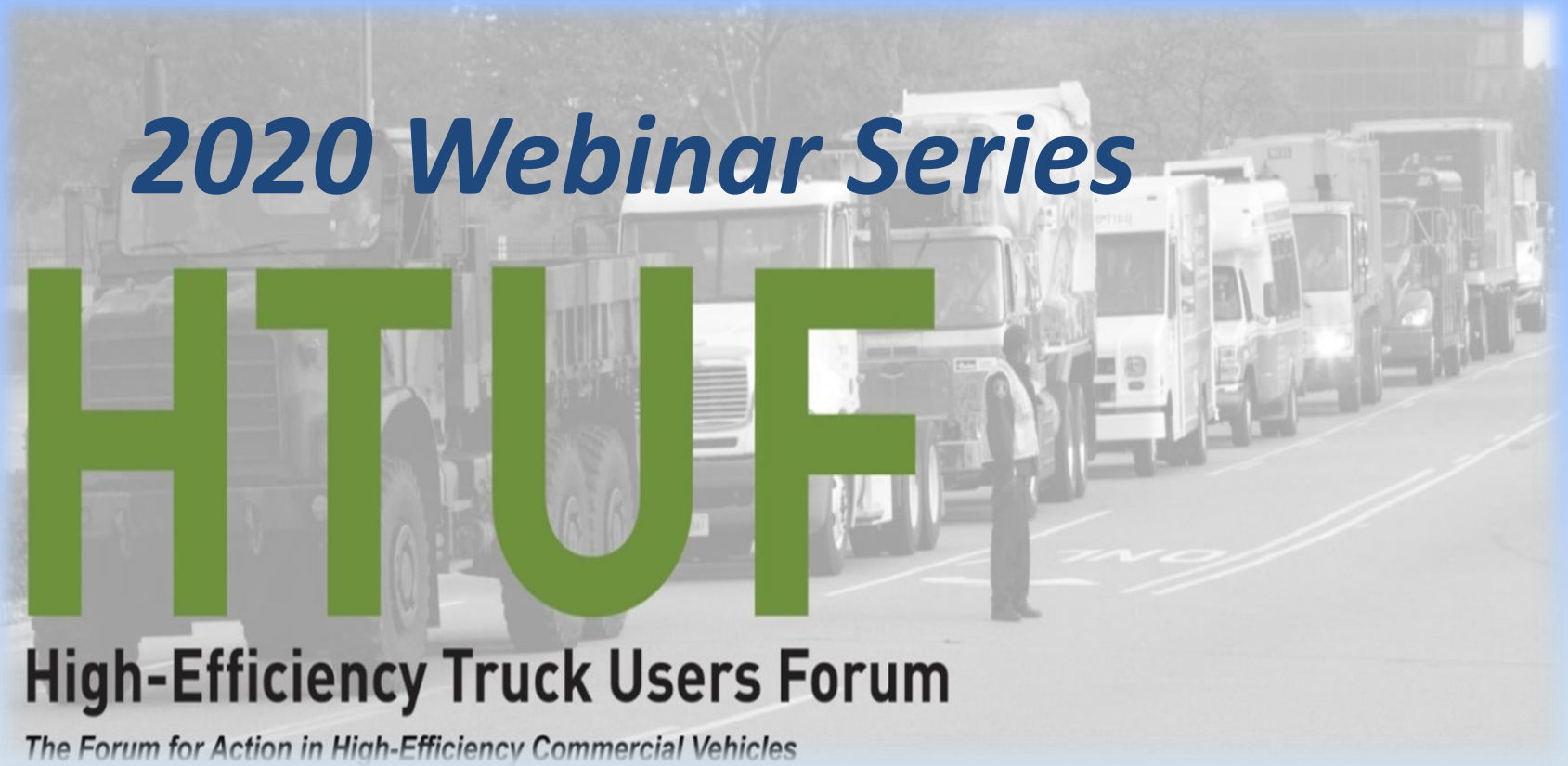


2020 Webinar Series

HTUF

High-Efficiency Truck Users Forum

The Forum for Action in High-Efficiency Commercial Vehicles

CALSTART

U.S.ARMY

DEVCOM GROUND VEHICLE SYSTEMS CENTER

Steven Sokolsky
Program Manager

AGENDA

- CALSTART commercial vehicle activity update
- Panel Discussion: identifying common issues for vehicle electrification between the military and commercial industry
  - Dr. Larry Toomey, U.S. Army GVSC
  - Larry Larimer, U.S. Army Futures and Concepts Center
  - Jason Gies, Navistar, Inc.
  - Sean Gouda, DTE Energy
- HTUF Microgrid Working Group update
- Upcoming webinars

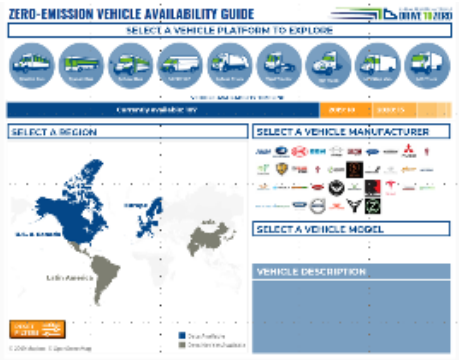
Global Drive to Zero: Tools to Drive Market Success

POLICY AND ACTION TOOLKIT

Live

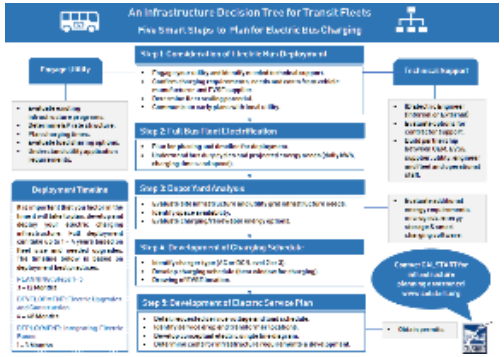
ZE TECH INVENTORY (ZETI)

Live



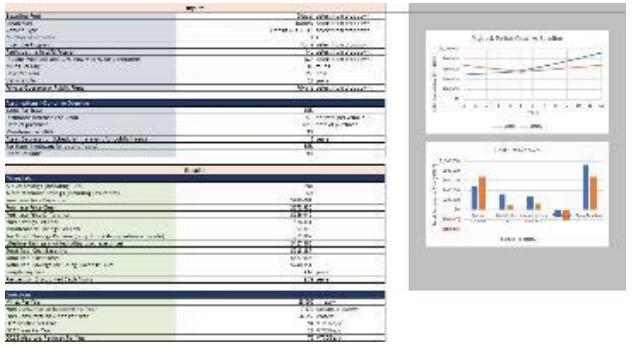
INFRA PLANNING GUIDANCE

Coming soon



TCO CALCULATOR

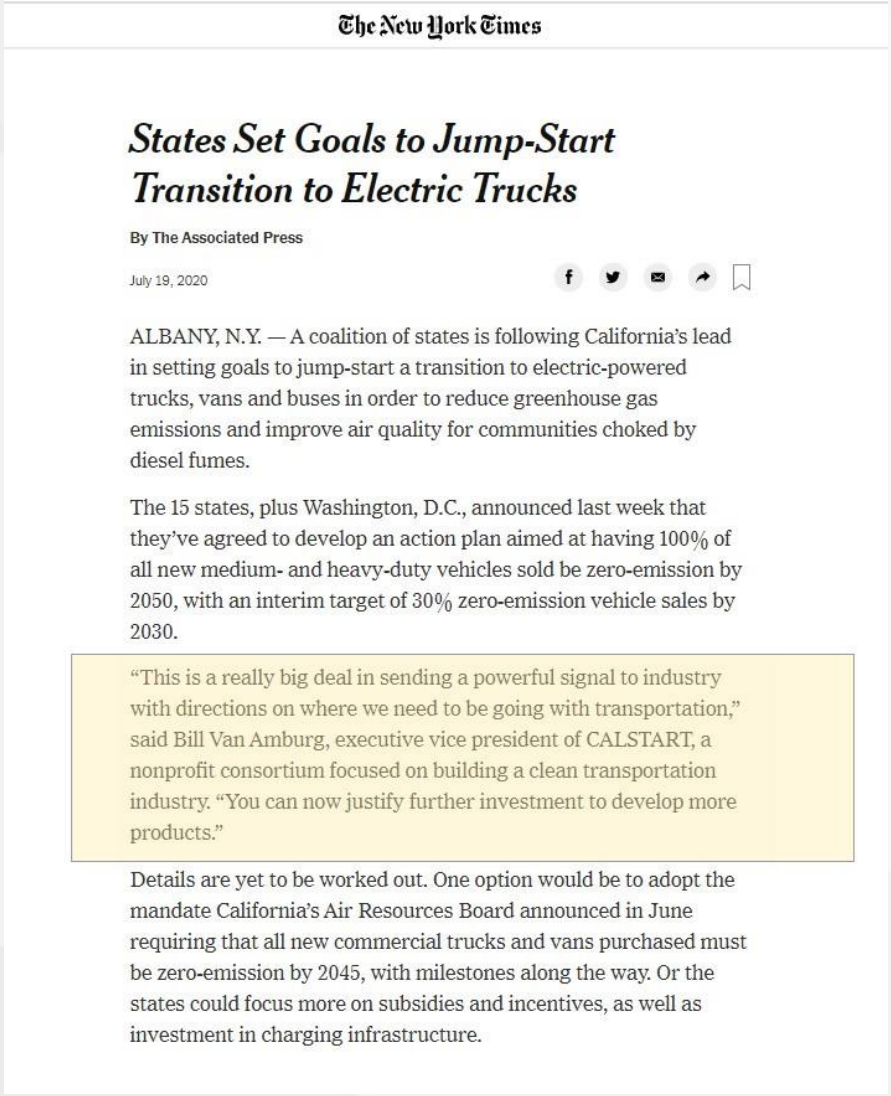
Live



Resources for Transformation: https://globaldrivetozero.org/tools/

DRIVE TO ZERO

CLEAN TRUCK GOALS EXPANDING TO 15 STATES



The New York Times

States Set Goals to Jump-Start Transition to Electric Trucks

By The Associated Press

July 19, 2020

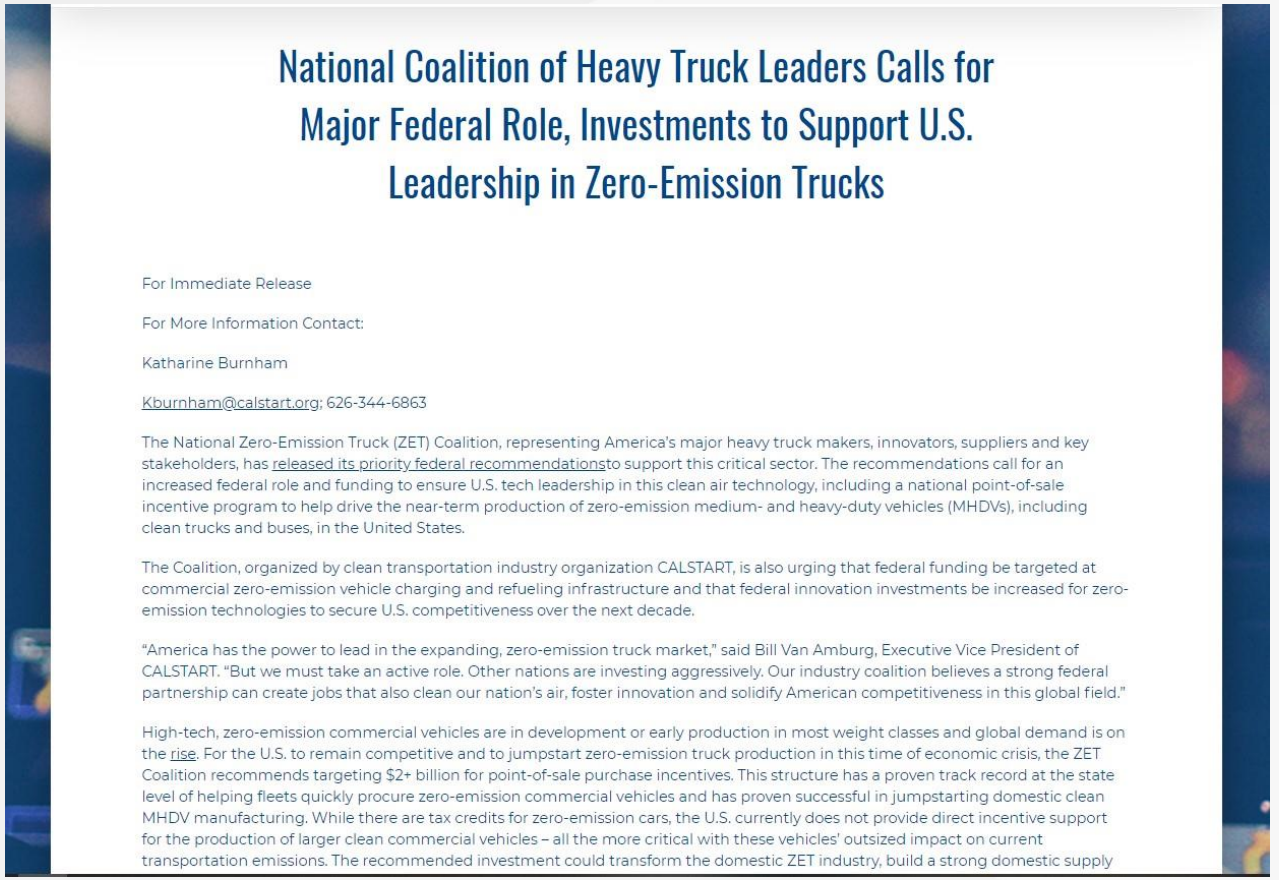
ALBANY, N.Y. — A coalition of states is following California's lead in setting goals to jump-start a transition to electric-powered trucks, vans and buses in order to reduce greenhouse gas emissions and improve air quality for communities choked by diesel fumes.

The 15 states, plus Washington, D.C., announced last week that they've agreed to develop an action plan aimed at having 100% of all new medium- and heavy-duty vehicles sold be zero-emission by 2050, with an interim target of 30% zero-emission vehicle sales by 2030.

"This is a really big deal in sending a powerful signal to industry with directions on where we need to be going with transportation," said Bill Van Amburg, executive vice president of CALSTART, a nonprofit consortium focused on building a clean transportation industry. "You can now justify further investment to develop more products."

Details are yet to be worked out. One option would be to adopt the mandate California's Air Resources Board announced in June requiring that all new commercial trucks and vans purchased must be zero-emission by 2045, with milestones along the way. Or the states could focus more on subsidies and incentives, as well as investment in charging infrastructure.

NATIONAL Z.E. TRUCK COALITION



National Coalition of Heavy Truck Leaders Calls for Major Federal Role, Investments to Support U.S. Leadership in Zero-Emission Trucks

For Immediate Release

For More Information Contact:

Katharine Burnham

Kburnham@calstart.org; 626-344-6863

The National Zero-Emission Truck (ZET) Coalition, representing America's major heavy truck makers, innovators, suppliers and key stakeholders, has released its priority federal recommendationsto support this critical sector. The recommendations call for an increased federal role and funding to ensure U.S. tech leadership in this clean air technology, including a national point-of-sale incentive program to help drive the near-term production of zero-emission medium- and heavy-duty vehicles (MHDVs), including clean trucks and buses, in the United States.

The Coalition, organized by clean transportation industry organization CALSTART, is also urging that federal funding be targeted at commercial zero-emission vehicle charging and refueling infrastructure and that federal innovation investments be increased for zero-emission technologies to secure U.S. competitiveness over the next decade.

"America has the power to lead in the expanding, zero-emission truck market," said Bill Van Amburg, Executive Vice President of CALSTART. "But we must take an active role. Other nations are investing aggressively. Our industry coalition believes a strong federal partnership can create jobs that also clean our nation's air, foster innovation and solidify American competitiveness in this global field."

High-tech, zero-emission commercial vehicles are in development or early production in most weight classes and global demand is on the rise. For the U.S. to remain competitive and to jumpstart zero-emission truck production in this time of economic crisis, the ZET Coalition recommends targeting $2+ billion for point-of-sale purchase incentives. This structure has a proven track record at the state level of helping fleets quickly procure zero-emission commercial vehicles and has proven successful in jumpstarting domestic clean MHDV manufacturing. While there are tax credits for zero-emission cars, the U.S. currently does not provide direct incentive support for the production of larger clean commercial vehicles – all the more critical with these vehicles' outsized impact on current transportation emissions. The recommended investment could transform the domestic ZET industry, build a strong domestic supply

Coalition members include:

ABB * ADOMANI * Arrival * Bollinger Motors * BYD * CALSTART * Chanje * ChargePoint * Cummins * Daimler * Eaton * Environmental Defense Fund * eNow * Lion Electric * Mack Trucks * Morgan Olson * Motiv Power Systems * Navistar * Nikola Corporation * Odyne Systems * PACCAR * Proterra * Revolv * Rivian * SDG&E * South Coast AQMD * Tesla * TransPower * Viatec * Volvo Trucks

PANEL DISCUSSION

Dr. Laurence Toomey
Branch Chief, Energy Storage Team
U.S. Army Ground Vehicle Systems Center

Mr. Larry Larimer
Director, Futures Integration Directorate, Futures and Concepts Center
U.S. Army Futures Command

Mr. Jason Gies
Director of Business Development, NEXT E-Mobility Solutions
Navistar, Inc.

Mr. Sean Gouda
Manager, Electrification Business Development
DTE Energy

U.S. ARMY COMBAT CAPABILITIES DEVELOPMENT COMMAND – GROUND VEHICLE SYSTEMS CENTER

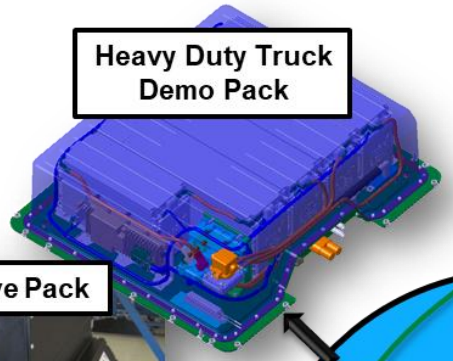
Combat Vehicle Energy Storage

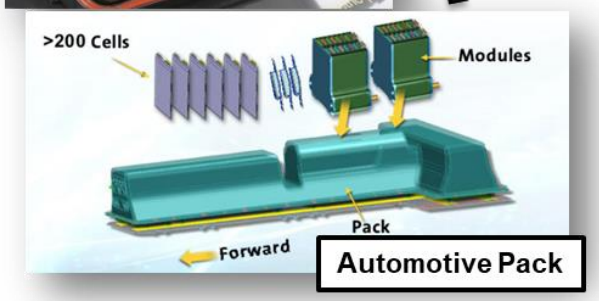
Laurence M. Toomey, Ph.D

Energy Storage Branch Chief

CCDC GVSC

COMMERCIAL VS. MILITARY REQUIREMENTS





Customer specific forms

Commercial Focus

- Fuel Economy/Hybridized vehicles
- Increased energy – EV applications
- Increased power – HEV applications
- Cost ($250/kWhr)
- Life (cycle/10-15 year calendar life)
- Safety
- SAE Standards
- Operation from to -20ºC to +55ºC

Commercial

Military

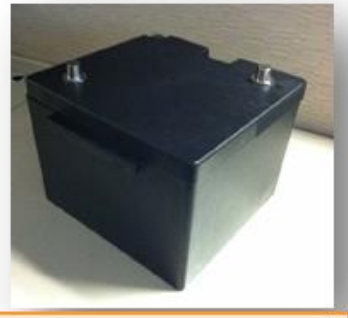
Divergence of Military and Commercial Requirements:

Military *Requirements*:

- ✓Operating Temperatures: **-46ºC to 71ºC**
- ✓Storage Temperatures: **-54ºC to 88ºC**
- ✓Electromagnetic Interference: MIL-STD-461F
- ✓Ballistic Shock: MIL-STD-810G
- ✓Life Fire: MIL-STD-810G
- ✓Explosive Environment: MIL-STD-810G
- ✓Altitude to 60,000ft: MIL-STD-29595
- ✓Explosive Decompression: MIL-STD-810G
- ✓Salt fog: MIL-STD-810G
- ✓Sand and Dust requirements: MIL-STD-810G

Additional Military Focus:

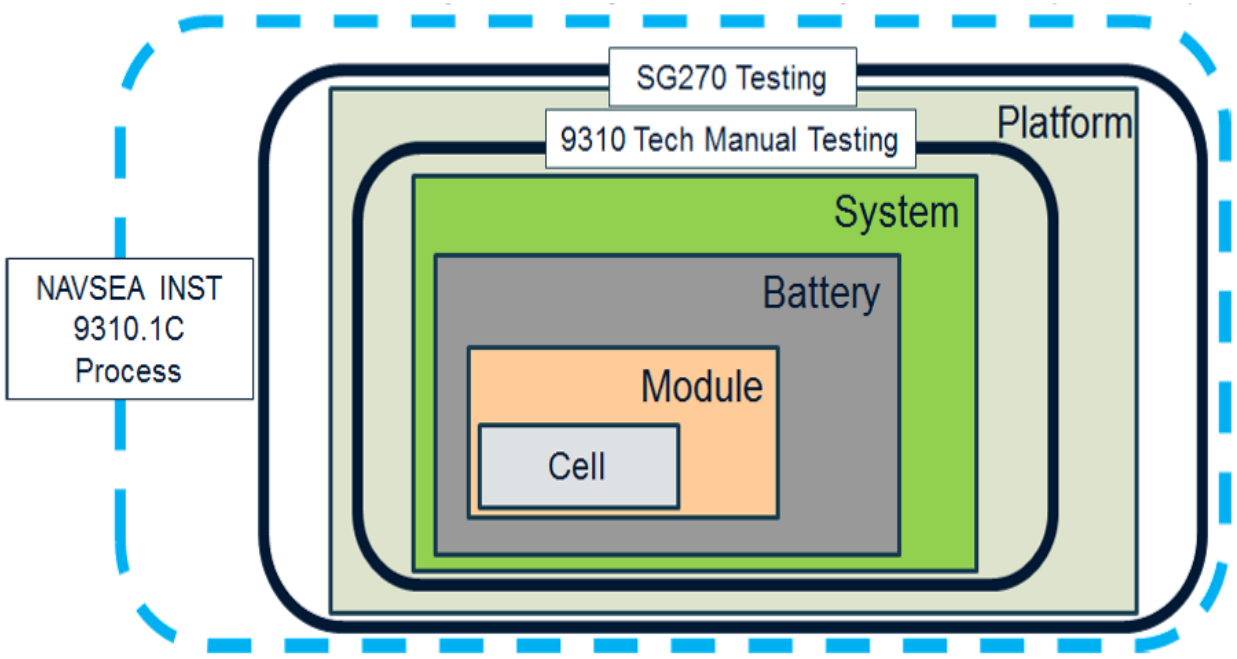
- ✓NATO **Standardized** Form Factors (i.e. 6T)
- ✓Maximized Power AND Energy density
- ✓Sustainability and Logistics issues
- ✓Silent Watch/Silent Mobility
- ✓On-board Electric Power



Standardized Military Batteries (i.e. 6T)
Used in 95% of Military Vehicles

OTHER CONSIDERATIONS: THE NAVY'S SAFETY TESTING

Challenge: The primary challenge associated with fielding Li-ion batteries on military vehicles is meeting the Navy safety certification requirements to allow the Naval transportation of Li-ion battery based energy storage systems. Currently we are working with multiple stakeholders (including Navy, DOD, PM stakeholders and battery manufactures) to define the required testing that allow for Naval transportation of Li-ion 6T batteries. Based on this approach, we will seek to gain approval to for Naval transportation of Li-ion 6T batteries. (This approach will also be implemented as we develop modular high voltage battery systems to support advanced platform electrification.)



To certify the safety of these systems, it tests the:

$	Cells	(9310)
$$	Modules	(9310)
$$$	Battery	(9310)
$$$	Battery in the system	(9310)
$$$$	Battery in the system in the platform	(SG270)

Conducted in MIL-PRF-32565 QPL for 6T Li-ion

Undefined

SAFETY UNDER UNIQUE ABUSE STIMULI

Several battery containment concepts tested with ballistic penetration

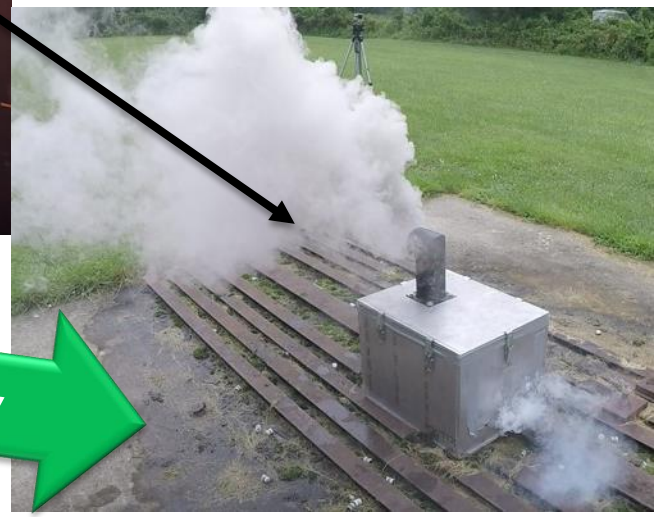
- Used two common military rifle calibers (AP and API types).
- Fire containment bags, composite box, vented aluminum box (uncoated, and ceramic-based spray coated on inside).

Type 1 Battery (HSL4): Fire Containment Bag

Prototype Test Battery (HSL7):

GVSC Integration Strategy

Prototype Test Battery Vented Aluminum Box (HSL4):



Battery Size Requirements as function of Vehicle Weight and Range

Battery Size – Required energy needed as a function of vehicle weight and range:

Energy Needed: (kWhr)		Vehicle Weight (Tons)													
		5	10	15	20	25	30	35	40	45	50	55	60	65	70
Miles	50	57	114	171	228	285	342	399	456	513	570	626	683	740	797
	100	114	228	342	456	570	683	797	911	1025	1139	1253	1367	1481	1595
	150	171	342	513	683	854	1025	1196	1367	1538	1709	1879	2050	2221	2392
	200	228	456	683	911	1139	1367	1595	1822	2050	2278	2506	2734	2961	3189
	250	285	570	854	1139	1424	1709	1993	2278	2563	2848	3132	3417	3702	3987
	300	342	683	1025	1367	1709	2050	2392	2734	3075	3417	3759	4100	4442	4784

Assumption: 50 Ton all-electric tracked vehicle: 11.5kWhr/mile

ESS Capacity:
3.42 MWhr

30 minute Recharge Power needed (as a function of vehicle weight and range):

30 min. Recharge Power (kW)		Vehicle Weight (Tons)													
		5	10	15	20	25	30	35	40	45	50	55	60	65	70
Miles	50	114	228	342	456	570	683	797	911	1025	1139	1253	1367	1481	1595
	100	228	456	683	911	1139	1367	1595	1822	2050	2278	2506	2734	2961	3189
	150	342	683	1025	1367	1709	2050	2392	2734	3075	3417	3759	4100	4442	4784
	200	456	911	1367	1822	2278	2734	3189	3645	4100	4556	5012	5467	5923	6378
	250	570	1139	1709	2278	2848	3417	3987	4556	5126	5695	6265	6834	7404	7973
	300	683	1367	2050	2734	3417	4100	4784	5467	6151	6834	7517	8201	8884	9568

Assumption: Currently largest size TQG is 840kW generator:

Recharge:
6.8 MW

Battery Size Requirements as function of Vehicle Weight and Range

Battery Weight (lbs) (as a function of vehicle weight and range):

Battery Wt ** (lbs)		Vehicle Weight (Tons)													
		5	10	15	20	25	30	35	40	45	50	55	60	65	70
Miles	50	1004	2009	3013	4018	5022	6026	7031	8035	9040	10044	11049	12053	13057	14062
	100	2009	4018	6026	8035	10044	12053	14062	16071	18079	20088	22097	24106	26115	28123
	150	3013	6026	9040	12053	15066	18079	21093	24106	27119	30132	33146	36159	39172	42185
	200	4018	8035	12053	16071	20088	24106	28123	32141	36159	40176	44194	48212	52229	56247
	250	5022	10044	15066	20088	25110	30132	35154	40176	45198	50220	55243	60265	65287	70309
	300	6026	12053	18079	24106	30132	36159	42185	48212	54238	60265	66291	72317	78344	84370

Assumption: Vehicle weight includes base vehicle and battery weight (i.e. 35 ton vehicle would include vehicle plus ~7000lb battery for 50 mile range)

ESS weight:
~60k lbs (~30 tons)

Battery Volume (ft^3)(as a function of vehicle weight and range):

Battery vol (ft3)		Vehicle Weight (Tons)													
		5	10	15	20	25	30	35	40	45	50	55	60	65	70
Miles	50	10	20	30	40	50	60	70	80	91	101	111	121	131	141
	100	20	40	60	80	101	121	141	161	181	201	221	241	262	282
	150	30	60	91	121	151	181	211	241	272	302	332	362	392	423
	200	40	80	121	161	201	241	282	322	362	402	443	483	523	563
	250	50	101	151	201	252	302	352	402	453	503	553	604	654	704
	300	60	121	181	241	302	362	423	483	543	604	664	724	785	845

Assumption: Available battery volume 225ft^3 – color code based on that volume restriction

ESS Vol:
~600ft^3 (~17k liters)

Battery Estimates:

Specific Energy (Current SOA): 125Whr/kg [56.7Whr/lbs]

Specific Power (Current SOA): 200Whr/L [5,660Wh/ft^3] {SOA EV battery reference: 125Whr/kg and ~240Whr/l (Militarized battery will be slightly lower to meet shock and vib/environmental requirements)}

Battery Size Requirements as function of Vehicle Weight and Range – *"Beyond" Li-ion ESS*

Battery Weight (lbs) (as a function of vehicle weight and range):

Battery Wt ** (lbs)		Vehicle Weight (Tons)													
		5	10	15	20	25	30	35	40	45	50	55	60	65	70
Miles	50	314	628	942	1256	1569	1883	2197	2511	2825	3139	3453	3767	4080	4394
	100	628	1256	1883	2511	3139	3767	4394	5022	5650	6278	6905	7533	8161	8789
	150	942	1883	2825	3767	4708	5650	6591	7533	8475	9416	10358	11300	12241	13183
	200	1256	2511	3767	5022	6278	7533	8789	10044	11300	12555	13811	15066	16322	17577
	250	1569	3139	4708	6278	7847	9416	10986	12555	14125	15694	17263	18833	20402	21971
	300	1883	3767	5650	7533	9416	11300	13183	15066	16949	18833	20716	22599	24482	26366

Assumption: Vehicle weight includes base vehicle and battery weight (i.e. 35 ton vehicle would include vehicle plus ~7000lb battery for 50 mile range)

ESS weight:
~19k lbs (~9.5 tons)

Battery Volume (ft^3)(as a function of vehicle weight and range):

Battery vol (ft3)		Vehicle Weight (Tons)													
		5	10	15	20	25	30	35	40	45	50	55	60	65	70
Miles	50	4	9	13	18	22	27	31	36	40	45	49	54	58	63
	100	9	18	27	36	45	54	63	72	80	89	98	107	116	125
	150	13	27	40	54	67	80	94	107	121	134	148	161	174	188
	200	18	36	54	72	89	107	125	143	161	179	197	215	233	250
	250	22	45	67	89	112	134	157	179	201	224	246	268	291	313
	300	27	54	80	107	134	161	188	215	241	268	295	322	349	376

Assumption: Available battery volume 225ft^3 – color code based on that volume restriction

ESS Vol:
~268ft^3 (~7.6k liters)

Next Generation Battery Estimates:
Specific Energy: 400Whr/kg [181.4Whr/lbs]
Specific Power: 450Whr/L [12,735Wh/ft^3]

ALL ELECTRIC TANK FEASIBILITY (HYBRID VS. FULL E-TANK)

Tesla Model S
Car: ~4500 lbs
Range: 315 miles
100kWhr battery
Battery Weight: ~1,700 lbs
(~35-40% of vehicle weight)

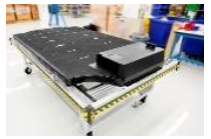
~35x

All Electric Tank (with Today's Technology)
~100,000 lbs (50 ton)
Range: 300 miles
11.5kWh/mile (3.4MWhr battery)
Battery Est. Weight: 60,100 lbs
Battery Est. Vol: 605 ft^3
Recharge: 3.4MW (1hr), 6.8MW (30min) or 13.6MW (15min)

Hybrid
Powertrain Volume = 225ft^3

300 mile All Battery Powertrain Volume = ~650ft^3 (for all electric drive components)

Tesla S Pack



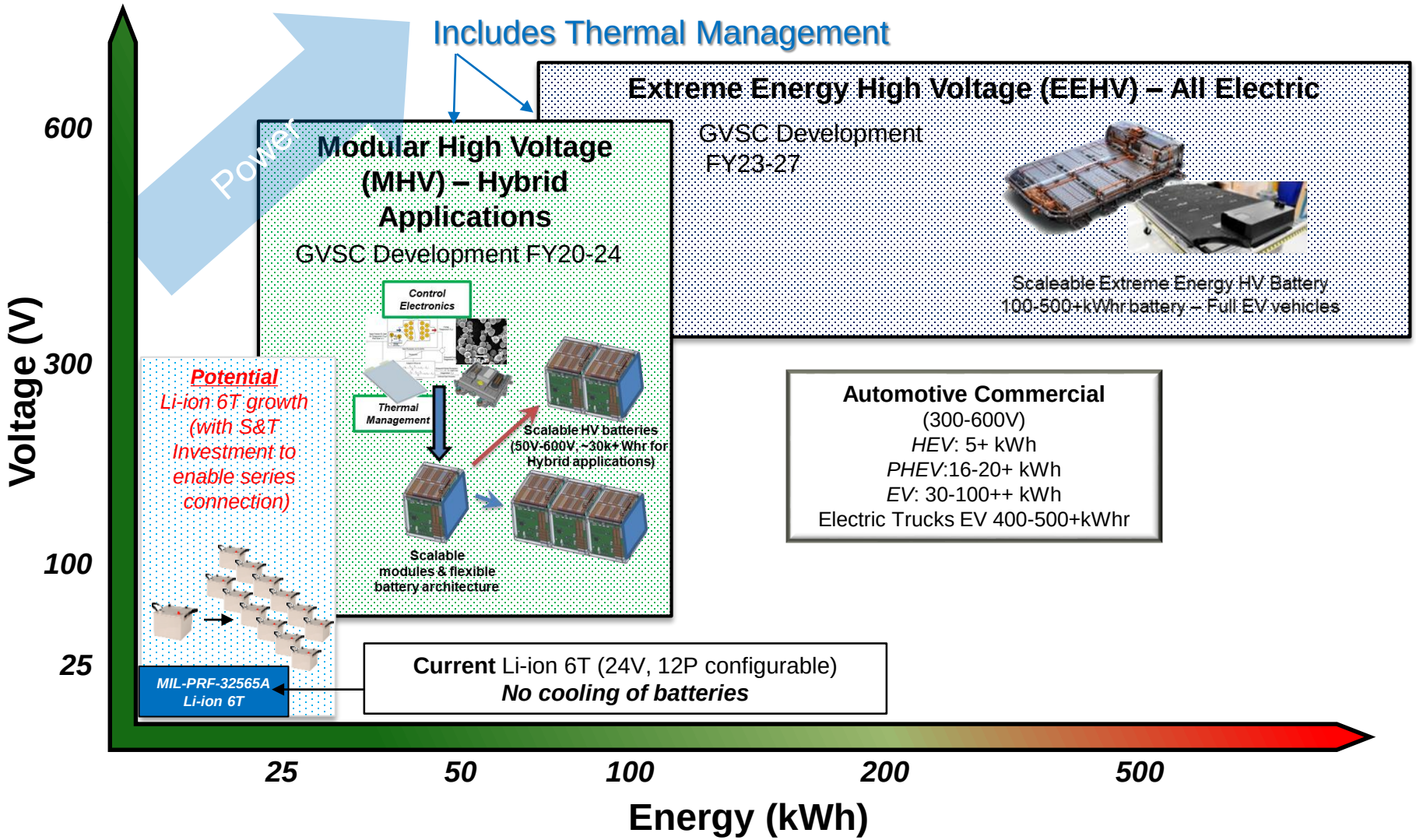
X ~35

X ~10

Available volume in the concept = 225ft^3 (Results in estimated range of ~100 miles in a military battery)

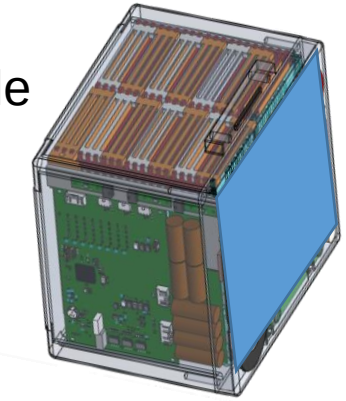
GVSC ENERGY STORAGE ROADMAP

To meet unique military requirements including Navy Safety certification, standardized/scalable military batteries are needed

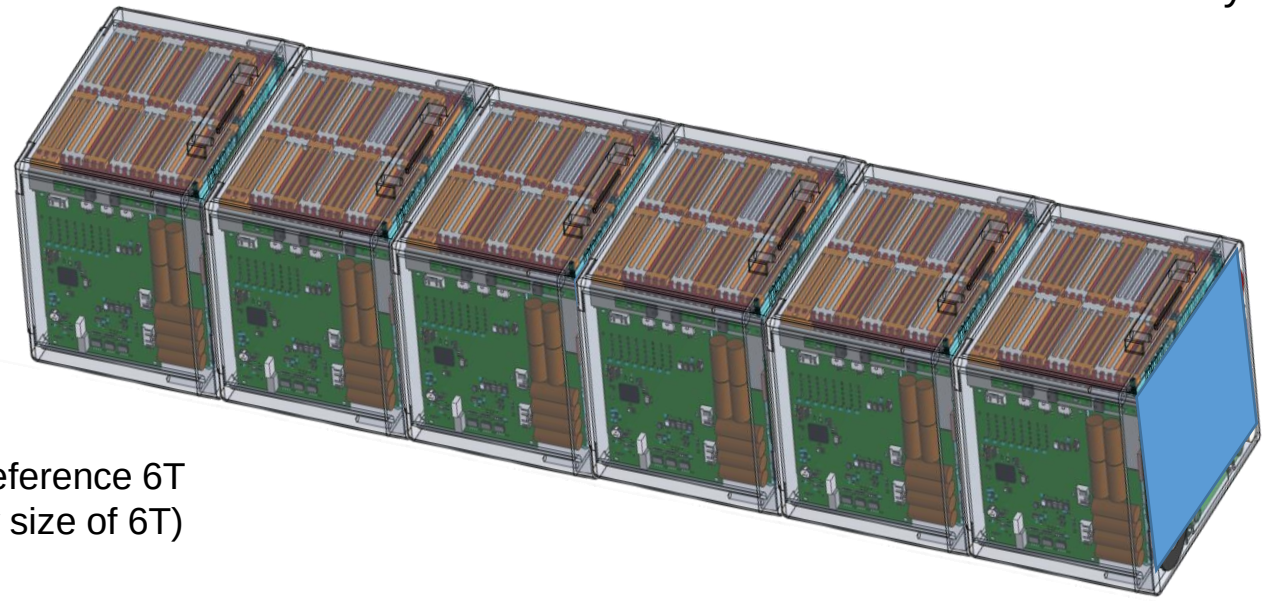


CONCEPT FOR STANDARDIZED 300V BATTERY SECTION

50V Module



Each section likely consist of 6 modules – configurable to 300V or dual 150V.
Section would serve also serve as base militarized 300V battery



Li-ion 6T battery

Pack estimated size vs reference 6T
(module is approximately size of 6T)

Chemistry	Li-ion (NMC)	Cells in series	Module Voltage (V)	Module Energy (kWhr)	Modules in series	String Voltage	Pack Energy (kWhr)	String Capacity (Ah)	Peak 6 min Continuous Power @ 10C (kW)
Charge voltage	4.2	14	58.8	2.6	6	352.8	15.9	51	159
Discharge Voltage	2.5	14	35		6	210			
Nominal Voltage	3.7	14	51.8		6	310.8			

THANK YOU

For more info:
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Branch Chief
Energy Storage Team

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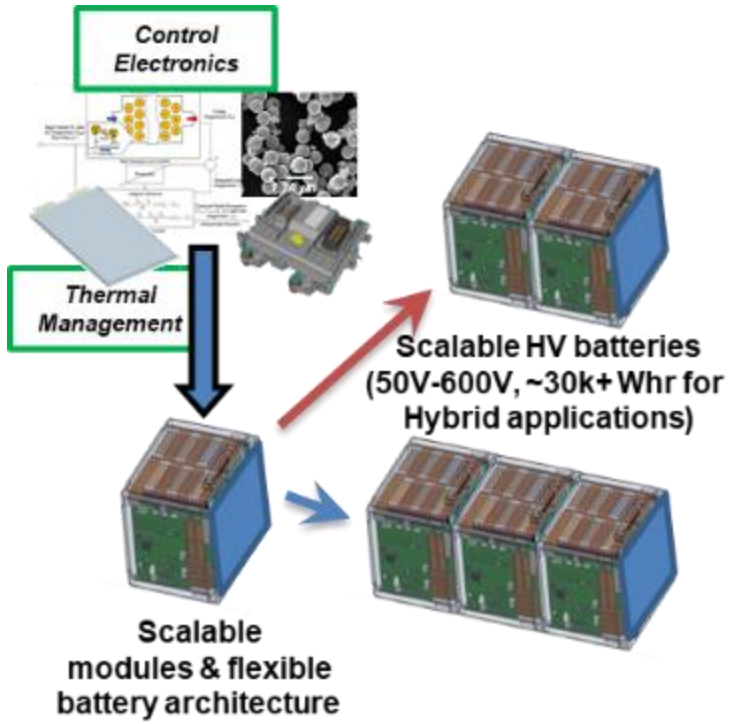
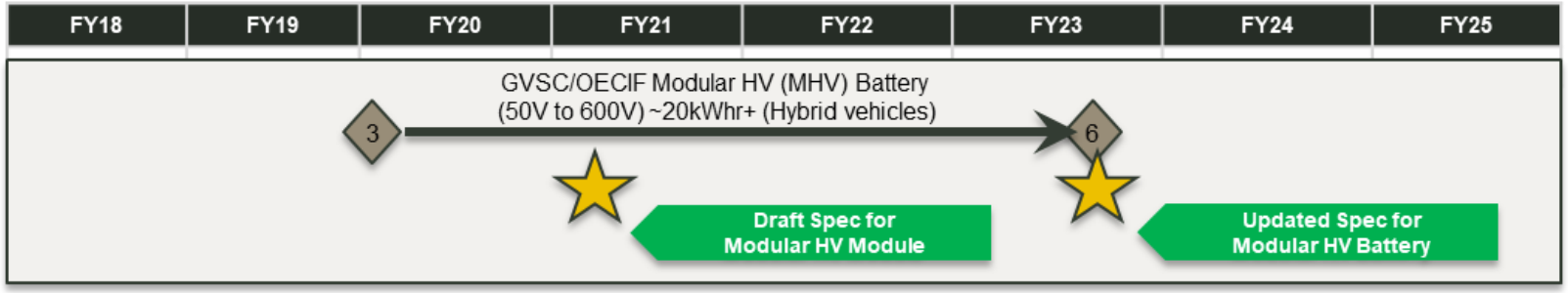
Office: 586-282-4756
Cell: 586-219-4320

MODULAR HIGH VOLTAGE (MHV) OVERVIEW



***Key Features*: Flexible architecture to accelerate vehicle hybridization**

- Voltage: 50 – 600+V
- Energy: 3 – 100 kWh
- Scalable modules (~50V) connected in series/parallel for various applications.
- Qualification to occur at the module and section level.
- Some consideration for backward compatibility of current force vehicles
- Full operational capabilities between -30°C to 60°C WITH thermal management. Reduced operation down to -46°C or up to 71°C or WITHOUT thermal management.
- Module BMS: provides status and monitoring information for safe operation of pack, built-in tests, diagnostics and cell balancing.
- *Pack BMS (likely be GFE to meet unique military requirements).* Reports pack status and monitoring info to vehicle digital com buses. Controls of battery thermal management, battery protection and pre-charge/main contactors.



HTUF Webinar

July 23, 2020

PRESENTED BY

Jason Gies

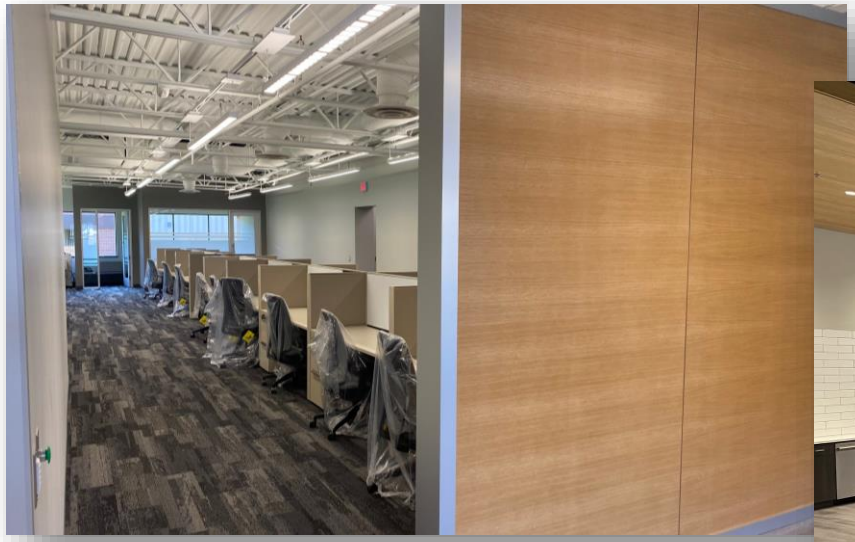
Director of Business Development NEXT

NEXT
eMOBILITY SOLUTIONS

NEXT Technical Center

A Detroit based location focused on electrification

An engineering and customer experience center created to support the NEXT business unit. The facility will help guide our customers throughout the EV procurement and implementation process.



Emphasizing:

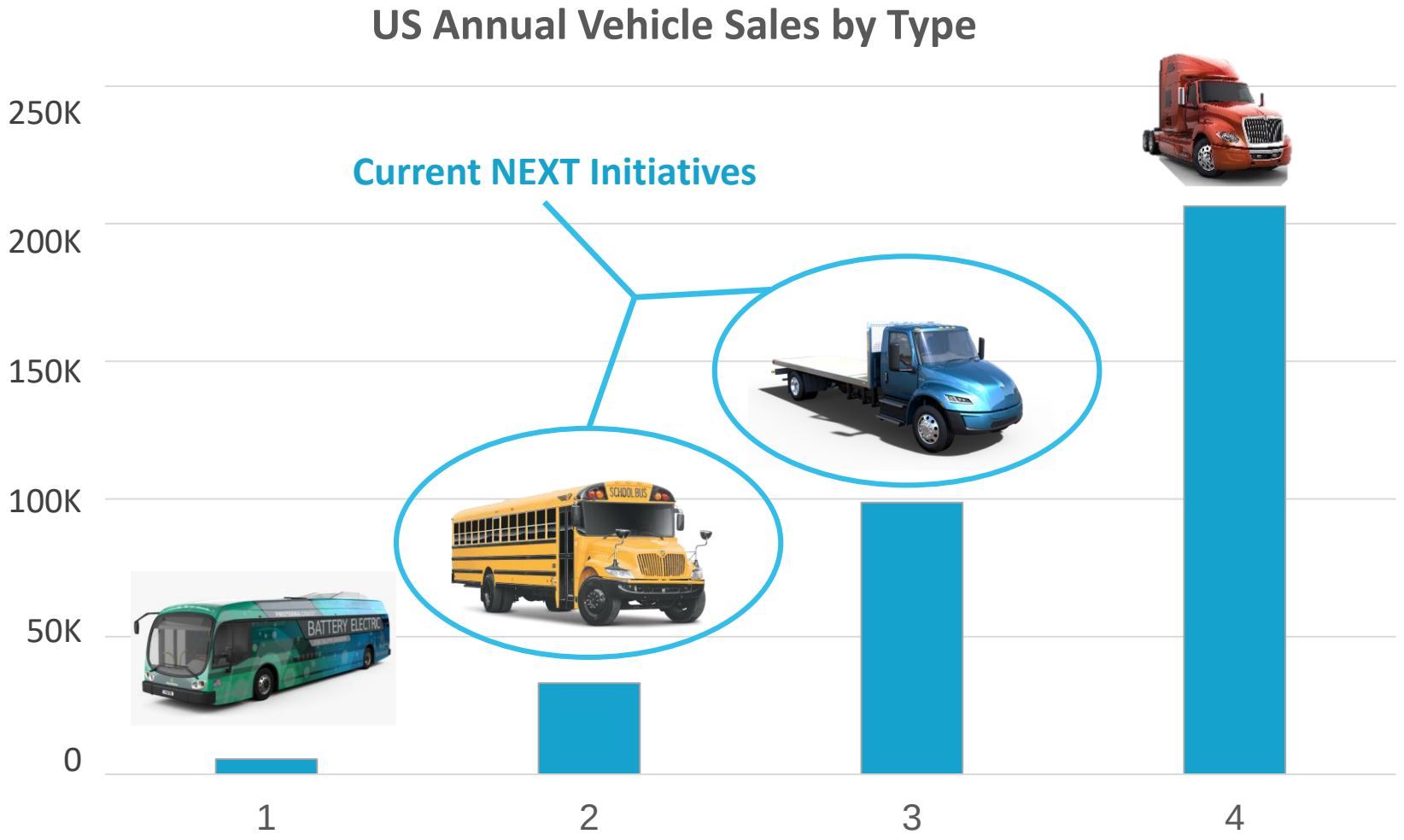
- Power electronics
- Electric vehicle development
- Controls
- Battery integration
- Analysis
- Next 4C's

Now Open!

Near to critical suppliers, testing facilities, and engineering talent throughout the EV space

NEXT eMOBILITY SOLUTIONS

Commercial Vehicle Market



Electric vehicle adoption is already happening with transit buses, but the larger market for electrification is with other commercial vehicles

NEXT eMOBILITY SOLUTIONS

eMV series

Battery Capacity Options

- eMV Base: 105 kWh
- eMV Mid: 210 kWh
- eMV Max: 315 kWh*

Vehicle Performance

Peak power: 474kW (645hp)
Continuous power: 300kW (402hp)
Peak torque: 2850Nm (2102 ft-lbs.)
Continuous torque: 2100Nm (1549 ft-lbs.)

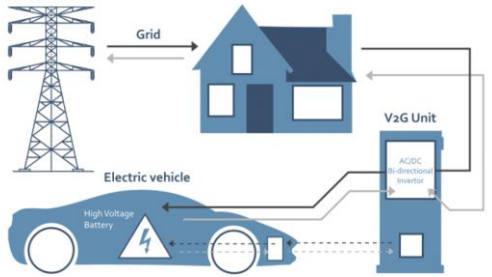
*Only applicable for certain chassis specs

NEXT eMOBILITY SOLUTIONS

Focus Areas

NAVISTAR

Collaboration



DEVCOM GROUND VEHICLE SYSTEMS CENTER

COMMITTED TO EXCELLENCE

NEXT eMOBILITY SOLUTIONS

NEXT

eMOBILITY SOLUTIONS

Thank You!

HTUF: Vehicle Electrification Discussion

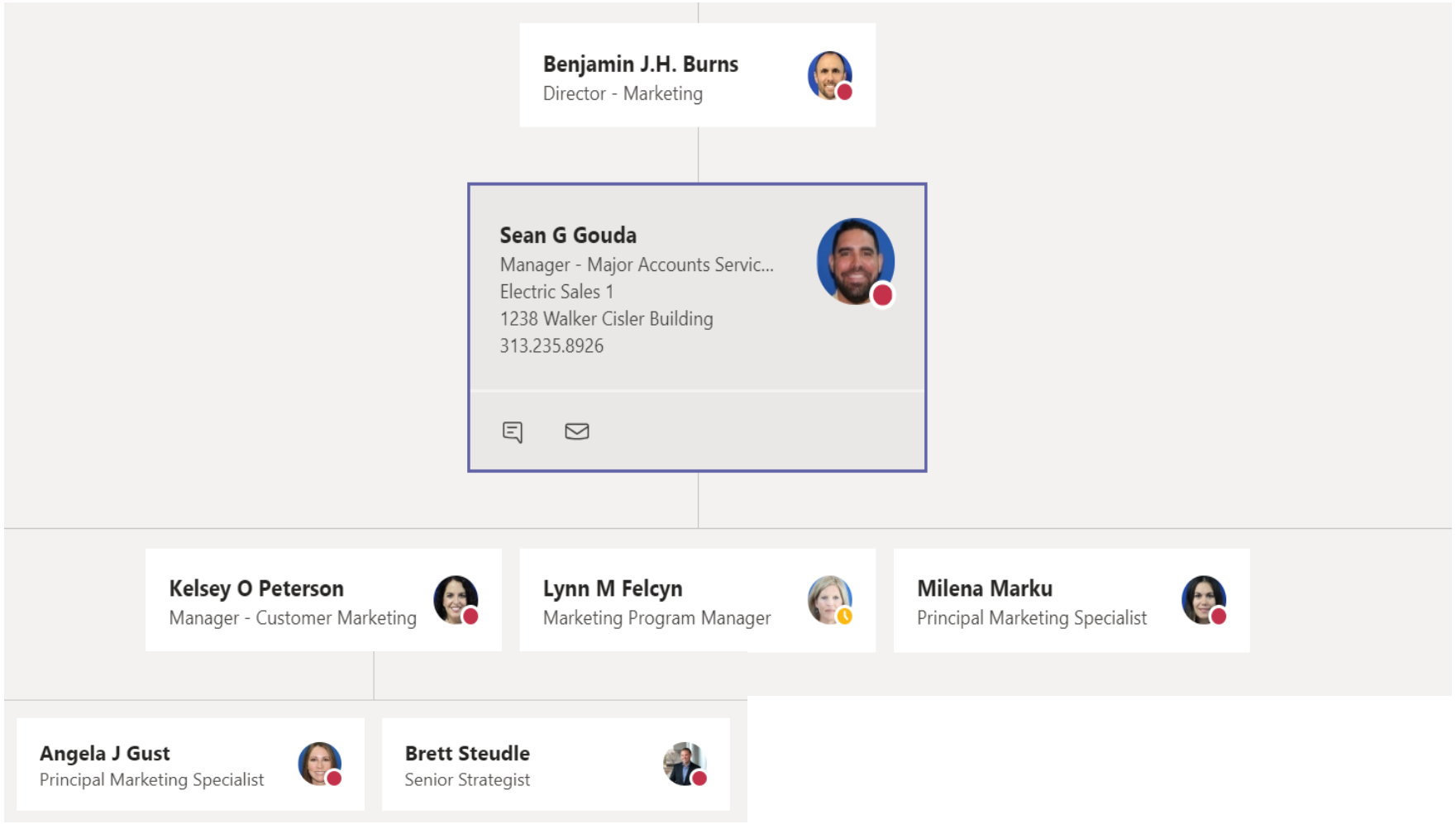
Sean Gouda

July 2020

Agenda

- Provide a current status update on Charging Forward Phase One
- Share an overview of our Charging Forward Phase Two eFleets proposal

DTE Electrification Team

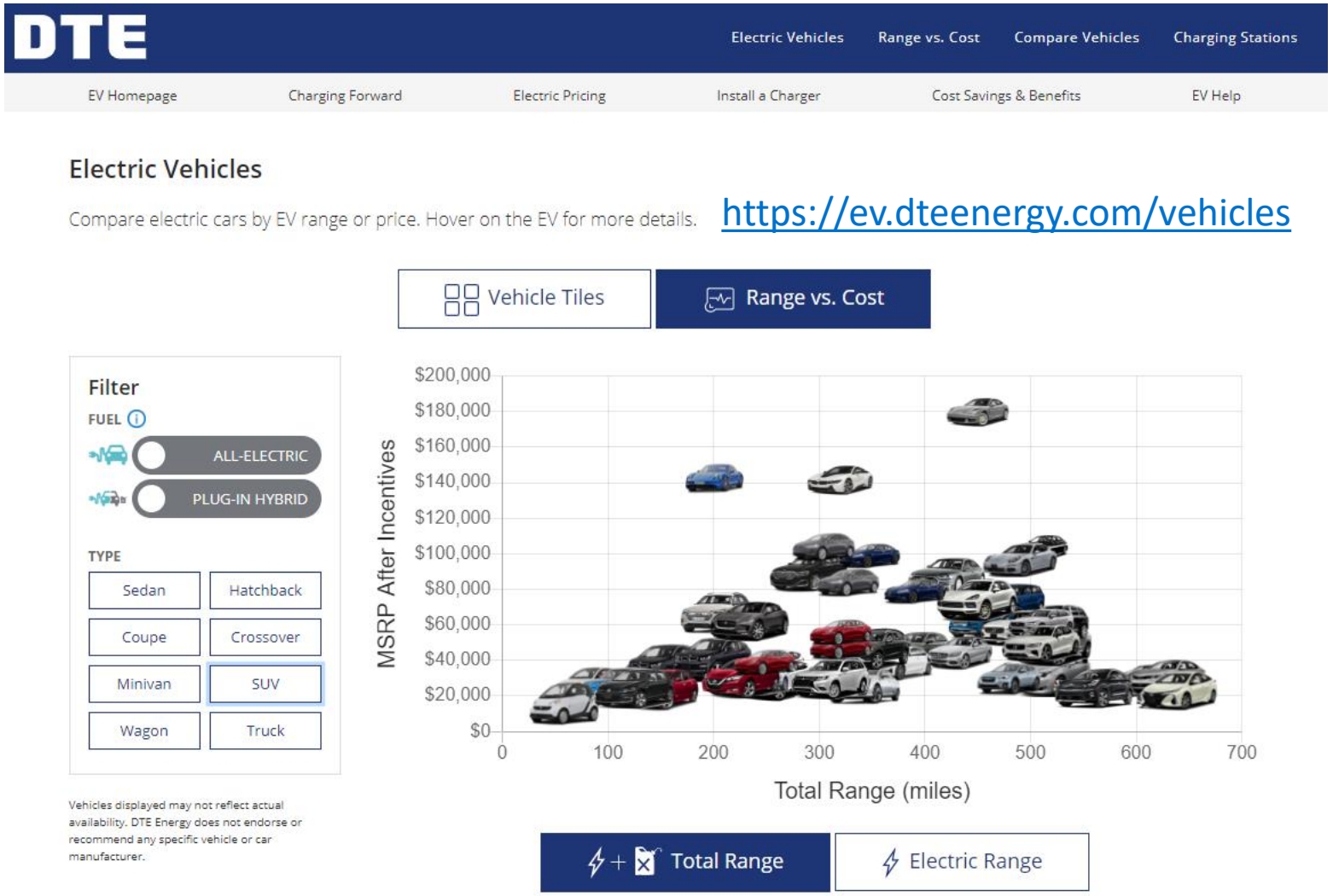


Charging Forward launched in June 2019 and is focused on execution of its three components and additional pilots

	Achievements to Date	Forward Focus
Customer Education & Outreach *$1.8 million Reg Asset*	• Executed 33 tactics across 9 channels, reaching ~4M customers • Hosted Ride & Drive, creating ~300 EV experiences • Integrated EV showroom tool	• Execution on marketing plan, including addition of 3 new tactics (video, spotify, and digital) • Shared mobility partnerships
Residential Rebates *$1.8 million Reg Asset*	• Approved 160 rebates • Qualified 2 vendors	• Submetering Pilot • Grid-Impact Study • EV-Ready Builder Rebates
Make-Ready Charging Infrastructure *$3.5 million Capital* *$6.8 million Reg Asset*	• Approved 36 50-kW DCFCs • Approved 140 Level 2 ports • Launched ChargeD phase 1 • Launched battery-powered DCFC pilot • Supporting charging of 8 mass transit e-buses and 6 school e-buses • Qualified 5 vendors	• ~50 125 kW+ DCFC rebates • ~850 Level 2 rebates • ChargeD phase 2 • XFC and DR pilots[1] • MAS surveys for Level 2 • Governmental light-duty fleets

1. Extreme Fast Charging (XFC) pilot to develop and test 400 kW charging with Delta Electronics and GM; Expanded demand response (DR) pilot to control charging through vehicle with Ford, GM, Honda, and BMW

The all-new EV Showroom tool allows customers to easily discover and compare available EV models



We launched Charging Forward Phase One last year and have some key pilots in progress, but we believe there is a need for a more robust fleet program

Charging Forward Phase One

Description	Implementation
Program Components • Education & outreach • Residential (passenger) rebates • Make-ready charging infrastructure • Additional light-duty EV pilots	**2019-2021**

Fleet Pilots
• Mass transit e-buses
  ○ SMART (4)
  ○ Blue Water Transit (2)
  ○ DDOT (2)
	2020-2022
	 

• School e-buses
  ○ Ann Arbor (4)
  ○ Roseville (2)
	

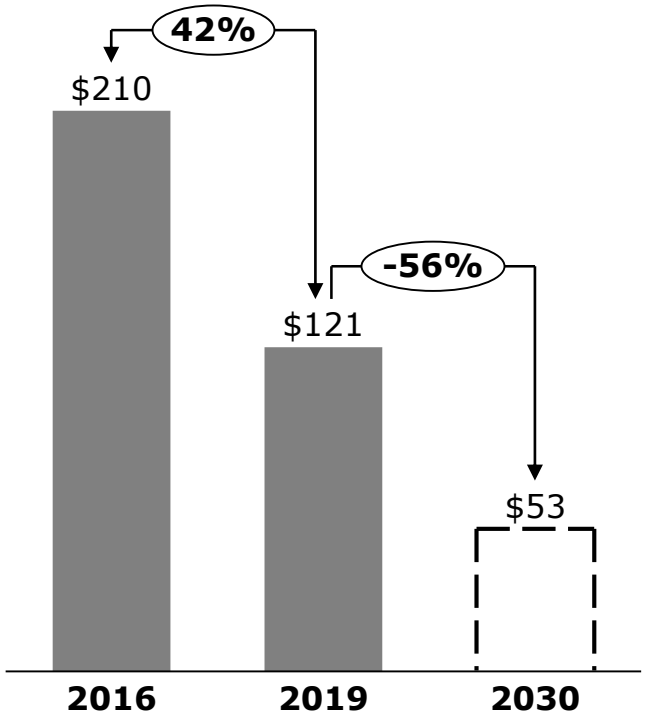
• Medium-duty trucks ○ DTE Fleet	
• Off-Road Equipment ○ C&I Forklifts	

The e-bus fleet components are fully subscribed within 10 months of program launch

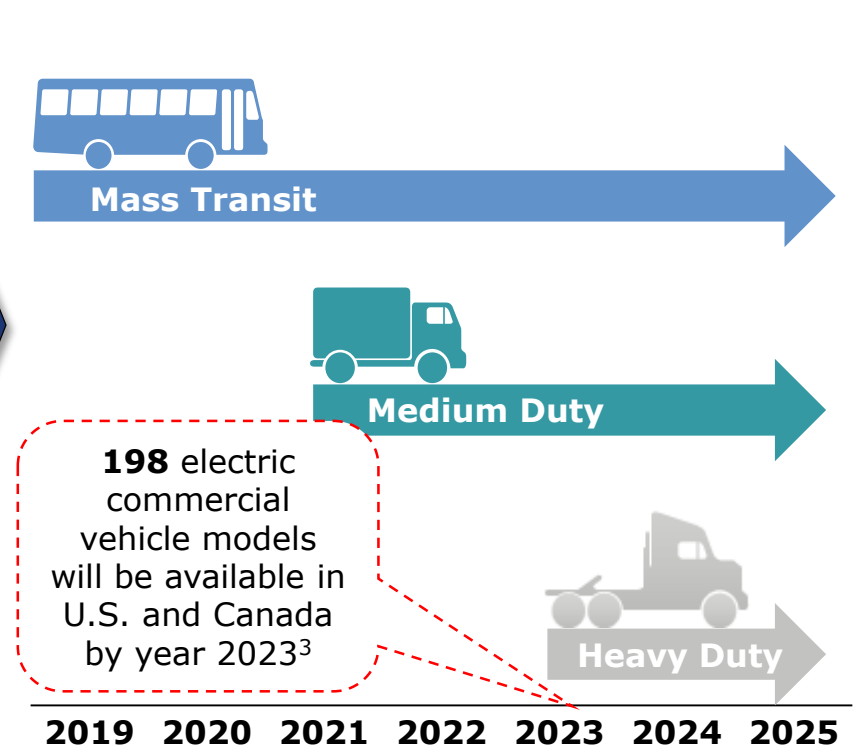
DTE

Current market conditions are rapidly evolving due to declining battery costs and number of commercial EV models coming to market suggesting that the timing is right for utility involvement

eBus Battery Price[1]
(in $/kWh)



Timing of battery electric vehicle Total Cost of Ownership (TCO) parity with diesel vehicle[2]



1. Source: BloombergNEF
2. 2017 McKinsey Center for Future Mobility, Regional and Urban Haul
3. Using Calstart's Zero-Emission Technology Inventory tool for reported vehicle availability through 2023 in North America

Fleet electrification benefits many stakeholders, and utilities have an important role to play

Benefits of Fleet Electrification

- Fleet operators: enables **operational savings** and **sustainability goals**
- Utility customers: creates **affordability benefits** by spreading fixed costs over increased (off-peak) sales
- Society at large: **reduces emissions** and benefits the environment overall

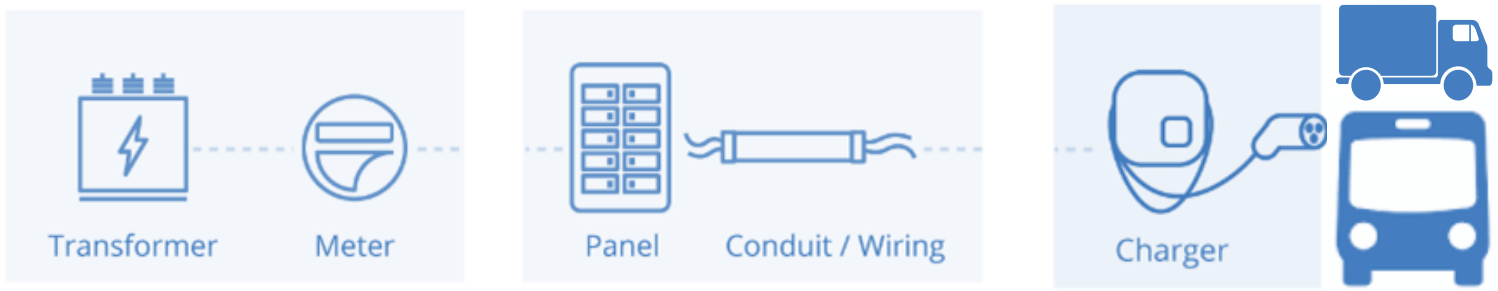
DTE's Role

- ✓ **Help bring about the benefits** of transportation electrification to the public at large
- ✓ **Efficiently integrate eFleet load** with the grid
- ✓ **Improve our understanding** of eFleet load and its impact on the grid
- ✓ **Provide opportunity to pilot** integration with new technologies

Phase Two of the program expands Charging Forward into eFleets across five segments

	Mass Transit	Electric School Buses	Medium Duty	Heavy Duty	Off-Road
Education & Outreach	Educate commercial and industrial customers on benefits of eFleets Refresh website and launch eFleet portal				
Advisory Services	Provide a roadmap to electrification for DTE Electric commercial and industrial customers Collect and analyze charging data and pilot demand response and bi-directional power flow technologies				
Make-Ready Charging Infrastructure	Deploy charging infrastructure to support electrification of five fleet categories Provide service connection upgrades and offer rebates for supply infrastructure				
Ports					
DCFC 100	25	6	46	23	0
L2 534	0	51	413	0	70

We will support eFleet charging infrastructure across the five fleet segments through the same rebated make-ready model that Charging Forward uses today



	DTE Funded	Rebates Offered	Customer Funded
Current practice	Partially utility funded / site host funded (i.e., CIAC)	Site host funded	Site host funded
Proposal	Fully fund upfront DTE owned equipment for the EV Service Connection	Offer rebates that partially or fully fund the EV Supply Infrastructure	Charging stations are funded by the fleet operator

Source: DTE Team analysis

Thank You!

DTE EV Residential Homepage

https://newlook.dteenergy.com/wps/wcm/connect/dte-web/home/service-request/residential/electric/pev/plug-in-electric-vehicles-pev

DTE EV Business Homepage

https://newlook.dteenergy.com/wps/wcm/connect/dte-web/home/service-request/business/electric/electric-vehicles/plug-in-electric-vehicles-biz

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PANEL DISCUSSION

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Manager, Electrification Business Development
DTE Energy

HTUF- Power Export and Microgrid Planning WG-1 Recap

7/23/2020

Jared Schnader

National Program Manager

Overview of Working Group

- Sub-group within HTUF
- Focus on developing key pathways and planning items for power export and microgrids on military bases
- WG Members consist of Military Representatives, Utilities, OEMs, and Suppliers, and Engineering Firms

Outcomes

- Identified First Topic – Protocols and Safeguards for Cyber Security when plugging into a grid to charge a vehicle
- Next Steps
  - Procure existing protocols
  - Identify commercial partners and organizations that are working in this space
  - Develop relationships and partnerships to create a robust protocol structure for military applications

Next Working Group Meeting

GoToWebinar - August 12th – 1300 EST (1000 PST)

Thank you!

Jared Schnader

Jschnader@calstart.org

CALSTART

UPCOMING HTUF WEBINARS

August 20th 1:00pm Eastern: How vehicle electrification contributes to **microgrids** in military and commercial applications

September 17th 1:00pm Eastern: Vehicle **cybersecurity** and its role in commercial and military technology development

Also: Tune into CALSTART's weekly **Clean Commercial Transportation Update** webinar – Fridays at 2pm Eastern time https://calstart.org/cctupdate/

THANK YOU

Send us your comments and suggestions

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